CALL NO. 306

CONTRACT ID. 251128

JEFFERSON COUNTY

FED/STATE PROJECT NUMBER FD06 056 1065 009-010

DESCRIPTION OUTER LOOP / FEGENBUSH LANE IMPROVEMENTS

WORK TYPE GRADE & DRAIN WITH ASPHALT SURFACE

PRIMARY COMPLETION DATE 6/30/2027

LETTING DATE: December 11,2025

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME December 11,2025. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

PLANS AVAILABLE FOR THIS PROJECT.

REQUIRED BID PROPOSAL GUARANTY: Not less than 5% of the total bid.

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PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 05

CONTRACT ID - 251128

FD06 056 1065 009-010

COUNTY - JEFFERSON

PCN - DE05610652528
FD06 056 1065 009-010

OUTER LOOP / FEGENBUSH LANE IMPROVEMENTS MAJOR REVISION OF THE INTERSECTION LOCATED AT THE OUTERLOOP, FEGENBUSH LANE, AND BEULAH CHURCH ROAD, A DISTANCE OF 0.24 MILES.GRADE & DRAIN WITH ASPHALT SURFACE SYP NO. 05-00122.00.

GEOGRAPHIC COORDINATES LATITUDE 85:21:54.00 LONGITUDE 38:04:53.00

ADT

COMPLETION DATE(S):

COMPLETED BY 06/30/2027 APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

INSURANCE

Refer to Kentucky Standard Specifications for Road and Bridge Construction, current edition.

PROPOSAL ADDENDA

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

BID SUBMITTAL

Bidder must use the Department's electronic bidding software. The Bidder must download the bid file located on the Bid Express website (www.bidx.com) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

JOINT VENTURE BIDDING

Joint venture bidding is permissible. All companies in the joint venture must be prequalified in one of the work types in the Qualifications for Bidders for the project. The bidders must get a vendor ID for the joint venture from the Division of Construction Procurement and register the joint venture as a bidder on the project. Also, the joint venture must obtain a digital ID from Bid Express to submit a bid. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

UNDERGROUND FACILITY DAMAGE PROTECTION

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. When prescribed in said directives, the contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom shall be contacted through their individual Protection Notification Center. Non-compliance with these directives can result in the enforcement of penalties.

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by KRS 14A.9-010 to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under KRS 14A.9-030 unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the

foreign entity is not required to obtain a certificate as provided in KRS 14A.9-010, the foreign entity should identify the applicable exception. Foreign entity is defined within KRS 14A.1-070.

For all foreign entities required to obtain a certificate of authority to transact business in the Commonwealth, if a copy of the certificate is not received by the contracting agency within the time frame identified above, the foreign entity's solicitation response shall be deemed non-responsive or the awarded contract shall be cancelled.

Businesses can register with the Secretary of State at https://secure.kentucky.gov/sos/ftbr/welcome.aspx .

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website (www.transportation.ky.gov/construction-procurement). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

HARDWOOD REMOVAL RESTRICTIONS

The US Department of Agriculture has imposed a quarantine in Kentucky and several surrounding states, to prevent the spread of an invasive insect, the emerald ash borer. Hardwood cut in conjunction with the project may not be removed from the state. Chipping or burning on site is the preferred method of disposal.

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

Identification of excess material sites and borrow sites shall be the responsibility of the Contractor. The Contractor shall be responsible for compliance with all applicable state and federal laws and may wish to consult with the US Fish and Wildlife Service to seek protection under Section 10 of the Endangered Species Act for these activities.

ACCESS TO RECORDS

The state agency certifies that it is in compliance with the provisions of KRS 45A.150, "Access to contractor's books, documents, papers, records, or other evidence directly pertinent to the contract." The Contractor, as defined in KRS 45A.030, agrees that the contracting agency, the

Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this agreement for the purpose of financial audit or program review. The Contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the agreement and shall be exempt from disclosure as provided in KRS 61.878(1)(c).

BOYCOTT PROVISIONS

If applicable, the contractor represents that, pursuant to KRS 45A.607, they are not currently engaged in, and will not for the duration of the contract engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which Kentucky can enjoy open trade. **Note:** The term Boycott does not include actions taken for bona fide business or economic reasons, or actions specifically required by federal or state law.

If applicable, the contractor verifies that, pursuant to KRS 41.480, they do not engage in, and will not for the duration of the contract engage in, in energy company boycotts as defined by KRS 41.472.

LOBBYING PROHIBITIONS

The contractor represents that they, and any subcontractor performing work under the contract, have not violated the agency restrictions contained in KRS 11A.236 during the previous ten (10) years, and pledges to abide by the restrictions set forth in such statute for the duration of the contract awarded.

The contractor further represents that, pursuant to KRS 45A.328, they have not procured an original, subsequent, or similar contract while employing an executive agency lobbyist who was convicted of a crime related to the original, subsequent, or similar contract within five (5) years of the conviction of the lobbyist.

SPECIAL NOTE – BUY AMERICA REQUIREMENTS AND BUILD AMERICA, BUY AMERICA (BABA) ACT 05/05/2025

1.0 BUY AMERICA REQUIREMENT.

Follow the "Buy America" provisions as required by 23 U.S.C. § 313 and 23 C.F.R. § 635.410. Except as expressly provided herein all manufacturing processes of steel or iron materials including but not limited to structural steel, guardrail materials, corrugated steel, culvert pipe, structural plate, prestressing strands, and steel reinforcing bars shall occur in the United States of America, including the application of:

- Coating,
- Galvanizing,
- Painting, and
- Other coating that protects or enhances the value of steel or iron products.

The following are exempt, unless processed or refined to include substantial amounts of steel or iron material, and may be used regardless of source in the domestic manufacturing process for steel or iron material:

- Pig iron,
- Processed, pelletized, and reduced iron ore material, or
- Processed alloys.

The Contractor shall submit a certification stating that all manufacturing processes involved with the production of steel or iron materials occurred in the United States.

Produce, mill, fabricate, and manufacture in the United States of America all aluminum components of bridges, tunnels, and large sign support systems, for which either shop fabrication, shop inspection, or certified mill test reports are required as the basis of acceptance by the Department.

Use foreign materials only under the following conditions:

1) When the materials are not permanently incorporated into the project; or
2) When the delivered cost of such materials used does not exceed 0.1 percent of the total Contract amount or $2,500.00, whichever is greater.

The Contractor shall submit to the Engineer the origin and value of any foreign material used.

2.0 – BUILD AMERICA, BUY AMERICA (BABA)

Contractor shall comply with the Federal Highway Administration (FHWA) Buy America Requirement in 23 C.F.R. § 635.410 and all relevant provisions of the Build America, Buy America Act (BABA), contained within the Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, §§ 70901-52 enacted November 15, 2021. The BABA requires iron, steel, manufactured products, and construction materials used in infrastructure projects funded by federal financial assistance to be produced in the United States. Comply with 2 C.F.R § 184.

BABA permits FHWA participation in the Contract only if domestic steel and iron will be used on the Project. To be considered domestic, all steel and iron used, and all products manufactured from steel and iron must be produced in the United States and all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied. This requirement does not preclude a minimal use of foreign steel and iron materials, provided the cost of such materials does not exceed 0.1% of the total contract amount under the Contract or $2,500.00 whichever is greater.

BABA permits FHWA participation in the Contract only if all "construction materials" as defined in the Act are made in the United States. The Buy America preference applies to the following construction materials incorporated into infrastructure projects: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); Fiber optic cable; optical fiber; lumber; engineered wood; and drywall. Contractor will be

required to use construction materials produced in the United States on this Project. The Contractor shall submit a certification stating that all construction materials are certified to be BABA compliant.

3.0 FINAL RULE – FHWA'S BUY AMERICA REGULATION TO TERMINATE GENERAL APPLICABILITY WAIVER FOR MANUFACTURED PRODUCTS

- **March 17, 2025** (effective date): For all Federal-aid projects obligated on or after March 15, 2025, all iron or steel products, as defined in § 635.410(c)(1)(iii), must comply with FHWA's Buy America requirements for steel and iron in § 635.410(b). In addition, for all Federal-aid projects obligated on or after March 15, 2025, per § 635.410(c)(2), articles, materials, and supplies should be classified as an iron or steel product, a manufactured product, or another product as specified by law or in 2 CFR part 184 (such other products specified by law or in 2 CFR part 184 include "excluded materials" and "construction materials"); an article, material, or supply must not be considered to fall into multiple categories.
- **October 1, 2025:** The final assembly requirement will become effective for Federal-aid projects obligated on or after October 1, 2025. This means that, for manufactured product to be Buy America compliant, for Federal-aid projects obligated on or after October 1, 2025, final assembly of the manufactured product must occur in the United States.
- **October 1, 2026:** The 55 percent requirement will become effective for Federal-aid projects obligated on or after October 1, 2026. This means that, for manufactured product to be Buy America-compliant, for Federal-aid projects obligated on or after October 1, 2026, all manufactured products permanently incorporated into the project must both be manufactured in the United States (satisfy the final assembly requirement) and have the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States be greater than 55 percent of the total cost of all components of the manufactured product (satisfy the 55 percent requirement).

4.0 – ADDITIONAL REQUIREMENTS

The Contractor has completed and submitted, or shall complete and submit, to the Cabinet a Buy America/ Build America, Buy America Certificate prior to the Cabinet issuing the notice to proceed, in the format below. After submittal, the Contractor is bound by its original certification.

A false certification is a criminal act in violation of 18 U.S.C. § 1001. The Contractor has the burden of proof to establish that it's in compliance.

At the Contractor's request, the Cabinet may, but is not obligated to, seek a waiver of Buy America requirements if grounds for the waiver exist under 23 C.F.R. § 635.410(c) or will comply with the applicable Buy America requirements if a waiver of those requirements is not available or not pursued by the Cabinet.

Please refer to the Federal Highway Administration's Buy America webpage for more information.

Buy America - Construction Program Guide - Contract Administration - Construction - Federal Highway Administration (dot.gov)

BUY AMERICA / BUILD AMERICA, BUY AMERICA (ACT) MATERIALS CERTIFICATE OF COMPLIANCE

The Contractor hereby certifies that it will comply with all relevant provisions of the Build America, Buy America Act, contained within the Infrastructure Investment and Jobs Act, Pub. L. NO. 117-58, §§ 70901-52, the requirements of 23 U.S.C. § 313, 23 C.F.R. § 635.410 and 2 C.F.R § 184.

Date Submitted:_____

Contractor:_____

Signature:_____

Printed Name:_____

Title:_____

NOTE: THIS CERTIFICATION IS IN ADDITION TO ANY AND ALL REQUIREMENTS OUTLINED IN THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND/OR SPECIAL NOTES CONTAINED IN THE PROJECT PROPOSAL.

SPECIAL NOTE FOR RECIPROCAL PREFERENCE

RECIPROCAL PREFERENCE TO BE GIVEN BY PUBLIC AGENCIES TO RESIDENT BIDDERS

By reference, KRS 45A.490 to 45A.494 are incorporated herein and in compliance regarding the bidders residency. Bidders who want to claim resident bidder status should complete the Affidavit for Claiming Resident Bidder Status along with their bid in the electronic bidding software. Submittal of the Affidavit should be done along the bid in Bid Express.

April 30, 2018

ASPHALT MIXTURE

Unless otherwise noted, the Department estimates the rate of application for all asphalt mixtures to be 110 lbs/sy per inch of depth.

INCIDENTAL SURFACING

The Department has included in the quantities of asphalt mixtures established in the proposal estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, curve widening, ramp gores and tapers, and road and street approaches, as applicable. Pave these areas to the limits as shown on Standard Drawing RPM-110-06 or as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, pave the crossroads to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. Surface or resurface these areas as directed by the Engineer. The Department will not measure placing and compacting for separate payment but shall be incidental to the Contract unit price for the asphalt mixtures.

FUEL AND ASPHALT PAY ADJUSTMENT

The Department has included the Contract items Asphalt Adjustment and Fuel Adjustment for possible future payments at an established Contract unit price of $1.00. The Department will calculate actual adjustment quantities after work is completed. If existing Contract amount is insufficient to pay all items on the contract with the adjustments, the Department will establish additional monies with a change order.

ASPHALT PAVEMENT RIDE QUALITY CATEGORY A

The Department will apply Pavement Rideability Requirements on this project in accordance with Section 410, Category A.

OPTION A

Be advised that the Department will accept compaction of asphalt mixtures furnished for driving lanes and ramps, at 1 inch (25mm) or greater, on this project according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specifications. The Department will require joint cores as described in Section 402.03.02 for surface mixtures only. The Department will accept compaction of all other asphalt mixtures according to OPTION B.

SPECIAL NOTE FOR PIPELINE INSPECTION

1.0 DESCRIPTION. The Department will perform visual inspections on all pipe on the project. A video inspection will be required on projects having more than 250 linear feet of storm sewer and/or culvert pipe and on routes with an ADT of greater than 1,000 vehicles. Conduct video inspections on all pipe located under the roadway and 50 percent of the remaining pipe not under the roadway. Storm sewer runs and outfall pipes not under the roadway take precedence over rural entrance pipes. Contractors performing this item of work must be prequalified with the Department in the work type J51 (Video Pipe Inspection and Cleaning). Deflection testing shall be completed using a mandrel in accordance with the procedure outlined below or by physical measurement for pipes greater than 36inches in diameter. Mandrel testing for deflection must be completed prior to the video inspection testing. Unless otherwise noted, Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

2.0 VIDEO INSPECTION. Ensure pipe is clear of water, debris or obstructions. Complete the video inspection and any necessary measurement prior to placing the final surface over any pipe. When paving will not be delayed, take measurements 30 days or more after the completion of earthwork to within 1 foot of the finished subgrade. Notify the Engineer a minimum of 24 hours in advance of inspection and notify the Engineer immediately if distresses or locations of improper installation are logged.

2.1 INSPECTION FOR DEFECTS AND DISTRESSES

A) Begin at the outlet end and proceed through to the inlet at a speed less than or equal to 30 ft/minute. Remove blockages that will prohibit a continuous operation.

B) Document locations of all observed defects and distresses including but not limited to: cracking, spalling, slabbing, exposed reinforcing steel, sags, joint offsets, joint separations, deflections, improper joints/connections, blockages, leaks, rips, tears, buckling, deviation from line and grade, damaged coatings/paved inverts, and other anomalies not consistent with a properly installed pipe.

C) During the video inspection provide a continuous 360 degree pan of every pipe joint.

D) Identify and measure all cracks greater than 0.1" and joint separations greater than 0.5".

E) Video Inspections are conducted from junction to junction which defines a pipe run. A junction is defined as a headwall, drop box inlet, curb box inlet, manhole, buried junction, or other structure that disturbs the continuity of the pipe. Multiple pipe inspections may be conducted from a single set up location, but each pipe run must be on a separate video file and all locations are to be referenced from nearest junction relative to that pipe run.

F) Record and submit all data on the TC 64-765 and TC 64-766 forms.

3.0 MANDREL TESTING. Mandrel testing will be used for deflection testing. For use on Corrugated Metal Pipe, High Density Polyethylene Pipe, and Polyvinyl Chloride Pipe, use a mandrel device with an odd number of legs (9 minimum) having a length not less than the outside diameter of the mandrel. The diameter of the mandrel at any point shall not be less than the diameter specified in Section 3.6. Mandrels can be a fixed size or a variable size.

3.1 Use a proving ring or other method recommended by the mandrel manufacturer to verify mandrel diameter prior to inspection. Provide verification documentation for each size mandrel to the Engineer.

3.2 All deflection measurements are to be based off of the AASHTO Nominal Diameters. Refer to the chart in section 3.6.

3.3 Begin by using a mandrel set to the 5.0% deflection limit. Place the mandrel in the inlet end of the pipe and pull through to the outlet end. If resistance is met prior to completing the entire run, record the maximum distance achieved from the inlet side, then remove the mandrel and continue the inspection from the outlet end of the pipe toward the inlet end. Record the maximum distance achieved from the outlet side.

3.4 If no resistance is met at 5.0% then the inspection is complete. If resistance occurred at 5.0% then repeat 3.1 and 3.2 with the mandrel set to the 10.0% deflection limit. If the deflection of entire pipe run cannot be verified with the mandrel then immediately notify the Engineer.

3.5 Care must be taken when using a mandrel in all pipe material types and lining/coating scenarios. Pipe damaged during the mandrel inspection will be video inspected to determine the extent of the damage. If the damaged pipe was video inspected prior to mandrel inspection then a new video inspection is warranted and supersedes the first video inspection. Immediately notify the Engineer of any damages incurred during the mandrel inspection and submit a revised video inspection report.

3.6 AASHTO Nominal Diameters and Maximum Deflection Limits.

Base Pipe Diameter	AASHTO Nominal Diameter	Max. Deflection Limit	
		5.0%	10.0%
(inches)	(inches)	(inches)	
15	14.76	14.02	13.28
18	17.72	16.83	15.95
24	23.62	22.44	21.26
30	29.53	28.05	26.58
36	35.43	33.66	31.89
42	41.34	39.27	37.21
48	47.24	44.88	42.52
54	53.15	50.49	47.84
60	59.06	56.11	53.15

4.0 PHYSICAL MEASUREMENT OF PIPE DEFLECTION. Alternate method for deflection testing when there is available access or the pipe is greater than 36 inches in diameter, as per 4.1. Use a contact or non-contact distance instrument. A leveling device is recommended for establishing or verifying vertical and horizontal control.

4.1 Physical measurements may be taken after installation and compared to the AASHTO Nominal Diameter of the pipe as per Section 3.6. When this method is used, determine the smallest interior diameter of the pipe as measured through the center point of the pipe (D2). All measurements are to be taken from the inside crest of the corrugation. Take the D2 measurements at the most deflected portion of the pipe run in question and at intervals no greater than ten (10) feet through the run. Calculate the deflection as follows:

% Deflection = [(AASHTO Nominal Diameter - D2) / AASHTO Nominal Diameter] x 100%

Note: The Engineer may require that preset monitoring points be established in the culvert prior to backfilling. For these points the pre-installation measured diameter (D1) is measured and recorded. Deflection may then be calculated from the following formula:

$$\% \text{ Deflection} = [(D1 - D2) / D1] (100\%)$$

4.2 Record and submit all data.

5.0 DEDUCTION SCHEDULE. All pipe deductions shall be handled in accordance with the tables shown below.

FLEXIBLE PIPE DEFLECTION	
Amount of Deflection (%)	Payment
0.0 to 5.0	100% of the Unit Bid Price
5.1 to 9.9	50% of the Unit Bid Price [(1)]
10 or greater	Remove and Replace [(2)]

[(1)] Provide Structural Analysis for HDPE and metal pipe. Based on the structural analysis, pipe may be allowed to remain in place at the reduced unit price. [(2)] The Department may allow the pipe to remain in place with no pay to the Contractor in instances where it is in the best interest to the public and where the structural analysis demonstrates that the pipe should function adequately.

RIGID PIPE REMEDIATION TABLE PIPE	
Crack Width (inches)	Payment
≤ 0.1	100% of the Unit Bid Price
Greater than 0.1	Remediate or Replace [(1)]

(1) Provide the Department in writing a method for repairing the observed cracking. Do not begin work until the method has been approved.

6.0 PAYMENT. The Department will measure the quantity in linear feet of pipe to inspect. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24814EC	Pipeline Inspection	Linear Foot
10065NS	Pipe Deflection Deduction	Dollars

SPECIAL NOTE
FOR
UST's and CONTAMINATED SOIL

Jefferson County
Major revision of the intersection located at the KY 1065 (Outer Loop), KY 864 (Fegenbush Lane), Beulah Church Road and Watterson Trail.
Item No. 5-122.00

The contractor MAY impact contaminated soils on parcels 6, 12 & 13, 16, 17 and 19 which had or has an underground storage tank (UGST). If contaminated soil is encountered, stop work and contact Kaitlyn Deskins, at the Division of Environmental Analysis, 200 Mero Street, Frankfort, KY, 40601; Phone: (502) 564-7250.

- Parcel 6: Possible UST in Place and contaminated soils.
- Parcel 12 & 13: Closed UST, and possible contaminated soil.
- Parcel 16: Possible UST in Place and possible contaminated soils.
- Parcel 17: Active UST in Place and possible contaminated soils.
- Parcel 19: Possible UST in Place and possible contaminated soils.

EROSION CONTROL PLAN

COUNTY OF	ITEM NO.	SHEET
JEFFERSON	5-122.00	R80

EROSION CONTROL NOTES

ALL SILT CONTROL DEVICES SHALL BE SIZED TO RETAIN A VOLUME OF 3,600 CUBIC FEET PER DISTURBED CONTRIBUTING ACRE.

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED GROUND DURING EACH PHASE OF CONSTRUCTION. THE CONTRACTOR SHALL COMPUTE THE VOLUME NECESSARY TO CONTROL SEDIMENT DURING EACH PHASE OF CONSTRUCTION. AS WORK PROCEEDS, SILT TRAPS MAY BE ADDED OR REMOVED IN ORDER TO ACHIEVE THE BEST MANAGEMENT PLAN. THE REQUIRED VOLUME AT EACH ADDED SILT TRAP SHALL BE COMPUTED AS UP GRADIENT CONTRIBUTING AREAS ARE DISTURBED OR ARE STABILIZED TO THE SATISFACTION OF THE ENGINEER. THE REQUIRED VOLUME CALCULATION FOR EACH SILT TRAP SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER. THE REQUIRED VOLUME AT EACH SILT TRAP MAY BE REDUCED BY THE FOLLOWING AMOUNTS:

- UPGRADIENT AREAS NOT DISTURBED (ACRES).
- UPGRADIENT AREAS THAT HAVE BEEN RECLAIMED AND PROTECTED BY EROSION CONTROL BLANKET OR OTHER GROUND PROTECTION MATERIAL SUCH AS TEMPORARY MULCH.(ACRES).
- THE USE OF TEMPORARY MULCH IS ENCOURAGED.
- UPGRADIENT AREAS THAT HAVE BEEN PROTECTED BY SILT FENCE (ACRES). AREAS PROTECTED BY SILT FENCE SHALL BE COMPUTED AT A MAXIMUM RATE OF 100 SQUARE FOOT PER LINEAR FOOT OF SILT FENCE.
- UPGRADIENT AREAS THAT HAVE BEEN PROTECTED BY SILT TRAPS (ACRES).

THE EROSION CONTROL PLAN SHALL BE ANNOTATED AS THE WORK PROCEEDS BY THE CONTRACTOR TO DETAIL THE SELECTION OF EACH EROSION CONTROL DEVICE USED AND THE VOLUME PROVIDED BY EACH SILT TRAP IN ACCORDANCE WITH THE DOCUMENTATION PROCEDURES ESTABLISHED BY THE DIVISION OF CONSTRUCTION.

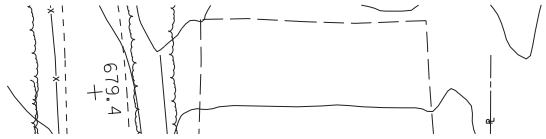
IF A SILT BASIN IS NOT USED THEN ONE SILT TRAP TYPE A, ALTERNATE NUMBER 2 OR SILT TRAP TYPE B SHALL ALWAYS BE PLACED AT THE MOST REMOTE DOWNSTREAM COLLECTION POINT PRIOR TO DISCHARGING INTO A BLUE LINE STREAM OR ONTO AN ADJACENT PROPERTY OWNER. WHERE OVERLAND FLOW EXIST, A SILT FENCE OR OTHER FILTER DEVICES MAY BE USED OR THE OVERLAND FLOW MAY BE DIVERTED TO ONE OF THE FOREMENTED SILT BASIN OR TRAPS.

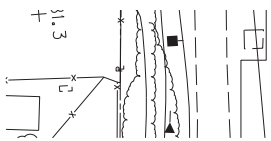
THE EROSION CONTROL PLANS DO NOT CONSTITUTE A BMP BY THEMSELVES. THEY PROVIDE A STARTING POINT FOR THE CONTRACTOR AND RESIDENT ENGINEER TO DEVELOP THE BMP ACCORDING TO SECTION 213.03.01 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE SUPPLEMENTAL SPECS EFFECTIVE WITH THE OCTOBER, 2004 LETTING.

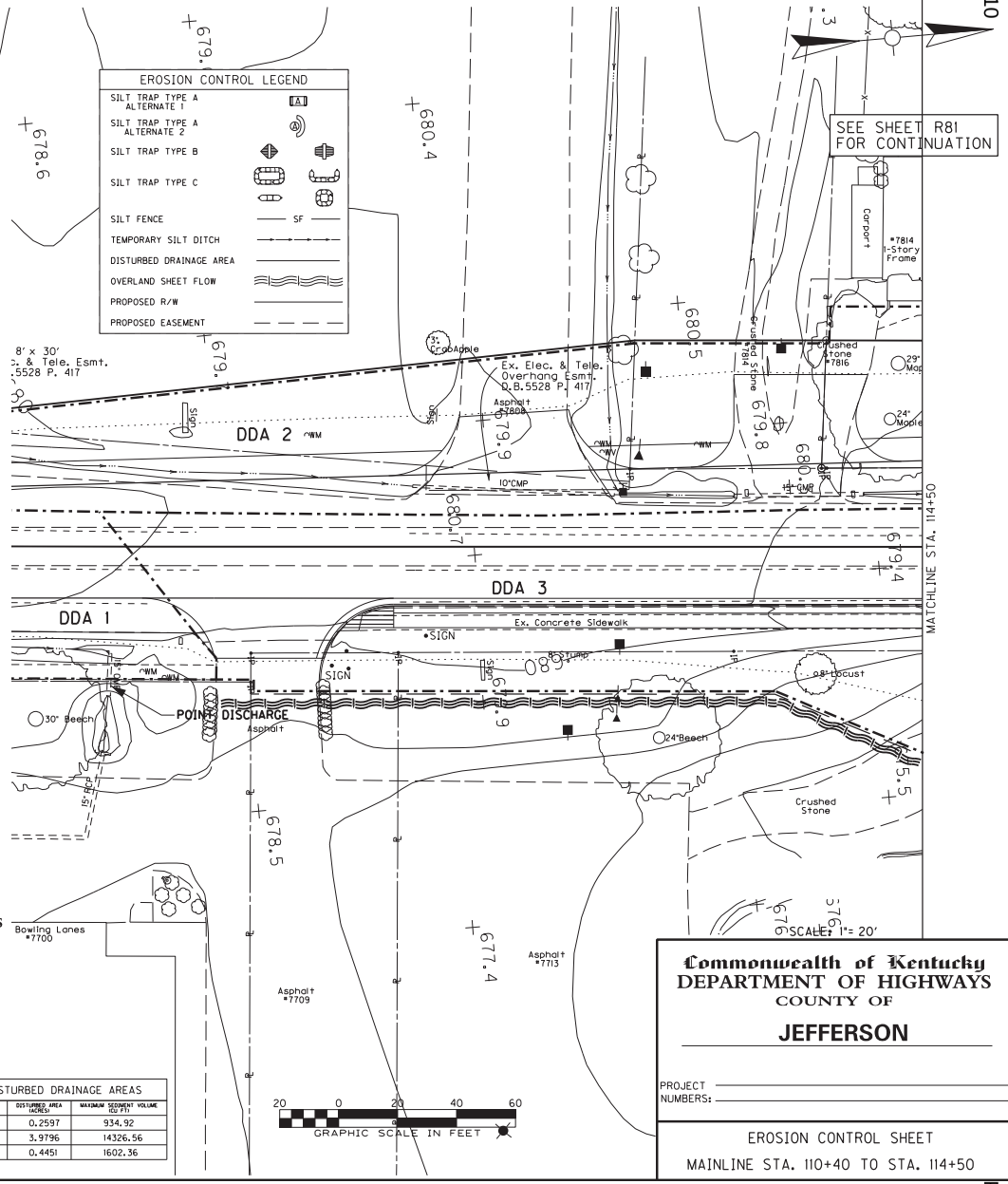
EROSION CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONING PRIOR TO ANY EXCAVATION OR DISTURBANCE WITHIN A DRAINAGE AREA.

THE CONTRACTOR SHALL BE REQUIRED TO CLEAN OUT (REMOVE SEDIMENT FROM) SILT TRAPS AND SILT FENCES WHENEVER THEY BECOME ONE-HALF FULL AND PROPERLY DISPOSE OF THE MATERIAL AT SITES APPROVED BY THE RESIDENT ENGINEER.

EROSION CONTROL MEASURES EMPLOYED BY THE CONTRACTOR WILL BE UNIQUE TO THE PROJECT AND WORK CONDITIONS AND SHALL BE APPROVED BY THE RESIDENT ENGINEER. THE DEVELOPMENT AND UTILIZATION OF THESE MEASURES WILL BE RECORDED AS PART OF THE BMP, KEPT ON SITE, AND AVAILABLE FOR PUBLIC INSPECTION.







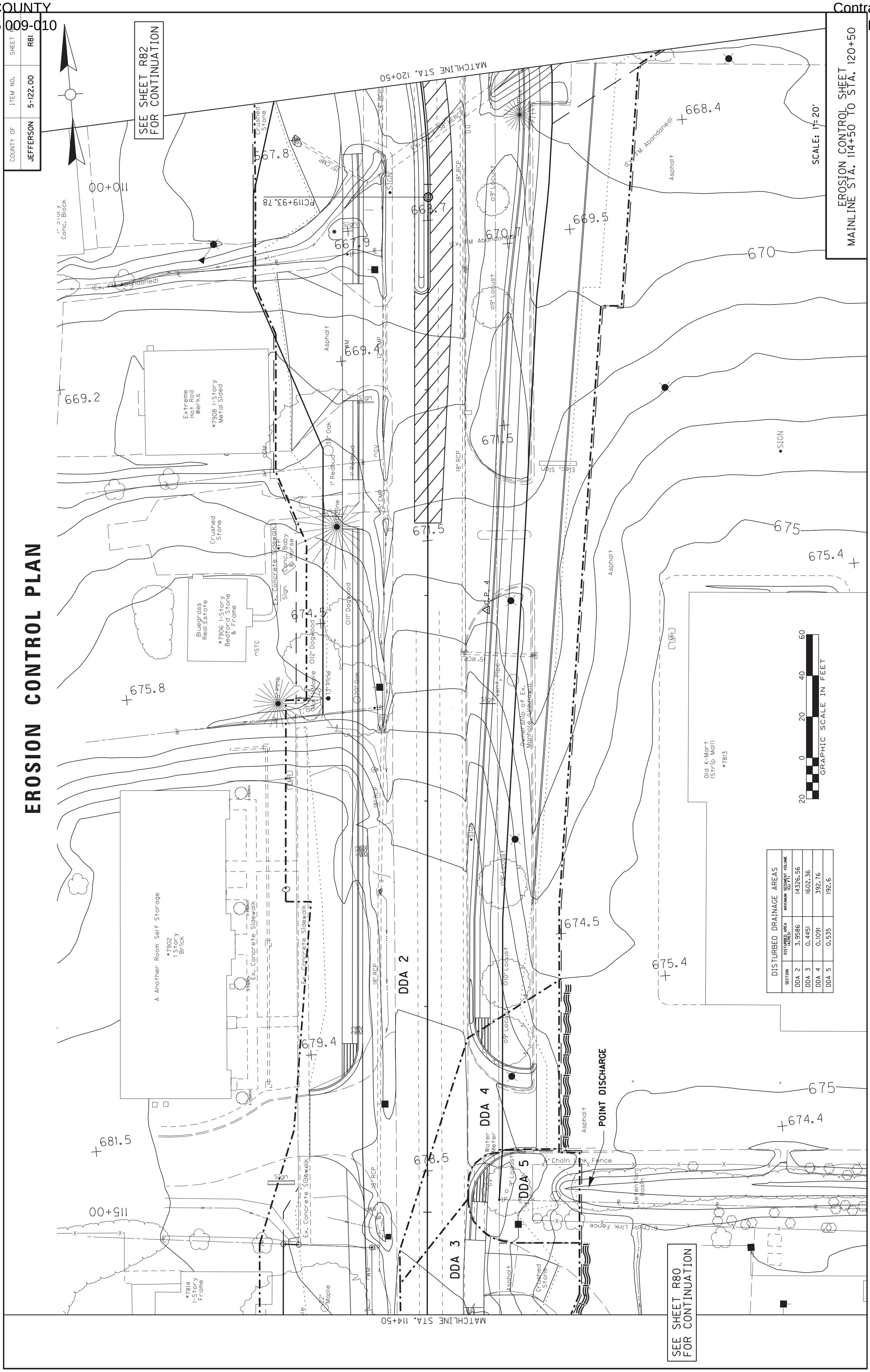
DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 1	0.2597	934.92
DDA 2	3.9796	14326.56
DDA 3	0.4451	1602.36

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

JEFFERSON

PROJECT NUMBERS:

EROSION CONTROL SHEET
MAINLINE STA. 110+40 TO STA. 114+50

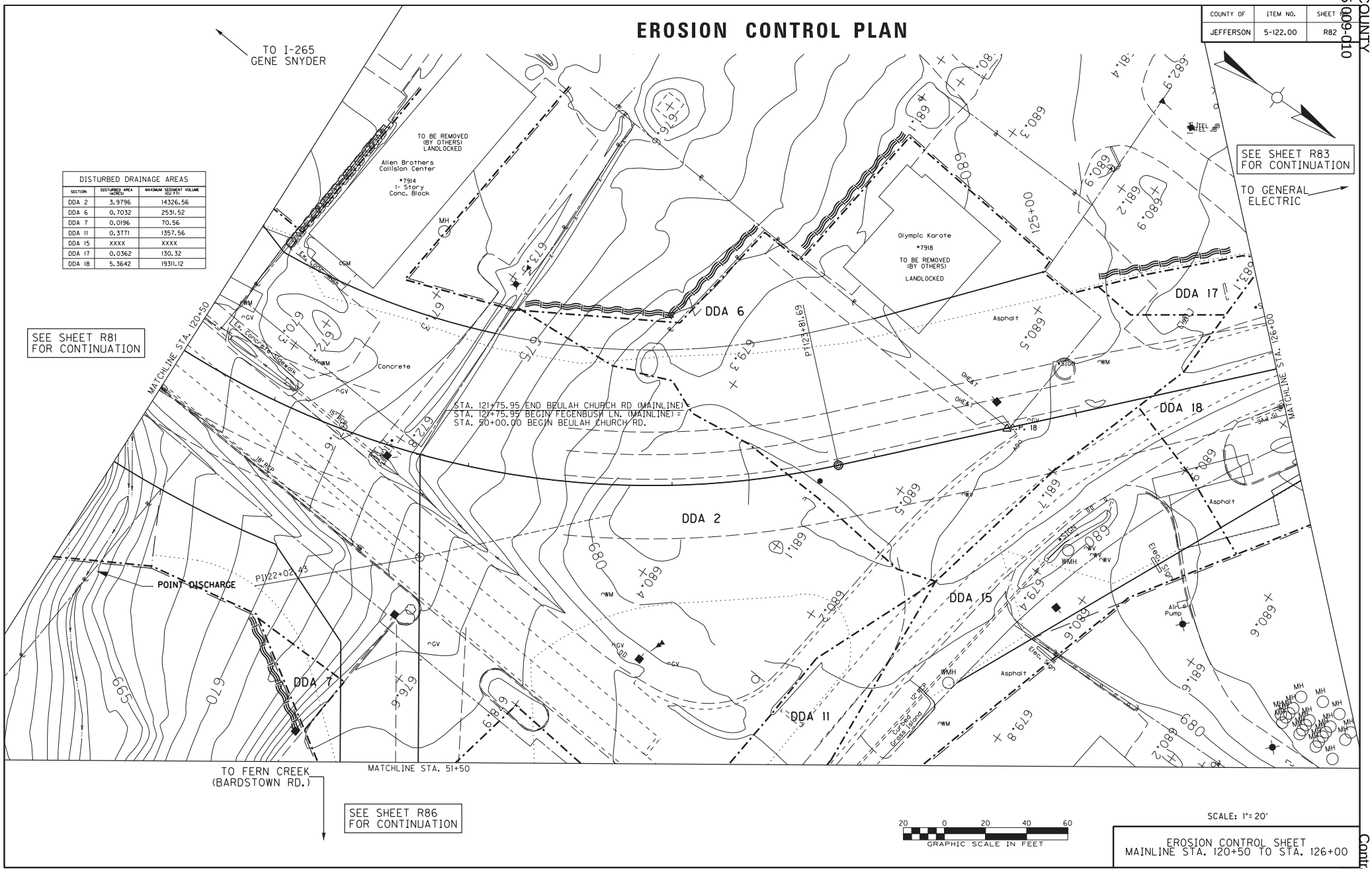


DISTURBED DRAINAGE AREAS

SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 2	3.9586	14326.56
DDA 3	0.4451	1602.36
DDA 4	0.1091	392.76
DDA 5	0.535	192.6

EROSION CONTROL PLAN

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R82



DISTURBED DRAINAGE AREAS

SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 2	3.9796	14326.56
DDA 6	0.7032	2531.52
DDA 7	0.0196	70.56
DDA 11	0.3771	1357.56
DDA 15	XXXX	XXXX
DDA 17	0.0362	130.32
DDA 18	5.3642	19311.12

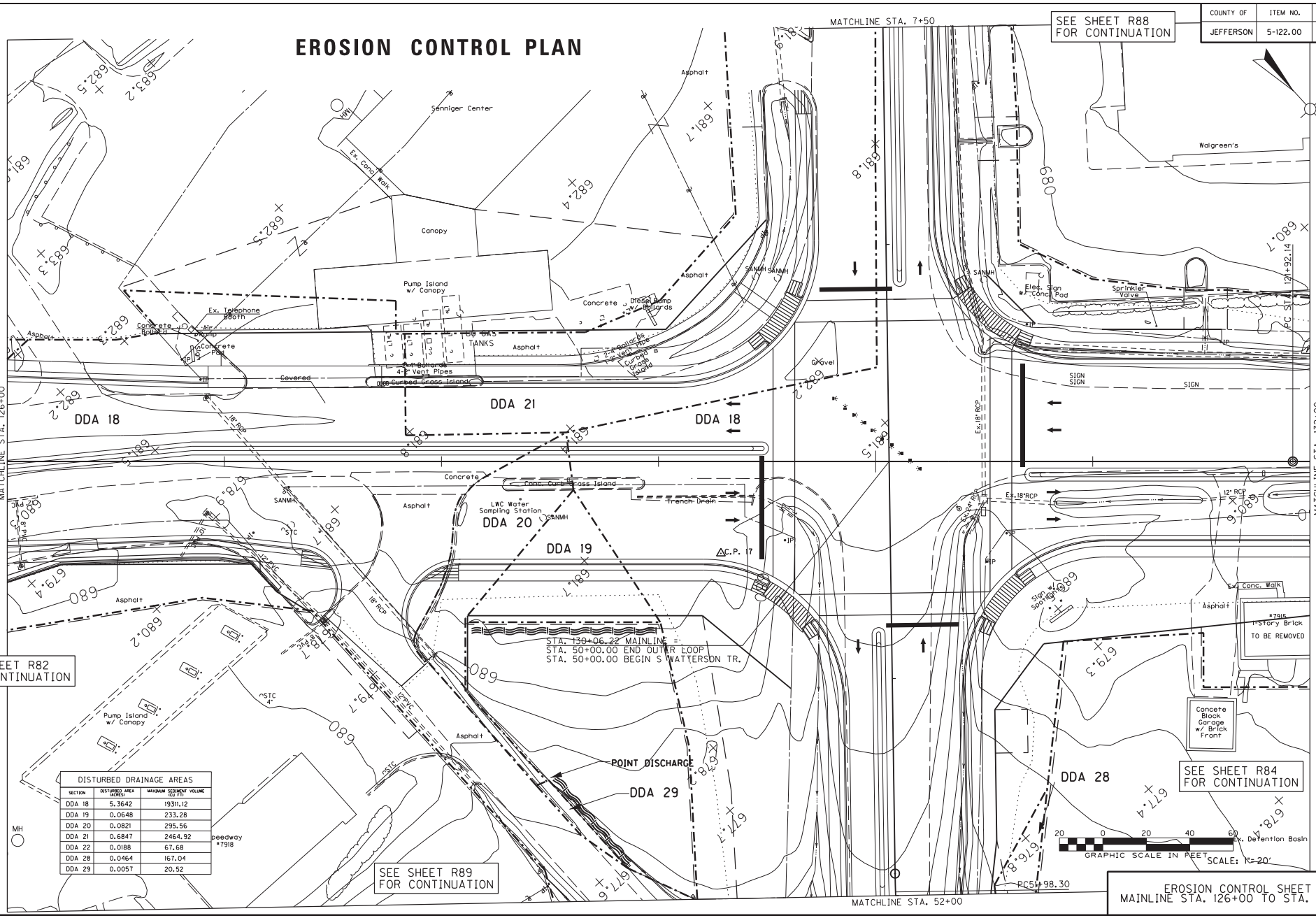
SCALE: 1"= 20'

20 0 20 40 60
GRAPHIC SCALE IN FEET

EROSION CONTROL SHEET
MAINLINE STA. 120+50 TO STA. 126+00

EROSION CONTROL PLAN

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R83



DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 18	5.3642	19311.12
DDA 19	0.0648	233.28
DDA 20	0.0821	295.56
DDA 21	0.6847	2464.92
DDA 22	0.0188	67.68
DDA 28	0.0464	167.04
DDA 29	0.0057	20.52

EROSION CONTROL SHEET
MAINLINE STA. 126+00 TO STA. 132+00

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R80

EROSION CONTROL PLAN

EROSION CONTROL NOTES

ALL SILT CONTROL DEVICES SHALL BE SIZED TO RETAIN A VOLUME OF 3,600 CUBIC FEET PER DISTURBED CONTRIBUTING ACRE.

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS TO MINIMIZE THE AMOUNT OF DISTURBED GROUND DURING EACH PHASE OF CONSTRUCTION. THE CONTRACTOR SHALL COMPUTE THE VOLUME NECESSARY TO CONTROL SEDIMENT DURING EACH PHASE OF CONSTRUCTION. AS WORK PROCEEDS, SILT TRAPS MAY BE ADDED OR REMOVED IN ORDER TO ACHIEVE THE BEST MANAGEMENT PLAN. THE REQUIRED VOLUME AT EACH ADDED SILT TRAP SHALL BE COMPUTED AS UP GRADIENT CONTRIBUTING AREAS ARE DISTURBED OR ARE STABILIZED TO THE SATISFACTION OF THE ENGINEER. THE REQUIRED VOLUME CALCULATION FOR EACH SILT TRAP SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER. THE REQUIRED VOLUME AT EACH SILT TRAP MAY BE REDUCED BY THE FOLLOWING AMOUNTS:

- UPGRADIENT AREAS NOT DISTURBED (ACRES).
- UPGRADIENT AREAS THAT HAVE BEEN RECLAIMED AND PROTECTED BY EROSION CONTROL BLANKET OR OTHER GROUND PROTECTION MATERIAL SUCH AS TEMPORARY MULCH.(ACRES).
- THE USE OF TEMPORARY MULCH IS ENCOURAGED.
- UPGRADIENT AREAS THAT HAVE BEEN PROTECTED BY SILT FENCE (ACRES). AREAS PROTECTED BY SILT FENCE SHALL BE COMPUTED AT A MAXIMUM RATE OF 100 SQUARE FOOT PER LINEAR FOOT OF SILT FENCE.
- UPGRADIENT AREAS THAT HAVE BEEN PROTECTED BY SILT TRAPS (ACRES).

THE EROSION CONTROL PLAN SHALL BE ANNOTATED AS THE WORK PROCEEDS BY THE CONTRACTOR TO DETAIL THE SELECTION OF EACH EROSION CONTROL DEVICE USED AND THE VOLUME PROVIDED BY EACH SILT TRAP IN ACCORDANCE WITH THE DOCUMENTATION PROCEDURES ESTABLISHED BY THE DIVISION OF CONSTRUCTION.

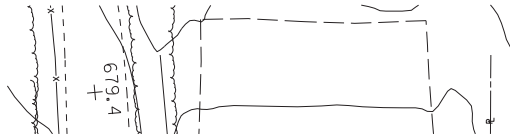
IF A SILT BASIN IS NOT USED THEN ONE SILT TRAP TYPE A, ALTERNATE NUMBER 2 OR SILT TRAP TYPE B SHALL ALWAYS BE PLACED AT THE MOST REMOTE DOWNSTREAM COLLECTION POINT PRIOR TO DISCHARGING INTO A BLUE LINE STREAM OR ONTO AN ADJACENT PROPERTY OWNER. WHERE OVERLAND FLOW EXIST, A SILT FENCE OR OTHER FILTER DEVICES MAY BE USED OR THE OVERLAND FLOW MAY BE DIVERTED TO ONE OF THE FOREMENTED SILT BASIN OR TRAPS.

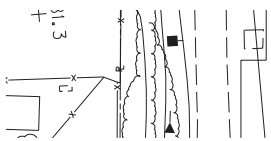
THE EROSION CONTROL PLANS DO NOT CONSTITUTE A BMP BY THEMSELVES. THEY PROVIDE A STARTING POINT FOR THE CONTRACTOR AND RESIDENT ENGINEER TO DEVELOP THE BMP ACCORDING TO SECTION 213.03.01 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE SUPPLEMENTAL SPECS EFFECTIVE WITH THE OCTOBER, 2004 LETTING.

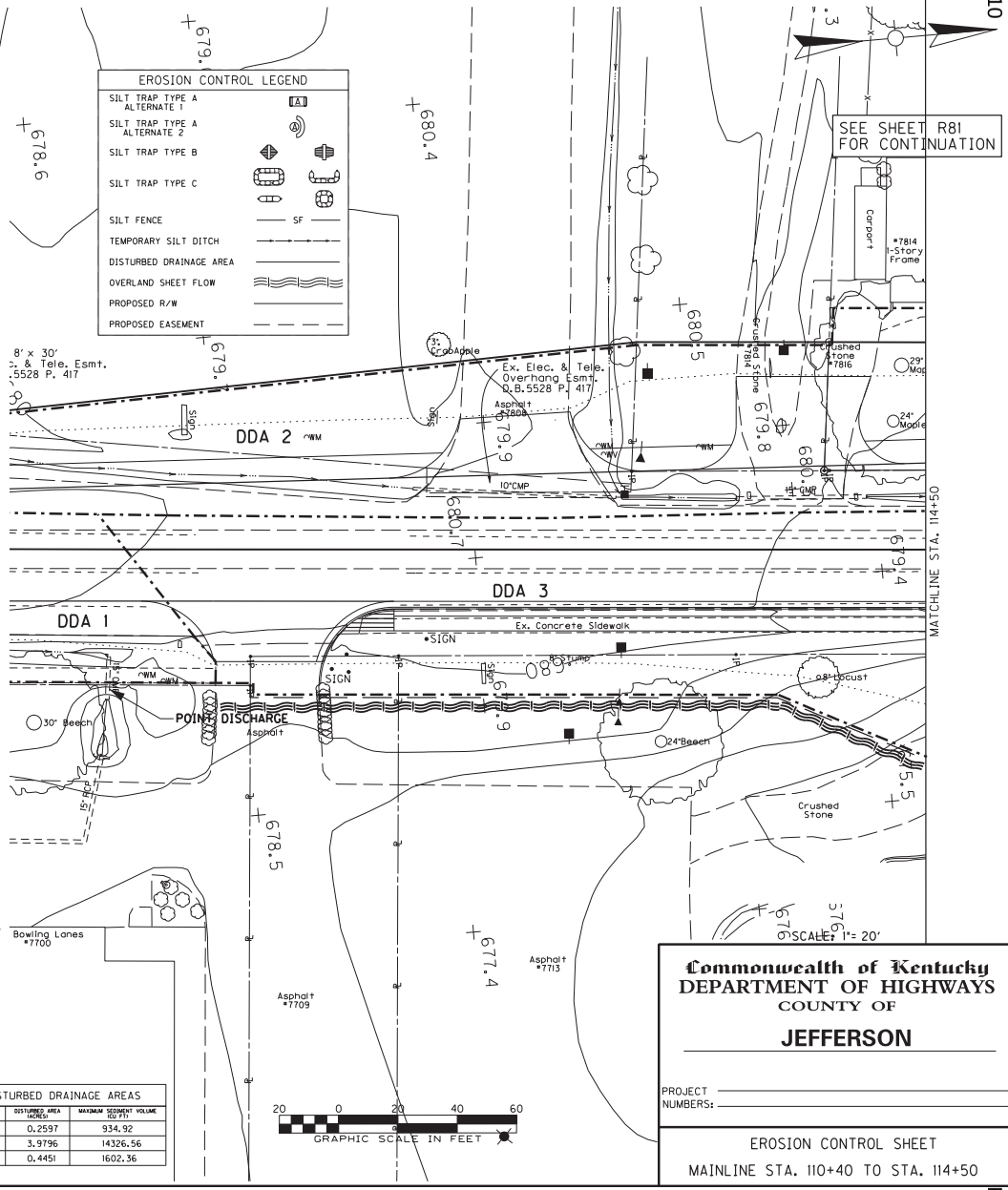
EROSION CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONING PRIOR TO ANY EXCAVATION OR DISTURBANCE WITHIN A DRAINAGE AREA.

THE CONTRACTOR SHALL BE REQUIRED TO CLEAN OUT (REMOVE SEDIMENT FROM) SILT TRAPS AND SILT FENCES WHENEVER THEY BECOME ONE-HALF FULL AND PROPERLY DISPOSE OF THE MATERIAL AT SITES APPROVED BY THE RESIDENT ENGINEER.

EROSION CONTROL MEASURES EMPLOYED BY THE CONTRACTOR WILL BE UNIQUE TO THE PROJECT AND WORK CONDITIONS AND SHALL BE APPROVED BY THE RESIDENT ENGINEER. THE DEVELOPMENT AND UTILIZATION OF THESE MEASURES WILL BE RECORDED AS PART OF THE BMP, KEPT ON SITE, AND AVAILABLE FOR PUBLIC INSPECTION.







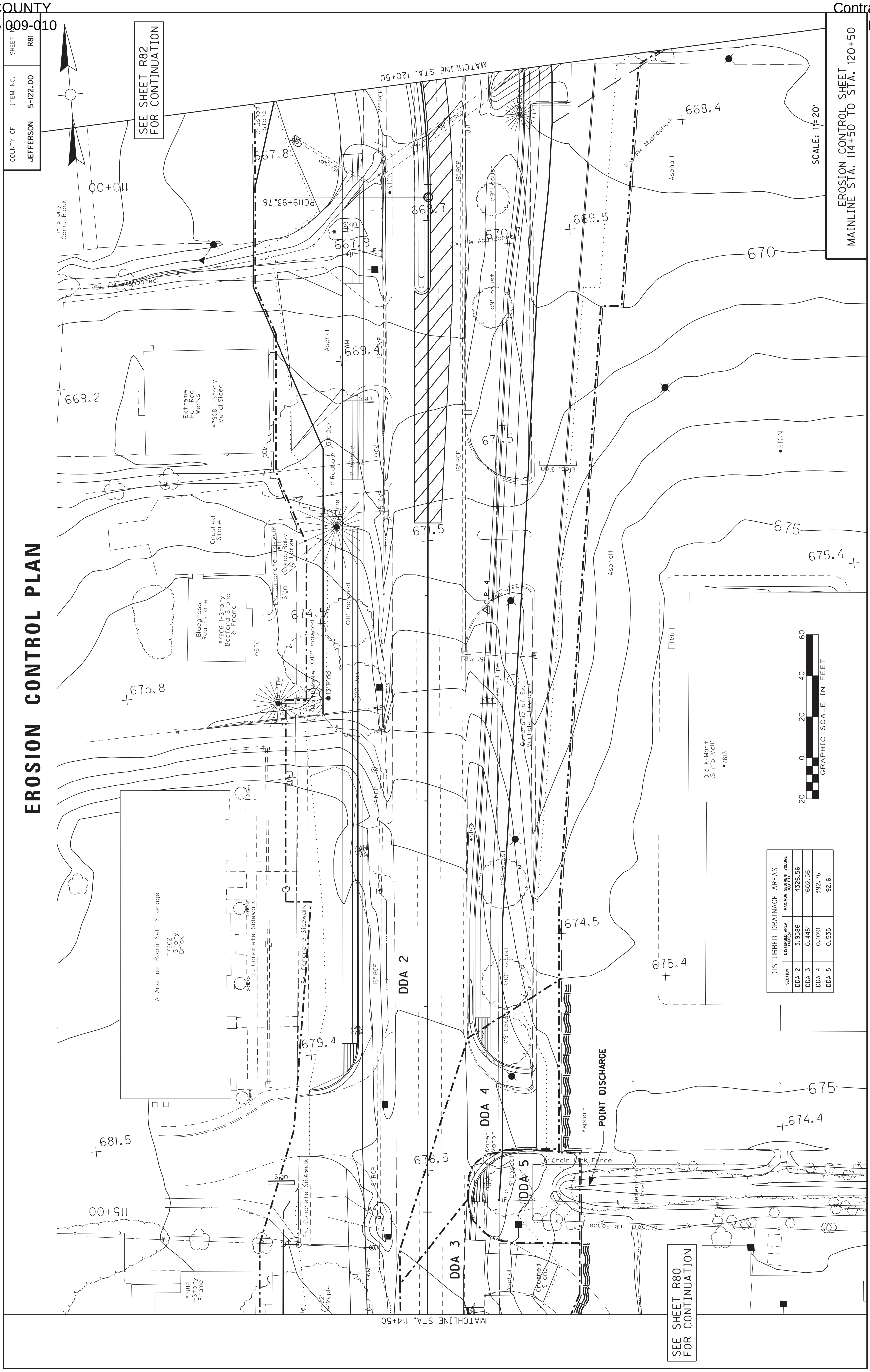
DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 1	0.2597	934.92
DDA 2	3.9796	14326.56
DDA 3	0.4451	1602.36

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS
COUNTY OF

JEFFERSON

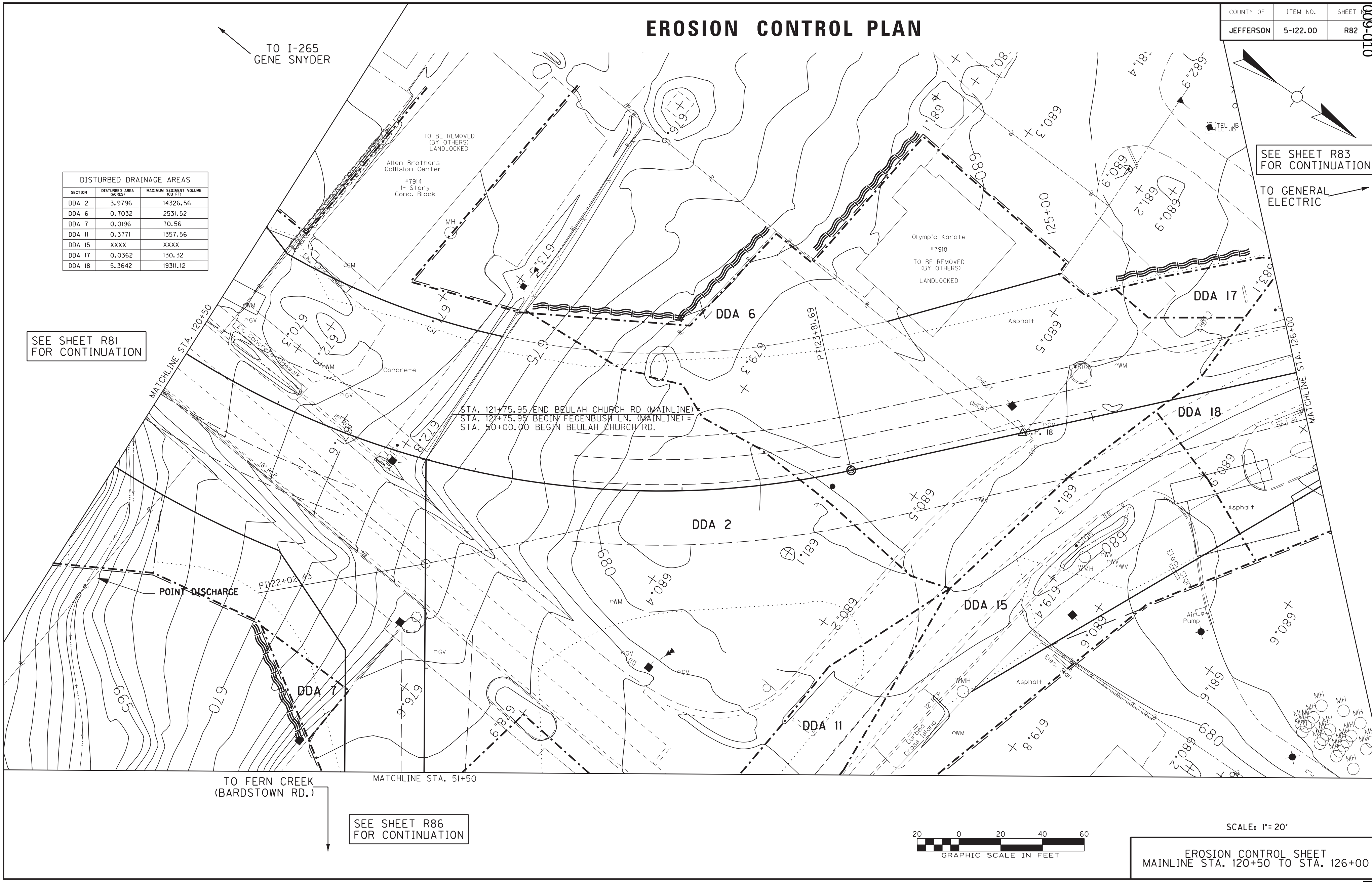
PROJECT NUMBERS:

EROSION CONTROL SHEET
MAINLINE STA. 110+40 TO STA. 114+50


EROSION CONTROL PLAN
EROSION CONTROL SHEET
MAINLINE STA. 114+50 TO STA. 120+50
SCALE: 1"= 20'
COUNTY OF JEFFERSON
ITEM NO. 5-122.00
SHEET NO. R81
SEE SHEET R82 FOR CONTINUATION
SEE SHEET R80 FOR CONTINUATION
MATCHLINE STA. 120+50
MATCHLINE STA. 114+50
GRAPHIC SCALE IN FEET
DISTURBED DRAINAGE AREAS
SECTION | DISTURBED AREA (ACRES) | MAXIMUM SEDIMENT VOLUME (CU.FT.)
DDA 2 | 3.9586 | 14326.56
DDA 3 | 0.4451 | 1602.36
DDA 4 | 0.1091 | 392.76
DDA 5 | 0.535 | 192.6
POINT DISCHARGE
DDA 2
DDA 3
DDA 4
DDA 5
Extreme Hot Rod Werks #7908 1-Story Metal Sided
Bluegrass Real Estate #7906 1-Story Bedford Stone & Frame
A Another Room Self Storage #7902 1 Story Brick
Old K-Mart (Strip Mall) #7813
#7814 1-Story Frame
Detention Basin
6' Chain Link Fence
110+00
115+00
PC119+93.78

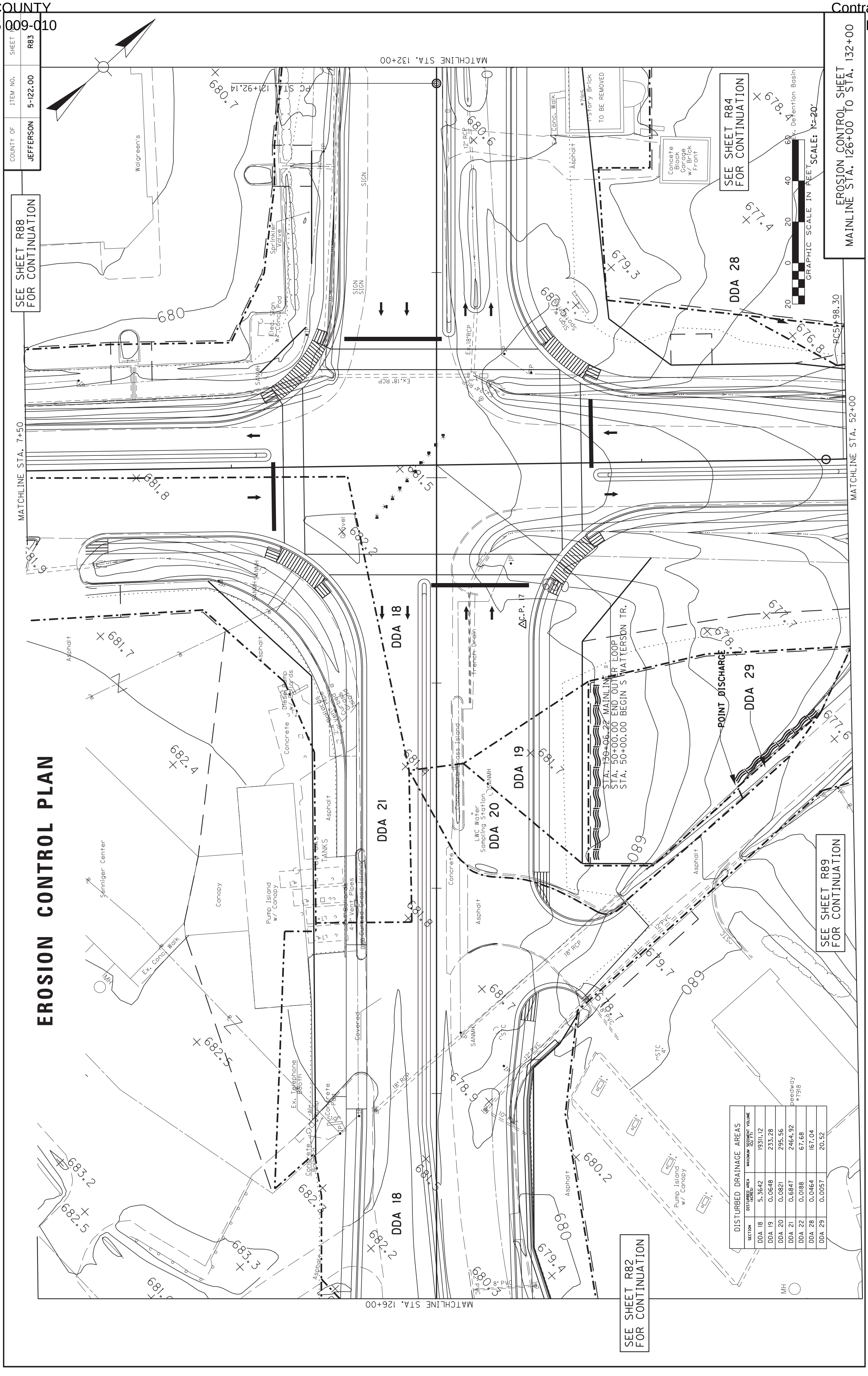
EROSION CONTROL PLAN

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R82



DISTURBED DRAINAGE AREAS

SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 2	3.9796	14326.56
DDA 6	0.7032	2531.52
DDA 7	0.0196	70.56
DDA 11	0.3771	1357.56
DDA 15	XXXX	XXXX
DDA 17	0.0362	130.32
DDA 18	5.3642	19311.12



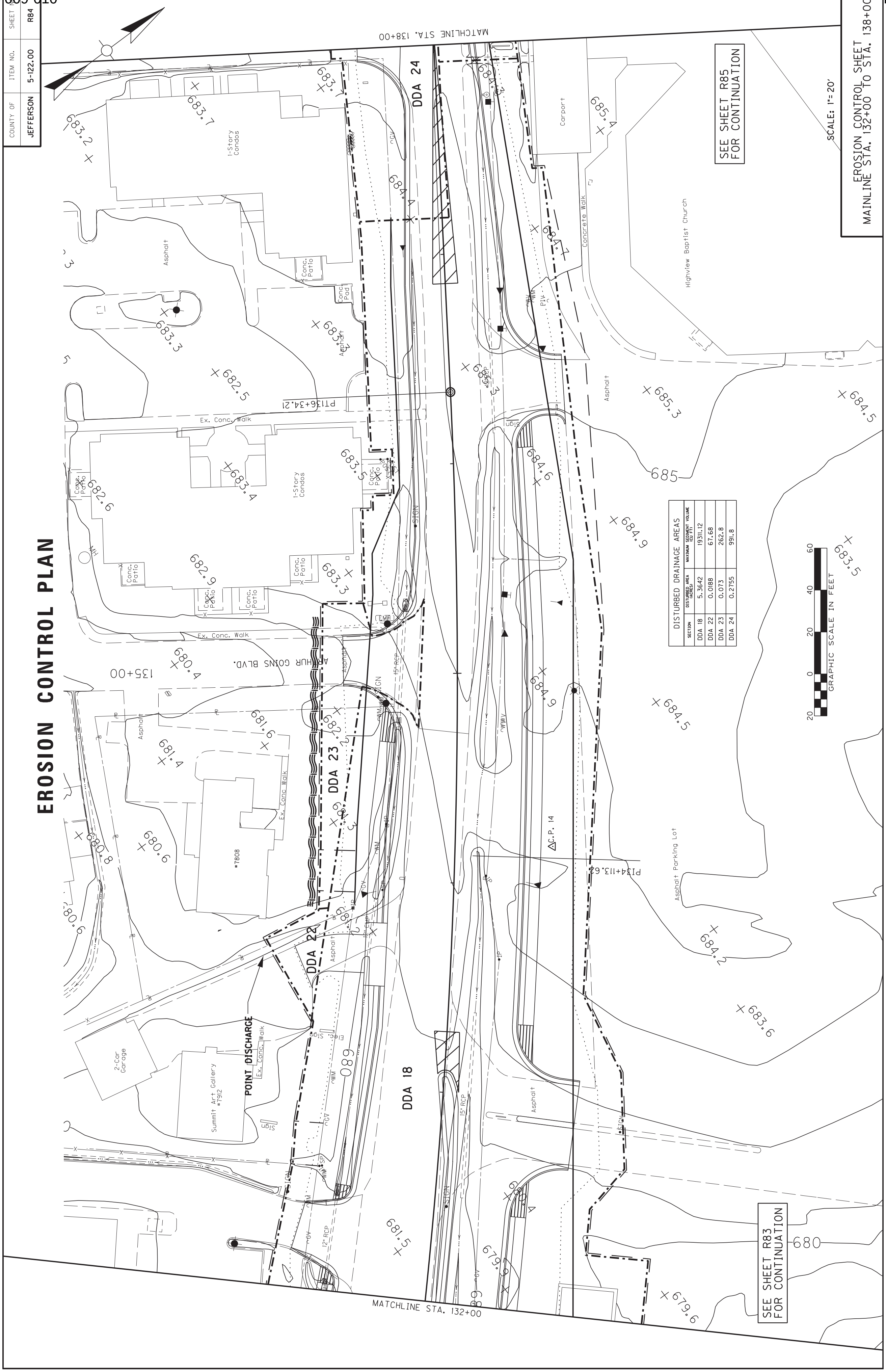
DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 18	5.3642	19311.12
DDA 19	0.0648	233.28
DDA 20	0.0821	295.56
DDA 21	0.6847	2464.92
DDA 22	0.0188	67.68
DDA 28	0.0464	167.04
DDA 29	0.0057	20.52

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R84

EROSION CONTROL PLAN

EROSION CONTROL SHEET
MAINLINE STA. 132+00 TO STA. 138+00

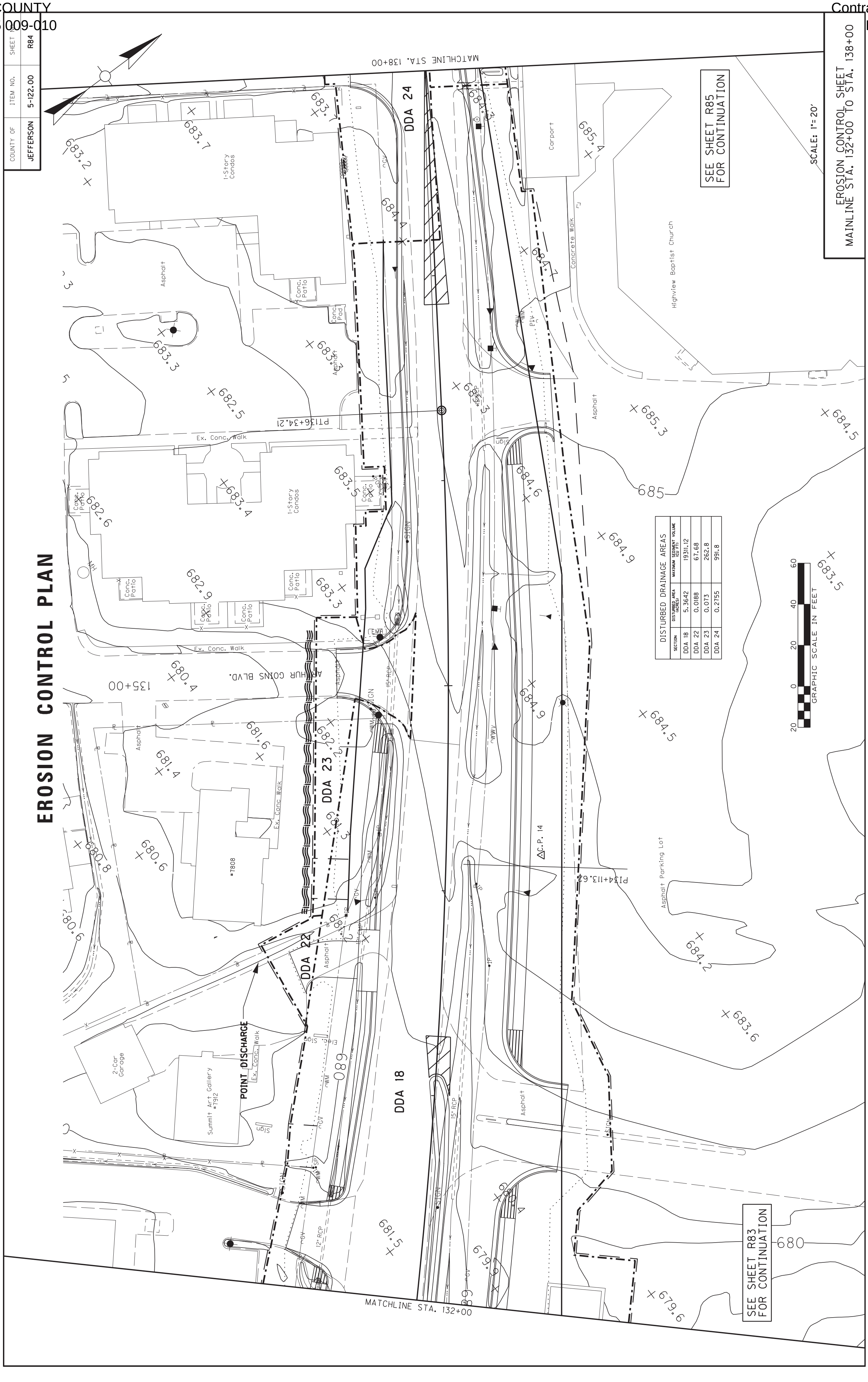
SCALE: 1"= 20'



DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 18	5.3642	19311.12
DDA 22	0.0188	67.68
DDA 23	0.073	262.8
DDA 24	0.2755	991.8

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R84

EROSION CONTROL PLAN



DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 18	5.3642	19311.12
DDA 22	0.0188	67.68
DDA 23	0.073	262.8
DDA 24	0.2755	991.8

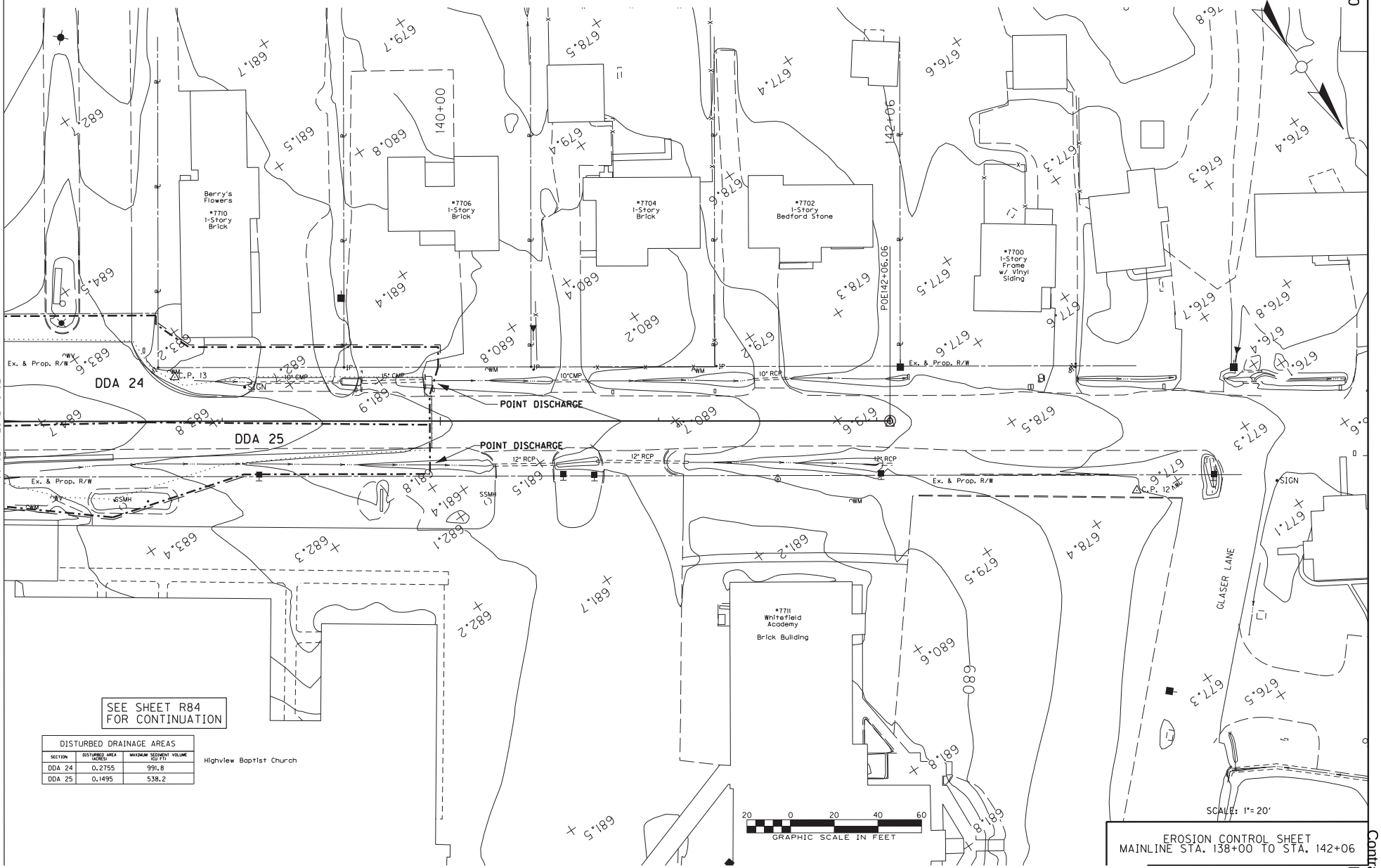
GRAPHIC SCALE IN FEET
20 0 20 40 60

SCALE: 1"= 20'

EROSION CONTROL SHEET
MAINLINE STA. 132+00 TO STA. 138+00

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R85

EROSION CONTROL PLAN



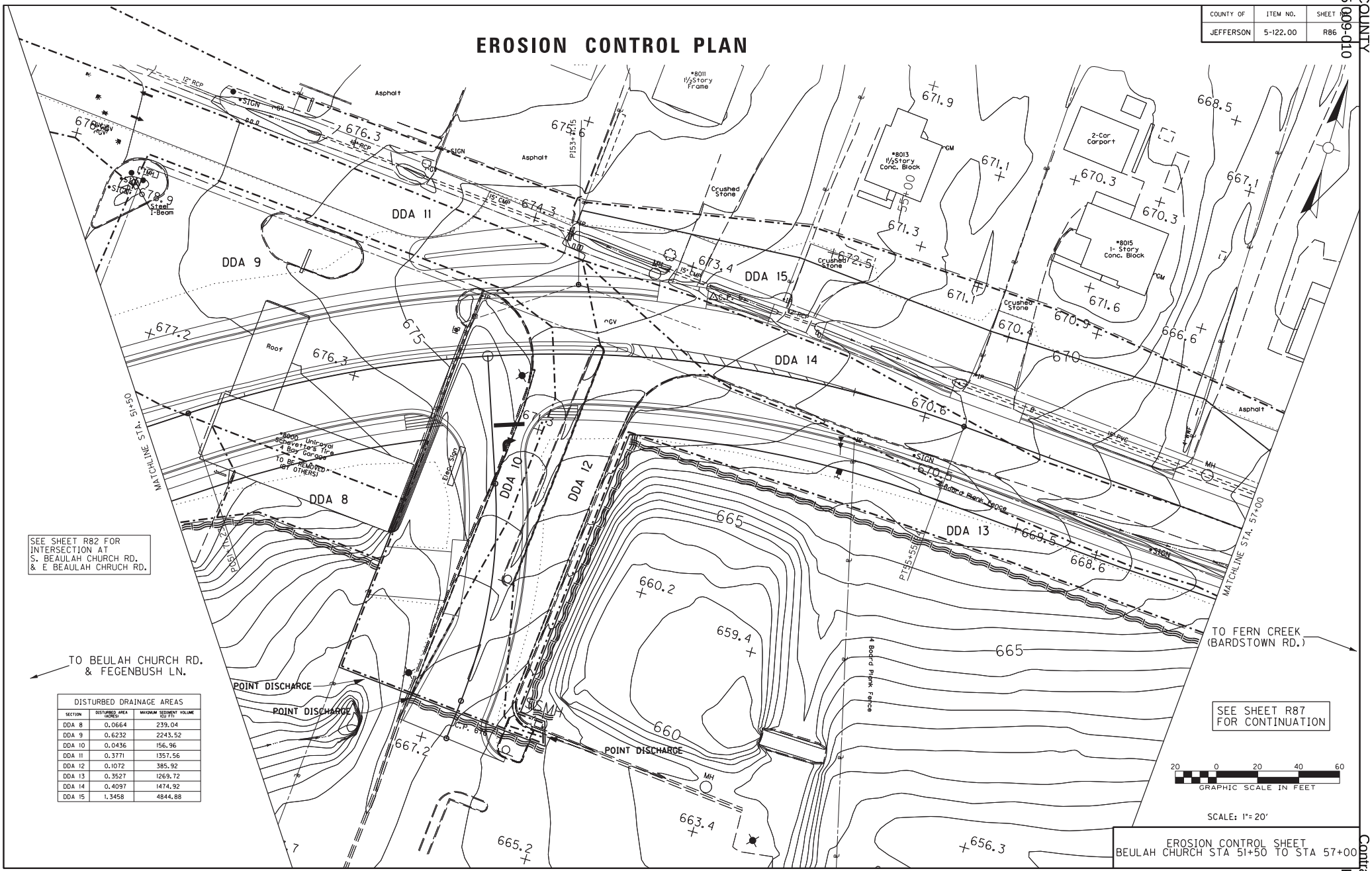
DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 24	0.2755	991.8
DDA 25	0.1495	538.2

SCALE: 1"= 20'

EROSION CONTROL SHEET
MAINLINE STA. 138+00 TO STA. 142+06

COUNTY OF	ITEM NO.	SHEET
JEFFERSON	5-122.00	R86

EROSION CONTROL PLAN



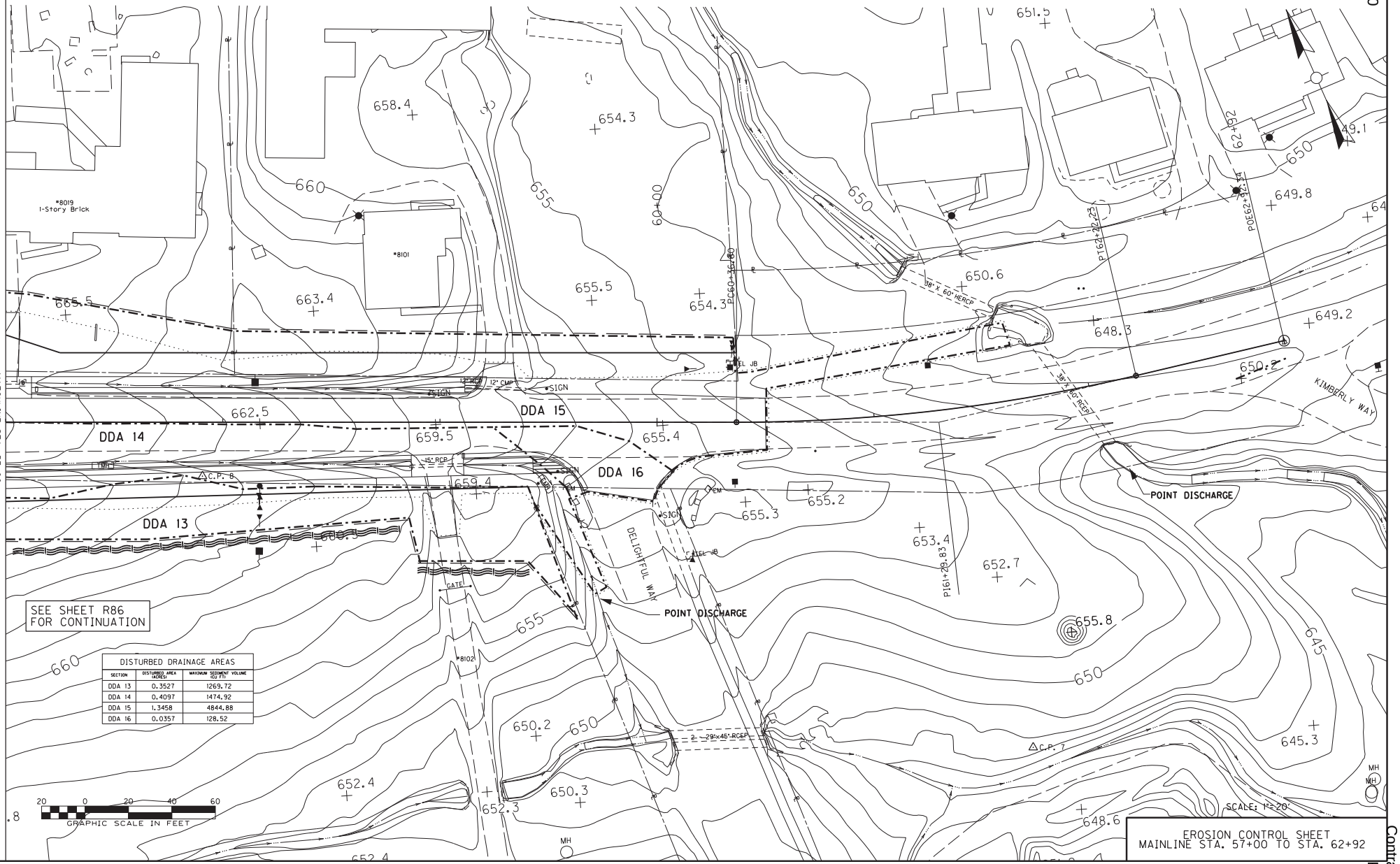
DISTURBED DRAINAGE AREAS

SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 8	0.0664	239.04
DDA 9	0.6232	2243.52
DDA 10	0.0436	156.96
DDA 11	0.3771	1357.56
DDA 12	0.1072	385.92
DDA 13	0.3527	1269.72
DDA 14	0.4097	1474.92
DDA 15	1.3458	4844.88

EROSION CONTROL SHEET
BEULAH CHURCH STA 51+50 TO STA 57+00

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R87

EROSION CONTROL PLAN



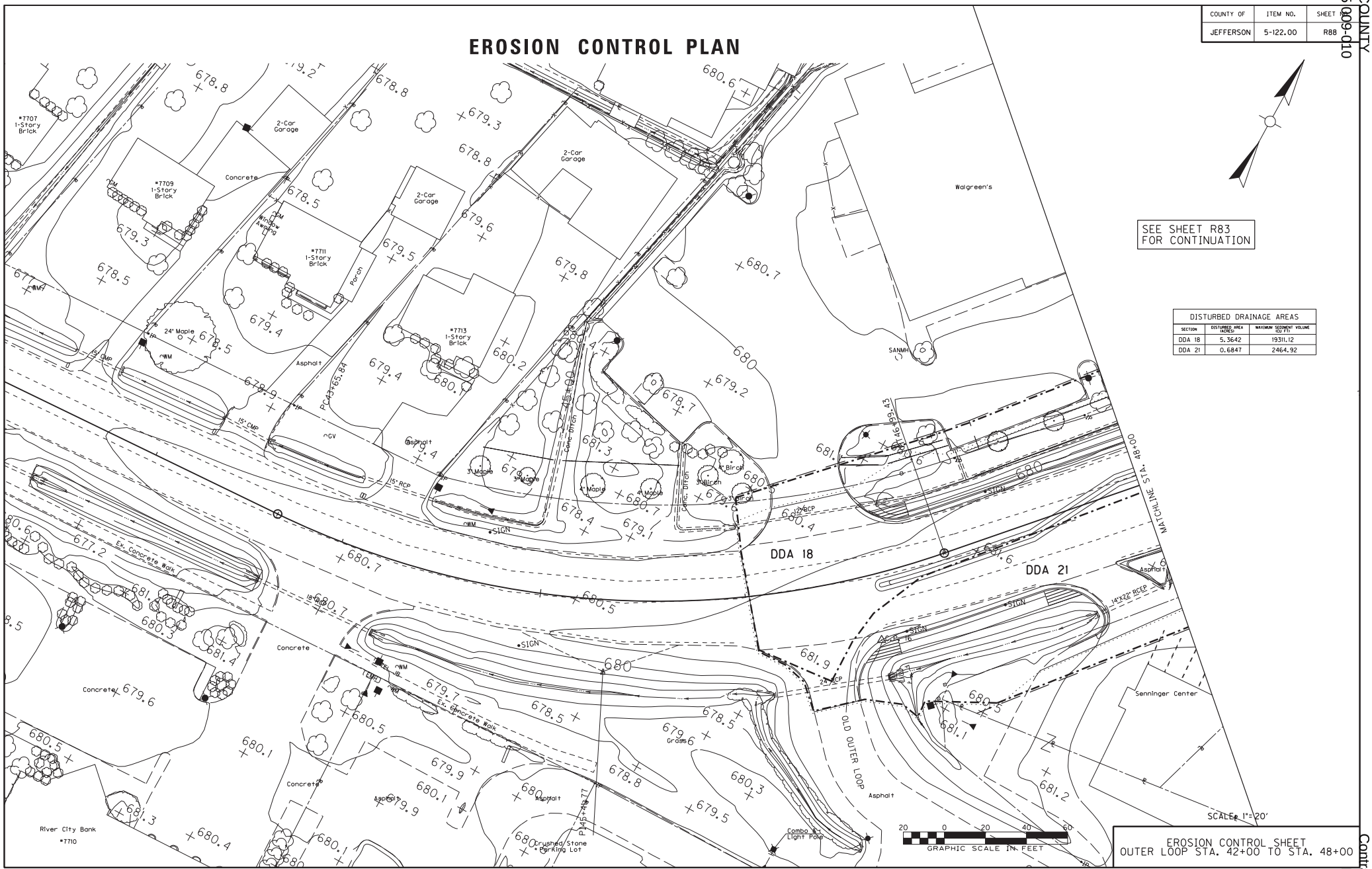
DISTURBED DRAINAGE AREAS

SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 13	0.3527	1269.72
DDA 14	0.4097	1474.92
DDA 15	1.3458	4844.88
DDA 16	0.0357	128.52

EROSION CONTROL SHEET
MAINLINE STA. 57+00 TO STA. 62+92

EROSION CONTROL PLAN

COUNTY OF	ITEM NO.	SHEET NO.
JEFFERSON	5-122.00	R88



DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 18	5.3642	19311.12
DDA 21	0.6847	2464.92

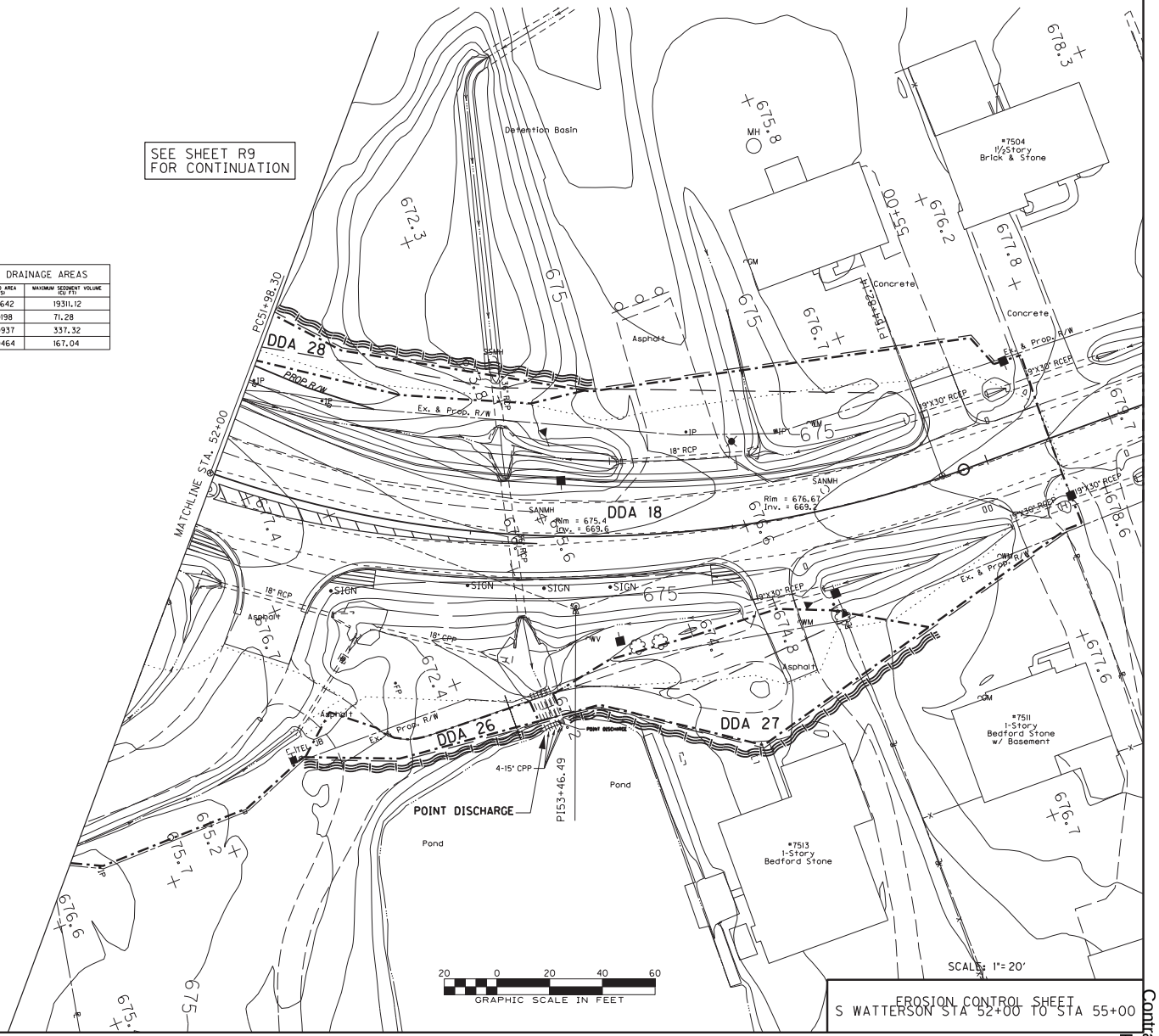
EROSION CONTROL SHEET
OUTER LOOP STA. 42+00 TO STA. 48+00

COUNTY OF	ITEM NO.	SHEET
JEFFERSON	5-122.00	R89

EROSION CONTROL PLAN

SEE SHEET R9
FOR CONTINUATION

DISTURBED DRAINAGE AREAS		
SECTION	DISTURBED AREA (ACRES)	MAXIMUM SEDIMENT VOLUME (CU FT)
DDA 18	5.3642	19311.12
DDA 26	0.0198	71.28
DDA 27	0.0937	337.32
DDA 28	0.0464	167.04



EROSION CONTROL SHEET
S WATTERSON STA 52+00 TO STA 55+00

2022

TECHNICAL SPECIFICATIONS
AND
STANDARD DRAWINGS
FOR
4” – 20” PIPELINE CONSTRUCTION

Louisville Water

LOUISVILLE WATER COMPANY
LOUISVILLE, KENTUCKY

SPENCER W. BRUCE, P.E. – PRESIDENT
TIMOTHY KRAUS, P.E. – VICE PRESIDENT, CHIEF ENGINEER

LOUISVILLE WATER COMPANY
TECHNICAL SPECIFICATIONS AND STANDARD DRAWINGS
4” – 20” PIPELINE CONSTRUCTION
2022

The Technical Specifications and Standard Drawings are provided as a technical resource for the construction of water projects managed and contracted by the Louisville Water Company. The Technical Specifications and Standard Drawings will apply to water projects with 4-inch through 20-inch pipeline sizes. All work shall be performed in accordance with accepted workmanship practices and the Technical Specifications and Standard Drawings.

The Technical Specifications and Standard Drawings revisions shall become effective immediately upon formal adoption by the Chief Engineer of the Louisville Water Company and shall supersede all former Technical Specifications and Standard Drawings for Pipeline Construction. Revisions are planned on a 5-year cycle. A copy of the current edition of the Technical Specifications and Standard Drawings may be obtained from the Chief Engineer at the 550 S. Third St. office, the Louisville Water Supervisor of Construction Inspection, Construction Inspection Services at the 4801 Allmond Ave. office, or at Louisville Water.com.

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS
4" – 20" PIPELINE CONSTRUCTION

TECHNICAL SPECIFICATIONS FOR PIPELINE CONSTRUCTION

1. GENERAL REQUIREMENTS

1.1 Pre-construction Valve Inspection

Prior to the beginning of construction, the Contractor shall be responsible for locating and inspecting all existing valves associated with the work to be done. Specific valve information and locations can be found in the **SUPPLEMENTARY SPECIFICATIONS**. Inspection work to be done on these valves shall be included in the Contractor's base bid, and shall consist of the following:

A. Locate the valve in the field. Valve boxes that are paved over or buried shall be uncovered and made accessible.

B. Inspect key tubes and operating nut. Key tubes shall be cleared of debris and the operating nut made accessible. Gate Keys must be placed and turned on Gate Valve Operating Nuts to ensure the functional operation of the valve. Company's Inspector must be present when operating gate valves.

C. Valve boxes (round tops) and lids shall be raised to grade where necessary.

Any valve determined by the Company to be inoperative shall be excavated and repaired or replaced by the Contractor as deemed necessary by the Company's Project Manager. Unit costs shall be as submitted by the Contractor in the **BIDDER'S PROPOSAL** form.

Except in cases of emergency, the Contractor shall not operate any valve without the direct supervision of the Company's Project Manager or Inspector. In an emergency, the Company's Inspector and Company's Radio Room shall be immediately notified by the Contractor. The Company's Radio Room direct phone line is (502) 569-3600, ext. 2700.

1. 2 Signage

1.2.1 Project Identification

The Contractor is required to install a project sign on each end of the project limits, at a minimum, unless on dead end roads where only one sign will be required. The sign shall be furnished by the Company and consist of a 4ft. x 4ft. or a 4ft. x 8ft. sheet of 1/4in. corrugated plastic board. The Contractor

shall supply the materials to install the sign using two – 4in. x 4in. posts by 10ft. in length set in concrete anchors with 18in. diameter and 3ft deep, primed and painted white, or other suitable posting method approved by the Company's Inspector.

The Contractor shall supply the materials to mount the sign to the posts using three – 2 ½ in. galvanized lag bolts with 1in. diameter galvanized washers on each post. The Contractor must install the signs prior to beginning any work and not remove the signs until final restoration is approved. Project Identification signs may not be required on new development projects, Kentucky Transportation Cabinet projects, on non-public roadways or projects less than 500 ft. The Project Identification signs shall be returned to Allmond Avenue inspection after project completion by the Contractor.

1.2.2 Contractor Vehicle Signage

The Contractor is required to display Louisville Water Contractor magnetic signs on both sides of all licensed vehicles when performing Louisville Water project contract work. The Company's Inspector will assign and collect magnetic signs on a project basis.

1.3 Traffic Control, Permits, and Regulations

1.3.1 Traffic Control

Wherever the excavation is in right-of-way, the Contractor shall conduct their operations so that at least one lane of traffic is always kept open, unless otherwise approved by the permitting agency. Where the excavation is performed in an intersection, the work shall be completed in one work day, including backfilling, placement of a concrete cap, or temporary bituminous pavement. Temporary paving restoration shall be adequately maintained until permanent pavement is placed.

A traffic control plan is required by the permitting agency and shall be provided by the Contractor to the Company's Project Manager prior to the permit request. The plan shall be digitally drafted utilizing an approved software and shall be in accordance with the Kentucky Department of Highways and/or Louisville Metro Public Works regulations and templates. The traffic control plan will be prepared by the Contractor and submitted by the Company to the respective agencies with the requested permit.

Traffic control shall be in accordance with the Federal Highway Administration Part VI of the Manual on Uniform Traffic Control Devices (MUTCD) latest edition.

Traffic control on streets shall be in accordance with requirements of appropriate City or County jurisdiction.

Specific signing and traffic control are incidental to this project and shall be determined by representatives from the appropriate agencies. No extra payment will be made for placement of these traffic controls.

Specific traffic control signage referencing lane blockages, detours, flaggers, etc. shall be removed from the site or covered when not in use. Signs that provide general messages such as "Construction Ahead" shall be left in place throughout the completion of the project.

The contractor shall be responsible for establishing temporary "No Parking" zones. The zones shall be confined to the immediate work area and appropriate transition zones and shall be limited in duration to the length of time work is performed in that area.

All construction vehicles shall be legally parked. Privately owned vehicles including vehicles owned by the construction crew shall not be parked in the "No Parking" zones.

1.3.2 Encroachment Permits

A road permit will be required for work performed within the right-of-way limits. No construction work shall start until these permits are obtained and provided to the Contractor by the Company. A copy of any approved permits obtained by the Contractor shall be provided to the Company's Project Manager and Inspector before work shall be begin.

Applicable permits shall be obtained by the Company from the appropriate agency: Louisville Metro Public Works, Louisville Metro Parks, Bullitt County Road Department, Oldham County Public Works, Kentucky Department of Highways and / or any other Jurisdictional Authority that governs the location within which work will be conducted for installing water mains in public right-of-way. The Contractor shall coordinate their time schedule for performing this work with the Company's Project Manager in order that the appropriate authority can be notified of the progress of construction. Special attention is directed to the working hours as specified by any of these traffic control departments in their respective permit.

A minimum fourteen (14) day advanced notice of the need for a permit shall be provided to the Company's Project Manager. Copies of the permit(s), along with the approved traffic control plan, shall be on-site, readily available, legible and displayed in construction vehicles used at the project site. The Contractor will be responsible for obtaining appropriate permits for

Joint-Bid Projects (i.e. Kentucky Transportation Cabinet (KTC) Projects, MSD Projects, or Developer Installed Projects, etc.).

The Contractor shall submit a traffic control plan to the Company's Project Manager with the request for the permit. As a minimum, the traffic control plan shall include lanes to be blocked, "No Parking" zones to be created, parking meters to be "bagged", method of controlling traffic, designated work hours, and proposed work schedule. Contractors must use certified traffic control devices and not deviate from the approved Traffic Control Plans unless directed by the Jurisdictional Authority and any such deviation shall be documented.

Unless specifically approved by the Permitting Agency, all roadways (including side roads) shall remain open, with traffic maintained in a safe manner. Outside the designated work hours, all travel lanes shall be temporarily restored and reopened to traffic, and all construction vehicles, equipment, and personnel removed from the roadway.

1.3.3 Crossing of Roads

With respect to all roadways: water main crossings, fire hydrant crossings, and/or service crossings shall be bored, jacked, or tunneled as specified within these Contract Documents. Any alteration(s) to the above shall require written approval from both the Company's Project Manager and the Jurisdictional Authority prior to the work being performed. Any additions and/or deletions in roadway bores/jacks/tunnels from those included in the project's scope of work shall require compensation adjustment in accordance with the **BIDDER'S PROPOSAL** form's Supplementary Unit Prices (if applicable) or with **CHANGES IN THE WORK**, in the **TERMS AND CONDITIONS** (if said Supplementary Unit Prices are not applicable).

1.3.4 Parking Meter Permit

The Contractor shall arrange for and pay for a permit as required by Louisville Metro Public Works Ordinance Title VII Traffic Code: Chapter 72: Parking Regulations for the bagging of all parking meters affected by the construction. Issuance and enforcement are administered by the Louisville Metro Public Works. Information may be obtained at the following address. All costs shall be included in the Contractor's base bid.

Louisville Metro Public Works
444 South 5th Street
Louisville, Kentucky 40202

1.3.5 Soil Erosion and Sediment Control Permit

The Contractor shall abide by and shall arrange for and pay for any and all permits involving the Kentucky Division of Water regulations pertaining to erosion and sediment control requirements as administered by the Louisville and Jefferson County Metropolitan Sewer District (MSD) or other jurisdictional authority where required. The Contractor shall comply with the applicable provisions of KRS Chapters 220 and 224 of the State Water Pollution Control Laws and other applicable statutes relating to the prevention and/or abatement of water pollution.

Projects involving disturbed areas of more than one (1) acre shall require the Contractor to submit a "Notice of Intent" Letter to the Kentucky Division of Water, as well as an "Erosion and Sediment Control" plan submitted to MSD for MSD's approval where required.

In any event, regardless of the size of the project, the Contractor shall: exercise every reasonable precaution at all times to prevent water pollution by the erosion and deposition of sediment in streams, lakes, and reservoirs; conduct and schedule operations so as to avoid or minimize the muddying or siltation of areas adjacent to the construction site including streets, storm sewers, vacant lots, etc.; and not leave partially completed areas of work in a manner that will contribute to erosion during the period in which work is suspended.

For each stream crossing (a "stream" being defined as a so-called blue-line stream, either solid or broken, as shown on the United States Geological Survey (USGS) quadrangle map), the Company shall apply for a construction permit, or for an exemption thereto, from the Kentucky Division of Water, if applicable, (see Section 1.3.6). In any event, the Contractor shall: utilize adequate and environmentally-responsible construction practices, placing silt control prior to the start of construction and maintaining it until vegetation has been established; revegetate all disturbed areas upon completion of construction; maintain at least three and one-half feet (3 ½') of cover over the top of pipe with respect to the stream bed elevation; and obtain approval from MSD where required, prior to the start of construction, of an "Erosion and Sediment Control" plan.

Louisville Water hereby gives notice to Contractors (and, Contractors are directed to provide notice to their employees, agents, assigns and Contractor's subcontractors, their employees, agents and assigns, and Contractor's suppliers, their employees, agents and assigns on the project site) that Louisville Water holds an Erosion Prevention Sediment Control Plan General Permit issued by MSD, pursuant to the Louisville/Jefferson County Metro Government Code of Ordinance No. 186, Series 2007 (amending Jefferson County Ordinance Chapter 159), Erosion Prevention

and Sediment Control, and, that certain activities require additional Individual Site Disturbance Permits, also issued by MSD, pursuant to the Louisville/Jefferson County Metro Government Code of Ordinance No. 186, Series 2007, Erosion Prevention and Sediment Control.

Pursuant to the requirements of that General Permit where required and any required individual site disturbance permits, Louisville Water further gives notice to Contractors of the County's Erosion Prevention and Sediment Control Ordinance. Louisville Water hereby expressly requires Contractors, their employees, agents, and assigns and Contractor's subcontractors, their employees, agents and assigns, and Contractor's suppliers, their employees, agents and assigns on the project site to comply with the provisions of that Ordinance and all permits, General and Individual, as part of the required compliance with "any federal, state or local government statute, ordinance, regulation and law which controls or limits in any way the actions of persons working on the project and which affects the purchase, installation, or disposition of any materials related to the project" —set out in **CONTRACTOR'S RESPONSIBILITIES**, in the **TERMS AND CONDITIONS**.

The Contractor's responsibility for compliance with the Erosion Prevention and Sediment Control Ordinance is in addition to those set out in **CONTRACTOR'S RESPONSIBILITIES**, in the **TERMS AND CONDITIONS.**

See Standard Drawing: 4501 in Appendix of Drawings.

1.3.6 Stream – Wetland Crossing Permit

The Kentucky Division of Water (KDOW) requires a General Water Quality Certification (W.Q.C.) Permit #12 for the crossing of streams or wetlands. It is not necessary to apply for an individual General Water Quality Certification (W.Q.C.) Permit #12 unless the stream is classified as an Outstanding, Exceptional, or Cold Water stream (Special Waters) by the KDOW. Listings of streams with these classifications can be found on KDOW's webpage: eec.ky.gov

For subfluvial (streams and rivers) pipe crossings, a flood plain construction permit will not be required pursuant to KRS 151.250 if the following requirements of 401 KAR 4:050 Section 2 are met:

- No material shall be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc. during construction of pipe crossings.

- Crossing trenches shall be backfilled as closely as possible to the

original contour.

- All excess material resulting from construction displacement in a crossing trench shall be disposed of outside the flood plain.

- For erodible channels, there must be at least three and one half (3.5) feet of backfill on top of all pipe or conduit (casing) points in the crossing.

- For non-erodible channels, pipes or conduits (casing) in the crossing shall be encased on all sides by at least six (6) inches of concrete with all pipe or conduit (casing) points in the crossing at least six (6) inches below the original contour of the channel.

For subfluvial (streams and rivers) pipe crossings greater than fifteen (15) feet in width:

- The water main shall be of special construction, having flexible, restrained, or welded watertight joints.

- Valves shall be provided at both ends of the water crossings so that the section can be isolated for testing or repair.

- Valves shall be easily accessible, not subject to flooding, and if closest to the supply source, shall have a meter vault installed with permanent taps made on each side of the valve to allow insertion of a small meter to determine leakage and for sampling purposes.

See Standard Drawings: 1608 & 4501 in Appendix of Drawings.

1.4 Project Drawings and Specifications

1.4.1 General

The Contractor shall make available a set of stamped plans and specifications at the job site at all times, including all addendums, revisions, changes, etc.

1.4.2 Combined Specification

This specification discusses the installation of ductile iron pipe, PVC (polyvinyl chloride) pipe, ductile iron appurtenances, and other project specified piping and materials.

The type of pipe to be installed is specified on the stamped plans or in the **SUPPLEMENTARY SPECIFICATIONS**.

1.5 Daily Materials Installed Form

The Contractor shall maintain the Daily Materials Installed forms supplied by the Company as a record of the pipe, fittings, and valves installed each day, and shall provide same to the Company's Inspector daily. Pipeline materials shall be listed on the form in the same sequence as installed.

1.6 Video Recording

Prior to the start of construction, the Contractor shall provide one (1) original walking, narrative continuous DVD video, or other acceptable media approved by the Company's Project Manager representative of the complete project area. The video should include narration of the video footage, verbal descriptions of the locations shown, and at a speed which clearly shows the condition of all areas which could be affected by project construction.

2. CONDUCT OF WORK

2.1 Safety

Wherever necessary, to prevent caving during the excavating of sand, gravel, sandy soil, or other unstable material, the trench shall be adequately sheeted, braced, and drained. The trench shall be maintained in accordance with OSHA regulations so that workers may work thereon safely and efficiently, and vehicular and pedestrian traffic, livestock, and animals are protected at the worksite. It is essential that trench pumps discharge into natural drainage channels or drain toward storm drains in compliance with regulatory agency requirements.

Any excavated materials to be stockpiled, shall be piled in a manner that will not endanger personnel, property, adjacent properties and pedestrians, and will not obstruct driveways, sidewalks, or thoroughfares. Drainage lines shall not be obstructed.

With respect the entry of and/or working within confined spaces, the Contractor shall abide by the KOSHA Standards referenced by 803 KAR 2:300 thru 2:320 for General Industry and 803 KAR 2:240 thru 2:423 for Construction Standards, plus any and all additional related regulations required by the Commonwealth of Kentucky.

For questions or concerns relating to this matter, the Contractor shall contact the KOSHA–Kentucky Occupational Safety & Health Program, (phone (502) 564-3070).

2.2 Jobsite / Work Area Cleanliness

The Contractor shall routinely and regularly remove all dirt and rubbish resulting from its operations and shall keep the jobsite or work area neat and tidy.

When its work is complete, it shall at once remove from the premises all tools and machinery belonging to the Contractor and all rubbish in connection with the work and render the jobsite or work area clean and free from all obstructions, delivering the work at completion whole, clean, tight, and ready for use, with the grounds in a neat and presentable condition.

2.3 Cooperation

The Contractor shall cooperate with local governing agencies, Kentucky Department of Highways, Louisville Water, other utilities, and other contractors to cause as little interference as possible, to avoid inconvenience and delay, and to facilitate prompt completion of the work.

The Contractor shall coordinate and schedule with the Company's Inspector valving off mains for each connection or change in existing mains, and will conduct the work to cause the shortest possible interruption of service.

3. SITE WORK

3.1 Utilities

3.1.1 General

The Company has endeavored to locate sub-surface obstructions from available records, and such structures are shown on the project drawings. The Company does not guarantee the accuracy of the information there shown, although it has undertaken to present available data. The project drawings do not show the size or location of services.

Wherever the Contractor deems it necessary to determine the exact location of existing pipe, valve, or other underground structures, the Contractor may make any examinations that it may determine desirable in advance of the work and no added compensation will be paid. Only in the event that the Company's Project Manager by written order directs the Contractor to make additional exploration and excavation will extra compensation be allowed.

The Contractor's attention is directed to the Kentucky 811 (811 or 1-800-752-6007), which has been established to provide accurate locations of below-ground utilities. The Contractor shall notify Kentucky 811 a minimum of two (2) business days in advance of any construction on this

project. Additional information for Kentucky 811 can be found at www.kentucky811.org.

3.1.2 Utilities in Conflict with the Pipeline

In excavating trenches and installing pipe, where any existing utilities (including water pipe, sewer pipes, inlets and drains, gas pipes, electric lines and conduits, telephone lines and conduits, cable television lines and conduits, communication – fiber optic lines and conduits, service connections from these utilities, trolley tracks used for cathodic protection, traffic signal loop detector system or street light system), cross the trench, they shall be protected, supported, and maintained in service and restored to the condition in which they were found, all at no additional cost to the Company.

Where because of location or grade, such utilities cannot be replaced to occupy their original location, they shall be changed at no additional cost to the Company and as directed by the Company's Project Manager and utility owner to accomplish their original purpose with adequate provision for drainage over or under the pipe as circumstances require.

Where any utility facility, including service connections, is touched or endangered by the work, the utility's management shall be notified by the Contractor, and the Contractor shall cooperate with the utility and pay the cost of protection and repair if damaged.

The Contractor shall protect all abandoned trolley tracks. If abandoned trolley tracks are damaged, the Contractor shall contact Pipeline Integrity Group of Louisville Gas and Electric Company at (502) 627-4427 prior to the repair of any cut or damaged rail. Repair, if required, shall be as directed by Louisville Gas and Electric Company.

3.1.3 Utilities Parallel to the Pipeline

Where utilities exist parallel to the water main and at a location which will interfere with its installation, they shall be handled as follows:

A. The affected utility shall be notified at least five days in advance, if possible, of the time necessary to do the work. The cost of temporary hook-up and any charges from the utility will be paid by the Contractor unless previously authorized by The Company.

B. Gas, sewers, telephone, or electric facilities shall be gently uncovered, and personnel from the pertinent utility must remove its facility after accomplishing a temporary hook-up to prevent loss of service. After the water main has been placed, the utility line will be reinstalled near its

original location and grade by the utility personnel, and the Contractor will complete the necessary backfill.

3.1.4 Water / Sewer Main Separation

Water mains shall be installed in accordance with Kentucky Division of Water regulations and Recommended Standards for Water Works (Ten States Standards).

Water mains shall be installed at a minimum of ten feet (10') horizontally from any existing or proposed non-storm sewer main or non-storm sewer manhole; measured from the outside diameters. ("Non-storm sewer" is defined as sanitary sewer, combined sewer, septic tank, or subsoil treatment system.)

When crossing over or under a non-storm sewer main, the water main shall maintain one and one-half feet (1.5') vertical separation with one (1) full length of the water pipe located so that both joints of the water pipe will be as far from the non-storm sewer as possible. Special structural support for the non-storm sewer and water pipes may be required.

When ten feet (10') of horizontal separation or one and one-half feet (1.5') of vertical separation cannot be maintained, the Company's Project Manager must be notified for resolution. There shall be no deviation from the above ten feet (10') horizontal and one and one-half feet (1.5') vertical separation requirements when water pipes are crossing non-storm sewer force mains. Only in the event that the Company's Project Manager directs the Contractor by written order may changes be made to these minimum separations.

3.1.5 Water Service Line Depth and Service / Non-Storm Sewer Separation

Water service lines shall be installed at the standard depth of forty-two inches (42"). Service lines crossing over or under a non-storm sewer shall maintain a minimum vertical separation of one and one-half feet (1.5').

See Standard Drawing: 1000 in Appendix of Drawings.

3.2 Laying Out the Work

The location of the work shall be defined by lines and elevations furnished by the Company's Project Manager on project drawings or specifications. The Contractor shall layout their own work, lines, measurements, bench marks, levels and grades, right-of-way and easement lines. The Contractor shall contact the Company's Project Manager prior to entering a property

on which the pipeline is being installed in an easement to ensure that the easement has been obtained.

Unless otherwise directed by the Company's Inspector or Project Manager, the Contractor shall complete each block of water main installation, or in the absence of intersecting streets, every 500 feet of water main installation in urban areas, every 1,000 feet of water main installation in suburban / residential areas, or 1,500 feet in rural areas before proceeding. This includes chlorination, pressure testing, service work, and permanent restoration of all areas affected by the construction.

The pipeline shall be installed throughout the public right-of-way or in easements as indicated on the project drawings. Generally, all work must be confined to the public right-of-way or easement provided; however, the Contractor may make arrangements for more operating room at its own expense and responsibility.

The Contractor shall obtain written permission for use of private property by the property owner and furnish an affidavit to the Company's Project Manager that proper arrangements are made prior to occupation of the property. Otherwise, the Contractor shall conduct its operations in a manner that will not interfere with adjacent property owners.

3.3 Stakes

The Contractor shall furnish and set all stakes necessary in laying out the location of lines and grades, shall protect all stakes by suitable guard stakes, and shall be responsible for maintenance of all stakes after being set.

3.4 Temporary Contractor Facilities

3.4.1 Power

The Contractor shall arrange and pay for all power required for construction purposes.

3.4.2 Heat and Enclosures

The Contractor shall furnish at its own expense, all temporary heat and/or enclosures that may be deemed necessary.

3.4.3 Light

The Contractor shall provide and pay for temporary electric light necessary for the execution of the work. This will include all necessary wiring, fixtures, and electric bulbs. Torches or other sources of light which can

cause damage by fire or smoke shall not be used.

3.4.4 Water

The Contractor may purchase water from the Company for use in construction operations. The Contractor shall include the cost of Temporary Water Service, and cost of water purchased, in the base bid.

3.4.4.1 Temporary Water Service

Water used by the Contractor or Company for disinfection, flushing, pressure testing, and leakage testing will be supplied by the Company at no cost. If water is needed for other purposes, the Contractor may obtain a temporary water service meter as outlined below. The Contractor will be responsible for fees and usage charges for the temporary water service.

To obtain a temporary water service meter, an application, with deposit, must be completed in Metering Services offices at 4801 Allmond Avenue between the hours 9:00am to 3:00pm Monday through Friday. Applications can be obtained in Metering Services or at LouisvilleWater.com.

Routine questions regarding a temporary service meter or billing concerns may be directed to our Call Center, (502) 583-6610.

Use of temporary services must comply with all Louisville Water Service Rules and Regulations found at LouisvilleWater.com. The Company prohibits the unauthorized use of fire hydrants and will work with law enforcement officials to pursue each incident to the extent allowed by law.

The Contractor is responsible to protect the fire hydrant temporary service meter and fire hydrant wrenches from loss and theft. Fire hydrant temporary service meters must be dismantled when not in use to protect from theft or freezing weather. Fire hydrant wrenches shall never be left unattended on a fire hydrant.

Fire Hydrants must be turned on completely to prevent flooding through the hydrant's weep holes. Flow shall be regulated by the temporary meter assembly valve. The Contractor must notify the Louisville Water Radio Room (569-3600, ext. 2700 or 2701) of all hydrants flowed between November 1 and March 31, or as freezing conditions dictate, so the hydrant can be winterized after use to prevent freezing.
Some fire hydrants have a locking device attached to prevent unauthorized use. The Contractor shall notify the Company's Project Manager or Inspector 48 hours in advance of the need to use such a fire hydrant, so the lock can be removed by Company personnel. The Contractor shall immediately notify the Company's Project Manager or Company

Inspector when the fire hydrant is no longer needed so the lock can be re-installed.

It is the responsibility of the Contractor to properly protect the fire hydrant temporary service meter, and to ensure that proper replacement techniques be applied, including placement of gasket to prevent water loss upstream of the meter.

3.4.4.2 Water Uses Excluded in Temporary Water Service

Any water used from a fire hydrant or blow off shall be metered or estimated. In some instances, the Company Inspector may approve non-metered water use (e.g. filling the main, flushing of hyper-chlorinated or potable water where practical.)

See Standard Drawing: 1601 in Appendix of Drawings.

3.4.5 Temporary Toilets

The Contractor shall provide in the vicinity of the work at locations satisfactory to the Company, and maintain in a sanitary condition, suitable temporary toilets for the use of the workers and Company personnel.

Upon completion of the work, the temporary toilets shall be removed, and the premises left in a sanitary condition. The temporary toilets shall be satisfactory to the governing jurisdiction's Board of Health.

3.4.6 Temporary Fencing

The Contractor shall supply and install temporary fencing when necessary to control livestock or property owner's animals requiring containment. The Contractor shall make arrangements with the property owner for removal / containment of the animals during any removal of existing fencing and placement of the temporary fencing.

3.4.7 Contractor Communications

The Contractor shall supply a 24 hour emergency contact number to allow direct communication from the project site or after working hours with the Company's Project Manager or Company Inspector.

4. PIPELINE MATERIALS

4.1 Pipe and Fittings

4.1.1 Pipe and Fittings Furnished by the Company

Pipe and fittings to be furnished by the Company shall be as specified in the Contract Documents.

4.1.2 Pipe and Fittings Furnished by the Contractor

Materials provided for “Furnish and Install” projects shall be as specified in the Contract Documents.

The Company’s Inspector shall verify that all materials meet project specifications prior to installation.

The Contractor retains ownership of all Contractor furnished materials under “Furnish and Install” contracts until the project is completed and accepted by the Company. Materials not installed cannot be returned to the Company.

4.2 Furnished to the Contractor

4.2.1 Materials

The Contractor shall requisition and haul, on appropriate vehicles, all Company supplied materials from the Company’s warehouse to the points of their respective installation.

The Contractor shall protect pipe and fittings to avoid vehicle exhaust, debris, and damage during transit from the Company’s warehouse to being installed.

As referenced in the current edition of the Company's "Process for Job Site Delivery of Line Pipe" Document, a copy of which is available from the Company’s Project Manager, pipe delivery from the pipe manufacturer to the jobsite is available if the Contractor makes arrangements as stated in said Document.

4.2.2 Requisition and Return of Materials

The Contractor shall requisition and return materials per current warehouse procedures, and shall account for or promptly return all materials so requisitioned.

Any unused materials shall be returned within five (5) working days after the date of substantial completion of the work as specified by the Company's Inspector. The cost of any unused materials not returned to the warehouse by this date shall be billed to the Contractor.

Below is a list of guidelines to draw or return materials from the Company's Allmond Avenue warehouse:

A. Call (502) 569-3633 or email warehouse@lwcky.com to make an appointment with the Warehouse. Appointments are scheduled for 30 minutes in length. Email or fax a copy of the materials list to the warehouse at 569-0812.

B. Appointments, including standing appointments, will be scheduled on a first-come first-served basis. Appointments are not required for emergency situations but must be approved by the Company's Project Manager.

C. Issues and returns are considered equal in regard to scheduling.

D. Warehouse office hours are 7:30 a.m. - 4:00 p.m., Monday thru Friday (except Company's holidays). Appointments are scheduled from 8:00 a.m. - 2:00 p.m.

E. All returned material must be in the same condition as it was when issued - clean and with all accessories. Returns of dirty, corroded, and/or rusted material, and/or fittings missing accessories, or otherwise damaged shall not be accepted.

F. The Contractor shall not return cut pieces of pipe to the Company's Warehouse. Contractors shall make best use of pipe, minimize cut pieces of pipe and shall not install more than two (2) pieces of cut pipe adjacent in a straight run. Only whole – uncut pipe may be returned to the Company's Warehouse and it must be clean and in good condition.

4.2.3 Loading and Unloading Procedures

Refer to **PIPE AND PIPE APPURTENANCES FURNISHED BY THE COMPANY**, in the **TERMS AND CONDITIONS**.

4.2.4 Pressure Test Pump

For pressure and leakage testing, the Company shall issue a test pump and meter kit to the Contractor. Contractors may furnish their own test pump if it is equipped with a quick-connect coupling to allow placement of the Company Inspector's pressure gauge and the test pump meter is approved

by the Company's Inspector.

The Contractor is to: notify the Gate Shop (502) 569-3600, ext. 2766, at the Warehouse at least two days in advance of the day of intended use; pick up the test pump kit between the hours to 7:30 a.m. and 3:30 p.m.; have the test pump kit for 48 hours at no charge (Saturdays and Sundays are excluded from the allowed time frame); and return the test pump kit to the Gate Shop within 48 hours of pick-up. If outstanding for more than two days, beginning on the third day, a rental fee will be charged to the Contractor; this fee shall be waived only if the Company's Inspector notifies the Warehouse Office or the Gate Shop at the Warehouse of special circumstances.

The Contractor shall be held responsible for the test pump and all test kit contents and shall be invoiced for all cleanup and/or repair costs. The Company does not loan or lease hoses and/or tools, including tapping machines.

4.3 Storage of PVC Pipe (Polyvinyl Chloride)

When storing PVC (polyvinyl chloride) pipe, caution should be exercised to avoid compression, damage, or deformation to the pipe, including the bell ends. Ensure that the weight of the upper units does not cause deformation to the lower units. All pipe shall be placed on wooden skids or other suitable material, be stored in accordance with AWWA's M23 Manual and be stored in a manner to prevent deformation and dirt, debris, foreign objects, or any other substance from entering the pipe.

5. EXCAVATION

5.1 Rock Excavation

5.1.1 Definition of Rock

Rock, for the purpose of this contract, shall mean boulders, pieces of concrete or masonry of sufficient size, and solid ledge rock (usually limestone) which, in the opinion of the Company's Project Manager, requires mechanical removal or drilling and blasting as approved by the Company's Project Manager. All rock shall be Unclassified. Unclassified rock shall mean any rock which has to be removed for construction and the cost of removal shall be included in the base bid price.

5.1.2 Trench Dimensions

Trench rock excavation shall be based on a trench width of eighteen inches (18") wider than the outside diameter of the pipe, equally spaced at nine

inches (9”) on each side of the pipe and a trench depth of six inches (6”) below the outside bottom of the pipe.

5.2 Rock Soundings

The Company does not know or pretend to know, nor does it undertake to state, the nature of all materials which will be necessary to excavate in order to construct the work contemplated herein. The Contractor is advised to perform rock soundings or subsurface investigations where feasible on all projects prior to bid. If rock sounding information is provided on the plans, the Contractor is advised that the rock sounding location is approximate and that the location and quality of rock can be highly variable and if the Contractor uses such data he/she does so at their own risk. The Contractor shall assume all risks arising from, or out of, the nature of all forms of materials necessary to be excavated, except as otherwise specified.

It shall be distinctly understood that reference to rock, earth, or any other material on the Plans or in the Contract, whether in numbers, words, letters, or lines, is not to be taken as a complete indication of classified rock excavation or the quantity or quality of either rock, earth, or any other material involved. The Contractor is advised to draw their own conclusions regarding the actual conditions to be encountered. The Company does not provide a guarantee as to the accuracy of the data and no claim will be considered for additional compensation when the materials encountered are not in accordance with the classification shown.

5.3 Rock Blasting Requirements

All blasting for excavations shall be conducted by a blaster licensed in the State of Kentucky in compliance with provisions of KRS 351 and KAR 803 and 805. Blasting will be permitted only after securing the approval of the Company’s Project Manager and only when proper precautions are taken for the protection of persons or property. Any damage caused by blasting, including damaged or raised pavement, shall be repaired by the Contractor at their expense.

The Contractor shall abide by all Federal, State, and Local laws and regulations regarding the storage and use of blasting materials (KRS 351 and KAR 803 and 805). The hours of blasting will be fixed by the Company’s Project Manager and adhere to state and federal guidelines. A blasting log must be kept, and a copy furnished to the Company.

5.4 Excavation in Streets and Parking Areas

5.4.1 Procedure

Where a specific road permit exists, it shall take precedence; otherwise, the following language shall apply.

Wherever the excavation is in paving, whether in the streets or in parking lots, the Contractor shall so conduct their operations that at least one lane of traffic is kept open at all times. Where the excavation is performed in a traveled lane, the trench shall be made safe during non-working hours by installing backfill and temporary bituminous pavement, backfill and concrete subbase, or plates (see "Plating" Section 5.4.3).
Where the excavation is performed in an intersection, the work shall be completed in one work day, including backfilling and temporary bituminous pavement. Temporary paving restoration shall be adequately maintained until permanent pavement is placed.

Traffic warning signs shall be placed and maintained on the streets being crossed, in accordance with the applicable agency as described in "Traffic Control" (Section 1.3.1).

5.4.2 Twelve-Inch (12") Cutback Requirement

The Contractor shall make two pairs of straight paving cuts of uniform width: the first pair being along the edges of the anticipated trench location, to be performed prior to excavating the pipe trench; and the second pair being along the anticipated twelve-inch (12") cutback locations, to be performed upon completion of trench backfill placement up to the subbase bottom elevation and prior to subbase placement.

Saw cuts shall be of sufficient penetration of the pavement base to ensure straight edges during pavement removal. Irregular edges shall be sawcut to provide straight edges at a uniform width.

Twelve-Inch (12") Cutback Requirement is not required when backfilling the trench with flowable fill (Controlled Low Strength Cementitious Material).

5.4.3 Plating

5.4.3.1 General

Recessed and surface mounted plates shall have a minimum thickness of one inch (1") and shall be placed on a minimum bearing area of one foot of pavement bordering the perimeter of the excavation.

All plates, whether or not in a traveled lane, are to have 45-degree beveled edges along the entire perimeter. All plates must have readily identifiable markings to reflect Contractor ownership.

If plates are unable to be recessed and must be pinned due to other utility encumbrances, the appropriate Road Maintenance Agency or property owner must be notified immediately.

5.4.3.2 Traveled Lanes

In traveled lanes, the Contractor shall provide plates recessed flush with the pavement for any excavation and trenches must be backfilled to subbase prior to placing plates. Any lane that is open to the traffic at any time during the day is defined as a traveled lane.

5.4.3.3 Non-Traveled Lanes

In non-traveled lanes, the Contractor shall also provide recessed plates where required by the Company's Project Manager and as described in the **SUPPLEMENTARY SPECIFICATIONS**. Otherwise, for non-traveled lanes and parking lots, surface mounted plates, properly secured to pavement, shall be provided, with the exception that all plates are to be recessed from November 15th thru March 31st, so as to minimize the potential hazards to snow removal vehicles, or as specified by the permitting authority.

See Standard Drawing: 4000 and 4100 in Appendix of Drawings.

5.5 Trenching

5.5.1 General

The Contractor shall make all excavations for pipe, blow-off connections, valves and vaults, etc. which may be required for this project. All excavations shall be backfilled or plated overnight with open pipe ends plugged or capped.

5.5.2 Alignment and Grade

The trench shall be excavated to the alignment and depth required and only so far in advance of pipe installation as the Company's Inspector shall permit. All pipe shall be installed and maintained to the lines and grades shown on the project drawings.

5.5.3 Trench Width

The trench width shall be as narrow as practicable to permit the pipe to be installed and jointed properly with a minimum of nine inches (9”) of separation between outside of the pipe and each sidewall of the trench. Trench width must allow for the backfill to be placed and compacted around the pipe. Vertical trench sides are desired where the nature of the excavated material and depth of trench will permit.

A trench width of eighteen inches (18”) plusthe outside pipe diameter shall be the pay width for any items of work for which compensation is made where trench width is a factor in computing the value of work done.

5.5.4 Trench Depth

The pipe trench shall be excavated to such depth as to provide for six inches (6") of depth under and a minimum forty-two inches (42") of cover over the outside of the pipe barrel. Unless otherwise specified, the trench shall have a flat bottom conforming to this grade. Any pipe installed with more than fifty-four inches (54”) or less than forty-two inches (42”) of cover must have written approval from the Company’s Project Manager.

Any part of the trench excavated below grade (grade being six inches (6”) under the pipe) shall be backfilled to grade with the same backfill material used to bed the pipe or other material approved by the Company’s Project Manager, and compacted to ninety percent of Modified Proctor as required in "BACKFILLING PROCEDURES AND TAMPING" (Section 7).

Unstable soil material shall be excavated from the trench, and the trench backfilled and compacted as described above.

Backfill greater than a depth of forty-two inches 42” shall be provided where indicated on the project drawings with no additional compensation.

The pipe trench shall not be excavated to exceed forty-eight inches (48”) of cover over the outside of the pipe barrel under normal conditions unless indicated on the project drawings.

In locations where pipe is installed on a sloped surface the minimum depth of cover of forty-two inches (42”) must be maintained at all points along the pipe.

Variations from these required depths will be allowed only on written authority from the Company’s Project Manager.

5.5.5 Minimum Clearances

Boulders, large stones, and rock (including shale) shall be removed to provide a clearance of at least six inches (6”) below the barrel of the pipe, valves, or fittings and to provide a clear width of at least nine inches (9") on each side of all pipe and appurtenances.

Bell holes of ample dimension shall be dug to permit jointing to be made properly and to ensure that the pipe is evenly supported throughout in length rather than on bells or couplings.

5.5.6 Contaminated Soil

In the event the Contractor suspects encountering contaminated soil (i.e., soils containing asbestos, PCBs, petroleum products, hazardous waste, radioactive material, and/or any other substance that presents a potential danger to persons or property exposed thereto), the Contractor shall take the following steps:

- Immediately secure the work site to prevent access by unauthorized personnel;
- Notify the Kentucky Department for Environmental Protection, if reportable, (reportable is when an actual spill or release of a hazardous material occurs or when there appears to be a threat of severe environmental harm), at (502) 564-0323;
- Immediately notify "Emergency Response" at 911;
- Immediately stop all work in the vicinity of the contaminated soil, and notify the Company’s Inspector, Project Manager, and Safety Representative.
- Follow the instructions from the Kentucky Department for Environmental Protection for disposal of excavated soils which are contaminated.
- Water lines installed or replaced in areas of organic contamination or in areas within 200 feet of underground or petroleum storage tanks or petroleum pipelines require ductile iron or other non-permeable materials and shall be used in all portions of the water line installation or replacement as approved by the Company’s Project Manager. These particular water lines shall also be installed with nitrile gaskets or other petroleum resistant gasket as approved by the Company’s Project Manager.

- Resume work only after receiving approval by the Company's Project Manager.

5.5.7 Preservation of Landscape

See also "RESTORATION" (Section 11).

Trees and shrubs shown on the project drawings identified for protection are to be protected from any damage both above and below ground, and the property owner is to receive full remuneration for any damage. Trees at other locations shall not be damaged or removed without explicit instructions from the Company's Project Manager and owner or responsible agency. Any limbs damaged during construction shall be trimmed and pruned to the approval of the Company's Inspector.

The project drawings may call for certain shrubs and trees in private roadways or easements to be transplanted until operations are completed and replaced in their original location or replaced with new stock.

5.5.8 Preservation of Historical Construction Materials

When historical construction materials (such as cobblestones, large brick, granite blocks, limestone, or other large stone building blocks used in the course of pavement, curbs, and sidewalks) are encountered in public streets or alleys, they shall be replaced with like material. The Contractor may request a waiver when this is not possible from the Company's Project Manager for approval. Brick masonry pavers that cannot be incorporated back into the work shall be palletized and delivered to Louisville Metro Public Works for preservation and maintenance of existing brick streets and alleys – See Section 7.02 M of the latest edition of Louisville Metro Public Works & Assets' Right-Of-Way Guide & Utility Policy.

5.5.9 Preservation of Boundary Monuments

Contractors shall be responsible for the location and protection of any boundary monuments locating property lines, property corners or right-of-way lines within project limits. If any monuments are removed or disturbed during construction, the Contractor will be responsible for replacement of the monuments by a Professional Land Surveyor of the State of Kentucky.

5.5.10 Archaeological

Contractors shall immediately stop work, if during the execution of work; they encounter any archaeological artifacts, skeletal remains, abandoned cemeteries or burial grounds within the work area and immediately notify the Company's Project Manager or Inspector.

6. INSTALLATION

6.1 Handling Pipe and Appurtenances

6.1.1 General

Proper equipment, tools, and facilities satisfactory to the Company's Project Manager shall be provided and used by the Contractor for the safe and convenient progression of the work. Slings used in handling the pipe shall be made of non-abrasive materials such as nylon. Chains or any sharp abrasive material shall not be used to lift or move pipe. Pipe fittings, valves, and other accessories shall at all times be handled with care to avoid damage.

The method of handling, hauling, and placing pipe in the trench shall be such that it will not damage the ductile iron pipe and its coating or polyethylene wrap or the PVC (polyvinyl chloride) pipe, and shall be done in accordance with the latest edition of AWWA's M23 & M41 manuals. The Contractor shall pay to replace all pipe and/or appurtenances that are damaged.

In loading and unloading, pipe shall be lifted in such manner as to avoid shock. Under no circumstances shall the pipe be dropped. Forklifts' forks or other tools and equipment shall not be inserted into the barrels of pipe, valves or other fittings to lift or move them.

6.1.2 PVC Pipe (Polyvinyl Chloride)

When handling PVC (polyvinyl chloride) pipe, the Contractor shall avoid abrasion damage and gouging or cutting by metal surfaces or rocks, and any stressing of bell joints and damage of bevel ends.

Avoid severe impact, particularly in subfreezing temperatures. In subfreezing temperatures, caution is advised in handling to prevent impact damage.

6.2 Installing Pipe and Appurtenances

6.2.1 General

All pipe installation shall be done under the supervision of an experienced superintendent who will be present on the job site during all construction activities.

Full pipe lengths shall be carefully lowered into the trench, individually, installed and backfilled, in such a manner as to prevent damage.

Unless shown otherwise on the project drawings, PVC (polyvinyl chloride) and Ductile Iron pipe joints will be rubber ring gasketed bell end type.

The Contractor shall furnish all equipment and materials necessary to make all joints completely assembled, except as described in "Furnished to the Contractor" (Section 4.2).

All pipe shall require a six inch (6”) undercut and a six inch (6”) compacted depth layer of backfill to ensure proper bedding for the pipe. These requirements are described in the sections "Trenching" and "BACKFILLING PROCEDURES AND TAMPING" (Sections 5.5 and 7, respectively).

The interior of all pipe, fittings, and other accessories shall be kept free from dirt and foreign material at all times. All pipe shall be clean and kept clean.

The exposed ends of pipe in the trench shall be closed by a water tight plug at all times when pipe installation is not actually in progress. See Section 6.14 “Plugging Ends of Pipe.”

6.2.2 PVC Pipe (Polyvinyl Chloride)

All PVC (Polyvinyl Chloride) pipe installation shall be in accordance with AWWA’s Manual No. M23 "PVC Pipe - Design and Installation", unless otherwise specified herein.

Wherever either horizontal or vertical curves or angles are shown on the project drawings, or found to be needed, appropriate ductile iron bends shall be used with PVC (Polyvinyl Chloride) pipe.

Under no circumstances will the bending of PVC pipe be allowed.

Backfilling procedures and mechanical tamping of backfill material shall be strictly adhered to as specified in the "BACKFILLING PROCEDURES AND TAMPING" (Section 7) of these specifications.

When installing PVC pipe, joint deflections shall not exceed that of the manufacturer’s recommendations.

6.2.3 Ductile Iron Pipe

All ductile iron pipe installation shall be in accordance with the latest editions of AWWA’s Standard Specification C600, "AWWA Standard for Installation of Ductile Iron Water Main and Their Appurtenances", and

AWWA's M41 manual, unless otherwise specified herein.

Wherever either horizontal or vertical curves or angles are shown on the project drawings, or found to be needed, appropriate ductile iron bends shall be used with ductile iron pipe.

When installing ductile iron pipe, joint deflections shall not exceed that of the manufacturer's recommendations.

Backfilling procedures and mechanical tamping of backfill material shall be strictly adhered to as specified in the "BACKFILLING PROCEDURES AND TAMPING" (Section 7) of these specifications.

Maximum Deflection for Full Length Ductile Iron Pipe @ 3 degrees (Push on Joint Pipe)		
Pipe Size	4" - 20"	
Pipe Length	18 feet	20 feet
Maximum Offset (inches)	15 in.	12 in.
Approx. Radius of Curve Produced by Succession of Joints (feet)	255 ft.	285 ft.

6.3 Boring and Tunneling

When boring is required, the Contractor shall use a boring tool of the proper size to form a tunnel for the purpose of installing the pipe from one excavation to the other without disturbing the surface. Where such methods are used, a plug or suitable closure shall be inserted in the end of the pipe to exclude any earth from the inside of said pipe.

Where it is necessary to cut the paved surfaces to accomplish the above boring beyond the limits of the excavation necessary to make the tap, the cost of making such pavement repairs shall be borne by the Contractor.

When installing main within the dripline of any tree with a diameter of 6 inches or larger, the root system shall be free bored. All tree root systems that require boring shall be free bored a minimum of 20 feet; 10 feet either side of the tree trunk. The bore shall be located a minimum of 4 feet below the ground surface and a minimum of 5 feet from the center of the tree. If the Contractor requests to bore utilizing Horizontal Directional Drilling methods, the Contractor must make the request in writing to the Company's Project Manager in advance. Regardless of the method selected, the cost of the tree bore shall be considered incidental to the installation of the pipeline,

and no extra compensation will be provided. The Contractor shall be responsible for the survival of the trees disturbed by the bore installation for a period of two (2) years after final contract payment for the project.

Whenever water main is to be installed through casing pipe, the water main shall be ductile iron pipe with restrained joints. Casing runners (spacers) shall be used to prevent damage during installation and to provide long term support. Pipe shall not rest on bells. Casing runners (spacers) shall provide sufficient height between bell joint and casing wall and should be fastened securely to the pipe.

Unless otherwise stated in the **BIDDER'S PROPOSAL** form and/or the **SUPPLEMENTARY SPECIFICATIONS**, there shall be three (3) casing runners (spacers) for each full pipe length, to be placed at the center and 3-foot from each end of each section of pipe. Ends of casing pipes must be grouted or End Seals installed to prevent debris and seepage from entering the casing pipe. The casing pipe shall extend a minimum of five (5) feet beyond the edge of pavement, unless otherwise noted on the project drawings.

Pipe may be installed in the casing using winch-drawn cable or jacking. Exercise care to avoid damage to the pipe, bell joints, interior and exterior coatings and polywrap.

For ease of installation, use a lubricant such as flax soap or drilling mud between casing runners and casing. Do not use petroleum products such as oil or grease.

Any rock encountered in the construction of bore pits and/or receiving pits shall be unclassified.

If voids shall develop or if the excavation is greater than the outside diameter of the casing pipe or tunnel liner by more than approximately one inch (1”), they shall be filled by pressure grouting. In the case where sections of casing pipe are field welded in order to meet the plan requirements, the Contractor shall weld the casing pipe fully around the entire circumference of the casing pipe and make the casing pipe available for weld inspection prior to installation of the water main.

All interior weld beads or slag shall not extend more than 3/32 inch from the interior pipe face.

See Standard Drawing: 1500 in Appendix of Drawings.

6.4 Mechanical and Push-on Joint Assembly

6.4.1 General

All rubber-gasket joints for Ductile Iron pipe shall be made in accordance with the current edition of AWWA's Standard Specifications C111 "Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings", as recommended by the manufacturer, and as described in the following Sections: 6.4.2; 6.4.3; and 6.4.4.

All rubber-gasket joints for PVC (polyvinyl chloride) pipe shall be made in accordance with the current edition of AWWA's Standard Specification C900 "Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch Through 12-inch, for Water Distribution", as recommended by the manufacturer, and as described in the following Sections: 6.4.2; 6.4.3; and 6.4.4.

6.4.2 Mechanical Joint

The inside of the bell and the outside spigot end shall be thoroughly cleaned to remove oil, dirt, grit, excess coating, and other foreign matter from the joint, and then painted with a manufacturer's approved lubricant.

The ductile iron gland shall then be slipped on the spigot end of the pipe with the lip extension of the gland toward the joint. The rubber gasket shall be painted with the lubricant and placed on the spigot end with the thick edge toward the gland. The entire section of pipe shall be pushed forward to seat the spigot end in the bell.

The gasket shall then be pressed into place within the bell with care being taken so that the gasket shall be evenly located around the entire joint.

The ductile iron gland shall then be moved along the pipe into position for bolting, all of the bolts inserted, and the nuts screwed up tightly, with the fingers. Nuts spaced 180 degrees apart shall be tightened alternately, in order to produce an equal pressure on all parts of the gland.

The torque applied for various sizes of bolts shall be as follows, unless otherwise specified by the manufacturer:

Mechanical Joint Bolt Torque Table:

5/8"	45-60 ft.-lbs
3/4"	75-90 ft.-lbs
1"	100-120 ft.-lbs
1-1/4"	120-150 ft.-lbs

Any mechanical joint restraints or gripper rings shall be retightened to Bolt Torque Table specifications no sooner than thirty (30) minutes after initial tightening, or as directed by the manufacturer.

All bolts installed above ground shall be rechecked for proper torque after placement in the excavation.

6.4.3 Push-on Joint

The inside of the bell and the outside of the spigot end shall be thoroughly cleaned to remove oil, grit, excess coating, and other foreign matter. If placement of the gasket occurs in the field, the circular rubber gasket shall be flexed inward and inserted in the gasket recess of the bell socket. A thin film of gasket lubricant shall be applied to the spigot end of the pipe.

Lubricant shall be applied evenly over the entire surface requiring lubrication, but avoid using an excessive amount. Use only lubricant approved by the pipe manufacturer. Failure to do so may promote bacterial growth or damage to the gaskets or the pipe.

Correct alignment of the pipe is essential for ease of assembly. The spigot end of the pipe shall be entered into the socket with care to keep the joint from contacting the ground.

The PVC (polyvinyl chloride) pipe shall be inserted into the bell or coupling by application of firm and steady pressure by hand or by block assembly until the spigot end slips through the gasket. The spigot end of the pipe is marked by the manufacturer to indicate the correct depth of insertion. Over-insertion (over-belling) of the pipe shall not be permitted and can cause rolled gaskets, split bells, failure of hydrostatic pressure test, and damage to previously assembled joints.

Ductile iron pipe joints shall be completed by forcing the spigot end to the bottom of the socket using a pry bar, backhoe, jack-type tool, or other device recommended by the manufacturer or approved by the Louisville Water Project Manager. When using a backhoe to home a section of pipe, a timber header should be used to protect the pipe from damage.

6.4.4 Field Cut Pipe

Field-cut ductile iron or PVC (polyvinyl chloride) pipe requires a cut perpendicular to the pipe. It is recommended that the pipe be marked around its entire circumference prior to cutting to ensure a perpendicular cut.

The end shall be beveled by using a beveling tool, rasp or grinder as appropriate to assemble the push-on joint. Round-off any sharp edges on

the leading edge of the bevel. Reinstall depth mark using original mark by manufacturer as a guide.

Mechanical Joint Assembly: When field-cut PVC (polyvinyl chloride) pipe is to be inserted into a mechanical joint end, the beveled end shall not be inserted into the MJ end. The above-stated requirements for a square cut, rounding off sharp edges, and establishing a correct-depth marker shall be performed.

6.5 Tie-ins to Existing Mains

The Contractor shall install the necessary pipe and fittings for the connections to the existing mains, as shown on the project drawings, and shall make the connections complete, ready-for-use.

It is imperative that the sequence of work involving an interruption of service be such that all operations be completed and the new pipeline ready to be connected prior to shutting off existing mains that are serving customer connections. Except for filling of the main, tie-ins shall not be accomplished until the main has passed pressure testing and disinfection.

All pipe, fittings and materials installed for tie-ins or taps not exposed to pipeline chlorination / dechlorination shall be disinfected with an adequate chlorine solution.

When tapping a main, the Contractor shall make the tap only after a hydrostatic pressure test of 125 psi is applied for fifteen (15) minutes with no leakage to the tapping sleeve and gate valve assembly. Before cutting an existing main under pressure, the Contractor shall ensure the adjacent existing valve and fittings are sufficiently secure. The Contractor shall be responsible to provide the tapping coupon to the Company's Inspector.

When connections to existing pressurized PVC water mains are to be made with a tapping sleeve and gate valve, the tapping sleeve and gate shall be installed a minimum distance of twenty–four inches (24") from any fitting end or pipe end.

The Contractor shall be responsible for a minimum advance notification of forty–eight (48) hours to the Company's Inspector to make connections to existing mains.

The Contractor shall be responsible to make up to three (3) connection attempts in situations due to circumstances outside of their control such as inoperable valves or unavailable Company assistance.

Subsequently, water mains abandoned in-place shall be capped at all open

ends as shown on the project drawings or as directed by the Company's Project Manager.

In cases where the water main must be put into service as soon as possible, very early strength concrete and mechanical joint restrained glands (gripper glands) can be specified by the Company's Project Manager for thrust restraint.

6.6 Transition of Pipe Materials (Ductile Iron Pipe and PVC Pipe)

All pipe material transitions (locations where ductile iron pipe is connected to PVC pipe, or vice versa) shall be made at a ductile iron fitting (tee, valve, coupler, sleeve, bend, reducer, etc.).
The joining of pipe ends by inserting the spigot to bell of different pipe materials will not be allowed.

6.7 Removal of Asbestos-Cement (AC or Transite) Pipe

Any required cutting or tapping of asbestos-cement pipe shall be performed by qualified Company personnel, or the Contractor as approved by the Company's Project Manager, and shall follow current Company Work Instructions for handling and cutting AC pipe. Any cutting or tapping shall be in compliance with all OSHA requirements. This work shall be coordinated by the Contractor through the Company's Inspector.

6.8 Setting Valves and Fittings

Valves, air valves, blow offs, and drains shall be assembled, and joints made up, both flanged and mechanical joint, as indicated on the project drawings. All valves and all reducers must be anchored by coated and deformed reinforcing bars, as detailed per the Company's Standard Drawing 1400, wrapped around each end of the valve or reducer, and cast in a cast-in-place concrete anchor block under each valve or reducer.

The weight of each valve shall be supported by solid pre-cast concrete bricks. Bricks should not be removed prior to concrete placement and shall not inhibit installation of polywrap. Cast-in-place concrete shall then be poured up to the bottom of the valve. In no instance shall the weight of the valve be supported by the adjacent pipe.

If PVC pipe is used with iron fittings, the weight of each fitting shall be supported by a two feet (2') x two feet (2') width x one foot (1') depth cast-in-place concrete support block; rod anchorage is required at vertical bends which require the placement of the thrust block under the fitting.

The concrete support block shall bear against undisturbed earth, as shall the

other above-mentioned types of concrete blocking. In cases where the water main must be put into service as soon as possible, very early strength concrete and mechanical joint restrained glands (gripper glands) can be specified by the Company's Project Manager for thrust restraint.

See Standard Drawing: 1400 in Appendix of Drawings.

6.9 Polyethylene Wrap for Ductile Iron Pipe and Fittings

Polyethylene wrap shall be installed in accordance with the current edition of AWWA Standard Specification C105 (ANSI A21.5) for American National Standard for Polyethylene Encasement, unless otherwise specified herein.

The Contractor shall cut the polyethylene roll in tubes 2 feet (2') longer than the standard length of pipe. Each tube shall be slipped over the length of ductile iron pipe, with centering to allow a one-foot overlap on each adjacent pipe section. After the lap is made, slack in the tubing shall be taken up for a snug fit, and the overlay shall be secured with polyethylene tape. Each length of ductile iron pipe shall receive two separate polyethylene wraps as described above.

Ductile iron pipe shall not be wrapped for more than 5 days in advance of placement into the trench. Pipe to be wrapped shall include ductile iron and ductile iron restrained-joint pipe and iron fittings. For any pipe that is wrapped prior to installation, Contractor shall use a method to lift and carry the pipe, such as canvas/nylon strapping, that will prevent damage to the wrapping.

Odd shaped appurtenances such as valves, tees, fittings, and other ferrous metal pipeline appurtenances shall be wrapped by using a flat sheet of polyethylene. Wrapping shall be done by placing the sheet under the appurtenances and bringing it up around the item to be wrapped. Seams will be made by bringing the edges together, folding twice, and taping down. Each appurtenance shall receive two separate polyethylene wraps as described above.

Care shall be taken when backfilling to prevent damage to the polyethylene wrapping. Sections of wrapping having cuts, tears, punctures, or other damage shall be repaired or replaced.

PVC (polyvinyl chloride) pipe requires no polyethylene wrap.

AWWA Standards for installing polyethylene wrap and the manufacturers' recommended methods for installing polyethylene wrap can be made available for review by the Company's Project Manager at the request of the Contractor.

See Standard Drawing: 1200 A-C in Appendix of Drawings.

6.10 Installation of Tracing Wire for PVC Pipe

The Contractor shall install tracer wire along with the PVC pipe and it shall be installed directly over the water main. For open trench installation, tracer wire shall be 12 AWG copper clad steel with a minimum of 30 mil blue HDPE or HMWPE insulation. For directional drill, boring, or other trenchless method installation, tracer wire shall be 12 AWG high strength copper clad steel with a minimum of 45 mil blue HDPE or HMWPE insulation . All tracer wire shall be rated for direct burial at 30 volts. The wire shall also be connected to each end of the water main. The tracing wire shall be wrapped once around each copper or ductile iron service line. The wire shall be stripped of insulation and connected or wrapped with each valve, and service line.

At each and every valve: the wire shall be directly connected to one of the valve joint bolts and shall extend upward along the outside of the key tube but inside the round top frame. The wire shall be looped upward along the outside of the key tube to maintain the wire continuity. This wire shall be taped securely to the top of the pipe at the midpoint and bell of each section of pipe.

6.11 Identification Ribbon

The Contractor shall install Identification Ribbon (I.D. Tape) on all PVC, Ductile Iron, and any other direct bury pipe four-inch (4”) through twenty-inch (20”) in diameter. Under paved or unpaved surfaces, this ribbon shall be installed at approximately eighteen inches (18”) below the surface or finished grade and directly over the water main.

6.12 Frames and Covers (Lids)

The Contractor shall set all frames and covers (lids) for air valves, blow-offs, and meter vaults. These frames and covers (lids) shall be set to grade and maintained in the proper position for the duration of the period covered by this contract.

Frames and covers (lids) shall be removed on all discontinued vaults, and surfaces shall be restored in accordance with the appropriate requirements of the sections "BACKFILLING PROCEDURES AND TAMPING" and "RESTORATION" (Sections 7 and 11, respectively). All removed frames and lids shall be returned to the Allmond Avenue warehouse.

6.13 Valve Boxes

Standard valve boxes consisting of key tubes, valve extension rods, and round tops and lids shall be installed on all valves by the Contractor. The box shall be centered on the operating nuts, shall be vertical, shall be set to grade, shall be placed and maintained in the proper position, and shall be free of dirt or other matter for the duration of the period covered by this contract.

Styrofoam collars or polywrap tape may be placed around each valve round top before placement of concrete and in such a manner to allow the valve box to be raised to grade without demolishing the concrete subbase.

Valve extension rods shall be placed on gate valve operating nuts to extend to within two feet (2') and three feet (3') of ground elevation. Valve extension rods may be welded together to reach the appropriate length. Valve extension rods are available at Louisville Water's warehouse if the project is a Company Supplied project.

Round tops and lids on all valves that are to be abandoned shall be removed and returned to the Allmond Avenue warehouse. The key tube shall be filled with concrete in paved areas; with compacted stone in other areas and surfaces restored in accordance with the appropriate requirements of the sections "BACKFILLING PROCEDURES AND TAMPING" and "RESTORATION" (Sections 7 and 11, respectively).

6.14 Plugging Ends of Pipe

When work has stopped at the end of a day, a cap or plug shall be installed in place in the open end of the pipe to maintain a water tight seal. If trench water or debris enters the pipeline or trench, it shall be removed from the pipe and trench before work proceeds. Permanent plugs or caps shall be installed where shown on the project drawings and shall be securely braced as shown on the thrust anchor details included on the detail sheet of the project drawings. Permanent plugs shall not be installed on PVC mains; only mechanical joint caps will be allowed. Plastic tape over pipe ends will only be permitted on non-standard / oversized pipe with approval of the Company's Inspector.

6.15 Thrust Anchors, Counterweights, and Restrained-Joint Hardware

The Contractor shall install concrete thrust anchors or counterweights (3,500 psi concrete) at all bends, reducers, deflection couplings, tees, offsets, gate valves and plugs/caps against undisturbed soil to withstand maximum test pressure. The Contractor shall provide all labor and material to construct the thrust anchors, piers, and counterweights, for all fittings, both horizontal and vertical. These concrete thrust anchors shall have

minimum dimensions as indicated on the thrust anchor schedule shown on the detail sheet in the project drawings.

If field conditions prevent standard concrete thrust anchors placement as shown in project drawings, the Company's Project Manager must approve any modification. Concrete thrust anchors in solid rock trenches may be modified with approval of the Company's Project Manager.

The Company's Inspector may require forming (plywood or steel) in order to properly locate and position concrete thrust anchors. Restrained-joint hardware is not intended to be used in lieu of concrete thrust anchors and counterweights. Such hardware is to be used only when it is necessary to return a water main to service immediately, as when making tie-ins or at the specific instructions of the Company. The Company Inspector may require restrained joint hardware in areas where the water main may be disturbed after installation by other utility crossings or nearby excavation.

Whenever restrained-joint hardware is used to restrain fittings, the Contractor must also pour a concrete thrust block. In no instances, shall restrained-joint hardware alone be accepted as a permanent thrust restraint. Mechanical joint restraining glands (gripper glands) are not to be used on plain end fittings.

Any mechanical joint restraints or gripper glands shall be retightened to Bolt Torque Table specifications no sooner than thirty (30) minutes after initial tightening, or as directed by the manufacturer.

All bolts installed above ground shall be rechecked for proper torque after placement in the excavation.

See Standard Drawing: 1400 in Appendix of Drawings.

7. BACKFILLING PROCEDURES AND TAMPING

7.1 General

In general, trench dimensioning and backfill materials shall be as follows: six inches (6") of vertical clearance with the bottom of the trench, and the subsequent layered placement of pit run sand, DGA or manufactured sand bedding along the bottom of the pipe; nine inches (9") of horizontal clearance with each side of the trench, and the subsequent layered placement of pit run sand, DGA, or manufactured sand backfill along each side of the pipe; the layered placement of pit run sand, DGA, or manufactured sand to the elevation of twelve inches (12") above the crown of the pipe; and, if in a lawn area, the remainder of the backfill to be common (but acceptable) fill, or, if in a paved and/or a to-be-paved area,

the remainder of the backfill to be the layered placement of pit run sand, DGA, manufactured sand, #57 stone or flowable fill up to the bottom elevation of the respective pavement restoration scheme. All bedding and backfill material shall be uniform and continuous for the entire trench excavation limits.

The total depth of cover (i.e., the vertical distance from crown-of-pipe to ground/pavement surface) shall be at least forty-two inches (42”). The cost of applicable backfill material, backfilling, and required tamping shall be covered in the base bid as shown on the **BIDDER'S PROPOSAL** form.

All backfill (except flowable fill) shall be properly compacted by pneumatic, vibratory, or other approved compaction equipment. A backhoe bucket is not an approved compaction device. The compaction effort and lift thicknesses shall be performed in a uniform and consistent manner in accordance with these specifications. The Company reserves the right to conduct compaction testing and observation, and such testing or observation will not relieve the Contractor of any future warranty responsibilities. When instructed by the Company’s Project Manager, the Contractor shall excavate backfilled material to a particular grade for testing. Backfilled areas which do not pass this test shall be excavated and re-compacted until they meet compaction specifications. Areas excavated for testing shall be re-compacted in accordance with this compaction specification. The cost of this work shall be included in the base bid.

Appropriate and sufficient backfill material shall be furnished by the Contractor to replace material deemed unsatisfactory by the Company’s Project Manager or Inspector.

Unsatisfactory material includes unsuitable soil as described in "FINAL BACKFILLING" (Section 7.6) and frozen or exceptionally wet backfill material and may include backfill material excavated for testing purposes or backfill material excavated for failure to meet compaction requirements. See Standard Drawing: 4300 in Appendix of Drawings.

7.2 Acceptable Backfill Materials

7.2.1 Pit Run Sand (Natural Sand)

Pit Run Sand is sand resulting from the natural degradation of rock and shall meet the material and gradation requirements of Section 804 Fine Aggregates of the current edition of the Kentucky Department of Highways “Standard Specifications for Road and Bridge Construction”.

7.2.2 Dense Graded Aggregate (Kentucky DGA or Indiana #73)

Dense Graded Aggregate shall meet the material and gradation requirements of Section 805 Coarse Aggregates of the current edition of the Kentucky Department of Highways "Standard Specifications for Road and Bridge Construction".

7.2.3 Flowable Fill (Controlled Low Strength Cementitious Material)

Flowable fill, a quick-setting, cementitious, self-compacting, shrinkless fill material, may only be used with the prior written approval of the Company's Project Manager.

The mix design must be approved prior to placement by the Company's Project Manager. The 28-day compressive strength of said fill shall not exceed 150 psi, and the minimum strength shall be 25 psi. The mix shall include sand, cement, fly ash with water not included as part of the volume mix. Fly ash shall have a pH value of no less than 7.0 and no greater than 12.5. The pipe shall be enveloped with pit run sand, manufactured sand or dense graded aggregate and backfilled in accordance with "Initial Backfilling" (Section 7.5).

7.2.4 Manufactured Sand (Kentucky 3/8" Manufactured Sand)

Manufactured Sand shall be the material resulting from the crushing and classification by screening, or otherwise, of rock and gravel. Manufactured Sand shall be washed and contain no fine particles and or dust.

The Contractor shall be responsible for all dust control associated with the use of Manufactured Sand. Manufactured Sand shall meet the material and gradation requirements of Section 804.08 Pipe Bedding of the current edition of the Kentucky Department of Highways "Standard Specifications for Road and Bridge Construction".

7.2.5 Kentucky #57 Stone (or Indiana #8 Stone)

Kentucky #57 Stone shall only be used for creating a firm base in undercut excavations when wet or excessively soft soil conditions are encountered. Any other use shall be approved by the Chief Engineer. Kentucky #57 stone shall not be used as bedding, initial backfilling, or for trench backfill in paved areas. Kentucky #57 Stone shall meet the material and gradation requirements of Section 805 Course Aggregates of the current edition of the Kentucky Department of Highways "Standard Specifications for Road and Bridge Construction".

7.2.6 Kentucky #3 Stone (or Indiana #2 Stone)

Kentucky #3 Stone shall only be used for Fire Hydrant Drainage Pits. (See Section 9.2 Drainage Pit). Kentucky #3 Stone shall meet the material and gradation requirements of Section 805 Coarse Aggregates of the current edition of the Kentucky Department of Highways “Standard Specifications for Road and Bridge Construction”.

7.2.7 By-Product of Trench Rock Excavator

The by-product of trench rock excavator equipment may be acceptable for pipe bedding and/or backfill material if prior written approval is granted by the Company’s Project Manager.

The Company’s Project Manager must review the material and be assured of the Contractor’s ability to compactthe material. The Contractor must wash the material thoroughly (i.e., no dust particles); and to sieve the material thoroughly so that no individual rock pieces exceed sieve size of one inch (1”) (25.0mm).

7.3 Un-Acceptable Backfill Materials

Un-washed Manufactured Sand, Black Sand (coal or coke by-products), slag, or foundry by-products will not be allowed as pipe bedding and / or backfill material.

7.4 Bedding

For the entire length of the trench, the excavation shall provide a six inch (6”) space below the pipe, which shall be placed and firmly compacted with approved backfill materials, pit run sand, manufactured sand, Dense Graded Aggregate, or #57 stone, as specified by the Kentucky Transportation Cabinet Department of Highways Standard Specification for Road and Bridge Construction, (latest edition) “Fine Aggregates” or "Coarse Aggregates," to form bedding for the pipe.

The bedding shall be excavated at bells, valves, and fittings so the barrel of the pipe will have bearing on the bedding for its full length.
See Standard Drawing: 4300 in Appendix of Drawings.

7.5 Initial Backfilling

Initial backfill should occur as soon as possible after the installation of pipe, so as to prevent the pipe from shifting. After the pipe has been placed on the bedding, pit run sand, manufactured sand, #57 stone, or Dense Graded Aggregate, shall be deposited in the trench by mechanical equipment and

distributed in six inch (6”) layers on both sides of the pipe for the full width of the trench, the trench width having nine inches (9”) of horizontal clearance along each side of the pipe. The initial backfill shall be tamped in six-inch (6”) layers and thoroughly compacted under the centerline and on each side of the pipe. Backfill shall be placed and tamped to a height of at least twelve inches (12") above the top of the pipe.

See Standard Drawing: 4300 in Appendix of Drawings.

7.6 Final Backfilling

When not under paved surfaces or surfaces where paving is not intended, the remainder of the trench shall be backfilled with soil that is not excessively wet, and is free from brush or vegetative matter, rocks larger than fist-size, pieces of concrete larger than fist-size, cinders, or any other matter which could prevent proper consolidation. Place in 12-inch lifts and compact with hand-held mechanical plate compactor, rammer or a sheepsfoot roller. Use a minimum of two passes.

When under paved surfaces or surfaces where paving is intended, the remainder of the trench shall be backfilled for the full depth with pit run sand, manufactured sand, Dense Graded Aggregate, or #57 stone as specified by the Kentucky Department of Highways Standard Specification for Road and Bridge Construction, (latest edition) “Fine Aggregates” or "Coarse Aggregates." Flowable Fill may be used if approved by the Company’s Project Manager. At pavement crossings, this pavement backfill shall extend five feet (5') beyond each end of the paving or proposed paving.

The final backfill in paved areas shall be placed and compacted in accordance with the following table.

Trench Backfill and Compaction Requirements Beneath Pavements

	Max. Loose Lift Thickness (inches)				Min. # of Passes	Example Models
	MFD* Sand	Pit Run Sand	DGA	No. 57 Stone		
Lightweight Vib. Plate Compactors (100-220lbs)	8	8	6	8	3	Wacker-Neuson WP 1540; MBW GP18
Mediumweight Vib. Plate Compactors (220-660lbs)	12	12	9	12	3	MultiQuip MVH206GH; MBW GPR77H
Heavyweight Vib. Plate Compactors (>660lbs)	18	18	12	18	3	Wacker-Neuson BPU 4045A; MBW GPR135H
Smooth Drum Vibratory Rollers	12	12	9	12	3	Wacker-Neuson RTLx with Smooth Drum Att.
Equipment Mounted Compactors	24	24	24	24	3	Allied 1000B; Caterpillar CVP 110

*MFD=Manufactured

The total depth of cover (i.e., the vertical distance from crown-of-pipe to ground/pavement surface) shall be at least forty-two inches (42") and no more than forty-eight inches (48") unless approved prior to installation by the Company's Project Manager.
See Standard Drawing: 4300 in Appendix of Drawings.

8. PLACING WATER MAIN IN SERVICE

8.1 General

After a section of main has been properly installed and valved, the main shall be filled, disinfected, pig cleaned, flushed, and pressure and leakage tested before being placed in service. The Company's Project Manager or Inspector may require for the pressure test to be performed prior to the disinfection process.

The Contractor shall provide adequate personnel to assist the Company's Inspector on-site for placing the water main in service.

The pig shall be inserted into the pipeline at the time of installation. Pipe soap shall not be applied directly to pigs. Pipeline pigs shall be supplied by the contractor unless otherwise specified in the Supplementary Specifications.

Disinfection, cleaning, and flushing of the water main must result with subsequent water samples passing all of the Company's water quality tests.

8.2 Filling and Disinfection of the Water Main

8.2.1 Filling of the Water Main

The main shall be chlorinated prior to beginning the pigging operation and shall be filled from downstream of the pig. Contractors must use a flushing meter assembly with check valve for filling mains to account for water usage and provide backflow prevention.

The main shall be filled with hyperchlorinated water for at least 24-hours prior to the beginning of flushing operations.

The primary method of disinfection shall be the tablet method using a tablet chlorinator supplied by the Company's Inspector. Use of granular calcium hypochlorite (HTH or equal) must be approved by the Company's Project Manager or Inspector only if the tablet method is not feasible. If the granular method is approved, the granular calcium hypochlorite (HTH or equal) must be applied into each section of pipe during installation and prior to filling the water main. See Section 8.2.2.

While the pipe is filling, air shall be expelled through fire hydrants, air valves, or flushing connections as directed by the Company's Inspector.

The Contractor may be instructed to install additional taps as needed to facilitate the filling or expelling of air and they shall be provided at no additional cost to the Company. Abandoned taps shall be protected by covering with concrete.

All flushing connections, fill connections, discharge connections, and check valves shall be installed by the Contractor at locations indicated on the project drawings or as directed by the Company's Project Manager or Inspector if a fire hydrant or service connection cannot be utilized.

If not specified to be furnished by the Company, particular components of flushing/discharge hardware shall be furnished by the Contractor.

8.2.2 Disinfection of the Water Main

New or relocated water mains shall be disinfected in accordance with the requirements of the Kentucky Division of Water, Natural Resources and Environmental Cabinet and AWWA Standard C651 upon completion of construction and before being placed in service.

The primary method of disinfection shall be accomplished by using a tablet chlorinator while filling. The granular method is not the preferred method and must be approved by the Company's Project Manager or Inspector. For large volumes of water, the Company's chlorination trailer may be utilized using liquid chlorine (Sodium Hypochlorite 12.5%) supplied by the Contractor.

The tablet method utilizes a tablet chlorinator supplied by the Company's Inspector. Calcium Hypochlorite disinfecting tablets (Norweco Bio-Sanitizer or equal) shall be inserted into the tablet chlorinator. The tablet chlorinator must be fed by a 2" hose with a check valve placed upstream of the chlorinator, and shall then be connected to the water main by a 2" hose. All hoses used for the feed or supply line shall be supplied by the Company. If discharge hoses are needed, they shall be supplied by the Contractor. The Contractor shall lay out the hoses for the chlorination operation at the direction of the Company's Inspector.

The granular method is not preferred, but may be used for special circumstances as approved by the Company's Project Manager or Inspector. Use of this method requires the application of chlorine or chlorine compounds (calcium hypochlorite granules - HTH or equal) to each pipe length at the time of installation. The Contractor shall supply granular calcium hypochlorite or sodium hypochlorite as needed. Granular calcium

hypochlorite shall conform to ANSI / AWWA B300 and contain a minimum of 65% available chlorine by weight and be stored in a cool, dry, and dark environment to minimize its deterioration in accordance with the manufacturer's recommendation. Granular calcium hypochlorite must meet NSF /ANSI Standard 60 requirements.

For large volumes of water, the Company's chlorination trailer may be utilized using liquid chlorine (sodium hypochlorite 12.5%) supplied by the Contractor. Sodium hypochlorite liquid shall conform to ANSI / AWWA B300 and contain a minimum of 12.5% available chlorine by volume and the storage conditions and time must be controlled to minimize deterioration. Sodium hypochlorite liquid (12.5%) will freeze at -10 degrees Fahrenheit (F). Sodium hypochlorite liquid must meet NSF /ANSI Standard 60 requirements.

Any other disinfection methods not listed in this specification must be in accordance with the Kentucky Division of Water, Natural Resources and Environmental Cabinet and AWWA Standard C651 and shall be approved by the Company's Project Manager.

The chlorination method selected shall provide a concentration of at least fifty (50) ppm and a residual of at least twenty-five (25) ppm at the end of 24 hours, to be followed by thorough flushing in compliance with 401 KAR 8:150 "Disinfection, Filtration, and Recycling ", Sections 4(1) and 4(2).

The following amounts of calcium hypochlorite tablets or granules or sodium hypochlorite liquid (@ 12.5 %, per 100 linear feet of pipeline, should produce fifty (50) ppm of chlorine:

Amount of Tablet or Granular Chlorine or Sodium Hypochlorite per 100 Linear Feet of Pipeline:			
Pipe Size	Number of calcium hypochlorite Tablets	Volume of calcium hypochlorite Granules	Volume of Sodium Hypochlorite @12.5% solution
4"	1/2 tablet	1/8 cup	0.031 gallons
6"	1/2 tablet	1/4 cup	0.072 gallons
8"	1/2 tablet	3/8 cup	0.126 gallons
12"	1-1/2 tablets	7/8 cup	0.286 gallons
16"	2-1/2 tablets	1-1/2 cups	0.501 gallons
20"	3-1/2 tablets	2-1/2 cups	0.787 gallons

After the disinfection procedure has begun, the Contractor shall tag-out and not operate any valves, including those newly installed, without consent and presence of the Company's Project Manager or Inspector.

The Contractor shall perform the chlorination under the complete control of the Company's Project Manager or Inspector.

8.3 Pigging and Flushing the Water Main

8.3.1 Pigging the Water Main

At the beginning of the pigging operation and under the direction of the Company's Inspector, the upstream valve (feeder valve) shall be partially opened first and adjusted as needed after the pigging operation has begun. Next, the valve downstream of the pig (outlet valve) shall be opened immediately allowing the pig to move at approximately one (1) foot per second. When pushing the pig fed by a blow-off, flushing connection, or a tap, a check valve is required. All new ductile iron and PVC pipe installations shall be pigged. Pipeline pigs shall be supplied by the Contractor unless otherwise specified in the Supplementary Specifications. Pigs shall be used one time and discarded.

At no time shall trench water be allowed to enter the pipeline during or after the pigging operation. If trench water enters the pipe, the Company's Inspector may require the water main to be disinfected and pigged again. Hyperchlorinated water shall be discharged through the end of the pipeline from which the pig shall be removed in accordance with the requirements of Section 8.4, "DISCHARGE OF HYPERCHLORINATED WATER".

Following are the Outside Diameters (O.D.) for the Pigs. Due to the manufacturing process these can vary, + / - , by 1/8 to 1/4 inch.

C900 PVC Pipe (Blue Pigs)

4" DR 14	Pig O.D. = 4 - 1/8"
6" DR 14	Pig O.D. = 6"
8" DR 14	Pig O.D. = 7 - 7/8"
12" DR 14	Pig O.D. = 11 - 1/2"
4" DR 18	Pig O.D. = 4 - 3/8"
6" DR 18	Pig O.D. = 6 - 1/4"
8" DR 18	Pig O.D. = 8 - 1/8"
12" DR 18	Pig O.D. = 11 - 7/8"

Ductile Iron Pipe (Red Pigs)

4” PC 350	Pig O.D. = 4 - 1/2”
6” PC 350	Pig O.D. = 6 - 5/8”
8” PC 350	Pig O.D. = 8 - 3/4”
12” PC 350	Pig O.D. = 12 - 3/4”
16” PC 350	Pig O.D. = 17”

8.3.2 Flushing the Water Main

With respect to flushing, the Company's standard operating procedure is as follows. The flushing assembly is to be checked-out from the Company's Meter Shop by the Contractor and shall be returned in same or better condition by the Contractor within 5 days of the end of the flushing operations. The Company reserves the right to bill the Contractor for unreturned materials and/or repairs.

The meter/check valve portion of the flushing assembly is not to be installed until after the completion of disinfection and pigging operations (so as to protect the meter/check valve from internal damage caused by debris). Upon the completion of pigging operations and prior to the start of flushing operations, the meter/check valve is to be installed.

The Contractor is to supply a two inch (2”) minimum sized discharge hose to be used during flushing operations. The Company’s Inspector shall supply the feeder hose.
No flushing device, blow-off, or air relief valve shall be directly connected to any non-storm sewer (“Non-storm sewer” is defined as a sanitary sewer, combined sewer, septic tank or subsoil treatment system), storm sewer, or storm drain, and shall be located at a distance greater than ten (10) feet from any non-storm sewer.
See Standard Drawing: 1601, 1602, and 1603 in Appendix of Drawings.

8.4 Discharge of Hyperchlorinated Water

Discharge of hyperchlorinated water can be directed to combined or sanitary sewer facilities only after the Company’s Project Manager has received approval from the Permit Section Supervisor of the Louisville and Jefferson County Metropolitan Sewer District (MSD) or other jurisdictional sewer agency authority. Flushing outside the MSD service area shall be in accordance with Kentucky Division of Water requirements. All flushing operations shall be in accordance with the governing authority’s requirements, including rain event requirements.

The Contractor shall provide 72 hours of notice to the Company’s Project Manager of their intent to discharge hyperchlorinated water. In locations

where discharge of hyperchlorinated water is restricted, the Company's Project Manager may approve tanker truck transportation for disposal at other sites. If hyperchlorinated water cannot be discharged to a combined or sanitary sewer, the hyperchlorinated water shall be neutralized to a chlorine concentration of less than 0.019 ppm (mg/L) before discharge to a storm drain or onto the ground surface in a manner which will not violate 401 KAR 5:031 Surface Water Standards.

The Contractor shall be responsible for all chlorinated water disposal (neutralized to acceptable levels per regulations prior to release) and adherence to "LWC Best Management Practice & Procedures on Chlorinated Water Disposal" and 401 KAR 5:031 and 401 KAR 8:020. The Contractor's disposal methods must have the approval of the Company's Project Manager. The Contractor is responsible for supplying all BMP's necessary to protect all storm inlets and waterways as required per Louisville and Jefferson County Metropolitan Sewer District or the applicable jurisdictional storm water authority.

The Company shall furnish all dechlorination hardware necessary for the dechlorination operation. The Contractor will be responsible for furnishing hoses and fittings required for the flushing operation.

The Company's Project Manager or Inspector shall reserve the right to postpone the dechlorination operation in the event of an anticipated major rain event or sub-freezing temperatures.

The Company's Project Manager or Inspector shall reserve the right to dechlorinate water with calcium thiosulfate (Captor), sodium thiosulfate, or other approved method supplied by the Company. For large volumes of water when the chlorination trailer is utilized, the Contractor shall supply the calcium thiosulfate or sodium thiosulfate in liquid form.

Calcium thiosulfate (Captor) will dechlorinate water with 50 ppm chlorine at a rate of one gallon of Captor per 4,000 gallons of hyperchlorinated water.

8.5 Pressure and Leakage Test

Before the hydrostatic test is begun, the Contractor shall: backfill all pipe, provide all temporary and permanent thrust anchor blocking, and install taps for releasing air at all points of highest elevation where no fire hydrant or flushing connection has been installed. All valves within the test area shall be fully open including valves on fire hydrant supply pipes.

It shall be the Contractor's responsibility to locate and repair any and all leaks that may develop.

The water main (ductile iron and PVC) and appurtenances shall be discharged of hyperchlorinated water, flushed and filled with potable water prior to performing the pressure and leakage test, unless directed otherwise by the Company's Project Manager or Inspector.

The water main shall then be subject to a hydrostatic pressure of 200 PSI for ductile iron pipe, 200 PSI for PVC DR-14, and 150 PSI for PVC DR-18 or at a pressure specified by the Company's Project Manager at the lowest point along the section being tested for a period of two (2) hours with the test pressure not dropping more than 5 PSI during the test. At elevated sections of the pipeline the minimum test pressure shall be 75% of the hydrostatic test pressure. In special circumstances, such as extreme elevation differential, the pressure test may be divided into multiple sections as directed by the Company's Inspector or Project Manager.

In conjunction with the hydrostatic test, a leakage test shall be conducted at the same pressure and for the same period of time.

The leakage allowed will be as given by the following table. All of this testing shall be accomplished in the presence of the Company's Project Manager or Inspector.

Allowable Leakage per 1000 feet of Ductile Iron or PVC Pipeline in gallons/hour.						
Pipe Diameter	4"	6"	8"	12"	16"	20"
D.I. or PVC DR14 Leakage @ 200 PSI (gal/hour)	0.38	0.57	0.76	1.15	1.53	1.91
PVC DR 18 Leakage @ 150 PSI (gal/hour)	0.33	0.5	0.66	0.99	1.32	1.66

All pipe, fittings, and other materials found to be defective under pressure and leak testing shall be removed and replaced. These tests shall be repeated until satisfactory to the Company's Project Manager and Inspector. All visible leaks shall be repaired regardless of the amount of leakage. The pressure test shall be voided until such visible leaks are repaired.

The required testing apparatus, consisting of a gasoline motor driven pump, valves, pressure gauge, meter, test pump hose, and connections, shall be checked-out from the Company at 4801 Allmond Ave by the Contractor and returned to same location, the day the test is to be run, and shall be returned in same or better condition. The Company reserves the right to bill the Contractor for unreturned materials and/or repairs.

The Contractor may furnish a test pump if approved by the Company's Inspector and it shall be disinfected at the direction of the Company's Inspector. The test pump must be equipped with a quick-connect coupling to allow the connection of the Company Inspector's pressure gauge.

The Contractor shall be responsible for all phases of testing the water main.

8.6 Coliform Monitoring

The water main shall be placed in service only after coliform monitoring (sampling and analysis) applicable to the water main does not show the presence of coliform. If coliform is detected, repeat flushing of the water main and coliform monitoring. If coliform is still detected, repeat disinfection and flushing as if the line has never been disinfected. Continue the described process until monitoring does not show the presence of coliform. The presence or absence of total coliform monitored by sampling and analysis as needed shall be determined for new, cleaned, repaired or relocated water main(s).

Water samples shall be taken within 1,200 feet of each connection point to existing lines, at one (1) mile intervals, and at each dead end, without omitting any branch of the new, cleaned, repaired or relocated water main(s).

Sample bottles shall be clearly identified with a unique project identification note and delivered to the Company's Water Quality Laboratory.

8.7 Air Relief Valves

Air relief valves or hydrants shall be placed at necessary high points in water mains where air can accumulate. The Contractor shall install air relief valves at all locations as identified on project plans. Additional air relief valves that may be required by the Company's Project Manager will be compensated as described in **CHANGES IN THE WORK**, in the **TERMS AND CONDITIONS**.

Corporation stops for air relief valves shall be installed with tapping saddles to minimize pig damage when pig cleaning the water main.

8.7.1 Automatic Air Relief Valves

Where practical, the open end of an air relief pipe from automatic valves shall be extended a minimum distance of one foot (1') above grade and provided with a screened, downward-facing elbow.

Automatic air relief valves shall not be installed in situations where the flooding of the manhole or chamber may occur.
See Standard Drawing: 1603 in Appendix of Drawings.

8.7.2 Manual Air Relief Valves

The open end of an air relief pipe from a manually operated valve shall be extended to the top of the pit and provided with a screened, downward-facing elbow if drainage is provided for the manhole.

Use of automatic air relief valves are recommended wherever possible.
See Standard Drawing: 1603 in Appendix of Drawings.

8.8 Leak Detection By-Pass Meter at Underwater Crossings

Leak Detection By-Pass Meters are required at all underwater crossings which are greater than fifteen feet (15') in width.

Water main valves shall be installed at both sides of the water crossing so that section can be isolated for testing or repair. The valves and meter vault shall be easily accessible and not subject to flooding. The valve closest to the supply source shall have permanent taps on each side to allow the installation of a meter to determine leakage and for sampling purposes.

See Standard Drawing: 1608 in Appendix of Drawings.

9. FIRE HYDRANT

9.1 Materials and Installation

The fire hydrant installation shall consist of the following items and shall be as shown on the project drawing's detail sheet.

The field location of fire hydrants shall be approved by the Company's Inspector prior to installation. Fire hydrants shall be installed to allow proper drainage. When fire hydrants are located on project drawings in areas of poor drainage, the Contractor shall contact the Company's Project Manager or Inspector for movement to a suitable location. The fire hydrant shall be furnished by the Company, designed for proper depth of bury, and shall be so installed that the barrel will properly drain. Effort shall be made to install the shortest hydrant possible, while complying with the requirements of this section.

The fire hydrant anchor tee and auxiliary gate valve shall be installed as the main is installed. A tapping sleeve and gate valve shall be installed if the main is in service. The auxiliary valve shall be installed at the main. Fire

hydrant supply pipe (pipe, fittings, gate valve, and fire hydrant) must be secured to the water main for proper thrust restraint. All joints in the fire hydrant supply pipe (between fire hydrant and the main to which it is connected) shall be installed using a restrained joint method. Concrete is not required on direct bolt non-friction type restrained joint fittings between the fire hydrant and the auxiliary valve.

The fire hydrant supply pipe shall be ductile iron pipe, in all cases, regardless of the type of main being connected to. The fire hydrant supply pipe shall be a minimum diameter of six (6) inches and connected to a main with a minimum diameter of six (6) inches.

The fire hydrant shall be set plumb and shall have the pumper nozzles set facing perpendicular to the curb. The bottom of the break-away flange bolts shall be located from two inches (2”) to seven inches (7”) above finished grade, with the center of the nozzle a minimum of eighteen inches (18”) above finished grade.

The fire hydrant shall be set to established grade, with the center of the barrel two feet (2’) back of the face of the curb line (eighteen inches (18”) behind the back edge of the curb for rolled curbs) or as directed, or in the absence of a curb approximately five feet (5’) to fifteen feet (15’) from the edge of the pavement, no more than fifteen feet (15’) from a hard traveled surface, in accordance with governing fire department ordinances and accessible to the fire department. The base of the fire hydrant shall be set on a precast concrete block. The back of the elbow shall be well supported against undisturbed earth by means of precast concrete blocks.

Where fire hydrants are installed along a roadway, parking within ten feet (10’) will be prohibited. Fire hydrants installed in parking areas must allow ten feet (10’) clear access to the hose connection side of the fire hydrant. In all locations a four feet (4’) minimum clear radius around the fire hydrant is required.

Two layers of polyethylene wrapping shall be installed from the fire hydrant anchor tee to the base elbow of the fire hydrant, including the fire hydrant valve, connecting pipe, and thrust restraints. The wrapping shall not extend to the weep holes located on the hydrant elbow. Do not install polyethylene wrapping on the hydrant barrel.

Fire hydrant barrel extension kits shall not be used for new fire hydrant installations unless approved by the Chief Engineer or designee prior to requisitioning from the Company’s Warehouse. No more than one (1) fire hydrant barrel extension kit shall be used on an existing fire hydrant when raising is required. All fire hydrant barrel extension kits must be installed by the Company’s Fire Hydrant Crew. Unless, if approved by the

Company's Chief Engineer, the Contractor may install the extension kit in the presence of the Company's Inspector.

Fire hydrant wrenches shall never be left unattended on a fire hydrant.

When flowing a fire hydrant the operating nut must be opened completely to prevent flooding through the hydrant's weep holes. Flow shall be regulated by the temporary meter assembly valve attached to the fire hydrant's discharge nozzle. The Inspector must notify the Company's Radio Room (569-3600, ext. 2700 or 2701) of all hydrants flowed between November 1 and March 31 so the hydrant can be winterized after use to prevent freezing.

Some fire hydrants have a locking device attached to prevent unauthorized use. The Contractor shall notify the Company's Inspector 48 hours in advance of the need to use such a fire hydrant so the lock can be removed by the Company's personnel. The Contractor shall immediately notify the Company's Inspector when the fire hydrant is no longer needed so the lock can be re-installed.

The Contractor shall notify the Company's Inspector of any "Out of Service" fire hydrants. "Out of Service" fire hydrant tags shall be placed on the nozzle of all inoperable or "Out of Service" fire hydrants.

The Contractor shall paint fire hydrants after installation at the Company Inspector's request to cover scraped or chipped areas on the fire hydrant, or to match the fire hydrant color chosen by the local Fire District. Fire hydrant paint will be supplied by the Company's Warehouse. Fire hydrant attachment number labels shall not be painted over.

Fire hydrant attachment number labels shall be installed by the Company's personnel.

The Contractor shall assist the Company's Inspector in fire hydrant flow testing and perform any clean-up necessary after tests are completed.

See Standard Drawing: 2000 in Appendix of Drawings

9.2 Drainage Pit

Whenever a fire hydrant is set, a drainage pit shall be excavated for the fire hydrant. Dimensions of the pit shall be three (3) ft. long x three (3) ft. wide x four (4) ft. deep, with the pit centered about the barrel of the fire hydrant. Once the fire hydrant is installed and prior to filling the pit with washed #3 stone, the fire hydrant shall be pressurized, the weep holes flushed and then depressurized to ensure that the fire hydrant drains properly. Once the weep

holes have been flushed and proper drainage is verified, the drainage pit shall be filled compactly with washed #3 stone under and around the elbow of the fire hydrant and to a level of two feet (2') above the base of the elbow.

Before this dry well (drainage pit) is covered with backfill, the Contractor shall notify the Company's Inspector in order that each drainage system may be inspected. The top of the entire drainage pit shall be covered with geotextile fabric (four fire hydrant blankets or as many needed to cover the entire top) before backfilling.

Fire hydrant drainage pits shall not be connected to or located within ten (10) feet of non-storm sewers ("Non-storm sewers are defined as sanitary sewers, combined sewers, septic tanks and subsoil treatment systems), and where practical storm sewers or storm drains.

See Standard Drawing: 2000 in Appendix of Drawings

9.3 Removal of Fire Hydrants

Fire hydrants that are discontinued, abandoned or replaced shall be removed and returned with caps to the Allmond Avenue Warehouse. The Contractor shall be billed for any fire hydrants not returned. Surfaces shall be restored in accordance with Section 11: "RESTORATION".

9.3.1 Removal of Fire Hydrants on Active Water Mains

All discontinued fire hydrants shall be abandoned by turning off the fire hydrant's connecting valve and excavating and removing the fire hydrant and fire hydrant lead.

The hydrant's gate valve shall be turned off and a mechanical joint plug installed on the gate valve. A concrete thrust block shall be poured behind the plug. The fire hydrant gate valve's round top and lid shall be removed and the key tube filled with concrete.

9.3.2 Removal of Fire Hydrants on Abandoned Water Mains

Fire hydrants which are abandoned with the water main, in lieu of removal by excavation and with approval of the Company's Project Manager, the fire hydrant may be cut off no less than one foot (1') below finished grade, the abandoned barrel filled with concrete, the fire hydrant gate valve turned off, round top and lid removed, and key tube filled with concrete.

10. SERVICE WORK

10.1 Notification of Customers

It is the Contractor's responsibility to notify customers of upcoming interruption of service and to coordinate this notification with the Company's personnel. It is the intent of the Company not to interrupt service to existing customers, unless absolutely necessary. When it is necessary to interrupt service, all customers affected by the shut-off shall be notified in person, or in cases where the customer cannot be contacted, by a Louisville Water notification tag attached to the front door of their premises by the Contractor.

Such notification shall be made a minimum of twenty-four hours prior to shut-off and with the Company's approval, allowing sufficient time for the customer to draw and reserve an ample supply of water. Notification tags are available from the Company.

10.2 Service Installation - General

A service installation is defined to include all work necessary to install the copper tubing or pipe and all related items from the main to the property line. The installation shall include, the following: tapping of the main, installing the corporation stop or gate valve; service line tubing or pipe, meter vault, ductile or cast iron frame and lid/cover, water meter assembly, backfilling and restoring of paved and unpaved surfaces and flushing. Installation may require reconnection to existing service lines. Excavation, backfilling, and restoring paved and unpaved surfaces shall be done in accordance with these specifications.

Short services are defined as services to meters on the same side of the street as the water main to which it is connected.

Long services are defined as services to meters on the opposite side of the street of the water main to which it is connected and shall be bored or jacked under pavements unless an open cut is approved by the Company's Project Manager.

The Contractor must verify the service size with the Company's Project Manager or Inspector where any service length is greater than one hundred feet (100').

Where under pavement, tubing shall be installed continuously and in one piece without intermediate joints or couplings except at the terminals and except where the continuous length to be installed exceeds one hundred feet (100') for 3/4" and 1" sizes.

All taps in water mains shall be made by the Contractor, and corporation stops shall be inserted by means of a tapping machine in such manner that will permit continued conditions of water flow and pressure within these mains. The Contractor shall use care in inserting and tightening the corporation stop and shall reimburse the Company for any damage or expense caused by any of their activities under this contract.
Wet tapping of water mains shall be required on all pipe. No service taps shall be installed on dry water mains.

10.3 Service Installation - Two Inches (2”) and Smaller

During installation of corporation stops, the corporation stop shall not be turned using a pipe wrench. The corporation stop must be turned using a smooth jaw, adjustable crescent type wrench or open-end wrench. Special care shall be observed in handling the copper tubing so as not to kink, mash, or otherwise damage it. No such damaged tubing shall be installed. No bend shall be made in the tubing with a radius less than four inches (4”).

All intermediate and terminal joints for 3/4" and 1" sizes of copper tubing shall be the compression type, using the proper tools for the sizes of tubing and types of fittings involved.

Service connections shall be installed so that the outlet is at an angle of 45° above the horizontal. A bend in the service line shall be provided to ensure flexibility and to accommodate the effects of loads.

The service line shall be flushed for two (2) minutes through the meter stop before connecting to the meter. Once the corporation stop has been turned on, and prior to backfilling, the corporation barrel set nut may need to be securely tightened to prevent leakage.

For Double Setter meters (where two meters are to be installed in one vault) the tail pipes of a service installation shall be installed parallel for their entire length and at least eight inches (8") apart, and in no event shall they touch or cross one another.

See Standard Drawings: 3002, 3003, 3004, 3400, 3401, 3403, 3404, 3420, 3430, 3200, and 3202 in Appendix of Drawings

10.3.1 Tapping Ductile or Cast Iron Pipe for Service Installation - Two Inches (2”) and Smaller

In locations where Ductile Iron or Cast Iron Pipe will be tapped, the pipe shall be wrapped with three (3) layers of polyethylene compatible tape completely around the pipe to cover the area where the tapping machine and

chain is mounted. The tap shall install the corporation stop directly through the tape and polywrap.

After the tap is completed on mains with polyethylene wrap, the Contractor shall repair and replace the polyethylene wrap to completely cover the main and corporation stop in accordance with the details in the Appendix of Drawings.

The corporation stop and a minimum distance of three feet (3') of the copper service line shall be wrapped with polytape.

For ductile iron pipe Pressure Class 350 service outlets shall be made per the table below:

Service Installation Guide for Pressure Class 350 Ductile Iron Pipe					
Pipe Size	Tap Size				
	3/4"	1"	1-1/2"	2"	> 2"
4"	tap	saddle	saddle	saddle	requires tapping
6"	tap	tap	saddle	saddle	sleeve or fitting
8"	tap	tap	saddle	saddle	"
12"	tap	tap	saddle	saddle	"
16" & 20"	tap	tap	tap	tap	"

All direct taps require the installation of 2 to 3 layers of 3-mil thread sealant tape on the corporation stop. This guide is based on either a direct tap method or tapping saddle using an AWWA standard taper thread Corporation Stop.

See Standard Drawings: 3002, 3003, 3004, 3400, 3401, 3403, 3404, 3420, 3430, 3200, 3202 and 3804 in Appendix of Drawings

10.3.2 Tapping PVC Pipe for Service Installation - Two Inches (2") and Smaller

For PVC (polyvinyl chloride) pipe, service outlets of three-quarter inch (3/4") through two inches (2") shall be made with a tapping saddle.

Tapping saddle bolts shall be tightened with a torque wrench according to the saddle manufacturer's torque recommendations.

When installing a service to PVC, the Contractor shall use a shell cutter that is designed for DR14 (pressure class 200, AWWA C900) or DR18 (pressure class 150, AWWA C900) and one that will remove the material and retain the coupon. The cutting tool must be sharp and without damage. Drill

cutting tools are prohibited because they may increase the risk of causing the pipe to split longitudinally. The coupon must be delivered to the Company's Inspector.

When tapping the PVC pipe under pressure, the pipe temperature shall be between 32° and 90° F.

The taps shall be located a minimum of twenty-four inches (24") from the joint of the PVC pipe, and, if installing more than one tap in one length of PVC pipe, the taps shall be staggered and a minimum of eighteen inches (18") apart, measured longitudinally. Taps shall not be made in an area of PVC pipe that shows damage.

When a service tap is made on a PVC water main, a tracer wire shall be connected to the tracer wire on the main and then wrapped, with insulation and jacket removed, around the copper service line or affixed to the tapping saddle. When connecting the tracer wire to a tapping saddle, add two washers and a second nut to one of the bolts of the saddle. Strip a small section of the wire jacket and sandwich the bare portion of wire between the two washers and tighten the second bolt. Tracer wire must be rated for direct burial at 30 volts and be 12 AWG solid copper, copper clad steel (CCS), or high strength copper clad steel (CCS). Tracer wire shall be jacketed with blue HDPE or HMWPE insulation and designed for direct burial.

See Standard Drawings: 3002, 3003, 3004, 3400, 3401, 3403, 3404, 3420, 3430, 3200, 3202, and 3804 in Appendix of Drawings

10.4 Service Installation – Larger than Two Inches (2")

Service outlets larger than two inches (2") shall be made with a ductile iron tee or stainless steel or ductile iron tapping sleeve and gate as directed by the Company's Project Manager or Inspector on new ductile iron or PVC pipe.

When tapping a main, the Contractor shall make the tap only after a hydrostatic pressure test of 125 psi is applied for fifteen (15) minutes with no leakage to the tapping sleeve and gate valve assembly. Before cutting an existing main under pressure, the Contractor shall ensure the adjacent existing valve and fittings are sufficiently secure. The Contractor shall be responsible to provide the tapping coupon to the Company's Inspector.

The service line shall be flushed for two (2) minutes through the meter stop before connecting to the meter.

There shall be no tapping of same size on same size pipe with tapping sleeve

and gate, a tee must be installed.

10.4.1 Tapping Ductile or Cast Iron Pipe for Service Installation - Larger than Two Inches (2”)

After the tap is completed on mains with polyethylene wrap, the Contractor shall repair and replace the polyethylene wrap to completely cover the main and fittings in accordance with the detail in the Appendix of Drawings.

See Standard Drawings: 3203A, 3203 and 3601 in Appendix of Drawings

10.4.2 Tapping PVC Pipe for Service Installation – Larger than Two Inches (2”)

When installing a service on PVC water main, the Contractor shall use a shell cutter that is designed for DR14 (pressure class 200, AWWA C900) or DR18 (pressure class 150, AWWA C900) and one that will remove the material and retain the coupon. No twist drills will be allowed. The cutting tool must be sharp and without damage. The coupon must be delivered to the Company Inspector.

When tapping the PVC pipe under pressure, the pipe temperature shall be between 32° and 90° F. The taps shall be located a minimum of twenty-four inches (24") from the joint of the PVC pipe. Taps shall not be made in an area of PVC pipe that shows damage.

Tapping sleeves shall be assembled according to the manufacturers' instructions and must be supported independently of PVC pipe by precast concrete blocks during the tapping operation. The support shall be left in place, filling any voids such that the pad is bearing against undisturbed earth, and thrust blocks behind tapping sleeves shall be used as with other fittings.

When a service tap is made on a PVC water main, a tracer wire shall be connected to the tracer wire on the main and then wrapped, with insulation removed, around the service line gate valve and extend to the top of the key tube. Tracer wire must be rated for direct burial at 30 volts and be 12 AWG solid copper, copper clad steel (CCS), or high strength copper clad steel (CCS). Tracer wire shall be jacketed with blue HDPE or HMWPE insulation and designed for direct burial.

See Standard Drawings: 3203A, 3203 and 3601 in Appendix of Drawings

10.5 Meters

Contractor shall install or replace meters as stated on the Project Drawings or at the direction of the Company's Project Manager or Inspector. New meters shall be picked up by the Contractor at the Meter Shop located at 4801 Allmond Avenue. Old meters shall be returned in good condition to the Company's Inspector, including any lids or tags that may identify the meter number or attachment number.

10.6 Setting Meter Vaults

Meter vaults shall be set either to the existing grade, or as indicated on the service order or to the grade given by a stake card. Earth shall be firmly tamped by pneumatic, vibratory or other approved compaction device and backfilled per Section 7: "BACKFILLING PROCEDURES AND TAMPING" around the vault and cover, the lid locked in and the meter setting centered in the middle of the vault and at the proper depth below grade, as shown on the drawing in the Appendix of Drawings.

Meter vaults shall not be installed in areas subject to vehicular traffic whenever possible. When directed to be installed in areas subject to vehicular traffic, the meter vault shall be of the heavy-duty concrete type with heavy duty frame and cover.

See Standard Drawings: 3002, 3003, 3004, 3400, 3401, 3403, 3404, 3420, 3430, 3200, 3202, 3203, and 3601 in Appendix of Drawings

10.7 Pressure Regulators (Pressure Reducing Valves)

When directed by the Company's Project Manager, the Contractor shall install a pressure regulator (pressure reducing valve). The pressure regulator shall be installed on the front side (upstream) of the meter. When the pressure at the meter is 100 psi or greater, the Contractor shall install a pressure regulator as directed by the Company's Project Manager or Inspector. Pressure regulators shall be supplied by the Company unless otherwise stated in the Contract Documents. The Contractor shall perform an operability test and check for leaks after the pressure regulator has been installed.

See Standard Drawings: 3003, 3004, 3401, and 3202 in Appendix of Drawings

10.8 Leak Testing the Service

After the complete service has been installed and before any joints are covered, the corporation stop shall be opened and the entire length of the

service shall be subjected to system water pressure and each joint shall be inspected and sounded by the Contractor for leaks. The entire tailpiece shall be included in this leak check by temporarily capping the end of the tailpiece prior to connection to the customer

Any leaks so found shall be immediately repaired. After the service has been observed by the Company's Inspector to be watertight throughout its length, the meter stop shall be shut-off, and the backfilling started. The corporation barrel set nut may need to be securely tightened to prevent leakage.

The Contractor shall leave the corporation stop fully open and the meter angle stop fully closed upon completion of the testing.

10.9 Relocate Service

Relocating a service is defined to include installing a completely new service to an existing customer, including a new tail pipe, discontinuing the old service at the main (in the event the existing main is to remain active), abandoning the old meter vault, and returning the old meter, frame and lid/cover to the Company's Allmond Avenue Yard and backfilling.

Concrete meter vaults and heavy-duty frame and covers shall be used in driveways, parking lots, and other areas of vehicular traffic.

Service installation shall be done in accordance with "Service Installation – Two Inches (2") and Smaller, (Section 10.3) and Service Installation – Larger than two inches (2"), (Section 10.4). The Contractor shall discontinue the old service in accordance with "Discontinue Service" (Section 10.16). Excavation, backfilling, and restoring of surfaces shall be done in accordance with these specifications. Abandoning of the old meter vault shall be done in accordance with "Backfill Meter Vault" (Section 10.17).

When lead is encountered, refer to Section 10.11, "Lead and Galvanized Service Renewals."

Contractors shall be responsible to make at least two (2) attempts when connecting the tailpiece to a customer's galvanized service line. The second attempt shall be limited to a maximum of three feet (3') beyond the property line or to any property improvement which would require excessive restoration. If the second attempt is unsuccessful, the Contractor shall immediately contact the Company's Inspector, and provide a representative sample of the deteriorated line, at which time, the Company's Project Manager or Inspector shall arrange for a temporary service connection to the customer to be installed by others.
See Standard Drawing: 3440 in Appendix of Drawings

10.10 Renew Service

Renewing a service is defined to include installing a new copper service line from the existing main or new main to the meter stop, and a new copper tail pipe from the meter stop to the property line or the property service connection, and shall include, the following: excavation, boring or jacking of copper tubing or pipe, installing corporation stop, tapping saddle or tapping sleeve and gate valve at the main, if applicable, installing all tubing and/or pipe and all associated fittings, meter vault, frame and lid/cover, and backfilling and restoring of all surfaces.

Service installation shall be done in accordance with "Service Installation – Two Inches (2") and Smaller, (Section 10.3) and Service Installation – Larger than two inches (2"), (Section 10.4). The Contractor shall discontinue the old service in accordance with "Discontinue Service" (Section 10.17). All lead service lines shall be renewed in accordance with "Cutting Lead Pipe" (Section 10.13) and "Flushing of Lead and Galvanized Services" (Section 10.14) unless otherwise instructed on the project drawings. Excavation, backfilling, and restoring of surfaces shall be done in accordance with these specifications.

When lead is encountered, refer to Section 10.11, "Lead and Galvanized Service Renewals."

Contractors shall be responsible to make at least two (2) attempts when connecting the tailpiece to a customer's galvanized service line. The second attempt shall be limited to a maximum of three feet (3') beyond the property line or to any property improvement which would require excessive restoration. If the second attempt is unsuccessful, the Contractor shall immediately contact the Company's Inspector, and provide a representative sample of the deteriorated line, at which time, the Company's Project Manager or Inspector shall arrange for a temporary service connection to the customer to be installed by others.

See Standard Drawing: 3441 in Appendix of Drawings

10.11 Lead and Galvanized Service Renewals

Renewing a lead or galvanized service is defined to include installing a new copper service line from the existing main or new main to the meter stop, and a new copper tail pipe from the meter stop to the property service connection, and shall include, the following: excavation, boring or jacking of copper tubing or pipe, installing corporation stop, tapping saddle or tapping sleeve and gate valve at the main, if applicable, installing all tubing and/or pipe and all associated fittings, meter vault, frame and lid/cover, and backfilling and restoring of all surfaces.

The Contractor is required to identify the property line location and excavate the service line's tail piece to locate the property service connection. If the property service connection is not found, the Contractor shall seek permission from the property owner to excavate on private property. With permission, the Contractor shall continue to excavate up to ten feet (10') beyond the property line onto private property in an effort to locate the property service connection and determine the material of the customer's service line. The Company's Inspector shall verify the material of the customer's service line prior to cutting any pipe.

If the material of the customer's service line is not lead, the Contractor shall renew/relocate the entire service line from the main to the customer's connection.

If the material of the customer's service line is lead or galvanized pipe, the Company's Project Manager or Inspector will contact the customer to make them aware of the work to be completed by the Company and the existence of lead or galvanized pipe on the customer's side of the service line. The Company's Inspector shall also enquire if the customer is willing to replace their lead or galvanized service line.

1) If the customer is willing to replace their lead or galvanized service line, the Contractor shall coordinate the renewal/relocation of the Company's lead or galvanized service line with the customer's plumber.
2) If the customer is not willing to replace their lead or galvanized service line and the service is to be relocated or renewed, the Contractor shall replace the entire service line from the main to the customer's connection and shall install a dielectric between the end of the Company's tail piece and the customer's lead or galvanized service line. The dielectric will be composed of a 24" section of like diameter schedule 80 PVC pipe and a plastic universal transition coupling (supplied by the Company). If the customer's service line is less than 10 feet in length as measured from the customer's building to the dielectric connection, the Company's Project Manager shall be contacted prior to renewing/relocating the service to determine if a new grounding system is needed.

Service installation shall be done in accordance with "Service Installation – Two Inches (2") and Smaller, (Section 10.3) or Service Installation – Larger than two inches (2"), (Section 10.4). The Contractor shall discontinue the old service in accordance with "Discontinue Service" (Section 10.17). All lead service lines shall be renewed in accordance with "Cutting Lead Pipe" (Section 10.13) and "Flushing of Lead and Galvanized Services" (Section 10.14) unless otherwise instructed on the project drawings. Excavation, backfilling, and restoring of surfaces shall be done in accordance with these

specifications.

See Standard Drawing: 3441 in Appendix of Drawings

10.12 Lead Hazards and Safety Precautions

Pure lead (Pb) is a heavy metal that can damage the central nervous system, cardiovascular system, reproductive system, hematological system, and kidneys. Symptoms of chronic overexposure include loss of appetite, constipation, nausea, excessive tiredness, headache, fine tremors, metallic taste in the mouth, weakness, nervous irritability, hyperactivity, muscle and joint pain or soreness, anxiety, insomnia, numbness, or dizziness. Lead is most commonly absorbed into the body by inhalation. Workers can also absorb lead through the digestive system if it enters the mouth and is ingested. A significant portion of lead inhaled or ingested can enter the bloodstream. Once in the bloodstream, lead circulates through the body and is stored in various organs and body tissues. Some of this lead is filtered out of the body quickly and excreted, but some remains in the blood and tissues.

Personnel performing lead service line removal activities shall:

- Wear disposable gloves when handling lead.
- Dispose of gloves and other materials that contact lead as trash on a regular basis.
- Be careful to not touch eyes or face.
- Wash hands before eating or smoking.
- Wash work clothes regularly.
- Contact management if they feel that they have been affected by lead exposure.

Information taken from 'OSHA – Lead in Construction' , OSHA 3142-12R 2004

10.13 Cutting Lead Pipe

When the cutting of pipe made of lead is required, the pipe shall be cut with a shear device, such as Reed Ratchet Shears or similar device, as approved by the Company's Project Manager. Sawing of lead pipe shall not be allowed. The Company encourages contractors to recycle any lead service pipe that is removed.

10.14 Flushing of Lead and Galvanized Services

Flushing of renewed lead services shall be conducted immediately after the renewed service is reconnected at maximum flow. Flushing shall be continued

for a minimum of sixty (60) minutes. Flushing of the service for sixty (60) minutes shall also be conducted if a copper service is renewed and it is connected to a dielectric and private lead service line. If a galvanized service that has not been previously connected to lead is renewed, it shall be flushed for a minimum of five (5) minutes. If any part of the galvanized service is connected to lead, then the service shall be flushed for a minimum of sixty (60) minutes.

The Contractor shall be responsible for supplying all hoses, fixtures, and couplings needed to perform the lead service flush.

The Contractor shall identify, on a daily basis, those services that will require renewal on the following workday. Residences requiring lead or galvanized service renewals shall be investigated to determine if an outside spigot is available and functioning properly. The Contractor shall notify the Company's Inspector when an outside spigot is not available or not properly functioning in order for the Company's Inspector to contact the customer.

Services that cannot be flushed externally by the Contractor or internally by the customer at the time of the renewal, may be renewed, but shall be left in the "off" position immediately after the renewal is completed. The Contractor shall immediately notify the Company's Inspector when any service is turned "off" in order for the Company's Inspector to leave appropriate notification with the customer and notify the Company's Radio Room.

10.15 Lead Service Renewal Notification

The Contractor shall assist the Company's Inspector with distributing customer information and notices to all properties in which a lead service is to be renewed or replaced, as directed by the Company's Inspector. Notices are supplied by the Company and typically composed of self-adhesive window hangers or door hangers.

10.16 Transfer Service

Transferring a service is defined to include installing a length of service line, as required, to reconnect an existing copper service to the existing main or new main, and shall include, the following: excavation; boring or jacking of copper tubing or pipe; installing corporation stop; tapping saddle or tapping sleeve and gate valve at the main; installing all tubing and/or pipe and all associated fittings; and backfilling and restoring of all surfaces.

Service installation shall be done in accordance with "Service Installation – Two Inches (2") and Smaller, (Section 10.3) or Service Installation – Larger than two inches (2"), (Section 10.4). The Contractor shall discontinue the old service in accordance with "Discontinue Service" (Section 10.17).

Excavation, backfilling, and restoring of surfaces shall be done in accordance with these specifications.

When lead is encountered, refer to Section 10.11, “Lead and Galvanized Service Renewals.”

See Standard Drawing: 3442 in Appendix of Drawings

10.17 Discontinue Service

Discontinuing a service is defined to include excavating a service line at a water main that is to remain active, turning off the corporation stop or ferrule, disconnecting and plugging the service line, returning the old meter, frame and lid/cover to the Company's Allmond Avenue Yard, backfilling the meter vault, and restoring all surfaces.

Driven ferrules, which are not threaded onto the main, will require water main shutdown, removal, and installation of a wrap-around repair band. Driven ferrules can be expected on most lead services.

Excavating, backfilling, and restoring of surfaces shall be done in accordance with these specifications. Abandoning the old meter vaults shall be done in accordance with "Backfill Meter Vault" (Section 10.18).

See Standard Drawing: 3442 in Appendix of Drawings.

10.18 Backfill Meter Vault

Meter vaults on all discontinued or relocated services shall be abandoned by removing the old meter, frame and lid/cover, and any existing curb stop frame and lids, and filling the void to existing grade with backfill and surface material, appropriate to the type surface. Unpaved areas shall be backfilled to grade with topsoil and restored in accordance with "RESTORATION" (Section 11).

Sidewalks shall be backfilled with pit run sand or DGA and repaved in accordance with "RESTORATION" (Section 11). Parking lots, driveways, and other areas subject to vehicular traffic shall be backfilled using DGA and restored in accordance with "Twelve-Inch (12”) Cutback Requirement" (Section 5.4.2), "BACKFILLING PROCEDURES AND TAMPING" (Section 7), and "RESTORATION" (Section 11) found in this specification.

All meters and frames and lids/covers shall be returned to the Allmond Avenue warehouse. The Contractor shall be responsible for all remedial work due to discontinuation of meter vaults as required in the section "WARRANTY" (Section 12).

10.19 Potential Shock Hazard

Due to electrical grounding of some electrical services to metal water service lines, the potential for electrically charged water service lines and/or water meters exists.
The Contractor shall check each service for electric potential before working on the service. Any electrically charged water service shall immediately be brought to the attention of the Company's Inspector and reported to the appropriate electric company.

11. RESTORATION

11.1 General

The Contractor shall be responsible for restoring all disturbed areas resulting from their construction or activity.

A maximum of 1,500 lineal feet may be disturbed at one time prior to final grade. Restoration of the area is required before the Contractor is permitted to proceed.

The Contractor shall work no more than two sites at a time. At least one site must be fully restored with the exception of milling and paving before the Contractor begins working on the next site. This work includes yard, sidewalk and curb restoration as well as the patching of all road cuts.

The Contractor is to take whatever measures are necessary to keep all traveled surfaces free of dirt, mud, or other material during all non-working hours. Unless otherwise approved by the Company's Project Manager, no excavated material shall be placed on the paved surface or any other areas near the trench; the excavated material shall be placed directly from the trench to the haul truck. The Contractor shall provide adequate dust control and follow all governing regulations applicable to the work.

Repaving over the completed trench shall be done by the Contractor, who shall furnish all materials required. Repaving shall match the original paving in type, shall be first class in all respects, and shall comply with specifications covering the type of paving to be restored as issued by the authority over the thoroughfare involved.

The restoration of parking lots and driveways serving commercial and/or public establishments shall comply with the specifications of the respective authority having jurisdiction over the abutting right-of-way.

Except for parking lots, driveways, and sidewalks, each individual pavement restoration shall have a Company-supplied pavement marker

installed by the Contractor.

All saw cuts shall be straight and perpendicular to the driveway / roadway. Restoration shall be made with the same type material and finish that is removed. Street restoration shall be as specified in the detail for Backfill and Pavement Restoration in accordance with the Appendix of Drawings, pending the jurisdiction of said street, included in these specifications. Permanent restoration of driveway, sidewalks, and street intersections shall be completed by the Contractor within ten working days after backfilling of trench is complete. If restorations are not completed, the Company may, at its option, have the repairs made by others and deduct those costs from the amount owed to the Contractor.

11.2 Asphalt Paved Surfaces

All Asphalt pavement cuts are to be restored in accordance with the permanent pavement restoration details as shown in the Appendix of Drawings.

Pavement cuts are to be uniform width and straight sawed edges. All asphalt pavement trench edges shall be saw cut regardless of paving restoration (full lane, complete roadway, etc.). Use of a hoe ram for cutting pavement trench edges is not allowed. An approved joint sealer is to be used to seal all joints between new and existing pavement. In the event asphalt plants have closed due to cold weather, the Contractor shall maintain all pavement cuts with recessed steel plates or temporary asphalt pavement, until it becomes possible to permanently restore the pavement. Asphalt pavement used for permanent pavement restoration shall have a minimum temperature of 225°F as measured when discharged from the truck.

Particular care is to be taken that existing pavement surfaces within the right-of-way are not scarred or otherwise damaged by equipment. Planking or other protective devices are to be used at all times to prevent damage to paved surfaces from tracked equipment.

In the event the asphalt paved surfaces are damaged or scarred by work on this project, resurfacing is to be required as follows:

1) If scarring or other damage is continuous, resurfacing is to be likewise continuous and is to consist of one and one-half inches (1 ½") Class A bituminous surfaces extending to the edge of damaged lane.

   The edge of the damaged pavement shall be edge keyed, with the resurfaced section being flush with the undisturbed adjacent pavement surface, allowing roadway surface drainage not to be obstructed.

2) If scarring or other damage is determined to be intermittent, individual or paved patches may be permitted and are likewise to consist of Class A bituminous surface, extending to the edge of the damaged lane.

3) All damage to the edge of pavement shall require the removal of and base repair of a minimum of two feet (2') in addition to the maximum width of the damage. The longitudinal edge is to be a uniform width with straight sawed edges. The lane is then to be milled a minimum of five feet (5') in width with a two inch (2") minimum asphalt overlay.

There will be no skip milling allowed and the minimum length will be determined in the field by the Company's Inspector or Project Manager.

All joint sealant material shall be: hot-applied, non-water-based, and produced by a competent and reputable manufacturer. Sealant shall be in accordance with the permitting agency's specifications. Sand shall be placed over the joint sealant to prevent tracking.

11.3 Asphalt Paved Surface Materials and Construction Methods

The composition of the asphalt pavement and method of construction shall be in accordance with the Kentucky Transportation Cabinet Department of Highways (KYTC) Standard Specifications for Road and Bridge Construction (latest edition). A copy of these specifications is on file with the Company's Supervisor of Construction Inspection Services, 4801 Allmond Avenue.

11.4 Concrete Paved Surfaces

All concrete used for structural purposes (such as thrusts blocks, road subbase, sidewalks, etc.) shall be produced at a concrete plant, delivered by a ready-mix concrete truck or mobile mixer (metered) concrete truck. Only concrete used for miscellaneous purposes (such as vault floor pad, end plugs for mains to be abandoned-in-place, etc.) is allowed to be that of an on-site bag mix.

All cuts in concrete driveways and sidewalks are to be replaced from construction joint to construction joint, using minimum 3,500 psi concrete. When a section of sidewalk at a street intersection is to be replaced in the Louisville / Jefferson County Metro Government jurisdiction a wheel chair ramp is to be installed in accordance with the Appendix of Drawings.

For pipeline installation work, all concrete curbs or curb and gutter which are damaged are to be entirely removed and replaced in kind between existing joints. Stone base material shall be placed and compacted under any disturbed area with the curb replacement with the same type stone base

material and compaction as removed. Base material shall extend a minimum of eighteen (18) inches beyond the back of the curb. Install one-half inch (1/2”), pre-molded expansion joint material between new and existing concrete. Concrete shall be a minimum 3,500 psi concrete.
For service line installation work, concrete curbs or curb and gutter which are saw cut (typically four inch (4)” in width) are to be replaced in kind and have additional saw cutbacks one foot (1’) to each side of the initial cut (4” cut). If either of the additional one foot (1’) saw cutbacks fall within two feet (2’) of an existing pavement joint, the entire section shall be removed and replaced to the existing joint. Stone base material shall be placed and compacted under any disturbed area with the curb replacement with the same type stone base material and compaction as removed.

Base material shall extend a minimum of eighteen (18) inches beyond the back of the curb. Install one-half inch (1/2”), pre-molded expansion joint material between new and existing concrete. Concrete shall be a minimum 3,500 psi concrete.

Particular care is to be taken that existing pavement surfaces within the right-of-way are not scarred or otherwise damaged by equipment. Planking or other protective devices are to be used at all times to prevent damage to paved surfaces from tracked equipment.

In the event the concrete paved surfaces are damaged or scarred by work on this project, repair is required as follows:

1) Concrete roadways shall be replaced per the permitting agency’s standard specifications for the full width of the lane and to the nearest construction joint on each side of the damaged area.
2) All concrete driveways and aprons that are damaged by the Contractor’s construction or activity, or that is specified for replacement on the plans shall be replaced in their entirety to the nearest construction joint. Concrete thickness and strength shall be per the Company’s standard specifications. The style shall match the existing driveway or apron. The limits of repair, style of concrete and type of concrete for each driveway or apron shall be approved by the Company’s Project Manager prior to installation. The Company’s Project Manager may modify thickness, style, type and limits of repair based on field conditions and property owner consultation which shall be installed by the Contractor at no additional cost to the Company.

See Standard Drawing: 4410 in Appendix of Drawings

11.5 Concrete Paved Surface Materials and Construction Methods

All concrete used on this project and as shown on the project drawings shall have a 28-day minimum compression strength of 3,500 pounds per square inch (psi). The proportions and construction requirements for the concrete shall be as listed in the Kentucky Transportation Cabinet Department of Highways (KYTC) Standard Specifications for Road and Bridge Construction (latest edition).
See Standard Drawings: 4000, 4100 and 4400 in Appendix of Drawings

11.6 Unpaved Surfaces

All drainage structures (such as pipe, head or wing walls, channels, flumes, and culverts), fences, signs, etc., public or private, which are damaged or removed by this Contractor, shall be repaired or replaced in kind to the satisfaction of the owner. All open ditches shall be restored to their present cross sections, depths, and slopes, and dressed and graded to provide permanent adequate drainage to present connecting ditches or culverts equal to the original drainage systems except where specifically indicated on the project drawings.

The Contractor shall replace all surface material including landscaping, shrubbery, fences, or other disturbed surfaces, to a condition at least equal to that which existed before the work began, furnishing all labor and materials.

The grassed area disturbed by the work under this contract, whether by the Contractor or by any subcontractor, within or adjacent to the right-of-way of any state, county, city or other thoroughfare, public or private (except as required below), now in grass shall be shaped, seeded, and mulched in accordance with KYTC Standard Specifications for Road and Bridge Construction (latest edition).

Seed mixture shall be Mixture No. 1 as described in Seed Mixtures for Permanent Seeding. Acceptance of Seeding Section shall be amended to disallow compensations for any corrective seeding required by the Company's Project Manager.

All work fronting residential lots now in grass shall be shaped and seeded in accordance with KTCDOH Standard Specifications for Road and Bridge Construction (latest edition), but shall be amended to include removal of all rock from the sod bed. A minimum of six inches (6") of top soil being free of rock shall be placed prior to final restoration.

Reseeded areas that are located within ditches or on other sloped ground of 2:1 slopes or greater shall be covered with erosion control netting secured

with pins or stakes, or prefabricated matting containing mulch, seed and fertilizer. All ditch lines in residential lots shall be covered with erosion control netting secured with pins or stakes, or prefabricated matting containing mulch, seed and fertilizer.

A maximum of 1,500 lineal feet may be disturbed at one time prior to final grade. Restoration of the area is required before the Contractor is permitted to proceed.

Certain areas as approved by the Company's Project Manager or shown on the project drawings shall be sodded. Unless otherwise approved by the Company's Project Manager, no excavated material shall be placed on any paved roadway surface.
See Standard Drawing: 4300 in Appendix of Drawings.

11.7 Site Clean Up

Surplus pipeline materials, equipment, tools, and temporary structures shall be removed by the Contractor, and all dirt, rubbish and excess earth from excavations shall be hauled and disposed by the Contractor, all in a manner satisfactory to the Company.

The Contractor shall leave the site in presentable shape and in a condition at least equal to that which existed before the work began and in compliance with all restoration provisions of this specification.

12. WARRANTY

The provisions governing work covered by warranty are contained in **WARRANTIES** section in the **TERMS AND CONDITIONS**.

13. ADDITIONAL CONTRACT DEFINITIONS, ABBREVIATIONS, and TECHNICAL REFERENCES

13.1 Additional Contract Definitions

Right-of-Way – A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to a street, highway, or other public improvement.

Service Line – Any pipe, line, or conduit used or to be used to provide water service from a water main to the property line joint. A water service line shall be owned and maintained by the Company from the tap at the water main to the property line connection.

Non-storm sewers – Sanitary sewer, combined sewer, septic tank, or subsoil

treatment system.

Stone Classifications: Equivalencies:

Kentucky # 3 = Indiana # 2
Kentucky # 57 = Indiana # 8
Kentucky # 9 = Indiana # 3/8 pea
Kentucky D.G.A. = Indiana # 73

Structures – Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, end walls, sewers, service pipes, septic tanks, lateral fields, foundation drains, fences, swimming pools, and other features which may be encountered in the work and not classified herein.

Underground Facility – means any item which shall be buried or placed below ground for use in connection with the storage or conveyance of water, sewage, electronic, telephone or telegraph communications, electric energy, oil, gas or other substances, and shall include pipes, sewers, conduits, cables, valves, lines, wires, manholes, appurtenances, attachments and those portions of poles and their attachments below ground.

Utility – Pipe lines, conduits, ducts, transmission lines, overhead or underground wires, railroads, storm drains, sanitary sewers, irrigation facilities, street lighting, traffic signals, and fire alarm systems, and appurtenances of public utilities and those of private industry, businesses or individuals solely for their own use or use of their customers which are operated or maintained in, on, under, over or across public right-of-way or public or private easement.

13.2 Abbreviations:

AC – Asbestos Cement Pipe
ANSI – American National Standards Institute
ASTM – American Society of Testing Materials
AWWA – American Water Works Association
C – Temperature in degree Celsius
CFS – Cubic Feet Per Second
CI – Cast Iron Pipe
CL – Cement Lined Cast Iron Pipe
DEG - º - Degree
DGA – Dense Graded Aggregate
DI – Ductile Iron Pipe
DIPS – Ductile Iron Pipe Size
DIW – Ductile Iron Pipe, Wrapped
DPW – Ductile Iron Pipe, Pressure Class 350, Wrapped
DR – Dimension Ratio
DVD – Digital Versatile Disc
SDR – Standard Dimension Ratio

F – Temperature in degree Fahrenheit
FPS – Feet Per Second
FT – ‘ – Feet
HDPE – High Density Polyethylene Pipe
HTH – Dry Chlorine (Calcium Hypochlorite)
IN – “ – Inch
IPS – Iron Pipe Size
KAR – Kentucky Administrative Regulations
KDOW – Kentucky Division of Water
KOSHA – Kentucky Occupational Safety and Health Association
KRS – Kentucky Revised Statutes
KTC – Kentucky Transportation Cabinet
KTCDOH - Kentucky Transportation Cabinet Department of Highways
MJ – Mechanical Joint
MSD – Louisville and Jefferson County Metropolitan Sewer District
MUTCD – Manual on Uniform Traffic Control Devices for Streets and Highways
NFPA – National Fire Protection Association
OSHA – Occupational Safety and Health Administration
PCB – Polychlorinated Biphenyls (toxic chemicals)
PPM – Parts per Million
PSF – Pounds per Square Foot
PSI – Pounds per Square Inch
PVC – Polyvinyl Chloride Pipe
USGS – United States Geological Survey
WQC – Water Quality Certification
% - per cent
@ - at
/ - per
= - equals

13.3 Technical References

Section:

1.6.1 Federal Highway Administration, Part VI (6) of the Manual on Uniform Traffic Control Devices (MUTCD).
1.6.4 Louisville / Jefferson County Metro Government Ordinance: Title VII (7), Traffic Code: Chapter 72 Parking Regulations.
1.6.5 KRS-220, 224 Soil Erosion and Sediment Control
Jefferson County Ordinance, Chapter 159, Erosion Prevention and Sediment Control
1.6.6 Kentucky Division of Water- General Water Quality Certification, Permit #12.
2.2 KOSHA – 803 KAR 2:300 – 2:320; 803 KAR 2:240 – 2:423
3.2.4 Recommended Standards for Water Works (Ten States Standards)

Latest Edition
5.3 Blasting Regulations: KRS 351 and KAR 805.
6.2.2 PVC Pipe – Design and Installation AWWA Manual No. M-23
6.2.3 AWWA Standard Specification C 600 – Installation of Ductile Iron Water Mains and Their Appurtenances.
6.4.1 AWWA Standard Specification C 111 – Rubber–Gasket Joints for Ductile Iron Pressure Pipe and Fittings.
AWWA Standard Specification C 900 – Polyvinyl Chloride (PVC) Pressure Pipe, 4”-12” for Water Distribution.
6.7.1 AWWA Standard Specification C 105 – Polyethylene Encasement for Ductile-Iron Pipe Systems.
7.1. ASTM D-1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
7.4 Kentucky Transportation Cabinet Department of Highways Standard Specification for Road and Bridge Construction.
8.2.2 401 KAR 8:150 –sections 4 (1) and 4 (2) Disinfection and Filtration.
8.4 Louisville Water Company Best Management Practice and Procedures on Chlorinated Water Disposal, December 2001.

14. TECHNICAL DESIGN AND CONSTRUCTION STANDARDS

1 GENERAL DESIGN REQUIREMENTS

1.1 The Utility shall establish and maintain Technical Design and Construction Standards for all water main projects reviewed and constructed under the KDOW Plans Review Agreed Order.

1.2 The Utility shall ensure that the plans and specifications for each project meet or exceed all Technical Design and Construction Standards.

1.3 The Professional Engineer of Record shall ensure the plans and specifications for each project meet or exceed these Technical Design and Construction Standards.

1.4 **Hydraulics**

1.4.1 The utility shall define existing and potential customer peak demand in the hydraulic analysis.

1.4.2 The hydraulics analysis shall demonstrate the proposed water main projects can be flushed at least two and one half (2.5) feet per second (fps), while keeping system pressure above twenty (20) pounds per square inch (psi) within the pressure zone of the proposed project.

1.4.3 The hydraulic analysis shall demonstrate the proposed water main project maintains thirty (30) psi under peak demand.

1.4.4 The hydraulic analysis shall demonstrate that the proposed water main project does not drop ground level pressure in any part of the pressure zone below twenty (20) psi under all conditions of flow.

1.4.5 Pressure greater than or equal to thirty (30) psi shall be available on the discharge side of all water meters.

1.5 Hydrants

1.5.1 Fire hydrants shall only be installed on new or existing water mains designed to carry fire flows. The water main supplying the hydrant must have a diameter greater than or equal to six (6) inches and provide sufficient capacity to meet the required fire flow. (Louisville Water Technical Specifications Section 9.1)

1.5.2 An auxiliary valve shall be installed in all hydrant supply pipes. (Louisville Water Technical Specifications Section 9.1)

1.5.3 Hydrant drains shall not be connected to any sanitary sewer, combined sewer, septic tank or subsoil treatment system (hereinafter "non-storm sewer") or any storm sewer or storm drain, and shall be located at a distance greater than ten (10) feet from any non-storm sewer. (Louisville Water Technical Specifications Section 9.2)

1.6 Water Main Valves

1.6.1 Water mains shall have a sufficient quantity of valves so that customer inconvenience and sanitary hazards will be minimized during repairs.

1.6.2 Urban areas as determined by the Utility shall include a valve spacing distance of less than or equal to five hundred feet (500') for commercial service areas and less than or equal to one thousand feet (1,000') for residential service areas. Valves should be located at roadway intersections where practical.

1.6.3 Rural areas as determined by the Utility shall include a valve spacing distance of less than one (1) mile. Valves should be located at roadway intersections where practical.

1.7 Blow-Off or Flushing Connections

1.7.1 For water mains that dead end, a fire hydrant or blow-off shall be required at the end of each six (6) inch or larger diameter water main and a flush hydrant or blow-off shall be required at the end of each water main that is less than six (6) inches in diameter.

1.7.2 Each blow-off, fire hydrant, or flush hydrant shall be sized so that velocity of greater than or equal to two and one half (2.5) feet per second (fps) can be achieved in the water main served by the blow-off or hydrant during flushing.

1.7.3 Flushing devices, blow-offs, or air relief valve shall not be connected to any non-storm sewer or any storm sewer or storm drain, and shall be located at a distance greater than ten (10) feet from any non-storm sewer. Chambers, pits, or manholes containing valves, blow-offs, meters, or other such appurtenances shall not be directly connected to any non-storm sewer or any storm sewer or storm drain. Such chambers, pits, or manholes shall be drained to absorption pits underground or to the surface of the ground where they are not subject to flooding by surface water. (Louisville Water Technical Specifications Section 8.3.2)

1.8 Air Relief Valves

1.8.1 Air relief valves or hydrants shall be installed at high points in water mains, where air can accumulate. Automatic air relief valves shall not be used in situations where manhole or chamber flooding may occur. (Louisville Water Technical Specifications Section 8.7, 8.7.1 & 8.7.2)

1.8.2 The open end of an air relief pipe from automatic valves shall be extended a distance of greater than or equal to one (1) foot above grade and provided with a screened, downward facing elbow or shall be an equivalent standard as determined by the best professional judgment of the Utility. The pipe from a manually operated valve shall be extended to the top of the pit. (Louisville Water Technical Specifications Section 8.7.1 & 8.7.2)

1.9 Bedding and Backfill

A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers

around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a depth greater than or equal to six (6) inches below the bottom of the pipe. (Louisville Water Technical Specifications Section 7.1)

1.10 **Minimum Depth**

All water mains shall be covered to a depth equal to or greater than forty-two (42) inches to prevent freezing. (Louisville Water Technical Specifications Section 7.1)

1.11 **Thrust Blocks**

All valves, tees, bends, plugs, and hydrants shall be provided with reaction blocking, tie rods, or joints designed to prevent movement. (Louisville Water Technical Specifications Section 6.14 & 9.1)

1.12 **Disinfection and Coliform Monitoring**

1.12.1 New or relocated water mains shall be thoroughly disinfected in accordance with 401 KAR Chapter 8:150 Section 4 (1) upon completion of construction and before being placed into service. To disinfect the new or relocated water mains, the Utility shall use chlorine or chlorine compounds (disinfectants) in such amounts as to produce an initial disinfectant concentration of at least fifty (50) ppm and a residual disinfection of greater than or equal to twenty-five (25) ppm at the end of twenty-four (24) hours. Follow the water main disinfection with thorough flushing and place the water main into service if, and only if, coliform monitoring applicable to the water main does not show the presence of coliform. If coliform is detected, repeat flushing of the water main and coliform monitoring. If coliform is still detected, repeat disinfection and flushing as if the water main has never been disinfected. Continue the described process until monitoring does not show the presence of coliform. (Louisville Water Technical Specifications Section 8.2.2 & 8.6)

1.12.2 The presence or absence of total coliform monitored by sampling and analysis shall be determined for the new or relocated water main(s) as needed. Take samples at connection points to existing water mains at one (1) mile intervals and at dead ends, without omitting any branch of the new or relocated water main. Sample bottles shall be clearly

identified as "special" construction tests. (Louisville Water Technical Specifications Section 8.6)

1.12.3 For new construction projects, the distribution system, using the most expedient method, shall maintain coliform test results. (Louisville Water Technical Specifications Section 8.6)

1.12.4 Chlorinated water resulting from disinfection of project components shall be disposed in a manner which will not violate 401 KAR 5:031. (Louisville Water Technical Specifications Section 8.4)

1.13 Pressure Testing and Leak Detection

The presence or absence of leaks monitored by physical testing shall be determined in all types of installed pipe as needed. Pressure testing and leakage testing shall be in accordance with the latest edition of AWWA Standard C600. (Louisville Water Technical Specifications Section 8.5)

1.14 Water Main Construction and Material Standards

1.14.1 Installation of water mains and appurtenances shall meet or exceed AWWA standards or manufacturer recommendations.

1.14.2 Pipes, fittings, valves, fire hydrants, and appurtenances shall meet or exceed the latest standards issued by the AWWA, ASTM, or NSF (if such standards exist). PVC and Polyethylene piping used must be certified to ANSI/NSF Standard 61.

1.15 Sewer Crossings and Separation

1.15.1 For the purpose of this standard, "non-storm sewer" is defined as any of the following: sanitary sewer, combined sewer, septic tank, or subsoil treatment system. (Louisville Water Technical Specifications Section 3.1.4)

1.15.2 Water mains shall be laid a horizontal distance of greater than or equal to ten (10) feet horizontally from any existing or proposed non-storm sewer. The horizontal distance shall be measured from outside diameter of the water main to outside diameter of the non-storm sewer. (Louisville Water Technical Specifications Section 3.1.4)

1.15.3 In cases where the Utility determines it is not practical to maintain a ten (10) foot separation, water mains may be installed closer to a non-storm sewer provided that a variance is obtained from the Cabinet's Division of Water and maintained with the project records. (Louisville Water Technical Specifications Section 3.1.4)

1.15.4 No deviation from the ten (10) foot separation is allowed if the non-storm sewer is a force main (sewer under pressure). (Louisville Water Technical Specifications Section 3.1.4)

1.15.5 When water mains and non-storm sewers cross:

1.15.5.1 Water mains shall be laid such that there shall be a vertical distance of greater than or equal to eighteen (18) inches between the water main and non-storm sewer. The vertical distance shall be measured from the outside diameter of the water main to the outside diameter of the non-storm sewer line. (Louisville Water Technical Specifications Section 3.1.4)

1.15.5.2 One (1) full length of the water pipe shall be located so that both joints of the water pipe will be as far from the non-storm sewer as practical as determined by the Utility. (Louisville Water Technical Specifications Section 3.1.4)

1.15.5.3 Special structural support for the water and non-storm sewer may be required.
(Louisville Water Technical Specifications Section 3.1.4)

1.15.6 No water pipe shall pass through or come in contact with any part of a non-storm sewer manhole. (Louisville Water Technical Specifications Section 3.1.4)

1.16 Water Mains Near Areas with Organic Contamination

If water mains are installed or replaced in areas of organic contamination or in areas within two hundred (200) feet of underground or petroleum storage tanks, ductile iron or other non-permeable materials shall be used in all portions of the water main installation or replacement. (Louisville Water Technical Specifications Section 5.5.6)

1.17 Asbestos-Cement Pipe (Transite Pipe)

If the existing water main to be tapped is asbestos-cement pipe, then

the contractor shall conform to OSHA regulations governing the handling of hazardous waste during the process of tapping the asbestos-cement pipe. Pieces of asbestos-cement pipe resulting from the tap shall be double bagged, placed in a rigid container, and disposed of in an approved landfill. (Louisville Water Technical Specifications Section 6.7)

1.18 Subfluvial Pipe Crossings

1.18.1 For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250 if the following requirements of 401 KAR 4:050 Section 2 are met:

1.18.1.1 No material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc. during construction of pipe crossings.

1.18.1.2 Crossing trenches shall be backfilled as closely as possible to the original contour.

1.18.1.3 All excess material resulting from construction displacement in a crossing trench shall be disposed of outside the flood plain.

1.18.1.4 For erodible channels, there shall be at least thirty (30) inches of backfill on top of all pipe or conduit points in the crossing.

1.18.1.5 For nonerodible channels, pipes or conduits in the crossing shall be encased on all sides by at least six (6) inches of concrete with all pipe or conduit points in the crossing at least six (6) inches below the original contour of the channel.

(Louisville Water Technical Specifications Section 1.3.6)

1.18.2 For subfluvial pipe crossings greater than fifteen (15) feet in width:

1.18.2.1 The pipe shall be of special construction having flexible, restrained, or welded watertight joints, and

1.18.2.2 Valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair. Valves shall be easily accessible and not be subject to flooding.

1.18.2.3 Permanent taps or other provisions to allow insertion of a small meter to determine leakage and obtain water samples shall be made on each side of the valve closest to the supply source. (Louisville Water Technical Specifications Section 1.3.6)

1.19 Cross Connections

Cross connections shall not be allowed in accordance with 401 KAR 8:020. 401 KAR 8:020 (2) Cross-connections prohibited. All cross-connections shall be prohibited. The use of automatic devices, such as reduced pressure zone back flow preventers and vacuum breakers, may be approved by the cabinet in lieu of proper air gap separation. A combination of air gap separation and automatic devices shall be required if determined by the cabinet to be necessary due to the degree of hazard to public health. Every public water system shall determine if or where cross-connections exist and shall immediately eliminate them.

1.20 Project Approvals, Record Retention and Management requirements and stipulations under this Agreed Order are as follows:

1.20.1.1 All water main projects reviewed by the Utility require the preparation of plans and specifications stamped by a licensed Kentucky Professional Engineer (P.E.) who shall be the Engineer of Record for an individual project.

1.20.1.2 All water main projects submitted to the Utility for review shall be documented as reviewed and approved or denied by the Utility's Designated Plans Reviewer for the project.

1.20.1.3 All water main projects that the Utility designs internally or has designed by a contractor shall include plans and specifications stamped by a licensed Kentucky Professional Engineer (P.E.) who shall be the Engineer of Record for an individual project, and shall be reviewed and approved or denied by the Utility's Designated Plans Reviewer for the project.

1.20.1.4 All revisions to water main project plans previously approved by the Utility under the coverage of this Agreed Order shall be reviewed and approved or denied by the Utility's Designated Plans Reviewer for the project.

1.20.1.5 During construction, a set of Utility approved plans and specifications shall be available at the job site at all times. All work shall be performed in accordance with the Utility approved plans and specifications.

1.20.1.6 The Utility shall certify the water main projects has been constructed and tested in accordance with the approved plans and specifications. The Utility shall document and maintain a record of the certification of the project consistent with the recordkeeping requirements as stated in the Agreed Order.

1.20.1.7 The Utility shall define a project approval period not to exceed twelve (12) months, during which time the project construction shall begin.

1.20.1.8 Coverage under this Agreed Order does not relieve the Utility from the responsibility of obtaining any other approvals, permits, licenses required by the Cabinet and other state, federal and local agencies.

1.20.1.9 Project files and documentation, including water main project plans, location map, engineering calculations, and hydraulic information demonstrating regulatory compliance shall be retained for a period of not less than five (5) years from the completion of the project (in-service date).

2 Qualifications for Cabinet's Division of Water Agreed Order Projects

2.1 The Cabinet's Division of Water Agreed Order Projects will be limited to projects that meet the criteria identified in this section. Projects not meeting these qualifications shall be submitted to the Cabinet's Division of Water for review and approval.

2.1.1 The water system shall have a valid Agreed Order.

2.1.2 Projects with an overall length less than ten thousand (10,000) contiguous feet shall qualify. Two (2) or more adjoining projects shall be considered one (1) project for the purposes of this requirement.

2.1.3 Projects consisting of water mains greater than or equal to three (3) inches in diameter or less than or equal to twelve (12) inches in diameter shall qualify. Additionally, circulating two (2) inch water main projects of less than five hundred (500) feet shall qualify if future extension from the line will

not occur and if the Utility determines that the two (2) inch line will benefit the overall system hydraulics and / or drinking water quality.

2.1.4 Projects qualifying for review and approval by the Utility may include water main projects with valves and / or hydrants as part of the design. However, projects, including those less than ten thousand (10,000) total linear feet, that include new construction or installation of treatment plants, storage tanks, chemical or pressure booster pumping stations, shall be reviewed by the Cabinet for final determination.

2.1.5 The water demand for the project shall not cause the Utility to exceed eighty-five (85) % of its rated or operational design capacity.

2.1.6 Projects funded in part or in full by the State Revolving Fund (SRF) or Congressional Special Appropriation Grants (SPAP) shall not qualify for review and approval by the Utility under the terms and conditions of this Agreed Order.

2.1.7 Projects under the jurisdiction of any regulating agency or funding agency other than the Kentucky Division of Water (external agencies), which in any way conflict with any regulatory process or funding process of these external agencies, shall not qualify for review and approval by the Utility under the terms and conditions of this Agreed Order.

2.1.8 The Utility is not authorized to approve any project that impacts any outstanding state resource water, outstanding national resource water, exceptional water, or cold water aquatic habitat as specified by 401 KAR Chapter 10.

2.1.9 Upon completion, projects shall meet all drinking water quality standards as set forth in 401 KAR Chapter 8.

2.1.10 The project meets all of the Technical Design and Construction Standards of the Cabinet's Division of Water Agreed Order and does not require any variances or deviations from the Technical Design and Construction Standards of the Cabinet's Division of Water Agreed Order.

APPENDIX OF STANDARD DRAWINGS FOR 4" – 20" PIPELINE CONSTRUCTION

Standard Drawing Number	
	Section 1: General Requirements
4501	Creek Crossings with Concrete Cap (Sect. 1.3.5)
	Section 3: Site
1000	Typical Utility Location Profiles (Sect.3.1)
3600	Typical Temporary Service from Fire Hydrant (Sect. 3.4.4 & 3.4.4.1)
	Section 6: Installation
1500	Steel Casing Pipe and Casing Runners (Sect. 6.3)
1400	Typical Cast-in-Place Thrust Anchors (Sect.6.8 & 6.15)
1200	A-C Methods for Installing and Restoring Polyethylene Wrap (Sect. 6.9)
	Section 7: Backfilling Procedures and Tamping
4300	Common Backfill and Lawn Restoration (Sect. 7.1, 7.4, 7.5, 7.6 & 11.6)
	Section 8: Placing Water Main In Service
1601	Typical 2" Blow-off and Flushing Connection (Sect. 8.3.2)
1602	Typical 1" Manual Air Valve (For mains up to 20") (Sect. 8.3.2, 8.7 & 8.7.2)
1603	Typical Combined 2" Automatic and Manual Air Valve (For mains 16" and larger) (Sect. 8.3.2, 8.7 & 8.7.1)
1608	Leak Detection By-Pass Meter for Underwater Crossings (Sect. 1.3.6 & 8.8)
	Section 9: Fire Hydrant
2000	Typical Fire Hydrant Installation (Sect. 9)
	Section 10: Service Work
3804	Method for Tapping Polyethylene Encased Pipe (Sect. 10.3.1)
3002	Typical Copper Service 1" and Smaller (Sect.10.3, 10.3.1, 10.3.2 & 10.6)
3003	Typical 1" Copper Service with Pressure Reducing Valve (Sect.10.3, 10.3.1, 10.3.2, 10.5 & 10.7)
3004	Typical 3/4" Copper Service with Pressure Reducing Valve (Sect.10.3, 10.3.1, 10.3.2, 10.6 & 10.7)
3400	Typical Double 1" Domestic/Irrigation Copper Service (Sect. 10.3, 10.3.1, 10.3.2)
3401	Typical Double Domestic/Irrigation 1" Copper Service With Pressure Reducing Valve (Sect. 10.3, 10.3.1, 10.3.2, 10.6 & 10.7)
3403	Typical ¾" Irrigation Retro Fit Copper Service (Sect. 10.3, 10.3.1, 10.3.2, & 10.6)
3404	Typical 1" Tandem 2-Way Domestic Copper Service (Sect. 10.3, 10.3.1, 10.3.2, & 10.6)
3420	Typical 1" 3-Way Domestic Copper Service (Sect. 10.3, 10.3.1, 10.3.2, & 10.6)

3430	Typical 1” 4-Way Domestic Copper Service (Sect. 10.3, 10.3.1, 10.3.2, & 10.6)
3200	Typical 1-1/2" or 2" Copper Service (Sect. 10.3, 10.3.1, 10.3.2, & 10.6)
3202	Typical 1-1/2" or 2" Copper Service with Pressure Reducing Valve (Sect. 10.3, 10.3.1, 10.3.2, 10.6 & 10.7)
3203A	Typical Ductile Iron Domestic Service 4"x3” (Sect. 10.4, 10.4.1, 10.4.2, & 10.6)
3203	Typical Ductile Iron Domestic Service 4" and Larger (Sect. 10.4, 10.4.1, 10.4.2, & 10.6)
3601	Typical Fire Protection Service 4" and Larger (Sect. 10.4, 10.4.1, 10.4.2, & 10.6)
3440	Relocate Service (Sect.10.9)
3441	Renew Service (Sect. 10.10, 10.11)
3442	Transfer Service (Sect.10.16) and Discontinue Service (Sect.10.17)
3805	Service Sleeve Installation Detail (Sect.10)

Section 11: Restoration

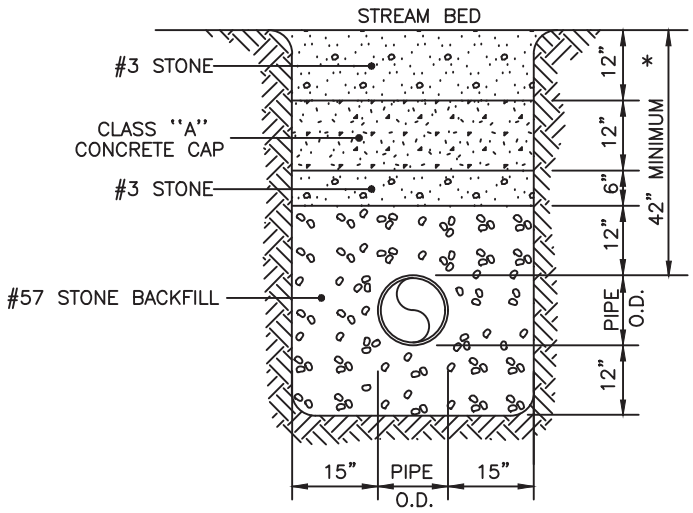
4000	State of Kentucky Backfill and Paving Restoration (Sect. 11)
4100	Metro Louisville/Jefferson County Backfill and Paving Restoration (Sect. 11)
4400	Sidewalk/Backfill Detail (Sect. 11)
4410	Concrete Curb and Gutter Restoration Detail (Sect. 11.4)

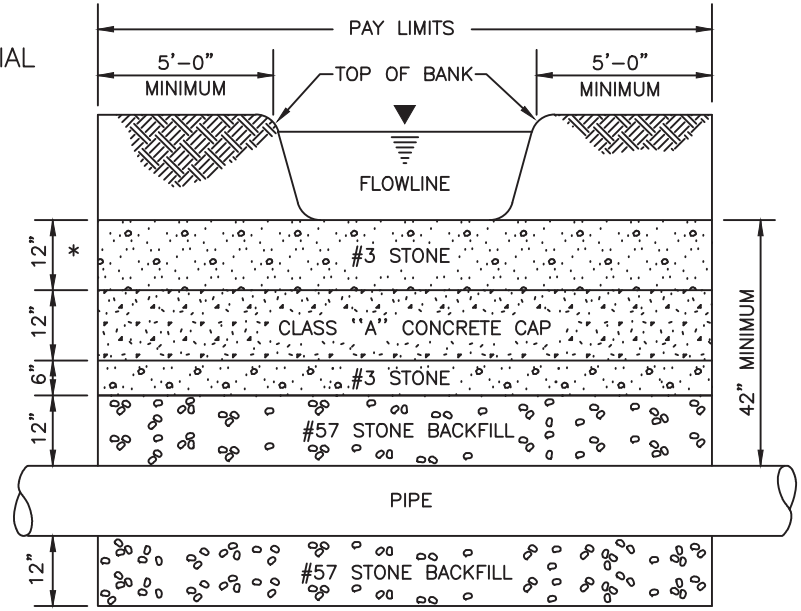
Other:

4600	Typical Master Meter Detail
5005	Valve Status Marker

*THE TOP 12" TO BE #3 STONE OR OTHER SELECT MATERIAL APPROVED BY THE KENTUCKY DIVISION OF WATER.

TYPICAL SECTION





TYPICAL PROFILE

STREAM CROSSING CONDITIONS

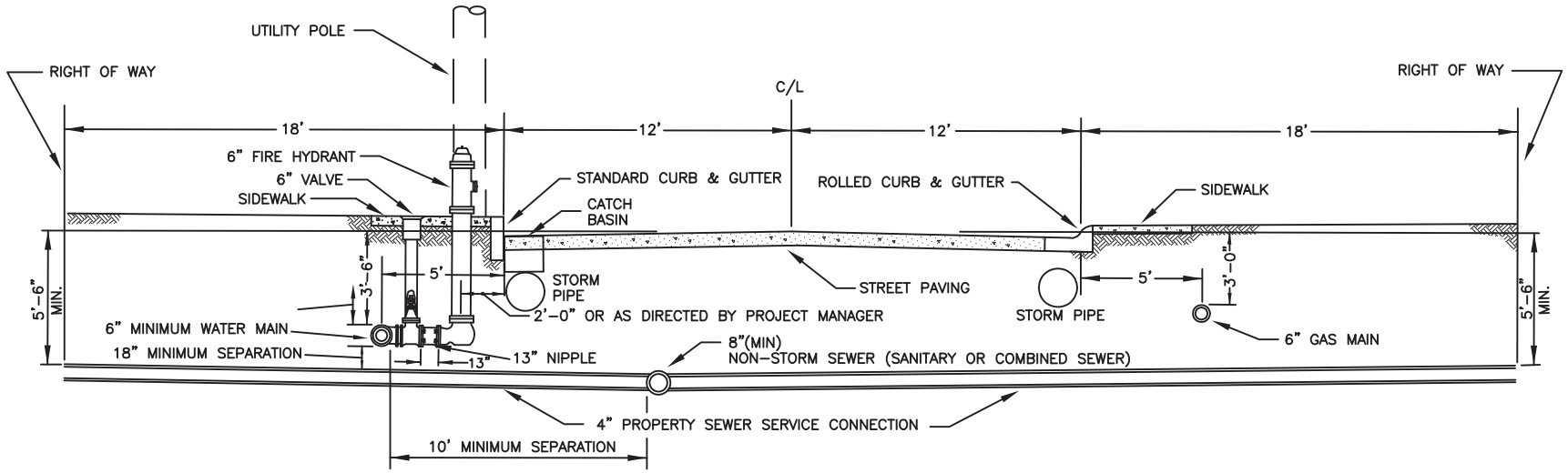
1. COMPLY WITH SECTION 1.3.5, SOIL EROSION AND SEDIMENT CONTROL.
2. THIS DETAIL APPLIES ONLY TO BLUE–LINE STREAMS, AS SHOWN ON THE PERTINENT USGS QUADRANGLE MAP.
3. BEST MANAGEMENT CONSTRUCTION PRACTICES MUST BE USED AT ALL TIMES DURING CONSTRUCTION. ADEQUATE SILT CONTROL MUST BE PLACED PRIOR TO THE START OF CONSTRUCTION AND MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. REVEGETATE ALL DISTURBED GRASSY AREAS ON THE STREAM SLOPES. SOD STAKES MAY BE REQUIRED TO SECURE SOD ON THE STREAM BANKS.
5. MAINTAIN AT LEAST 3.5' OF BACKFILL AT THE STREAM CROSSING FROM THE TOP OF PIPE TO THE ORIGINAL STREAM BED ELEVATION.
6. OBTAIN APPROVAL FROM THE METROPOLITAN SEWER DISTRICT PRIOR TO THE START OF THE STREAM CROSSING WHEN CONSTRUCTION IS UNDER THEIR JURISDICTION.
7. THRUST BLOCKING SHALL BE CONSTRUCTED AT ALL BENDS.

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
SPENCER W. BRUCE, P.E. - PRESIDENT
TIMOTHY KRAUS, P.E. - VICE PRESIDENT / CHIEF ENGINEER

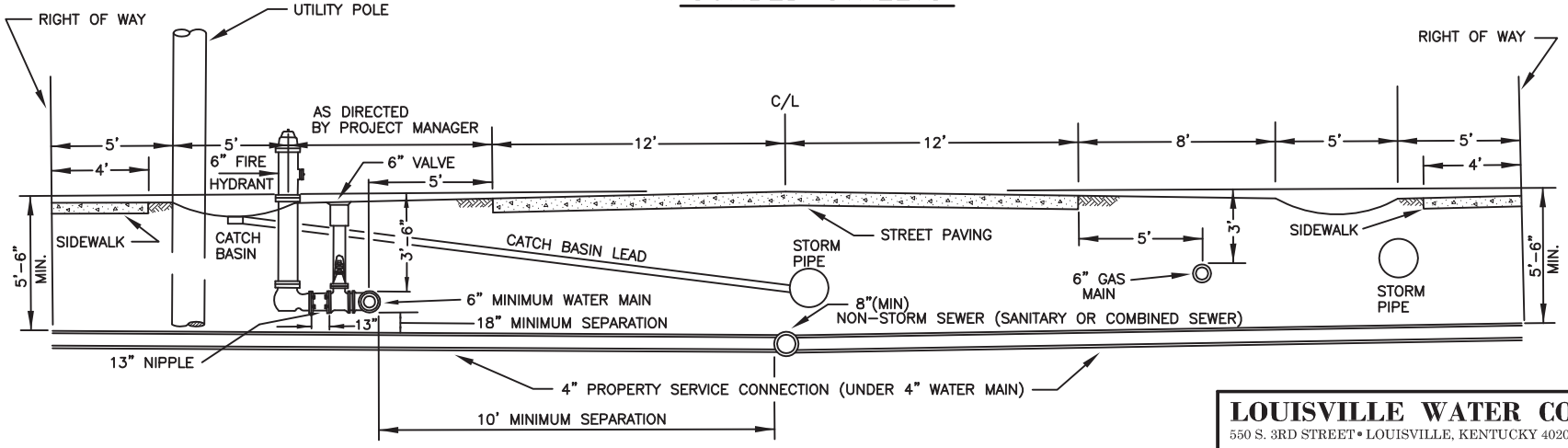
STANDARD DRAWING

CREEK CROSSING WITH CONCRETE CAP

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	4501	SHEET	1 OF 1



UTILITY LOCATIONS
CURBED STREETS

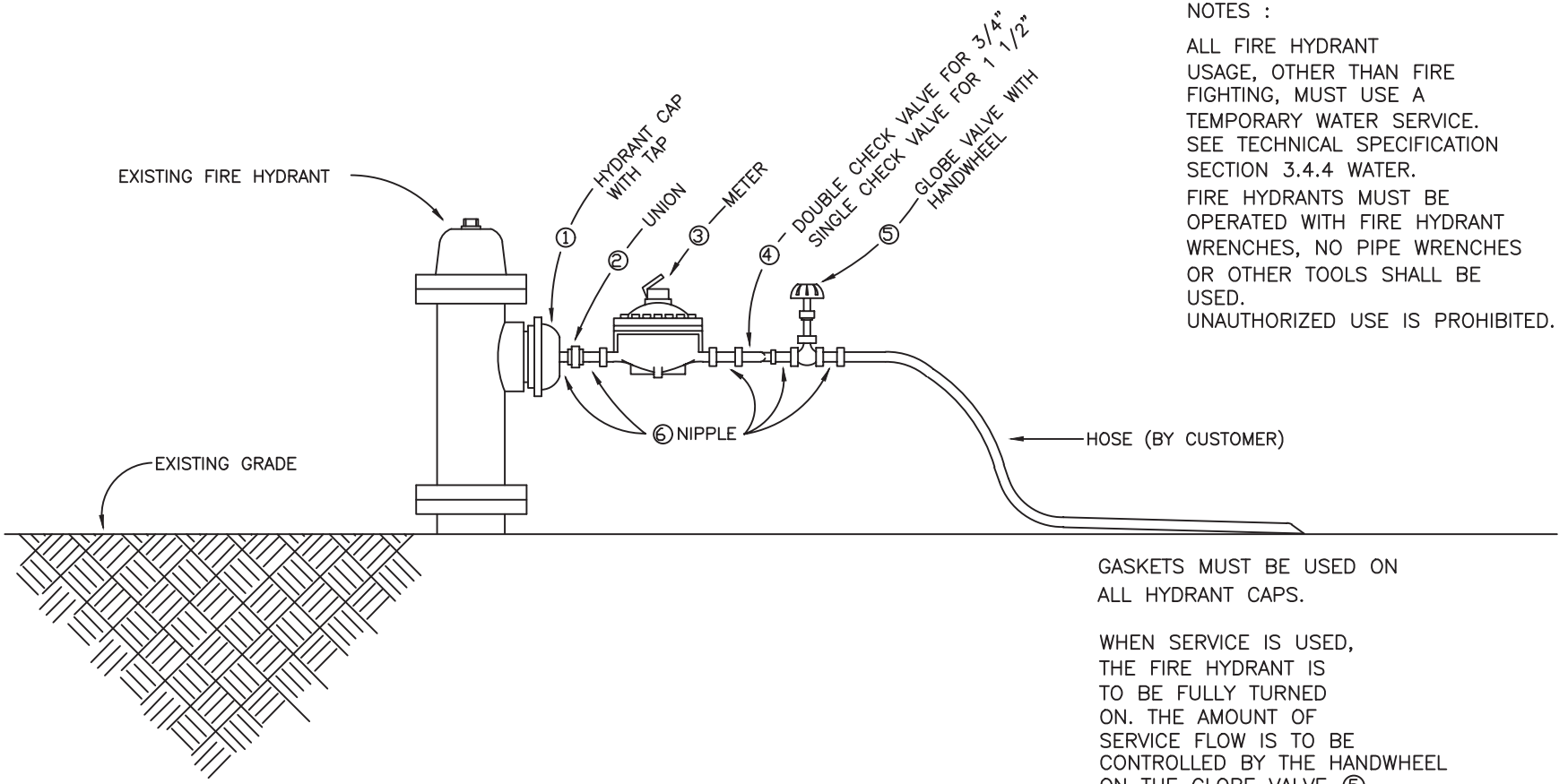


UTILITY LOCATIONS
WITHOUT CURBED STREETS

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
SPENCER W. BRUCE, P.E. - PRESIDENT
TIMOTHY KRAUS, P.E. - VICE PRESIDENT / CHIEF ENGINEER

STANDARD DRAWING
TYPICAL
UTILITY LOCATION PROFILES

DATE	AUGUST 2018	SCALE	NONE
DRAWING NO.	1000	SHEET	1 OF 1



NOTES :

ALL FIRE HYDRANT USAGE, OTHER THAN FIRE FIGHTING, MUST USE A TEMPORARY WATER SERVICE. SEE TECHNICAL SPECIFICATION SECTION 3.4.4 WATER.

FIRE HYDRANTS MUST BE OPERATED WITH FIRE HYDRANT WRENCHES, NO PIPE WRENCHES OR OTHER TOOLS SHALL BE USED.

UNAUTHORIZED USE IS PROHIBITED.

GASKETS MUST BE USED ON ALL HYDRANT CAPS.

WHEN SERVICE IS USED, THE FIRE HYDRANT IS TO BE FULLY TURNED ON. THE AMOUNT OF SERVICE FLOW IS TO BE CONTROLLED BY THE HANDWHEEL ON THE GLOBE VALVE ⑤.

NO.	QUANTITY	FITTING	JOINT	SERVICE SIZES 3/4"	SERVICE SIZES 1-1/2"
①	1	Hydrant Cap w/Gasket	Female Threaded	4"x3/4"	4"x1-1/2"
	1	& Tap	Female Threaded	3/4"	1-1/2"
②	1	Union	Female Threaded	3/4"	1-1/2"
③	1	Meter	Flanged with Adapter	3/4"	1-1/2"
④	1	Check Valve	Female Threaded	3/4"	1-1/2"
⑤	1	Globe Valve W/Handwheel	Female Threaded	3/4"	1-1/2"
⑥	5	Nipple	Inlet-Male Threaded Outlet-Male Threaded	3/4"	1-1/2"

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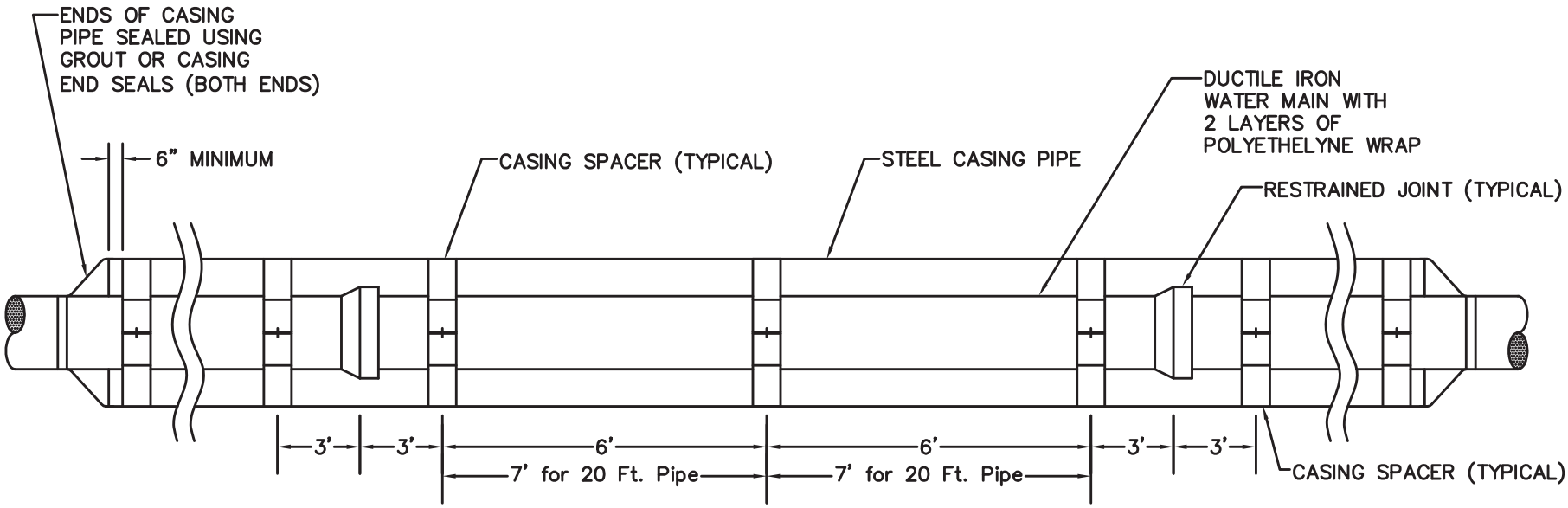
STANDARD DRAWING

TYPICAL TEMPORARY SERVICE FROM FIRE HYDRANT 3/4" OR 1-1/2"

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3600	SHEET	1 OF 1



TYPICAL SPACER SPACING
(PER 18 FT. PIPE LENGTH)

NOTES:
1) STEEL CASING TO EXTEND A MINIMUM OF FIVE (5) FEET BEYOND THE EDGE OF PAVEMENT.
2) THREE (3) CASING SPACERS PER EACH PIPE LENGTH (MINIMUM). WITH ONE CASING SPACER WITHIN 3 FT. OF EACH PIPE END.
3) WATER MAIN SHALL HAVE RESTRAINED JOINTS WITHIN CASING PIPE. (SEE SECT. 6.3)

CASING PIPE SIZES		
WATER MAIN PIPE SIZE (INCHES)	CASING PIPE SIZE (INCHES)	CASING THICKNESS (INCHES)
4	12	0.375
6	16	0.375
8	16	0.375
12	24	0.375
16	30	0.500
20	36	0.500

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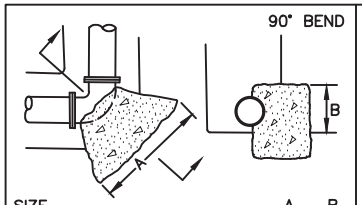
STANDARD DRAWING

STEEL CASING PIPE AND CASING SPACERS

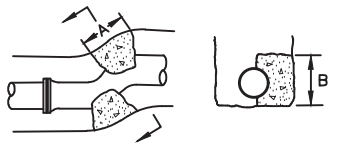
DATE	AUGUST 2018	SCALE	NONE
DRAWING NO.	1500	SHEET	1 OF 1

90° BEND



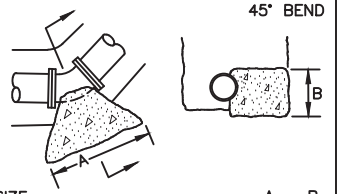
SIZE	A	B
4",6",8", & 12"	4'-6"	2'
16"	5'-9"	2'-6"
20"	6'-6"	3'

HORIZONTAL OFFSET



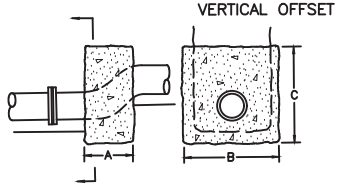
SIZE	A	B
4",6",8", & 12"	2'	2'
16"	2'-6"	2'-6"
20"	3'	3'

45° BEND



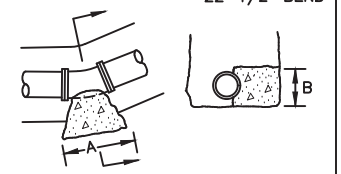
SIZE	A	B
4",6",8", & 12"	4'-6"	2'
16"	5'-9"	2'-6"
20"	6'-6"	3'

VERTICAL OFFSET



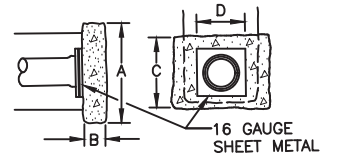
SIZE	A	B	C
4",6",8", & 12"	2'	4'	4'
16"	3'	6'	4'
20"	3'-6"	7'	4'-6"

22-1/2° BEND



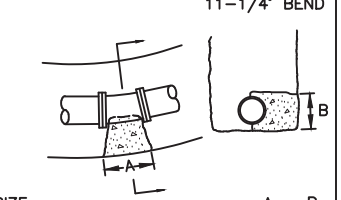
SIZE	A	B
4",6",8", & 12"	3'	1'-6"
16"	3'-9"	2'
20"	4'-6"	2'-9"

PLUG



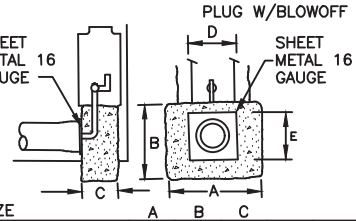
SIZE	A	B	C	D	E
4",6",8",& 12"	4'	9"	3'	2'	2'
16"	5'	1'-3"	4'	2'-6"	2'-6"
20"	6'-6"	2'	4'	3'	3'

11-1/4° BEND



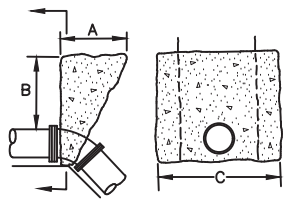
SIZE	A	B
4",6",8", & 12"	2'-6"	1"
16"	3'	1'-6"
20"	4'	2'-3"

PLUG W/BLOWOFF



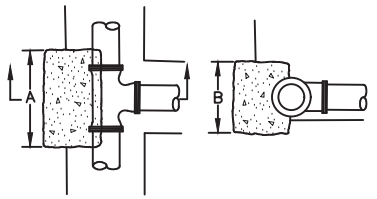
SIZE	A	B	C		
4",6",8", & 12"	4'	3'	1'-6"	2'	2'
16"	5'	4'	2'	2'-6"	2'-6"
20"	6'	5'	2'-6"	3'	3'

45° VERTICAL BEND



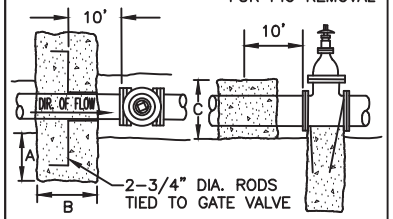
SIZE	A	B	C
4",6",8", & 12"	3'	3'	5'
16"	3'-9"	3'-9"	6'
20"	5'	4'	7'

TEE OR TAPPING SLEEVE



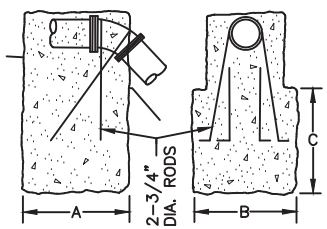
SIZE	A	B
4",6",8", & 12"	4'	3'
16"	5'	3'-9"
20"	6'	4'-6"

HORIZONTAL THRUST BLOCKING FOR PIG REMOVAL



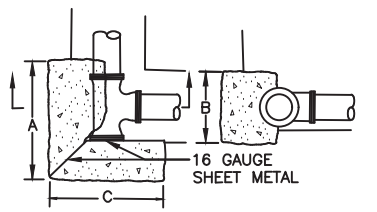
SIZE	A	B	C
4",6"	1'	2'	2'
8"	1'	2'	2'
12"	2'	3'	2'
16"	2'	4'	3'
20"	3'	4'	3'

45° VERTICAL BEND



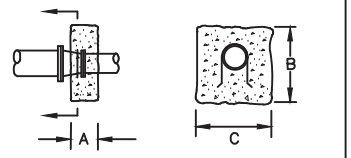
SIZE	A	B	C
4",6",8", & 12"	4'	4'	4'
16"	5'	5'	5'
20"	6'	6'	6'

TEE PLUGGED



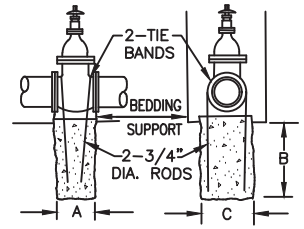
SIZE	A	B	C
4",6",8", & 12"	4'	3'	4'-6"
16"	5'	3'-9"	5'-6"
20"	6'	4'-6"	6'

REDUCER



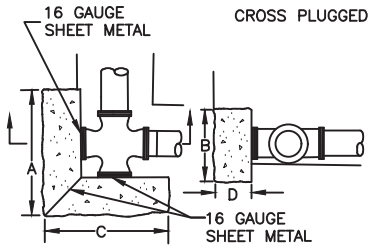
SIZE	A	B	C
4",6",8", & 12"	1'-6"	3'	2'
16"	2'	3'-9"	2'-6"
20"	2'-6"	4'	3'

GATE VALVE



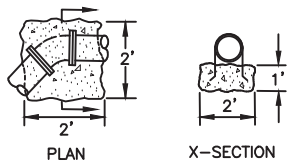
SIZE	A	B	C
4",6",8", & 12"	1'-6"	3'	2'
16"	2'	3'-9"	2'-6"
20"	2'-6"	4'	3'

CROSS PLUGGED



SIZE	A	B	C	D
4",6",8", & 12"	4'-6"	3'	4'-6"	1'-6"
16"	5'	3'-6"	5'	2'
20"	6'	4'	6'	3'

TYPICAL CONCRETE ANCHORED THRUST BLOCKING UNDER ALL FITTINGS USED WITH P.V.C. PIPE



NOTE:

1. ALL DUCTILE AND GRAY IRON PIPE AND APPURTENANCES SHALL BE DOUBLE POLYWRAPPED.
2. CARE SHALL BE TAKEN TO AVOID DAMAGING POLYWRAP. ANY DAMAGE OR TORN POLYETHYLENE WRAP MUST BE REPAIRED WITH POLYETHYLENE TAPE AND ADDITIONAL POLYETHYLENE WRAP IF NECESSARY TO PROVIDE TWO (2) LAYERS OF PROTECTION.
3. CONCRETE THRUST BLOCKING MUST BE ALLOWED TO CURE, OR PROTECTED AS APPROVED BY THE PROJECT MANAGER, BEFORE BACKFILLING.
4. ALL CONCRETE SHALL BE 3,500psi FROM A COMMERCIAL PLANT, OR SHALL BE AN ON-SITE MIXTURE PREVIOUSLY APPROVED BY THE PROJECT MANAGER.
5. ALL FITTINGS INVOLVED WITH PVC PIPE SHALL HAVE A CONCRETE SUPPORT BLOCK, IN ADDITION TO THE PERTINENT THRUST BLOCK.
6. SIZING OF THRUST BLOCKING ASSUME AN ALLOWABLE SOIL BEARING CAPACITY OF 3,000 PSF.
7. REINFORCING STEEL ANCHORS USED IN THRUST BLOCKING SHALL BE GRADE 60 AND EPOXY COATED.
8. CONCRETE FOR THRUST BLOCKING MUST EXTEND TO AND BE PLACED AGAINST UNDISTURBED EARTH UNLESS DIRECTED OTHERWISE BY THE COMPANY'S PROJECT MANAGER OR INSPECTOR.
9. RODS USED FOR THRUST RESTRAINT ARE TO BE USED ONLY AS TEMPORARY THRUST RESTRAINT. THRUST ANCHORS MUST BE POURED FOR ALL FITTINGS AS DETAILED IN THIS DRAWING. MECHANICAL RESTRAINT MAY BE USED IN PLACE OF RODS AT THE DISCRETION OF THE COMPANY'S PROJECT MANAGER.

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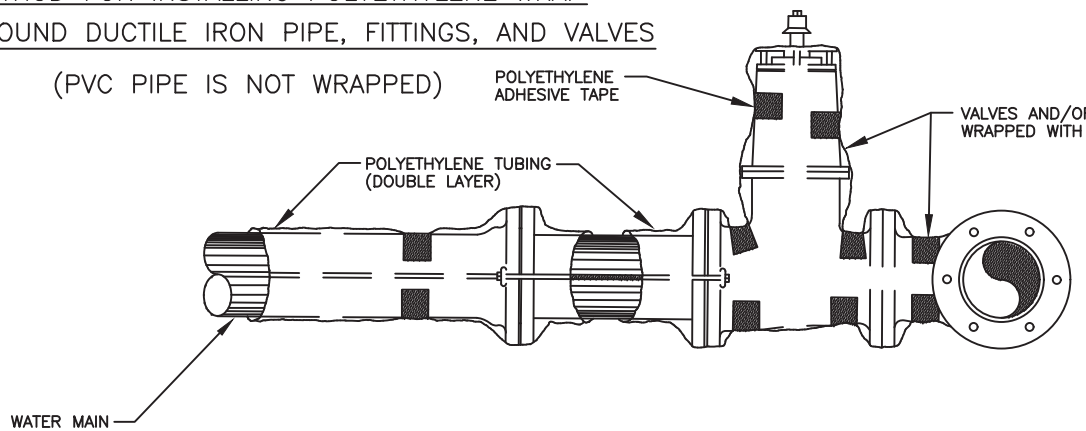
STANDARD DRAWING

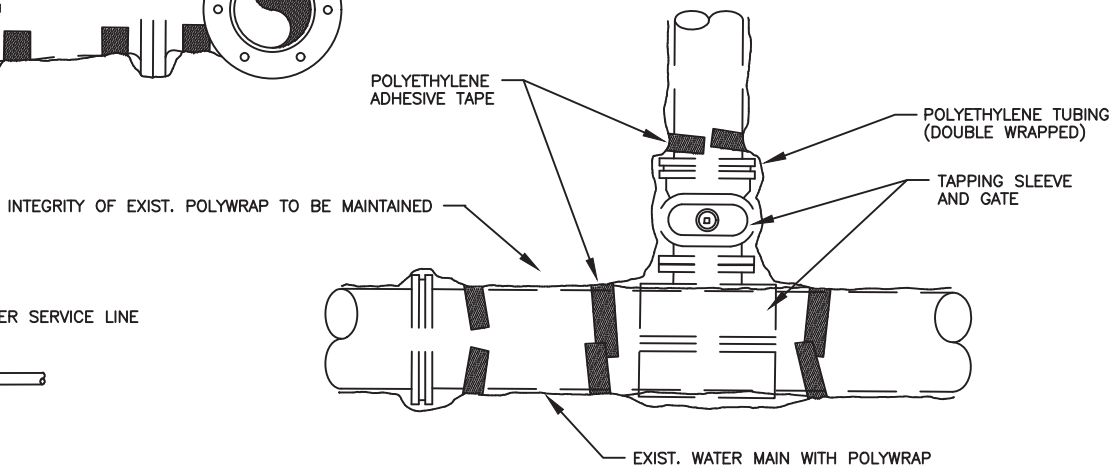
TYPICAL CAST-IN-PLACE CONCRETE THRUST BLOCKING

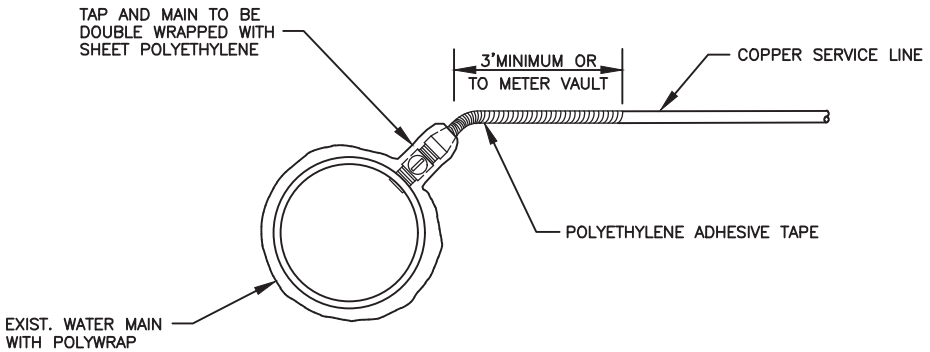
DATE	JULY 2021	SCALE	NONE
DRAWING NO.	1400	SHEET	1 OF 1

METHOD FOR INSTALLING POLYETHYLENE WRAP AROUND DUCTILE IRON PIPE, FITTINGS, AND VALVES

(PVC PIPE IS NOT WRAPPED)







METHOD FOR RESTORING POLYETHELENE WRAP WHEN TAPPING WATER MAINS

NOTES:

1) ANY DAMAGE OR TORN POLYETHYLENE WRAP MUST BE REPAIRED WITH POLYETHYLENE ADHESIVE TAPE AND ADDITIONAL POLYETHYLENE WRAP IF NECESSARY TO PROVIDE TWO (2) LAYERS OF PROTECTION.

2) PIPE SHALL NOT BE WRAPPED FOR MORE THAN FIVE (5) DAYS IN ADVANCE OF PLACEMENT INTO THE TRENCH.

3) ALL DUCTILE IRON TEES, VALVES AND FITTINGS ON PVC PIPE SHALL BE DOUBLE WRAPPED WITH POLYETHYLENE AND ENDS FASTENED SECURELY ON PVC PIPE.

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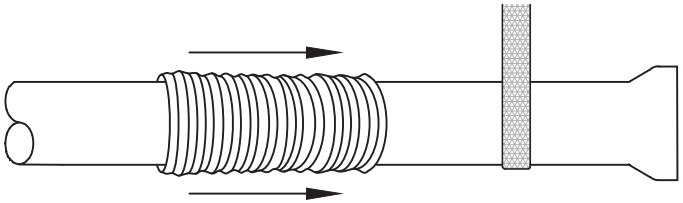
STANDARD DRAWING

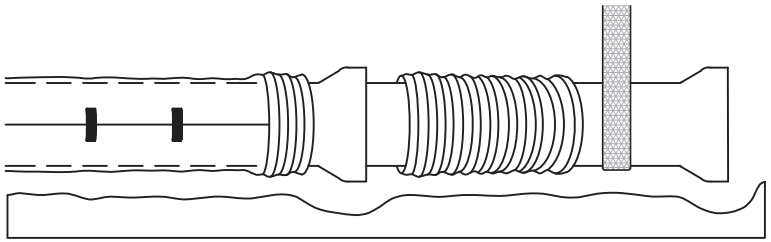
METHODS FOR INSTALLING AND RESTORING POLYETHYLENE WRAP

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	1200-A	SHEET	1 OF 3



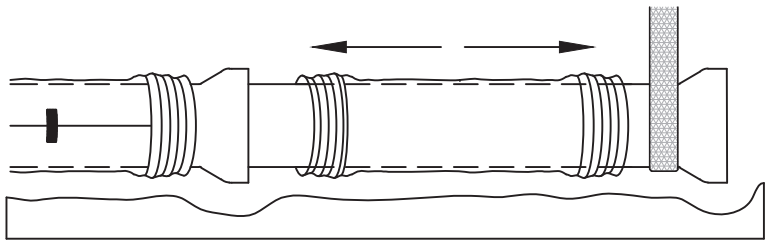
STEP 1.

CUT A SECTION OF POLYETHYLENE TUBE APPROXIMATELY TWO FEET LONGER THAN THE PIPE SECTION. REMOVE ALL LUMPS OF CLAY, MUD, CINDERS, OR OTHER MATERIAL THAT MIGHT HAVE ACCUMULATED ON THE PIPE SURFACE DURING STORAGE. SLIP THE POLYETHYLENE TUBE AROUND THE PIPE, STARTING AT THE SPIGOT END. BUNCH THE TUBE ACCORDIAN–FASHION ON THE END OF THE PIPE. PULL BACK THE OVERHANGING END OF THE TUBE UNTIL IT CLEARS THE PIPE END.



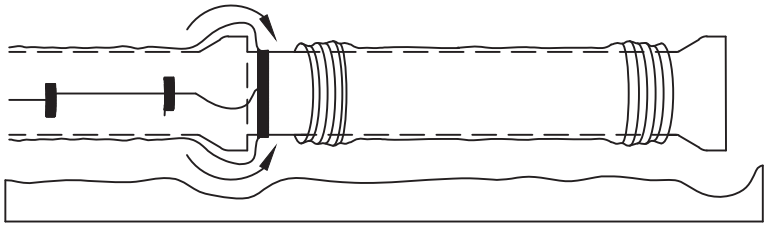
STEP 2.

DIG A SHALLOW BELL HOLE IN THE TRENCH BOTTOM AT THE JOINT LOCATION TO FACILITATE INSTALLATION OF THE POLYETHYLENE TUBE. LOWER THE PIPE INTO THE TRENCH AND MAKE UP THE PIPE JOINT WITH THE PRECEDING SECTION OF PIPE.



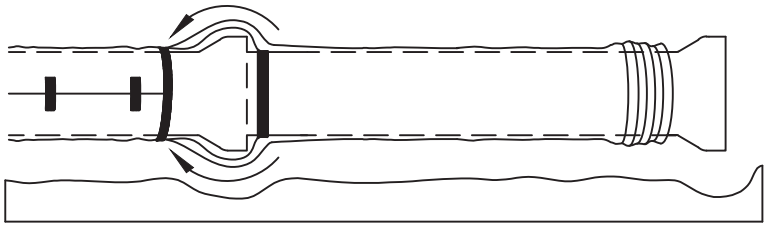
STEP 3.

MOVE THE CABLE TO THE BELL END OF THE PIPE AND LIFT THE PIPE SLIGHTLY TO PROVIDE ENOUGH CLEARANCE TO EASILY SLIDE THE TUBE. SPREAD THE TUBE OVER THE ENTIRE BARREL OF THE PIPE. NOTE: MAKE SURE THAT NO DIRT OR THE BEDDING MATERIAL BECOMES TRAPPED BETWEEN THE WRAP AND THE PIPE.



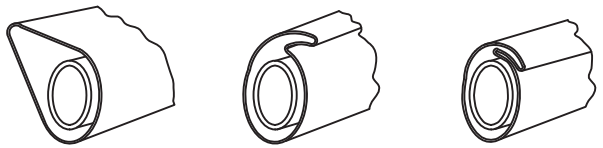
STEP 4.

MAKE THE OVERLAP OF THE POLYETHYLENE TUBE BY PULLING BACK THE BUNCHED POLYETHYLENE FROM THE PRECEDING LENGTH OF PIPE AND SECURING IT IN PLACE. NOTE: THE POLYETHYLENE MAY BE SECURED IN PLACE BY USING POLYTAPE.



STEP 5.

OVERLAP THE SECURED TUBE END WITH THE TUBE END OF THE NEW PIPE SECTION. SECURE THE NEW TUBE END IN PLACE WITH POLYTAPE.



STEP 6.

TAKE UP THE SLACK IN THE TUBE ALONG THE BARREL OF THE PIPE TO MAKE A SNUG, BUT NOT TIGHT, FIT. FOLD EXCESS POLYETHYLENE BACK OVER THE TOP OF THE PIPE AND SECURE WITH POLYTAPE.

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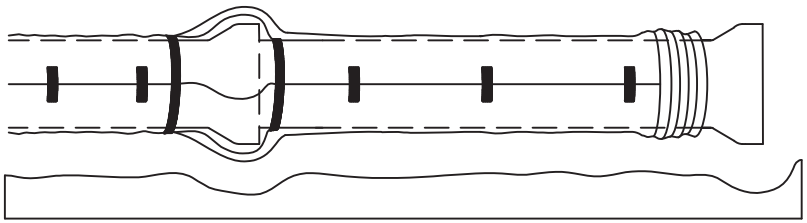
STANDARD DRAWING

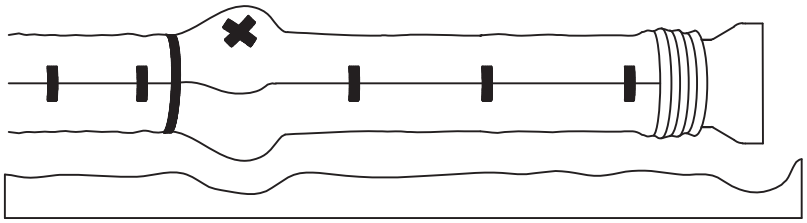
METHODS FOR INSTALLING AND RESTORING POLYETHYLENE WRAP

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	1200-B	SHEET	2 OF 3



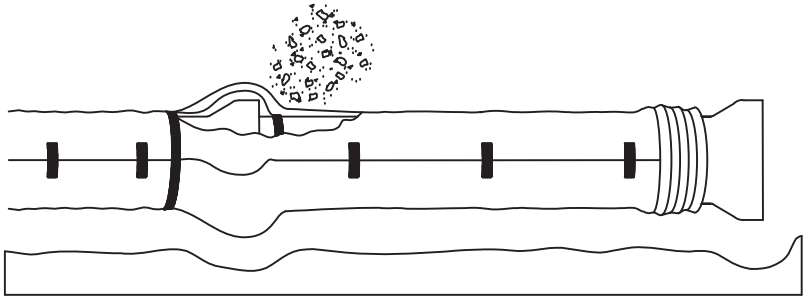
STEP 7.

SECURE THE FOLD AT SEVERAL LOCATIONS ALONG THE PIPE BARREL (APPROXIMATELY EVERY THREE FEET) WITH POLYTAPE.



STEP 8.

REPAIR ALL SMALL RIPS, TEARS, OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE. IF THE POLYETHYLENE IS BADLY DAMAGED, REPAIR THE DAMAGED AREA WITH A SHEET OF POLYETHYLENE AND SEAL THE EDGES OF THE REPAIR WITH POLYTAPE.



STEP 9.

CAREFULLY BACKFILL THE PIPE ACCORDING TO LOUISVILLE WATER COMPANY'S TECHNICAL SPECIFICATIONS AND STANDARD DRAWINGS FOR 4–20" PIPELINE CONSTRURCTION, SECTION 7, BACKFILLING PROCEDURE AND TAMPING. TO PREVENT DAMAGE DURING BACKFILLING, ALLOW ADEQUATE SLACK IN THE TUBE AT THE JOINT. BACKFILL SHOULD BE FREE OF CINDERS, ROCKS, BOULDERS, NAILS, STICKS, OR OTHER MATERIALS THAT MIGHT DAMAGE THE POLYETHYLENE. AVOID DAMAGING THE POLYETHYLENE WHEN USING TAMPING DEVICES.

TABLE FOR MINIMUM FLATTENED POLYETHYLENE TUBE WIDTHS

NOMINAL PIPE SIZE (INCHES)	RECOMMENDED POLYETHYLENE FLAT TUBE WIDTH (INCHES)
4	24
6	24
8	24
12	30
16	36
20	48

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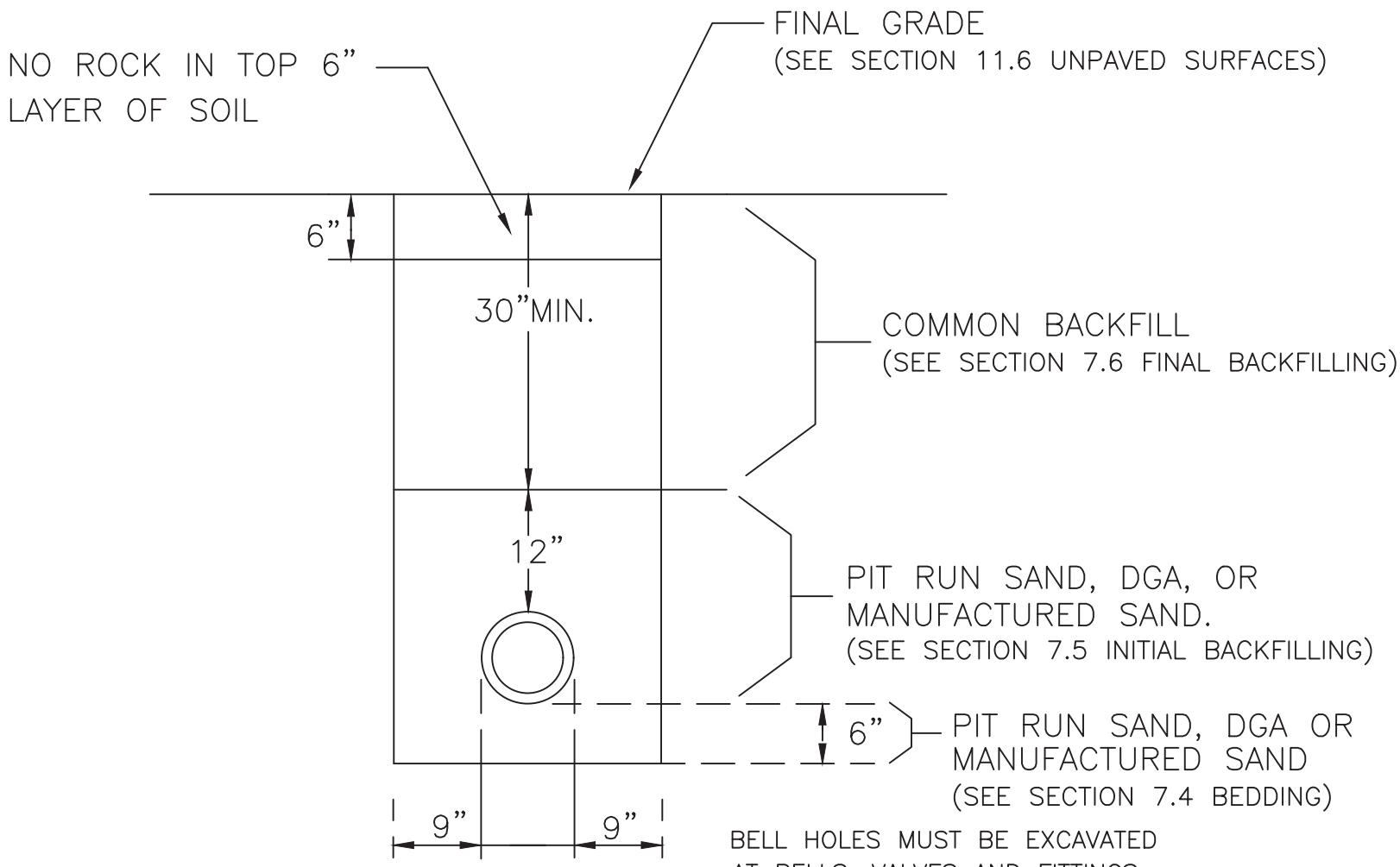
STANDARD DRAWING

METHODS FOR INSTALLING AND RESTORING POLYETHYLENE WRAP

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	1200-C	SHEET	3 OF 3



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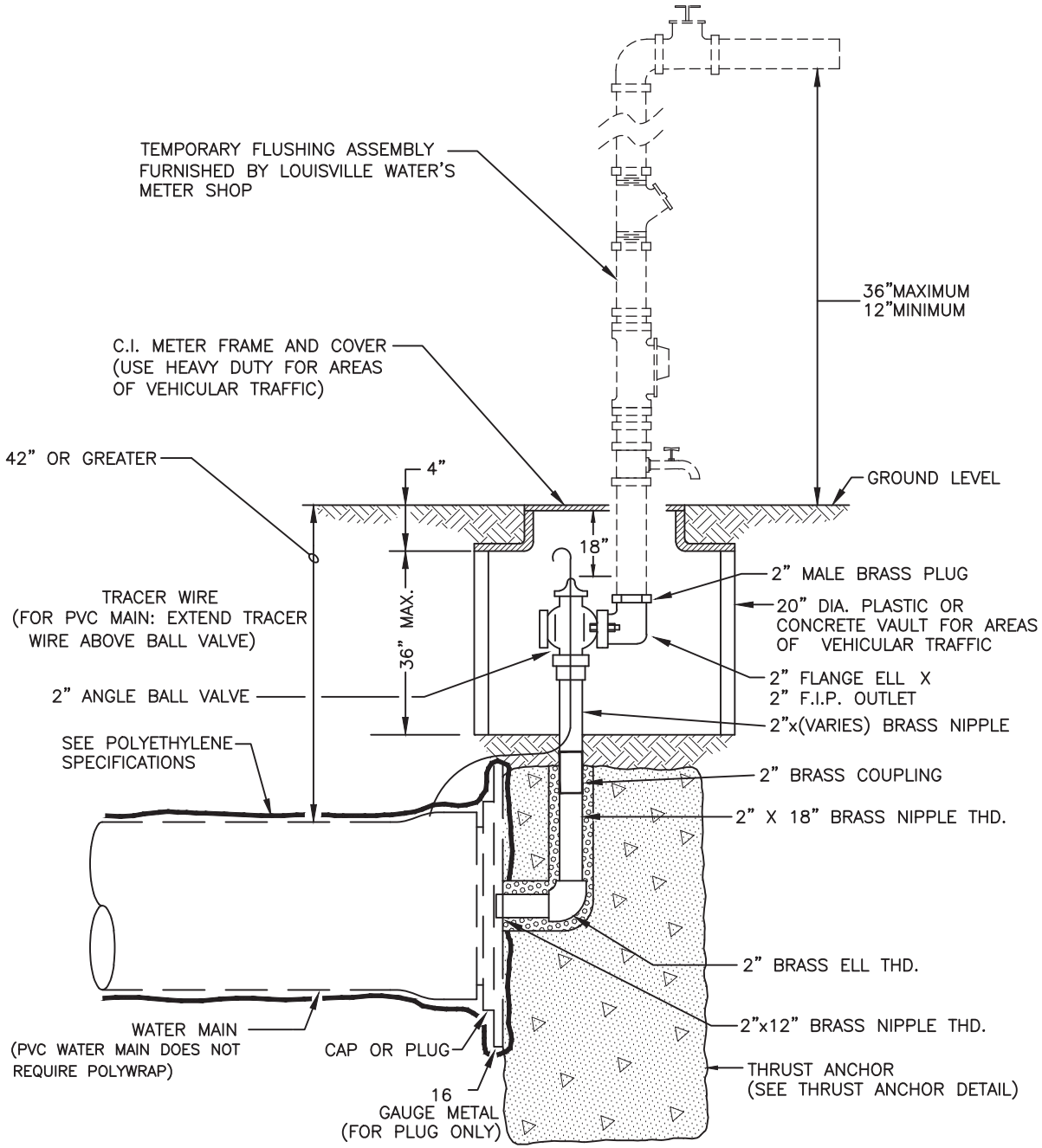
STANDARD DRAWING

COMMON BACKFILL AND
LAWN RESTORATION

DATE MAY 2021	SCALE NONE
DRAWING NO. 4300	SHEET 1 OF 1



NOTES:

1. CAUTION: DO NOT CONNECT PRESSURE TEST EQUIPMENT TO TEMPORARY FLUSHING ASSEMBLY.
2. 1–1/2" TURBINE METER AND 2" DUAL CHECK VALVE ARE TO BE INSTALLED AFTER PIGGING OPERATIONS. A 2" HOSE IS TO BE USED DURING ALL FLUSHING OPERATIONS.
3. 8" AND LARGER WATER MAINS MAY REQUIRE LARGER THAN A 2" FLUSHING OUTLET TO MEET THE KDOW 2.5 F.P.S. FLUSHING REGULATION.
4. PERMANENT PLUGS SHALL NOT BE INSTALLED ON PVC MAINS; ONLY MECHANICAL JOINT CAPS WILL BE ALLOWED.

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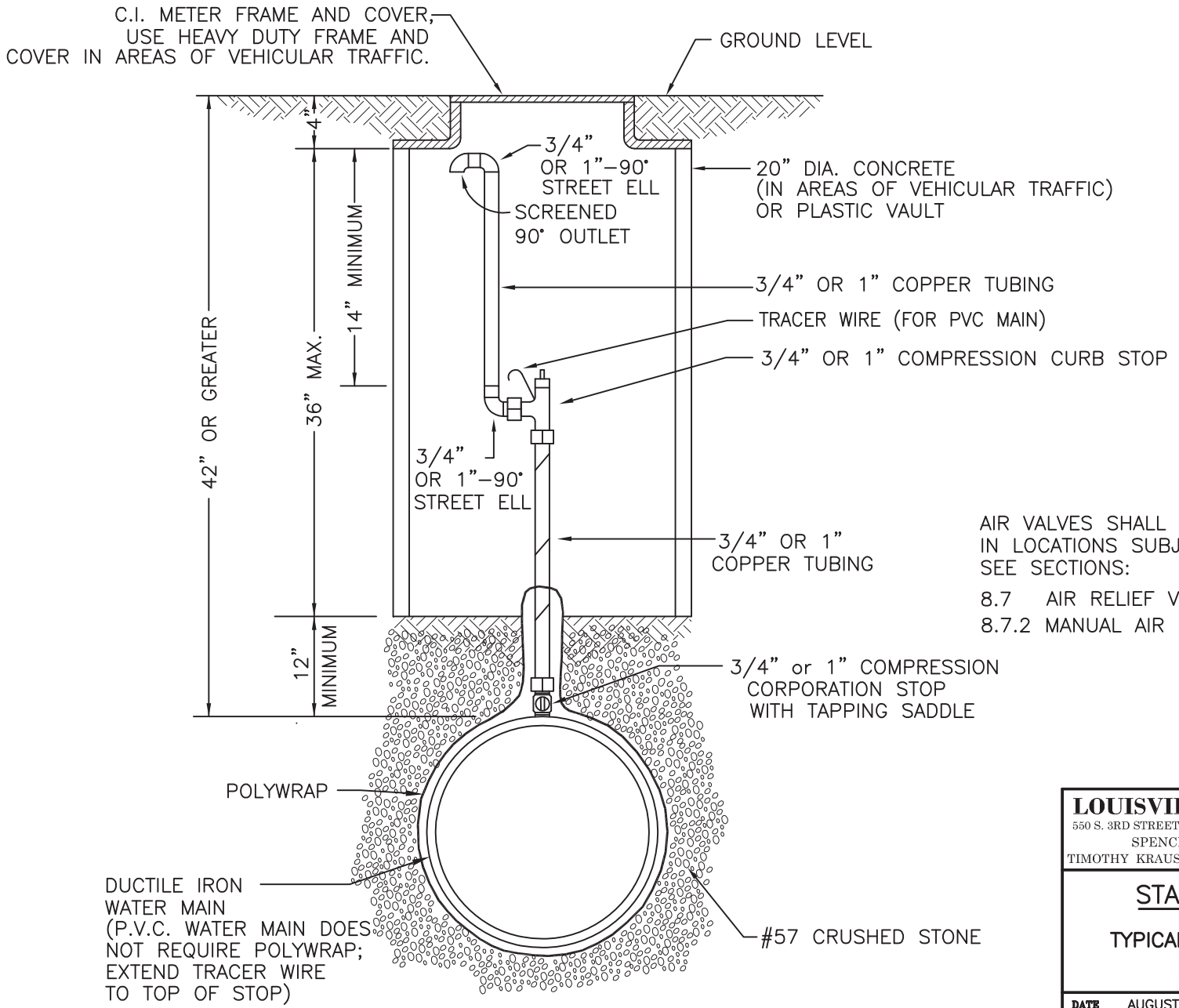
STANDARD DRAWING

TYPICAL 2" BLOW-OFF AND FLUSHING CONNECTION

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	1601	SHEET	1 OF 1



AIR VALVES SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO FLOODING. SEE SECTIONS:

8.7 AIR RELIEF VALVES

8.7.2 MANUAL AIR RELIEF VALVES

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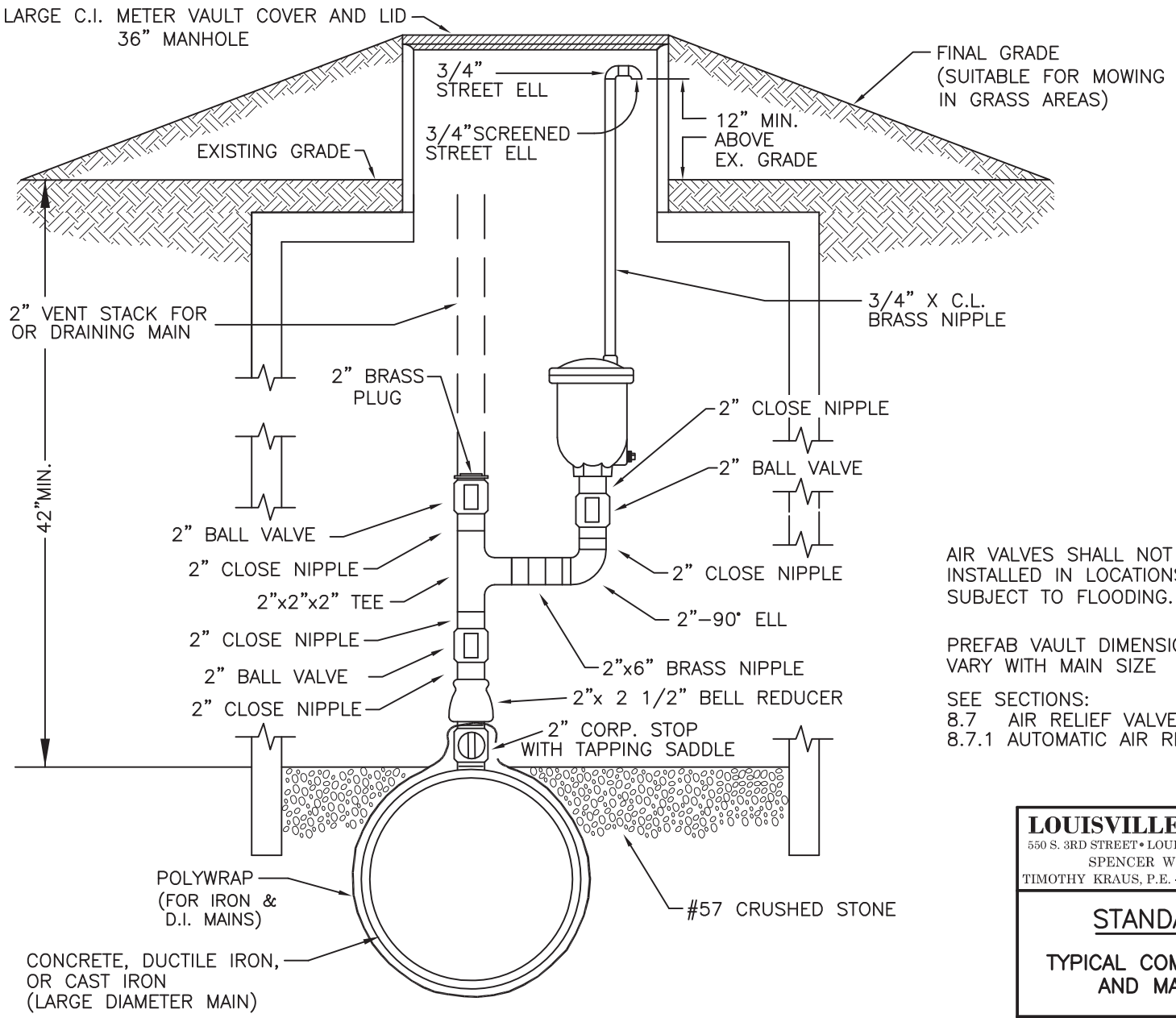
STANDARD DRAWING

TYPICAL 3/4" OR 1" MANUAL AIR VALVE

DATE	AUGUST 2018	SCALE	NONE
DRAWING NO.	1602	SHEET	1 OF 1



AIR VALVES SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO FLOODING.

PREFAB VAULT DIMENSIONS VARY WITH MAIN SIZE

SEE SECTIONS:
8.7 AIR RELIEF VALVES
8.7.1 AUTOMATIC AIR RELIEF VALVES

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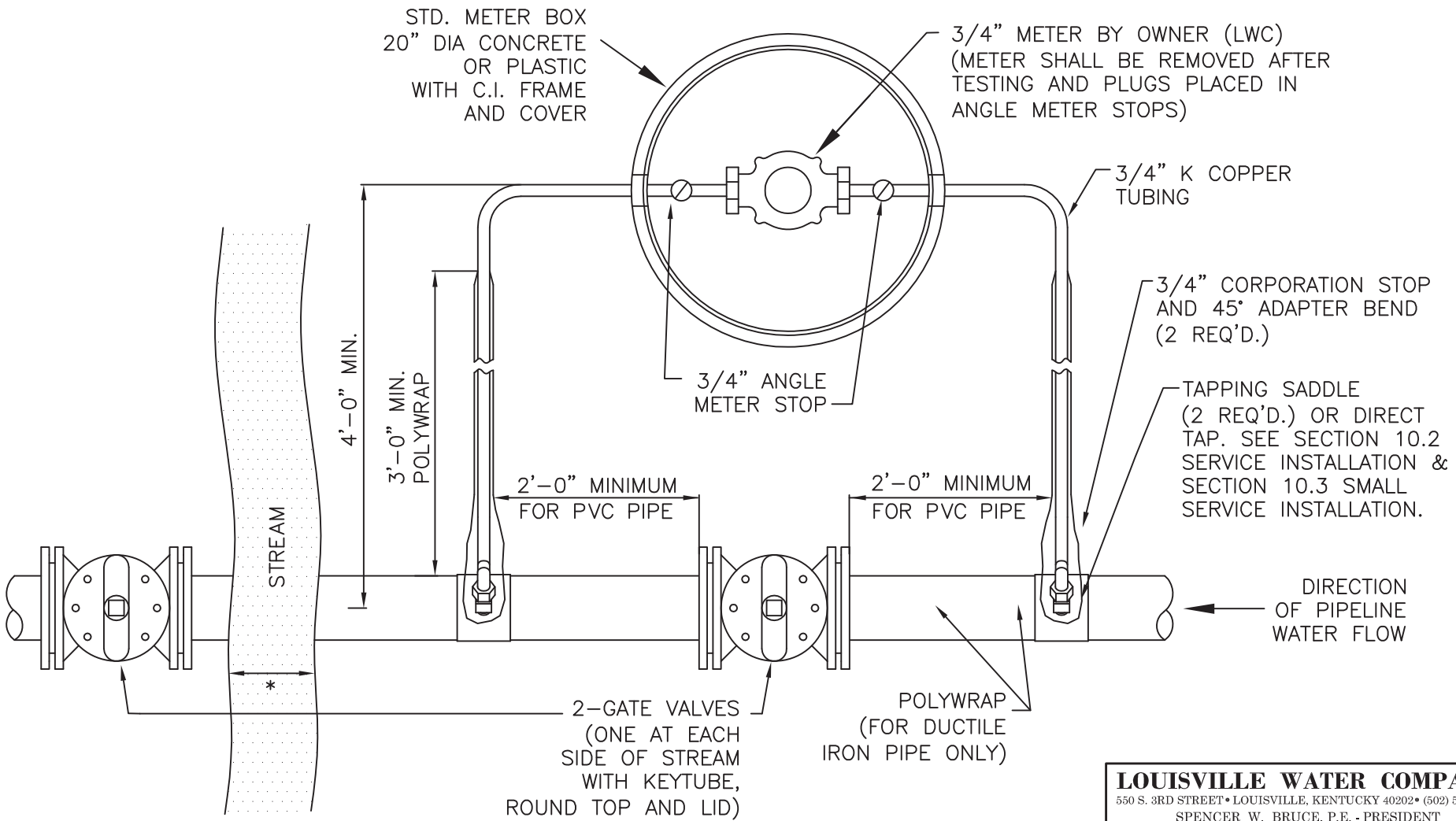
STANDARD DRAWING

TYPICAL COMBINED 2" AUTOMATIC AND MANUAL AIR VALVE

DATE	AUGUST 2018	SCALE	NONE
DRAWING NO.	1603	SHEET	1 OF 1



* LEAK DETECTION BY-PASS METER IS REQUIRED IF UNDERWATER CROSSING IS GREATER THAN 15 FT. SEE SECTION 8.8.

LEAK DETECTION BY-PASS METER FOR UNDERWATER CROSSINGS

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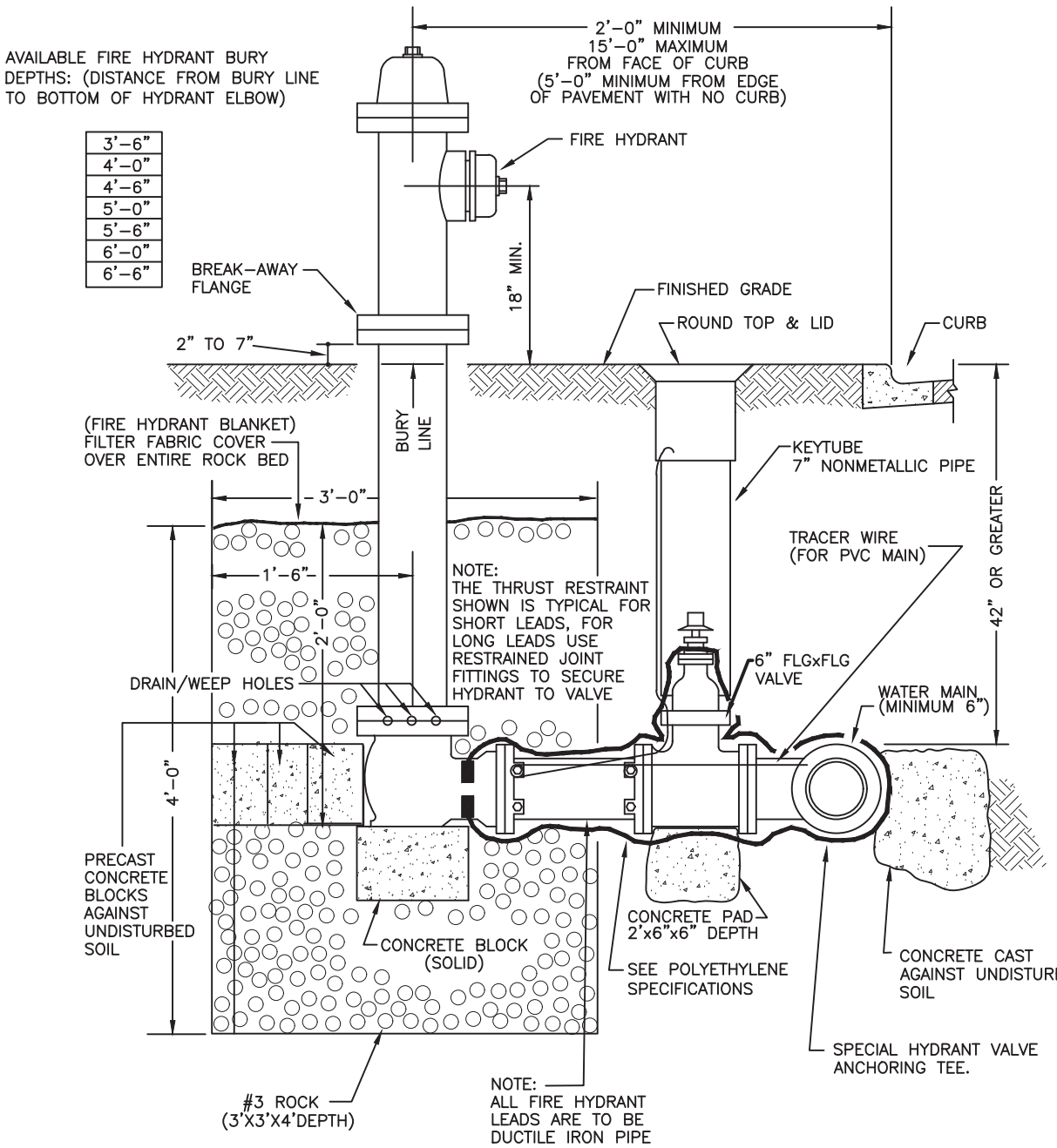
STANDARD DRAWING

LEAK DETECTION BY-PASS METER

DATE	FEBRUARY 2020	SCALE	NONE
DRAWING NO.	1608	SHEET	1 OF 1



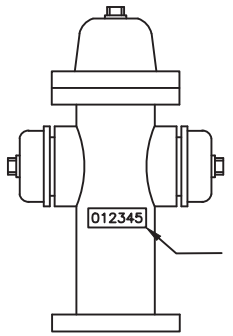
NOTE:

LOUISVILLE WATER COMPANY SUPPLIES HYDRANTS OF VARIOUS BURY DEPTHS. EXTENSION KITS SHALL NOT BE USED FOR NEW INSTALLATIONS. UNLESS APPROVED BY THE LOUISVILLE WATER COMPANY PROJECT MANAGER.

WHEN TURNING FIRE HYDRANT OFF, ALLOW TIME FOR FIRE HYDRANT TO DRAIN BEFORE REPLACING NOZZLE CAPS.

DO NOT INSTALL POLYWRAP ON HYDRANT BARREL. DO NOT COVER HYDRANT DRAIN/WEEP HOLES.

ALL HYDRANTS SHALL BE YELLOW WITH THE EXCEPTION OF WHEN INSTALLED WITHIN THE LOUISVILLE FIRE DEPARTMENT'S DISTRICT. THOSE HYDRANTS SHALL BE ORANGE.



PLACE FIRE HYDRANT ATTACHMENT STICKER ON SMOOTH SURFACE, CENTERED BETWEEN NOZZLES ON BARREL.

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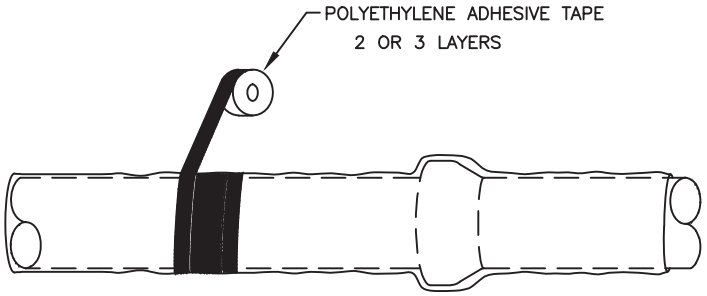
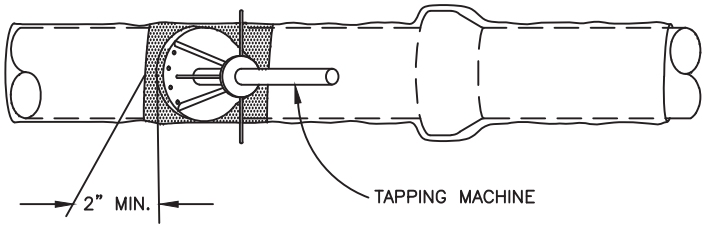
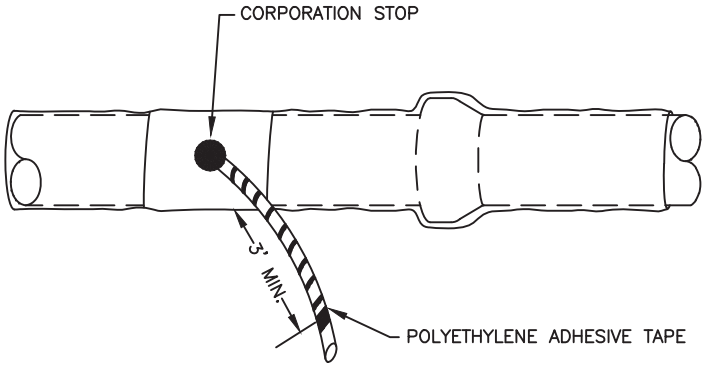
STANDARD DRAWING

TYPICAL
FIRE HYDRANT INSTALLATION

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	2000	SHEET	1 OF 1







OPENINGS FOR BRANCHES, SERVICE TAPS, BLOW OFFS, AIR VALVES, AND SIMILAR APPURTENANCES SHALL BE MADE BY :

1.) WRAPPING 2 OR 3 LAYERS OF POLYETHYLENE ADHESIVE TAPE COMPLETELY AROUND THE PIPE TO COVER THE AREA WHERE THE TAPPING MACHINE AND CHAIN WILL BE MOUNTED, EXTENDING A MINIMUM OF 2" BEYOND THE MOUNTING SURFACE.

2.) MOUNT THE TAPPING MACHINE ON THE PIPE AREA COVERED BY THE TAPE. MAKE THE TAP AND INSTALL THE CORPORATION STOP DIRECTLY THROUGH THE TAPE AND POLYETHYLENE.

3.) INSPECT THE ENTIRE CIRCUMFERENTIAL AREA FOR DAMAGE AND MAKE ANY NECESSARY REPAIRS WITH TAPE.

4.) ON HOUSE SERVICES, TO MINIMIZE THE POSSIBILITY OF DISSIMILAR METAL CORROSION AT SERVICE CONNECTIONS, WRAP THE CORPORATION STOP AND A MINIMUM CLEAR DISTANCE OF THREE (3) FEET OF THE COPPER SERVICE WITH POLYETHYLENE ADHESIVE TAPE.

5.) SEE SECTION 10.3.1 & 10.4.1

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STANDARD DRAWING

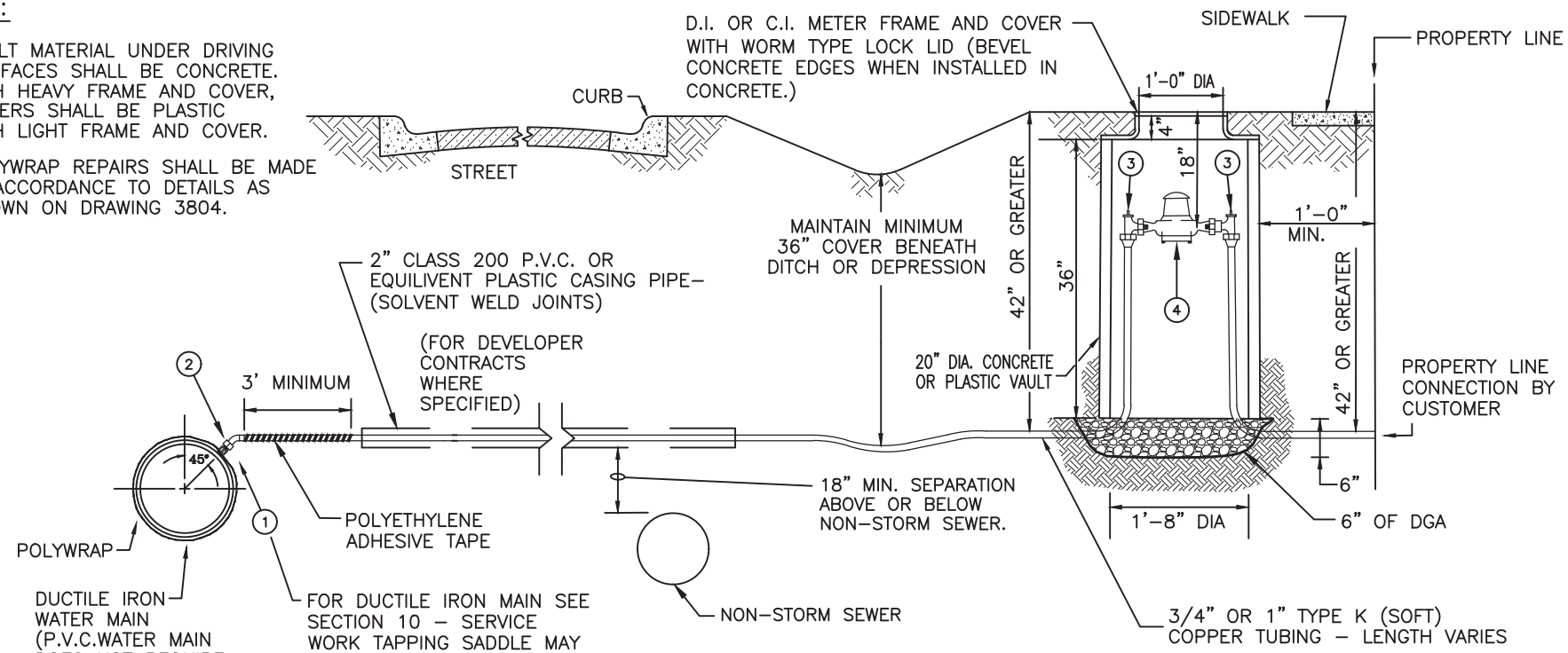
METHOD FOR TAPPING POLYETHYLENE ENCASED PIPE

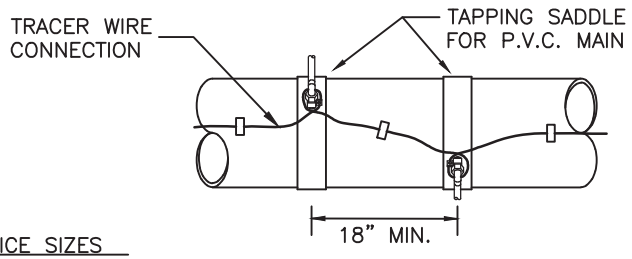
DATE MAY 2021	SCALE NONE
DRAWING NO. 3804	SHEET 1 OF 1

NOTE:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE. WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.





PLAN FOR PVC MAIN

TYPICAL COPPER SERVICE 1" AND SMALLER

NO.	QTY	FITTING	JOINT	SERVICE SIZES	
(1)	1	CORPORATION STOP	INLET-MALE THREAD (TAPERED)	3/4"	1"
			OUTLET-MALE THREAD	3/4"	1"
(2)	1	ADAPTER BEND (45° OR 90°)	INLET-FEMALE THREAD	3/4"	1"
			OUTLET-FEMALE COMPRESSION	3/4"	1"
(3)	2	ANGLE METER STOP	FEMALE COMPRESSION	3/4"	1"
			FEMALE THREAD	3/4"	1"
(4)	1	METER	MALE THREAD	3/4"	1"

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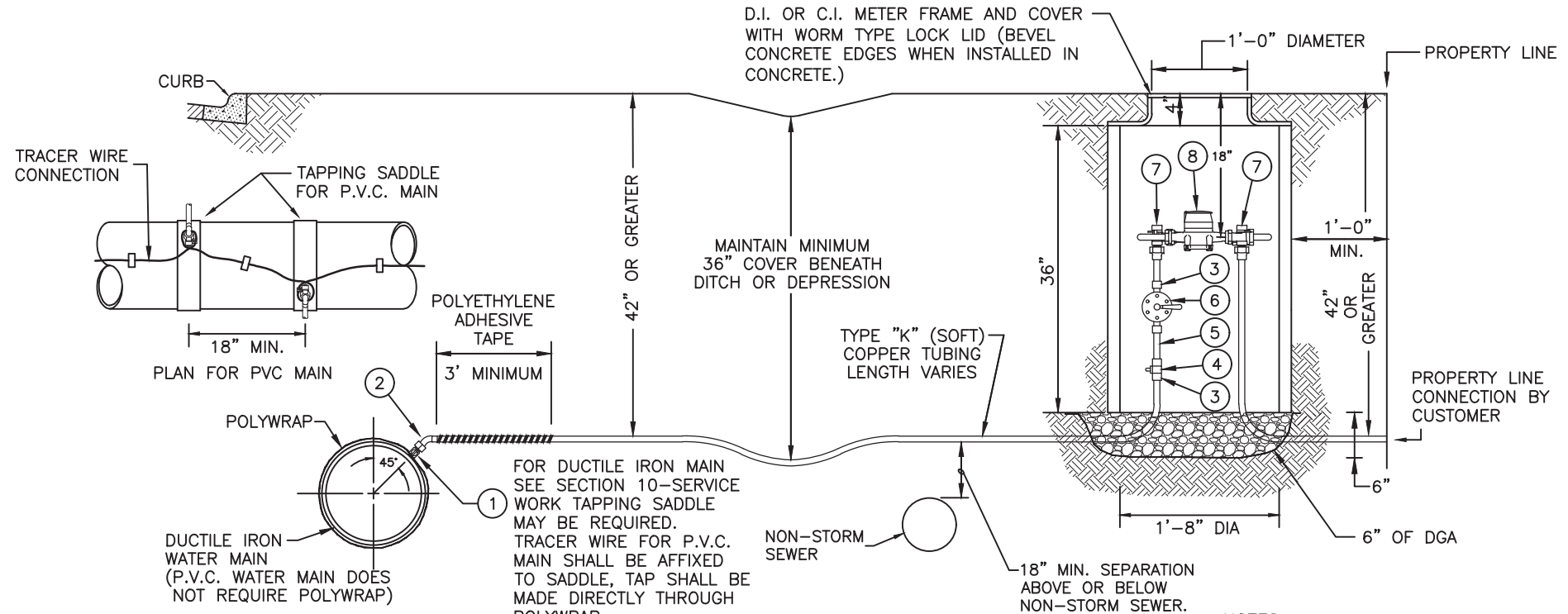
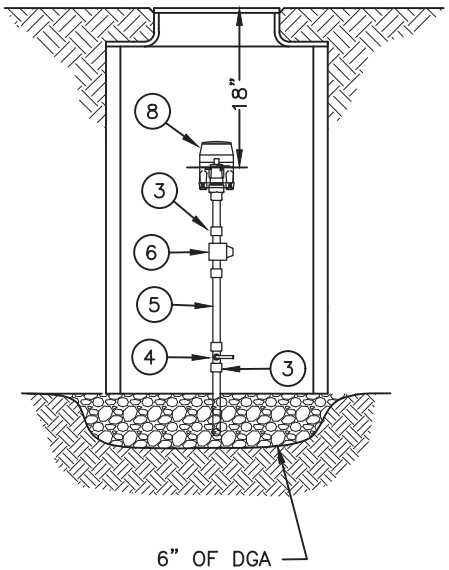
STANDARD DRAWING

TYPICAL COPPER SERVICE
1" AND SMALLER

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3002	SHEET	1 OF 1





TYPICAL 1" COPPER SERVICE WITH PRESSURE REDUCING VALVE

NO.	QTY	FITTING	JOINT	SIZE
1	1	CORPORATION STOP	INLET-MALE THREAD (TAPERED) OUTLET-MALE THREAD	1" 1"
2	1	ADAPTER BEND (45° OR 90°)	INLET-FEMALE THREAD OUTLET-FEMALE COMPRESSION	1" 1"
3	2	ADAPTER	FEMALE COMPRESSION MALE THREAD	1" 1"
4	1	BALL VALVE W/HANDLE	FEMALE THREAD	1"
5	1	BRASS NIPPLE	MALE THREAD	1"
6	1	PRESSURE REDUCING VALVE	FEMALE THREAD	1"
7	2	ANGLE METER STOP	FEMALE COMPRESSION FEMALE THREAD	1" 1"
8	1	METER	MALE THREAD	1"

NOTES:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.
2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

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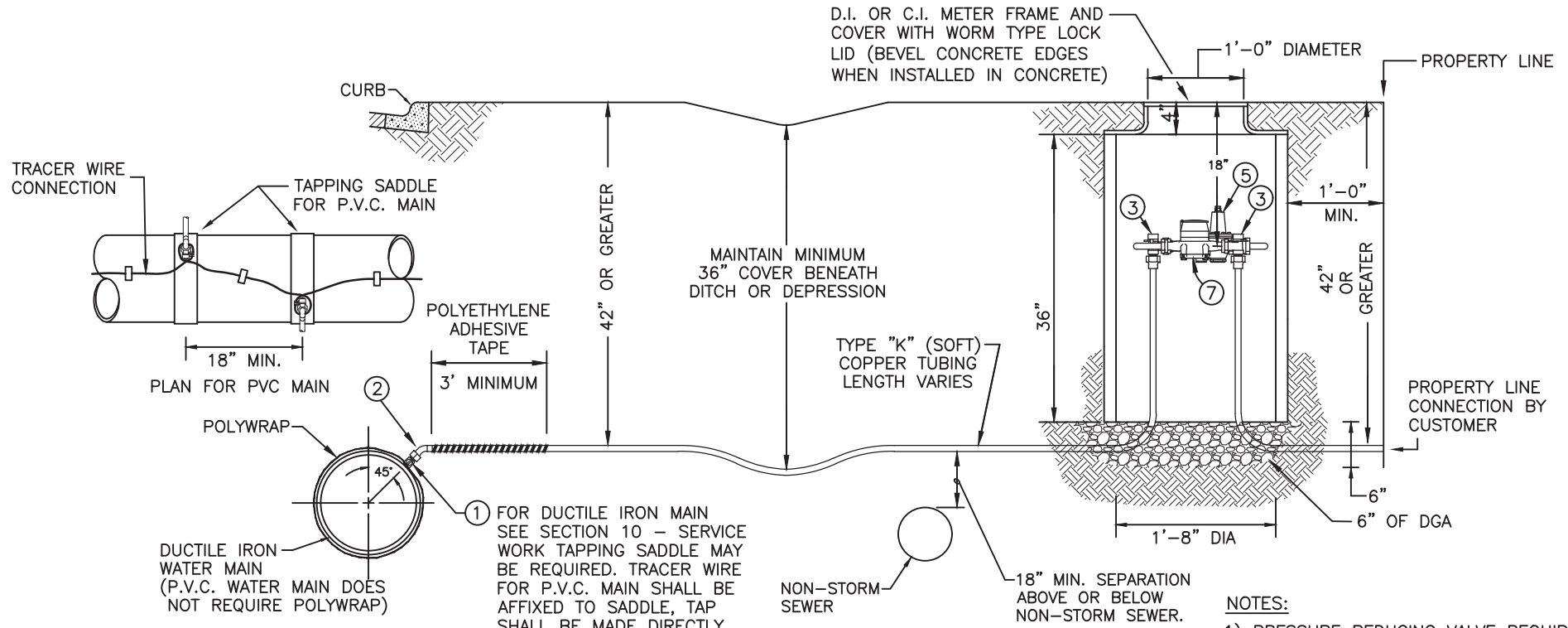
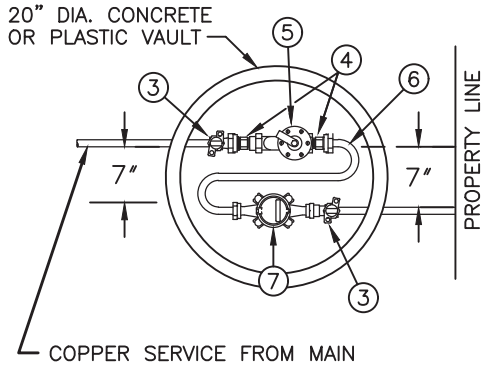
STANDARD DRAWING

TYPICAL 1" COPPER SERVICE WITH PRESSURE REDUCING VALVE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3003	SHEET	1 OF 1





NOTES:

1) PRESSURE REDUCING VALVE REQUIRED FOR GREATER THAN 100 P.S.I.
2) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE. WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.
3) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

TYPICAL 3/4" COPPER SERVICE WITH PRESSURE REDUCING VALVE

NO.	QTY	FITTING	JOINT	SIZE
1	1	CORPORATION STOP	INLET–MALE THREAD (TAPERED) OUTLET–MALE THREAD	3/4" 3/4"
2	1	ADAPTER BEND (45° OR 90°)	INLET–FEMALE THREAD OUTLET–FEMALE COMPRESSION	3/4" 3/4"
3	2	ANGLE METER STOP	FEMALE COMPRESSION FEMALE THREAD	3/4" 3/4"
4	2	ADAPTER FOR PRESSURE REGULATOR	MALE THREAD	3/4"
5	1	PRESSURE REGULATOR	FEMALE THREAD	3/4"
6	1	S–TUBE	FEMALE THREAD	3/4"
7	1	METER	MALE THREAD	5/8"x3/4" (or ¾")

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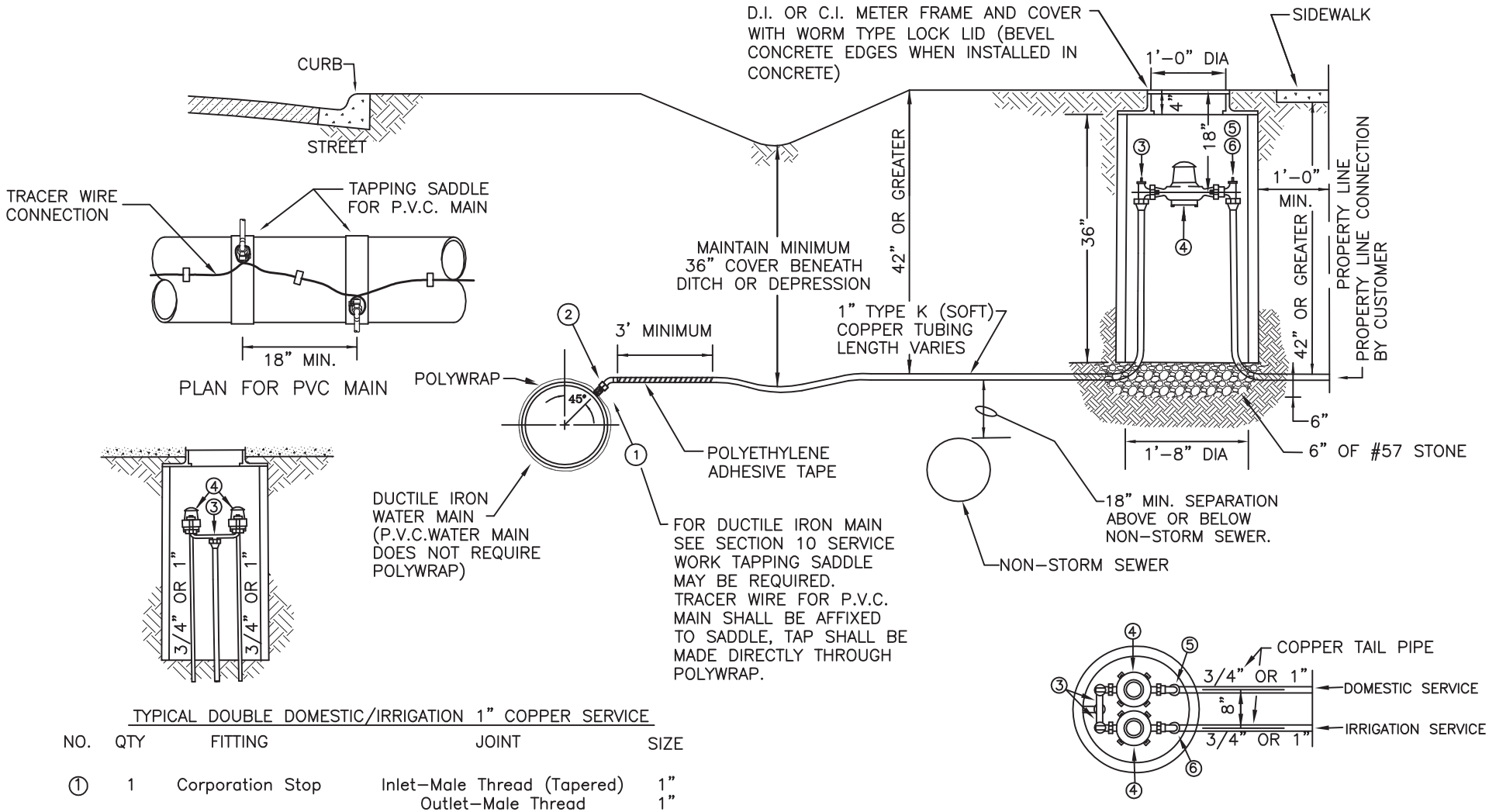
STANDARD DRAWING

TYPICAL 3/4" COPPER SERVICE WITH PRESSURE REDUCING VALVE

DATE JULY 2021	SCALE NONE
DRAWING NO. 3004	SHEET 1 OF 1



TYPICAL DOUBLE DOMESTIC/IRRIGATION 1" COPPER SERVICE

NO.	QTY	FITTING	JOINT	SIZE
①	1	Corporation Stop	Inlet–Male Thread (Tapered) Outlet–Male Thread	1" 1"
②	1	Adapter Bend (45° OR 90°)	Inlet–Female Thread Outlet–Female Compression	1" 1"
③	1	Branch Piece, with 2 Angle Meter Stops	Inlet–Female Compression Outlet–Female Compression	1" 3/4"
④	2	Meter	Male Thread	3/4"
⑤	1	Angle Meter Stop	Female Thread Female Compression	3/4" 3/4" or 1"
⑥	1	Angle Check Valve (Irrigation Service Only)	Female Thread Female Compression	3/4" 3/4" or 1"

NOTE:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

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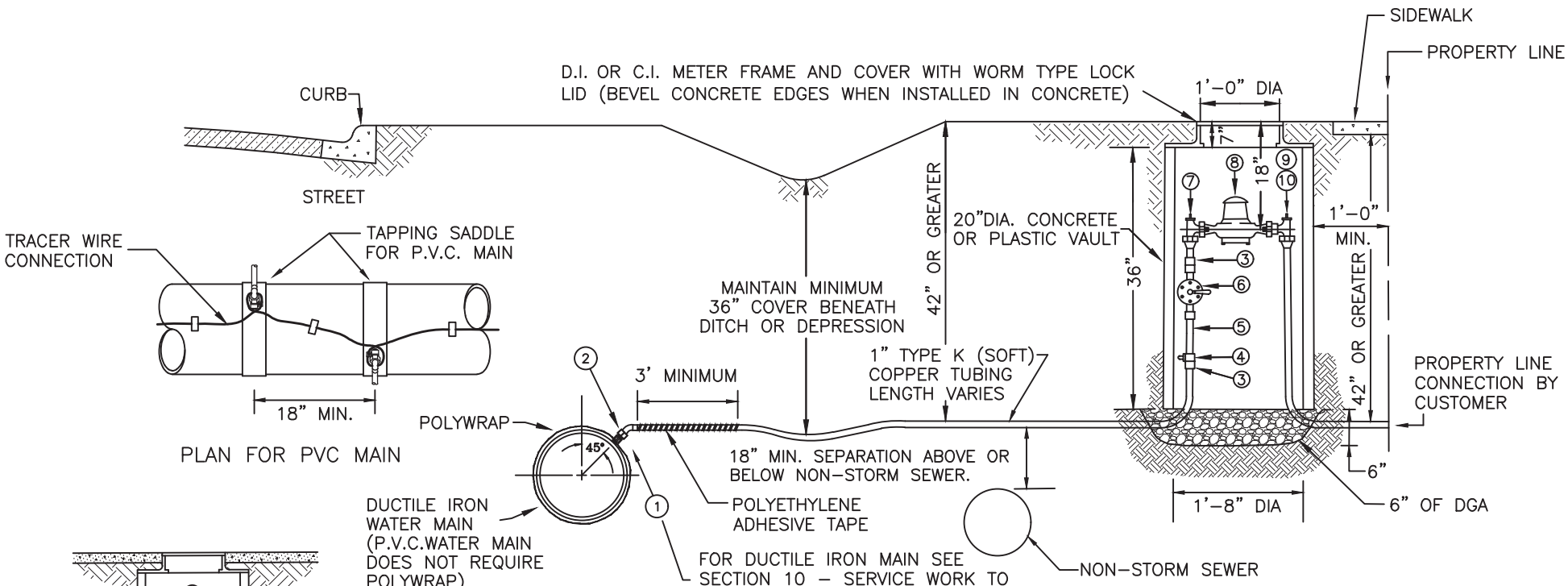
STANDARD DRAWING

TYPICAL DOUBLE 1" DOMESTIC/IRRIGATION COPPER SERVICE

DATE	FEBRUARY 2020	SCALE	NONE
DRAWING NO.	3400	SHEET	1 OF 1



TYPICAL DOUBLE DOMESTIC/IRRIGATION 1" COPPER SERVICE WITH PRESSURE REDUCING VALVE

NO.	QTY	FITTING	JOINT	SIZE
①	1	Corporation Stop	Inlet–Male Thread (Tapered)	1"
			Outlet–Male Thread	1"
②	1	Adapter Bend	Inlet–Female Thread	1"
		(45° OR 90°)	Outlet–Female Compression	1"
③	2	Adapter	Female Compression	1"
			Male Thread	1"
④	1	Ball Valve w/ Handle	Female Thread	1"
⑤	1	Brass Nipple	Male Thread	1"
⑥	1	Pressure Reducing Valve	Female Thread	1"
⑦	1	Branch Piece with 2 Angle Meter Stop	Inlet–Female Compression Outlet–Female Thread	1"
⑧	2	Meter	Male Thread	3/4"
⑨	1	Angle Meter Stop (Domestic Service Only)	Female Thread Female Compression	3/4" 3/4" or 1"
⑩	1	Angle Check Valve (Irrigation Service Only)	Female Thread Female Compression	3/4" 3/4" or 1"

NOTE:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

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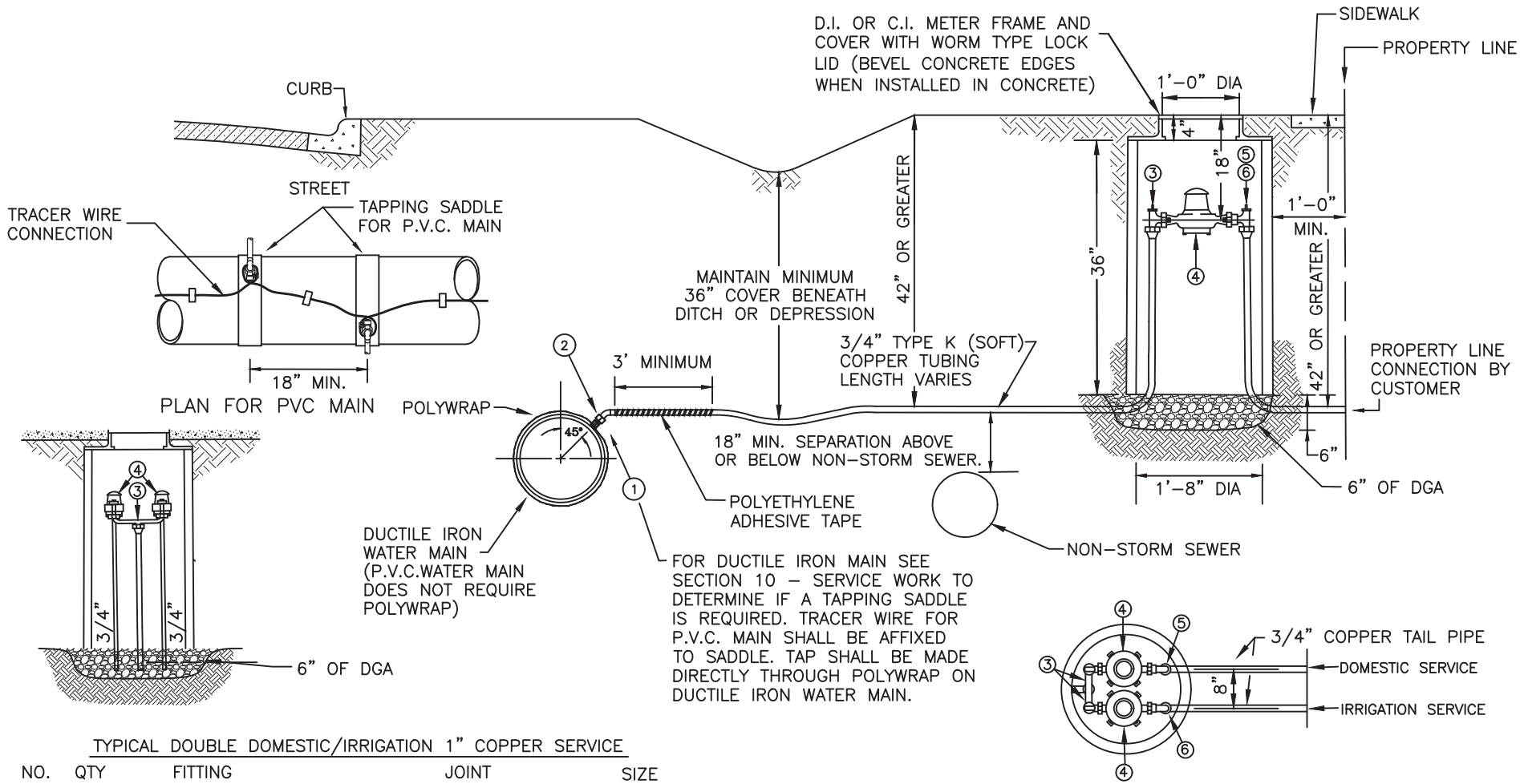
STANDARD DRAWING

TYPICAL DOUBLE 3/4" OR 1" DOMESTIC / IRRIGATION COPPER SERVICE WITH PRESSURE REDUCING VALVE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3401	SHEET	1 OF 1



TYPICAL DOUBLE DOMESTIC/IRRIGATION 1" COPPER SERVICE

NO.	QTY	FITTING	JOINT	SIZE
①	1	Corporation Stop	Inlet–Male Thread (Tapered) Outlet–Male Thread	3/4" 3/4"
②	1	Adapter Bend (45° OR 90°)	Inlet–Female Thread Outlet–Female Compression	3/4" 3/4"
③	1	Branch Piece, with 2 Angle Meter Stops	Inlet–Female Compression Outlet–Female Compression	3/4" x 3/4" 3/4"
④	2	Meter	Male Thread	3/4"
⑤	1	Angle Meter Stop (Domestic Service Only)	Female Thread Female Compression	3/4" 3/4"
⑥	1	Angle Check Valve (Irrigation Service Only)	Female Thread Female Compression	3/4" 3/4"

NOTE:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

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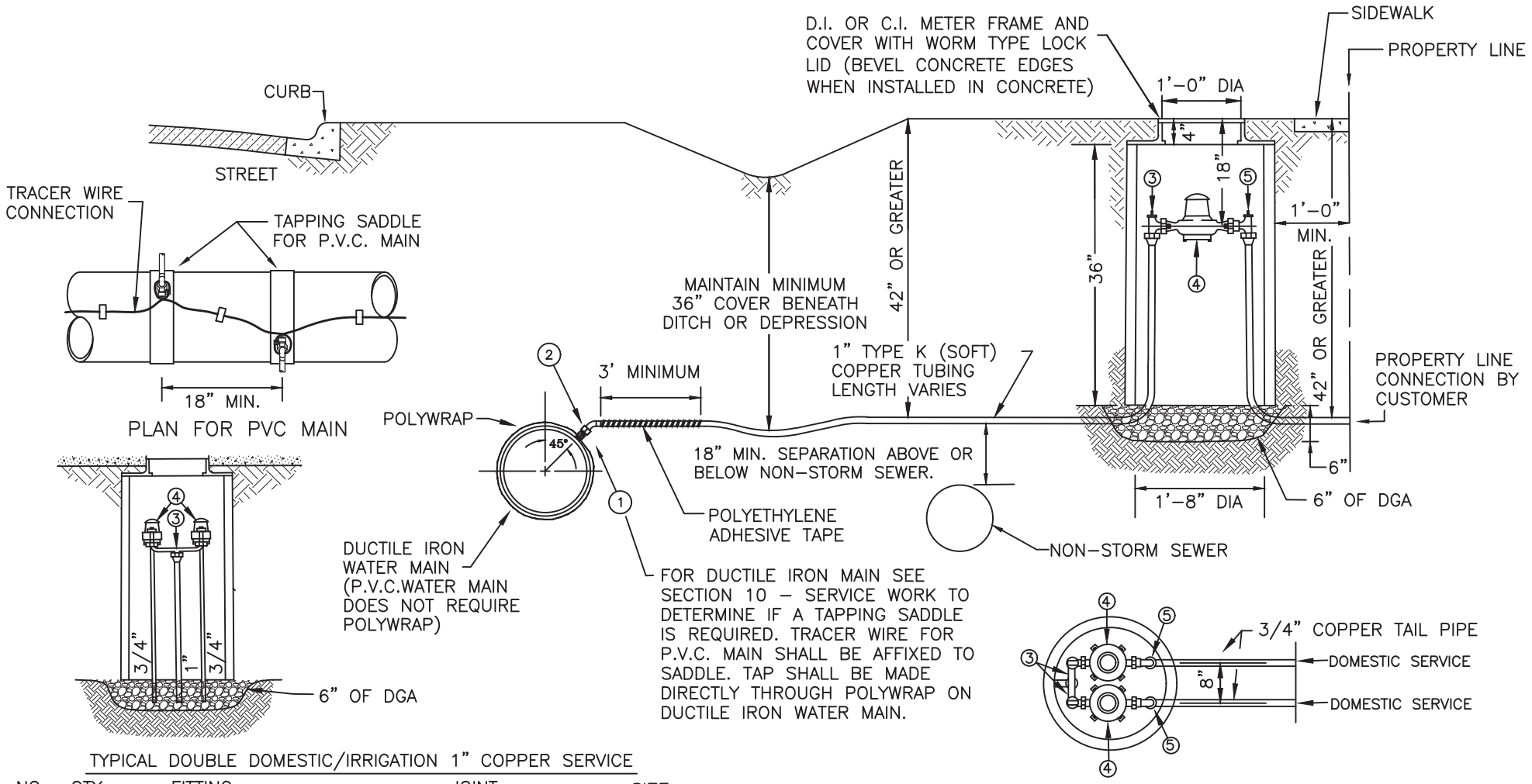
STANDARD DRAWING

TYPICAL 3/4" IRRIGATION RETRO FIT COPPER SERVICE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3403	SHEET	1 OF 1



TYPICAL DOUBLE DOMESTIC/IRRIGATION 1" COPPER SERVICE

NO.	QTY	FITTING	JOINT	SIZE
①	1	Corporation Stop	Inlet–Male Thread (Tapered) Outlet–Male Thread	1" 1"
②	1	Adapter Bend (45° OR 90°)	Inlet–Female Thread Outlet–Female Compression	1" 1"
③	1	Branch Piece, with 2 Angle Meter Stops	Inlet–Female Compression Outlet–Female Thread	1" x 3/4" 3/4"
④	2	Meter	Male Thread	3/4"
⑤	2	Angle Meter Stop	Female Thread Female Compression	3/4" 3/4"

NOTE:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

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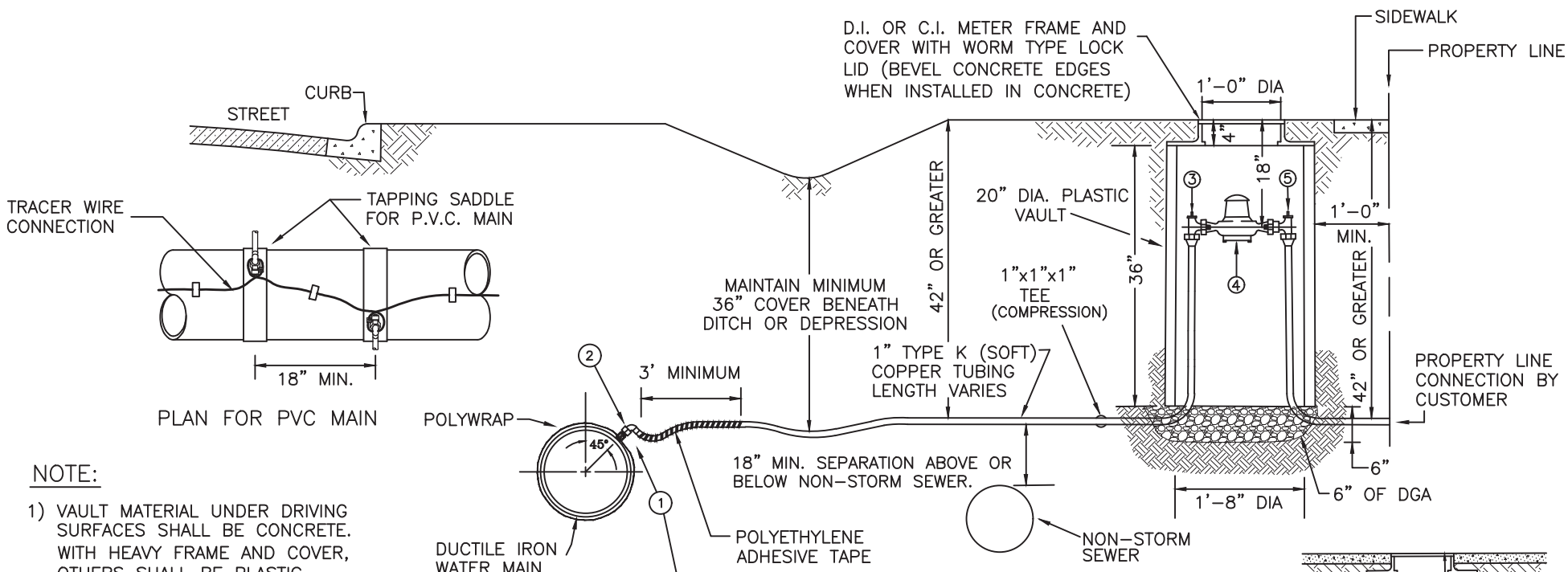
STANDARD DRAWING

TYPICAL 1" TANDEM 2-WAY DOMESTIC COPPER SERVICE

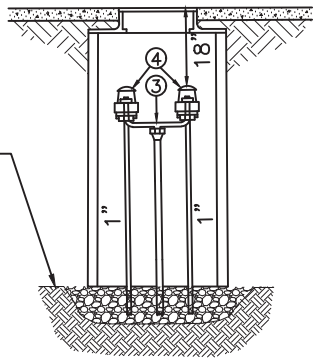
DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3404	SHEET	1 OF 1



NOTE:

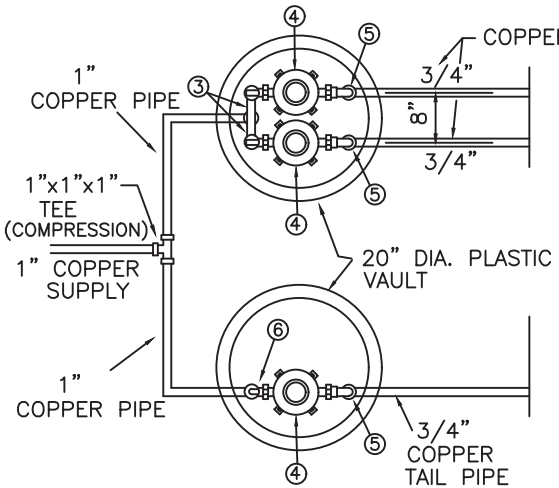
1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE. WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.



TYPICAL 1" 3-WAY DOMESTIC COPPER SERVICE

NO.	QTY	FITTING	JOINT	SIZE
①	1	Corporation Stop	Inlet-Male Thread (Tapered) Outlet-Male Thread	1" 1"
②	1	Adapter Bend (45° OR 90°)	Inlet-Female Thread Outlet-Female Compression	1" 1"
③	1	Branch Piece, with 2 Angle Meter Stops	Inlet-Female Compression Outlet-Female Thread	1"x3/4" 3/4"
④	3	Meter	Male Thread	3/4"
⑤	3	Angle Meter Stop	Female Thread Female Compression	3/4" 3/4"
⑥	1	Angle Meter Stop	Female Thread Female Compression	3/4" 1"



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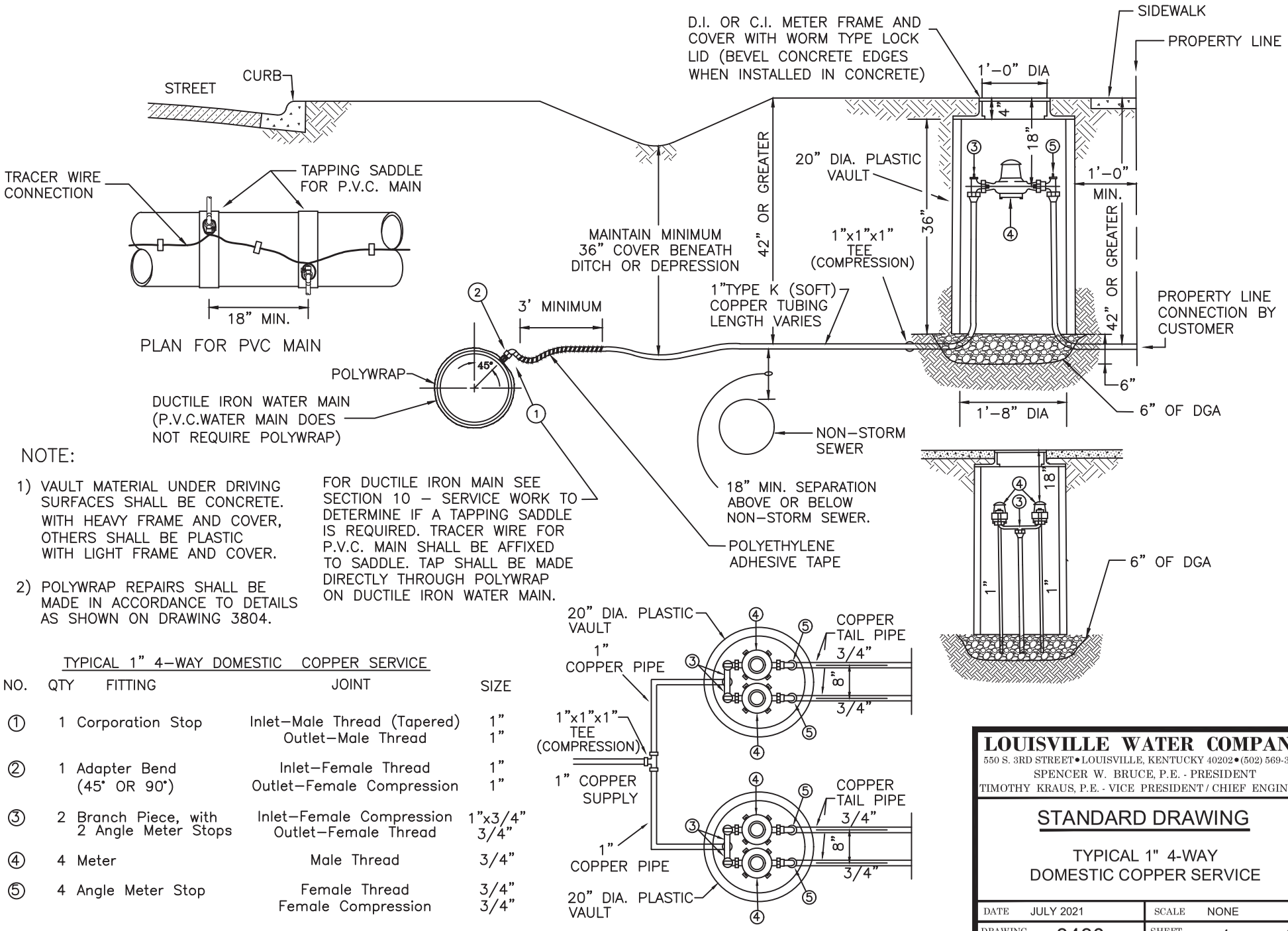
STANDARD DRAWING

TYPICAL 1" 3-WAY DOMESTIC COPPER SERVICE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3420	SHEET	1 OF 1



NOTE:

1) VAULT MATERIAL UNDER DRIVING SURFACES SHALL BE CONCRETE. WITH HEAVY FRAME AND COVER, OTHERS SHALL BE PLASTIC WITH LIGHT FRAME AND COVER.

2) POLYWRAP REPAIRS SHALL BE MADE IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING 3804.

FOR DUCTILE IRON MAIN SEE SECTION 10 – SERVICE WORK TO DETERMINE IF A TAPPING SADDLE IS REQUIRED. TRACER WIRE FOR P.V.C. MAIN SHALL BE AFFIXED TO SADDLE. TAP SHALL BE MADE DIRECTLY THROUGH POLYWRAP ON DUCTILE IRON WATER MAIN.

TYPICAL 1" 4-WAY DOMESTIC COPPER SERVICE

NO.	QTY	FITTING	JOINT	SIZE
①	1	Corporation Stop	Inlet–Male Thread (Tapered) Outlet–Male Thread	1" 1"
②	1	Adapter Bend (45° OR 90°)	Inlet–Female Thread Outlet–Female Compression	1" 1"
③	2	Branch Piece, with 2 Angle Meter Stops	Inlet–Female Compression Outlet–Female Thread	1"x3/4" 3/4"
④	4	Meter	Male Thread	3/4"
⑤	4	Angle Meter Stop	Female Thread Female Compression	3/4" 3/4"

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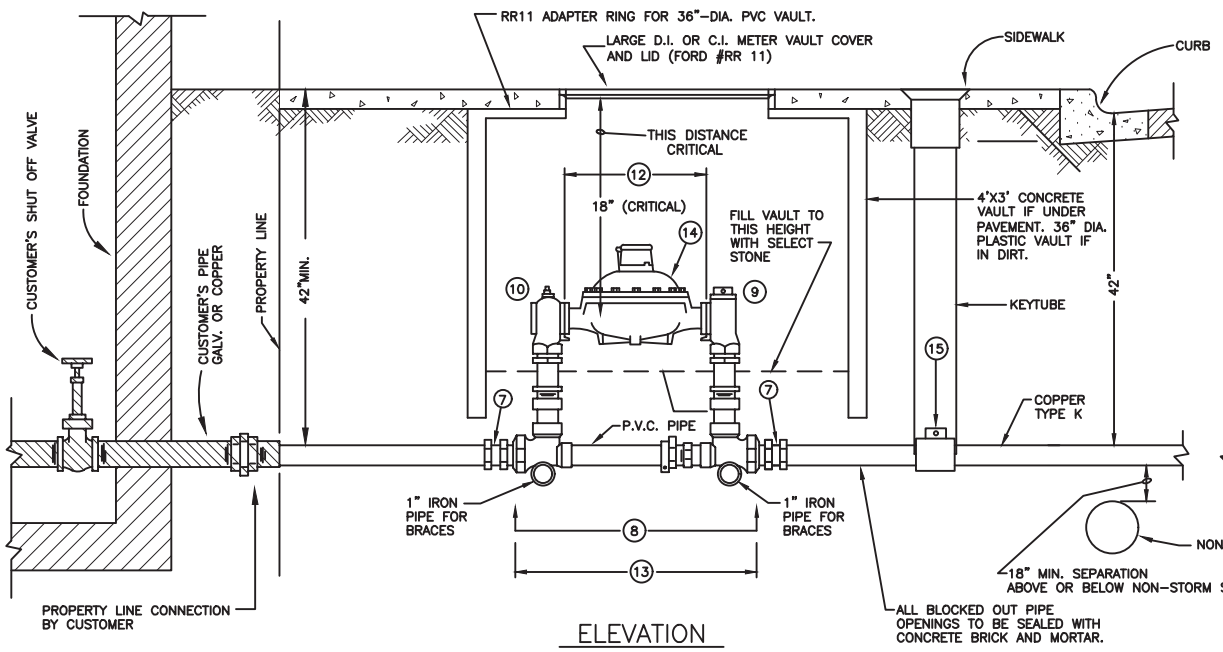
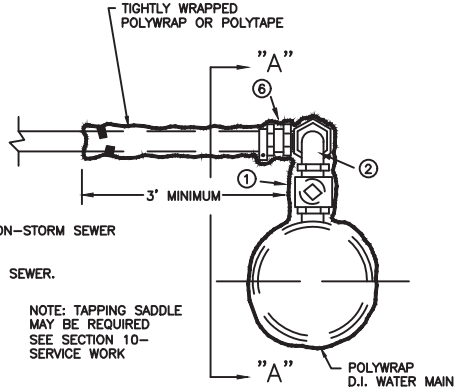
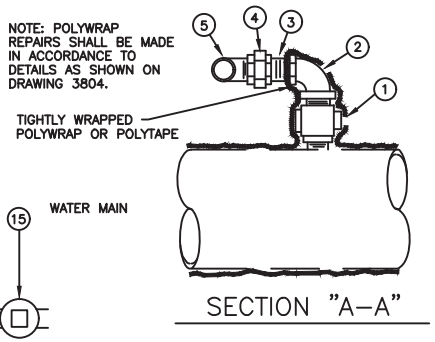
STANDARD DRAWING

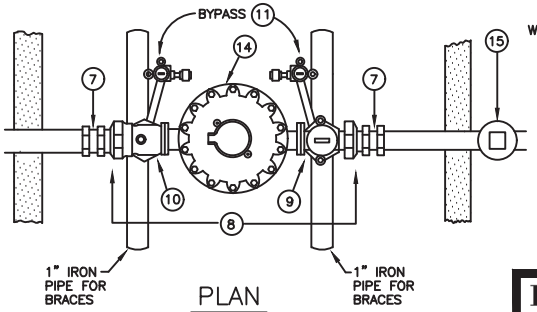
TYPICAL 1" 4-WAY DOMESTIC COPPER SERVICE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3430	SHEET	1 OF 1









TYPICAL 1 1/2" or 2" COPPER SERVICE

NO.	QTY	FITTING	JOINT	1.5" SERVICE'S FITTING SIZES	2" SERVICE'S FITTING SIZES
1	1	CORPORATION STOP	INLET–MALE THREAD (TAPERED) OUTLET–MALE THREAD	1–1/2" 1–1/2"	2" 2"
2	1	BRASS REDUCING ELL	INLET–FEMALE THREAD OUTLET–FEMALE THREAD	2" 2"	2–1/2" 2–1/2"
3	1	BRASS NIPPLE (CLOSE)	MALE THREAD	1–1/2"	2"
4	1	BRASS UNION	FEMALE THREAD	1–1/2"	2"
5	1	BRASS STREET ELL	MALE THREAD	1–1/2"	2"
6	1	COMPRESSION COUPLING	FEMALE THREAD FEMALE COMPRESSION	1–1/2" 1–1/2"	2" 2"
7	2	ADAPTER	FEMALE COMPRESSION MALE THREAD	1–1/2" 1–1/2"	2" 2"
8	1	METER SETTER	FEMALE THREAD	1–1/2"	2"
9		ANGLE METER STOP	----------	-----	--
10		ANGLE CHECK VALVE	----------	-----	--
11		BY–PASS 1	----------	-----	--
12		---------	----------	13–3/8"	17–3/8"
13		---------	----------	22"	27–1/8"
14	1	METER	MALE THREAD	1–1/2"	2"
15	1	STOP	FEMALE THREAD	1–1/2"	2"

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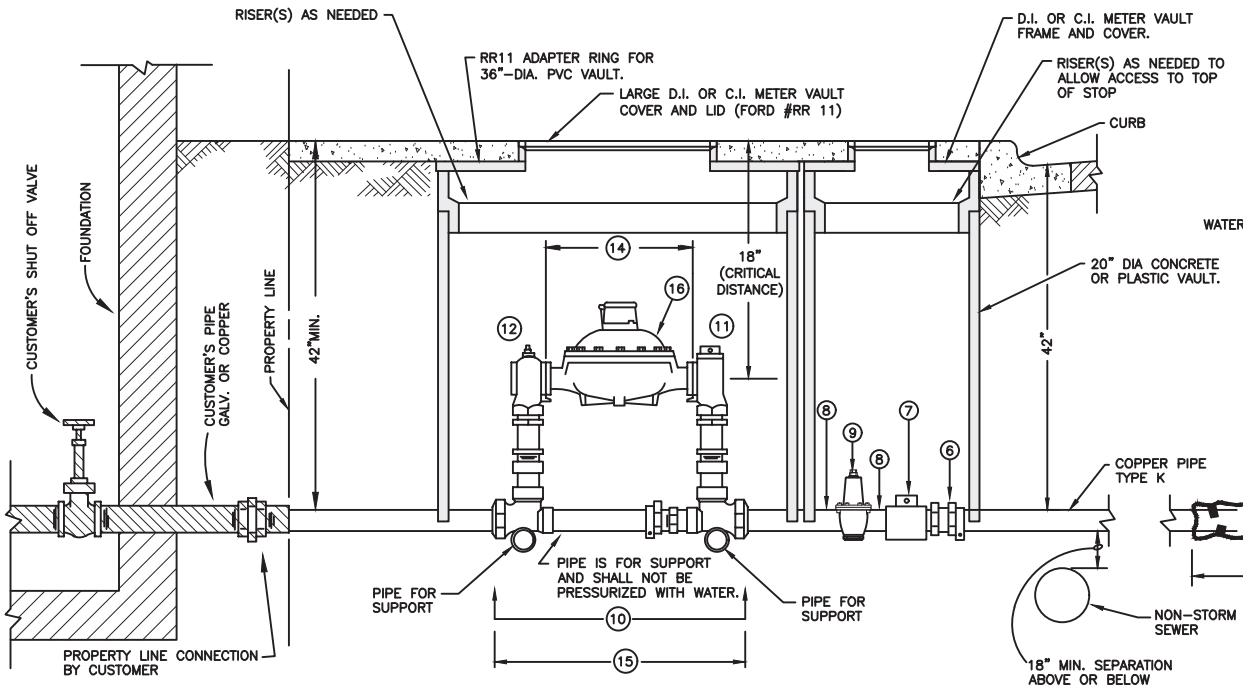
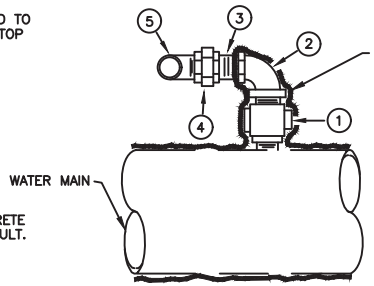
STANDARD DRAWING

TYPICAL 1-1/2" OR 2"
COPPER SERVICE

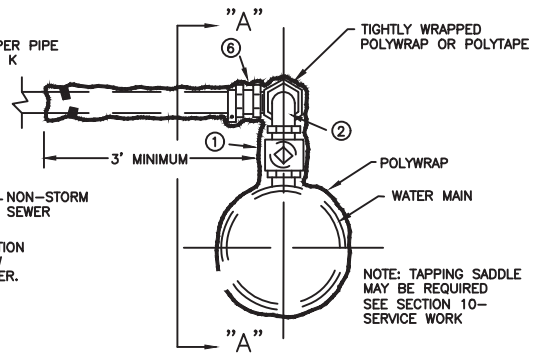
DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3200	SHEET	1 OF 1

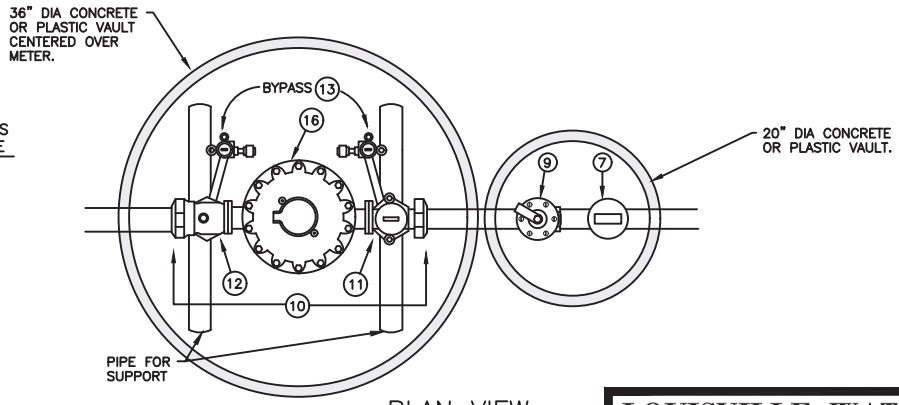


ELEVATION



SECTION "A–A"





PLAN VIEW
(INSIDE VAULTS)

TYPICAL 1 1/2" or 2" COPPER SERVICE

NO.	QTY	FITTING	JOINT	1.5" SERVICE'S FITTING SIZE	2" SERVICE'S FITTING SIZE
1	1	CORPORATION STOP	INLET–MALE THREAD (TAPERED) OUTLET–MALE THREAD	1–1/2" 2"	2" 2–1/2"
2	1	BRASS REDUCING ELL	INLET–FEMALE THREAD OUTLET–FEMALE COMPRESSION	2" 1–1/2"	2–1/2" 2"
3	1	BRASS NIPPLE (CLOSE)	MALE THREAD	1–1/2"	2"
4	1	BRASS UNION	FEMALE THREAD	1–1/2"	2"
5	1	BRASS STREET ELL	MALE THREAD	1–1/2"	2"
6	1	COMPRESSION COUPLING	FEMALE THREAD FEMALE COMPRESSION	1–1/2" 1–1/2"	2" 2"
7	1	STOP	FEMALE THREAD	1–1/2"	2"
8	2	BRASS NIPPLE (X6)	MALE THREAD	1–1/2"	2"
9	1	PRESSURE REDUCING VALVE	FEMALE THREAD	1–1/2"	2"
10	1	METER SETTER	FEMALE THREAD	1–1/2"	2"
11	1	ANGLE METER STOP	----------		
12	1	ANGLE CHECK VALVE	----------		
13		BYPASS 1"	----------	1–1/2"	2"
14		----------	----------	13–3/8"	17–3/8"
15		----------	----------	22"	27–1/8"
16	1	METER	MALE THREAD	1–1/2"	2"

NOTES:
1. VAULTS SHALL NOT REST DIRECTLY ON PIPE. A CLEAN CUT ARCH SHALL BE CUT IN VAULT TO ALLOW 3" SEPARATION BETWEEN VAULT AND PIPE.
2. VAULTS SHALL BE PLACED ON A 6" BEDDING OF DGA THAT EXTENDS 6" BEYOND VAULT EXTERIOR.

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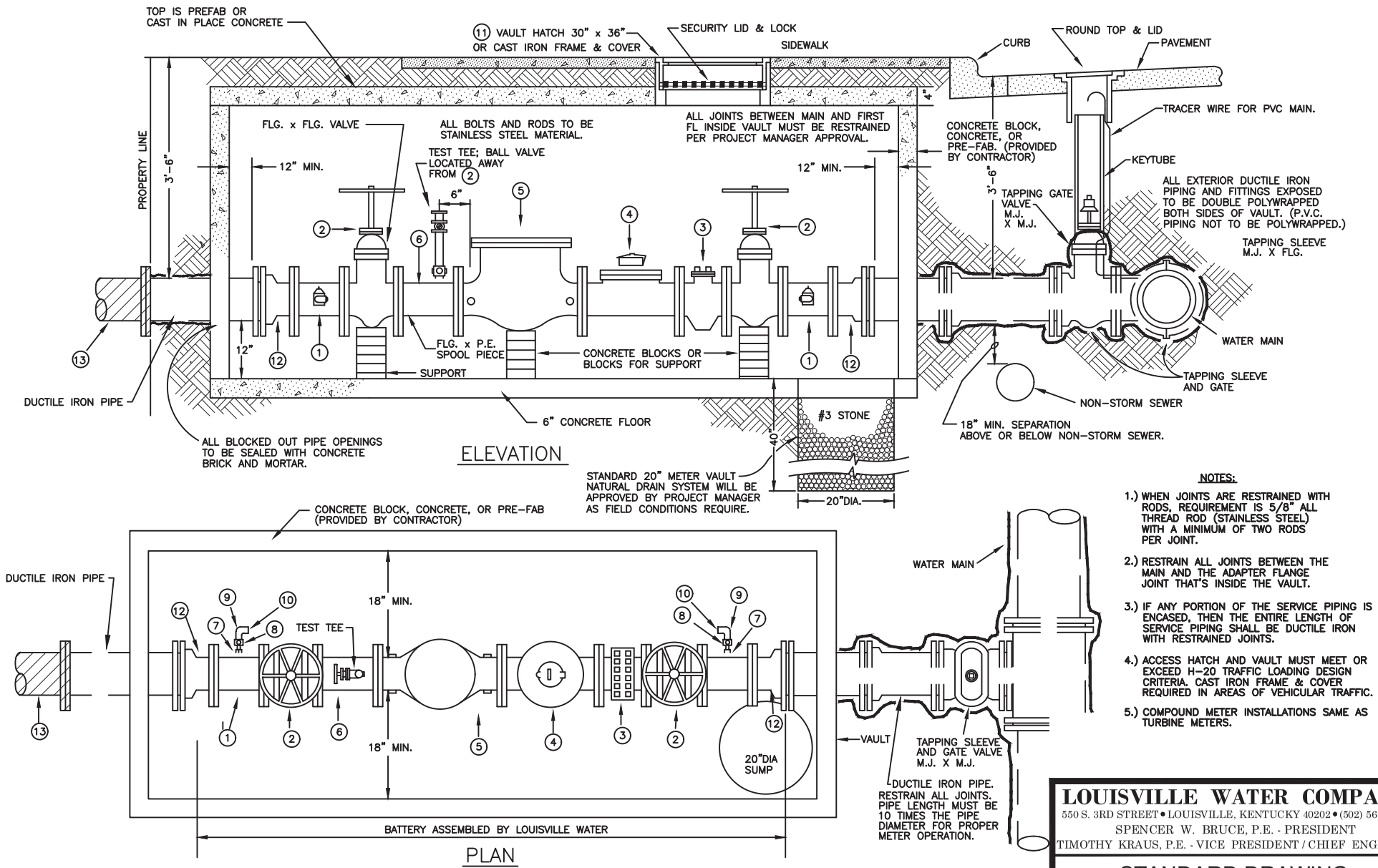
STANDARD DRAWING

TYPICAL 1-1/2" OR 2" COPPER SERVICE WITH PRESSURE REDUCING VALVE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3202	SHEET	1 OF 1



NOTES:

1.) WHEN JOINTS ARE RESTRAINED WITH RODS, REQUIREMENT IS 5/8" ALL THREAD ROD (STAINLESS STEEL) WITH A MINIMUM OF TWO RODS PER JOINT.

2.) RESTRAIN ALL JOINTS BETWEEN THE MAIN AND THE ADAPTER FLANGE JOINT THAT'S INSIDE THE VAULT.

3.) IF ANY PORTION OF THE SERVICE PIPING IS ENCASED, THEN THE ENTIRE LENGTH OF SERVICE PIPING SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS.

4.) ACCESS HATCH AND VAULT MUST MEET OR EXCEED H-20 TRAFFIC LOADING DESIGN CRITERIA. CAST IRON FRAME & COVER REQUIRED IN AREAS OF VEHICULAR TRAFFIC.

5.) COMPOUND METER INSTALLATIONS SAME AS TURBINE METERS.

(1) TWO (2) 4"x3" SPOOL PIECES WITH TWO (2) 2" OUTLETS, FLG x FLG
(2) TWO (2) GATE VALVES, WHEEL FLG x FLG
(3) ONE (1) STRAINER, FLG x FLG
(4) ONE (1) METER, FLG x FLG
(5) ONE (1) CHECK VALVE, FLG x FLG
(6) ONE (1) SPOOL PIECE, FLG x FLG WITH ONE (1) 2" OUTLET, 2" BALL VALVE ASSEMBLY FOR TEST TEE
(7) TWO (2) NIPPLES, MALE THREAD
(8) TWO (2) STOP OR VALVES, MALE THREAD
(9) TWO (2) STREET ELLS, MALE THREAD
(10) TWO (2) PLUGS, MALE THREAD
(11) ONE (1) VAULT HATCH-30" x 36"
(12) TWO (2) 4"x3" ADAPTERS-FLG. x MJ WITH GRIPPER GLAND
(13) CUSTOMER PIPING

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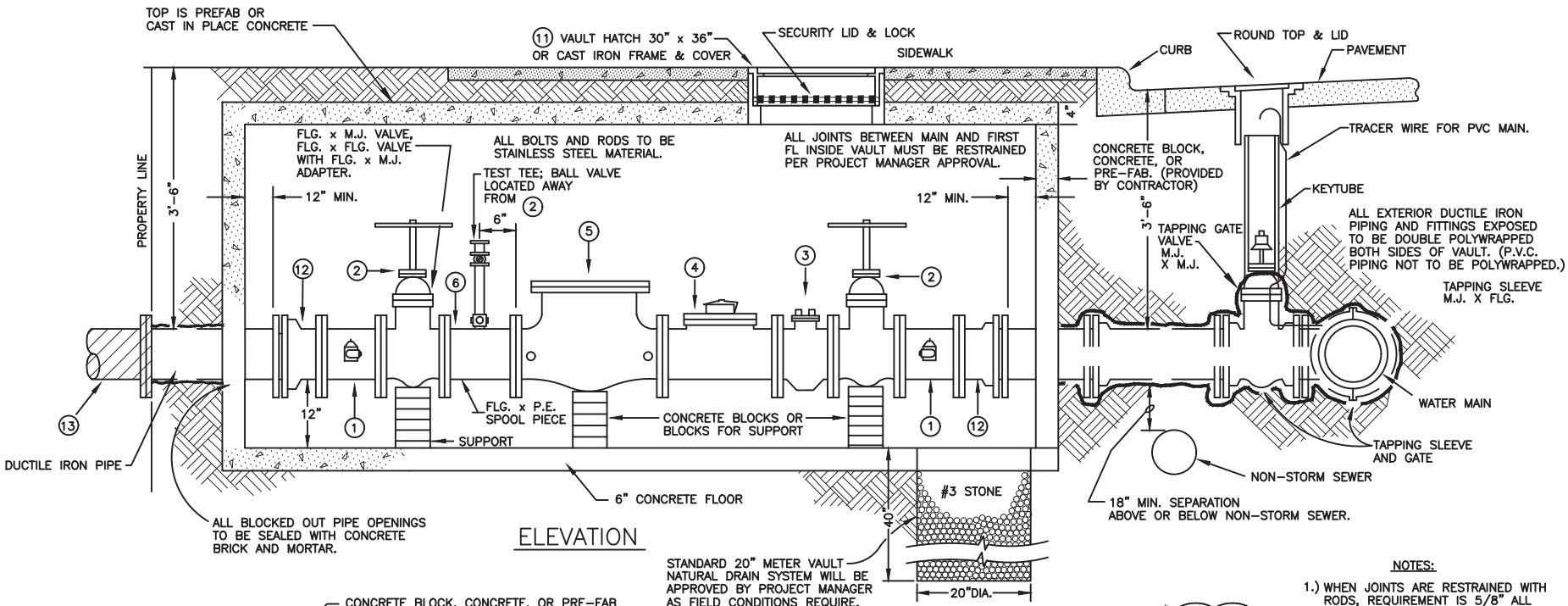
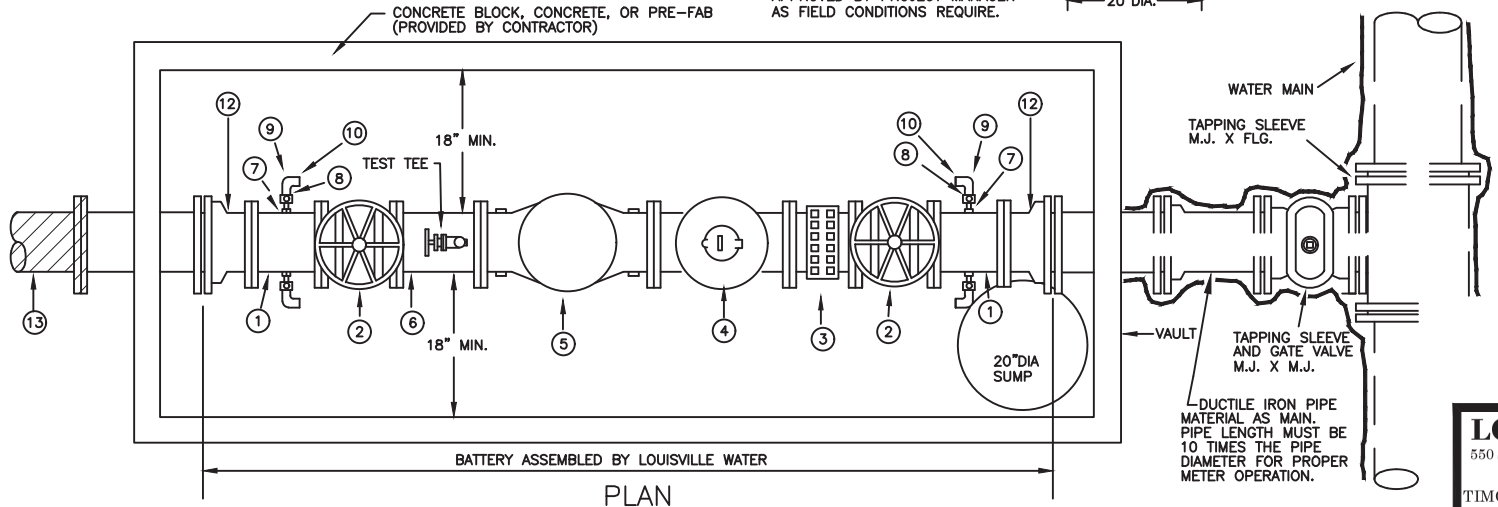
STANDARD DRAWING

TYPICAL DUCTILE IRON DOMESTIC SERVICE 4" x 3"

DATE	OCT. 2021	SCALE	NONE
DRAWING NO.	3203A	SHEET	1 OF 1



ELEVATION



PLAN

NOTES:

1.) WHEN JOINTS ARE RESTRAINED WITH RODS, REQUIREMENT IS 5/8" ALL THREAD ROD (STAINLESS STEEL) WITH A MINIMUM OF TWO RODS PER JOINT.

2.) RESTRAIN ALL JOINTS BETWEEN THE MAIN AND THE ADAPTER FLANGE JOINT THAT'S INSIDE THE VAULT.

3.) IF ANY PORTION OF THE SERVICE PIPING IS ENCASED, THEN THE ENTIRE LENGTH OF SERVICE PIPING SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS.

4.) ACCESS HATCH AND VAULT MUST MEET OR EXCEED H-20 TRAFFIC LOADING DESIGN CRITERIA. CAST IRON FRAME & COVER REQUIRED IN AREAS OF VEHICULAR TRAFFIC.

5.) COMPOUND METER INSTALLATIONS SAME AS TURBINE METERS.

(1) TWO (2) 4"x4" SPOOL PIECES WITH TWO (2) OUTLETS, FLG. x FLG.
(2) TWO (2) GATE VALVES, WHEEL FLG x FLG
(3) ONE (1) STRAINER, FLG x FLG
(4) ONE (1) METER, FLG x FLG
(5) ONE (1) CHECK VALVE, FLG x FLG
(6) ONE (1) SPOOL PIECE, FLG x FLG, WITH ONE (1) 2" OUTLET, 2" BALL VALVE ASSEMBLY FOR TEST TEE
(7) FOUR (4) NIPPLES, MALE THREAD
(8) FOUR (4) STOP OR VALVES, MALE THREAD
(9) FOUR (4) STREET ELLS, MALE THREAD
(10) FOUR (4) PLUGS, MALE THREAD
(11) ONE (1) VAULT HATCH-30" x 36"
(12) TWO (2) 4"x3" ADAPTERS-FLG. x MJ WITH GRIPPER GLAND
(13) CUSTOMER PIPING

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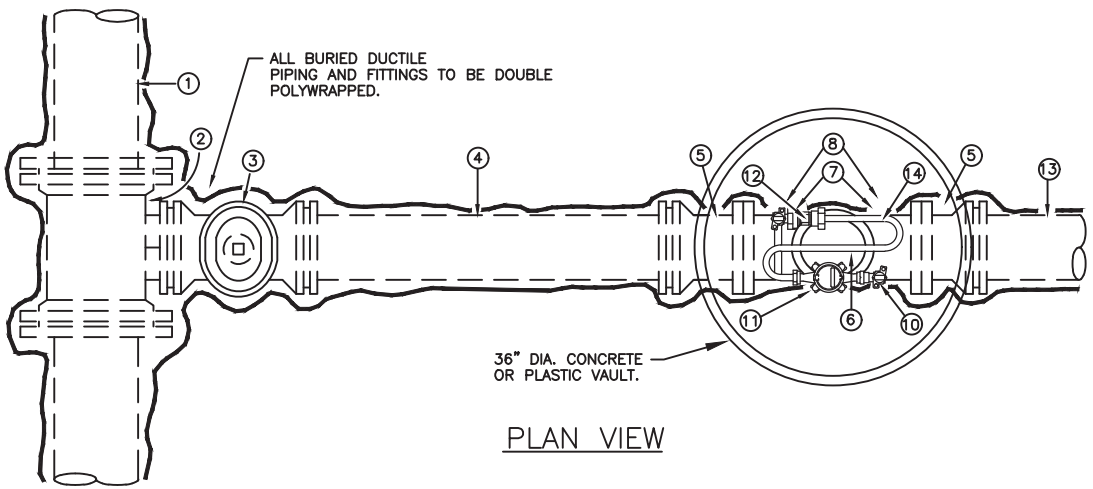
STANDARD DRAWING

TYPICAL DUCTILE IRON DOMESTIC SERVICE 4" AND LARGER

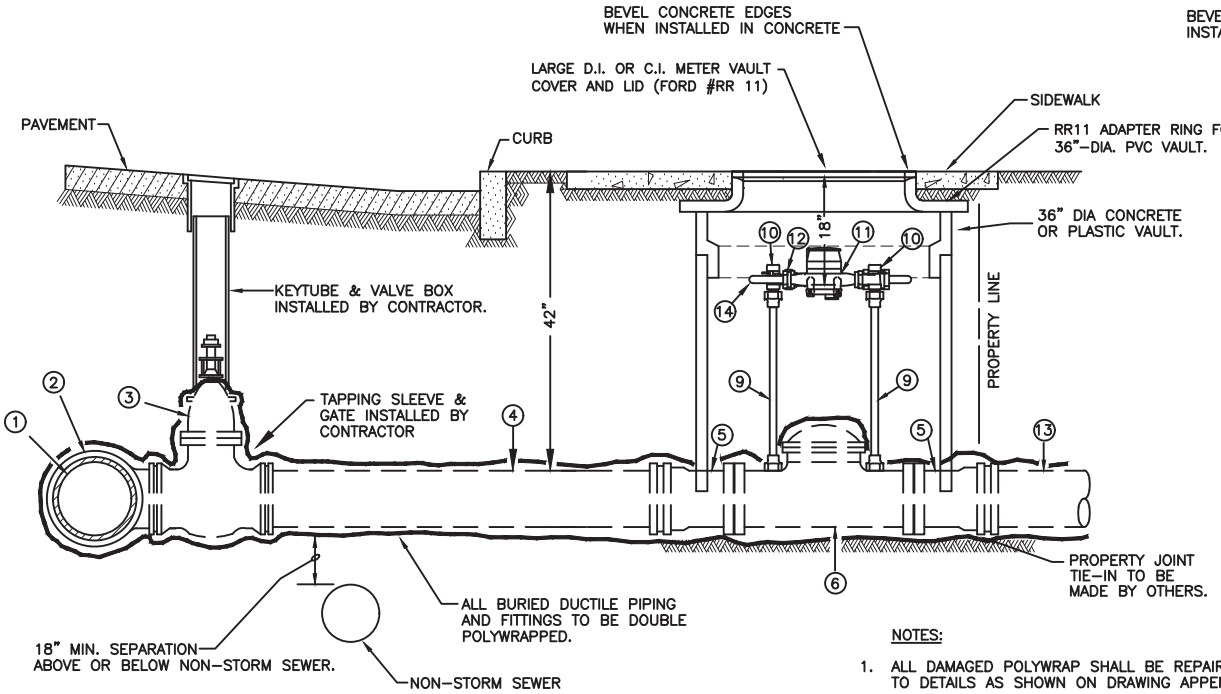
DATE	OCT. 2021	SCALE	NONE
DRAWING NO.	3203	SHEET	1 OF 1

TYPICAL FIRE PROTECTION SERVICE 4" OR LARGER

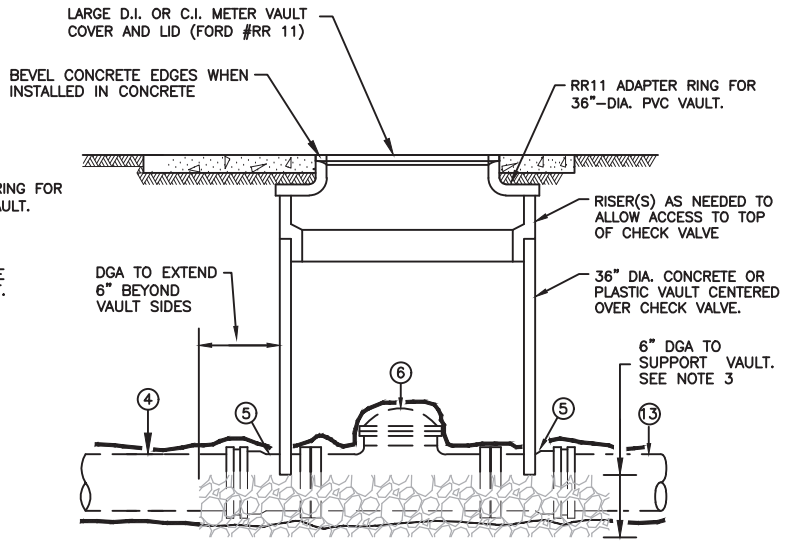
NO.	QTY	FITTING	JOINT	FIRE SERVICE SIZES 4"	6"
1	—	Main in Street	Varies	—	—
2	1	Tapping Sleeve	MJ	4"	6"
3	1	Tapping Gate Valve	MJ x MJ (restrained)	4"	6"
4	varies	D.I. Service Piping	MJ / Bell & Spig (restrain all joints up to check valve)	4"	6"
5	2	Adapter	Flange X MJ or PE	4"	6"
6	1	Detector Check Valve	Flange X Flange	4"	6"
7	2	Bushing	Male Thread Female Thread	1" 3/4"	1-1/2" 3/4"
8	2	Adapter	Male Thread Female Compression	3/4"	3/4"
9	varies	Copper Tubing	Female Compression	3/4"	3/4"
10	2	Angle Meter Stop	Female Compression Female Thread	3/4" 3/4"	3/4" 3/4"
11	1	Meter	Male Thread X Male Thread	3/4"	3/4"
12	1	Swing Check Valve	Female Thread	3/4"	3/4"
13		Customer Piping			
14	1	S-Tube	Female Thread	3/4"	3/4"



PLAN VIEW



PROFILE VIEW



ELEVATION OF CHECK VALVE VAULT

NOTES:

1. ALL DAMAGED POLYWRAP SHALL BE REPAIRED IN ACCORDANCE TO DETAILS AS SHOWN ON DRAWING APPENDIX.
2. RESTRAIN ALL JOINTS BETWEEN THE MAIN AND THE DETECTOR CHECK VALVE.
3. 36" DIA. VAULT SHALL NOT REST DIRECTLY ON PIPE. A CLEAN CUT ARCH SHALL BE CUT IN VAULT TO ALLOW 3" SEPARATION. VAULT SHALL REST ON A 6" BEDDING OF DGA
4. ALL BOLTS ON TOP OF CHECK VALVE SHALL BE MADE ACCESSIBLE FROM INSIDE OF VAULT
5. CAST CONCRETE THRUST ANCHOR ON TAPPING SLEEVE AS PER DRAWING 1400

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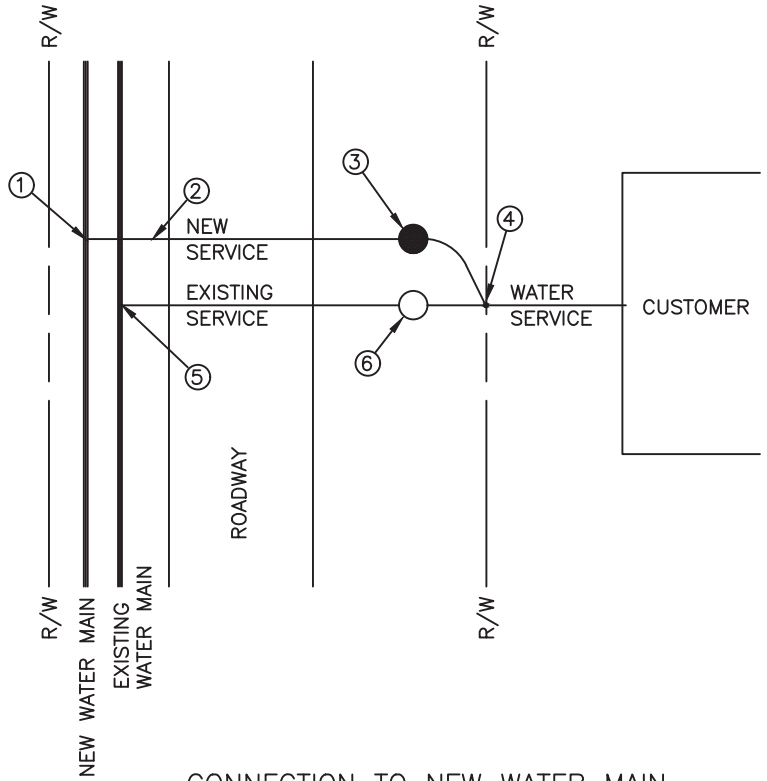
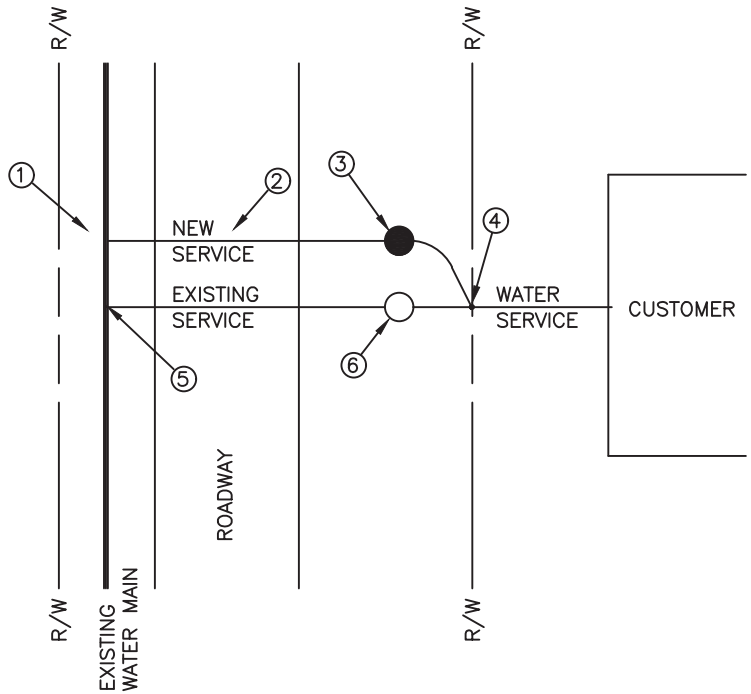
STANDARD DRAWING

TYPICAL FIRE PROTECTION SERVICE 4" AND LARGER

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3601	SHEET	1 OF 1



CONNECTION TO NEW WATER MAIN



CONNECTION TO EXISTING WATER MAIN

NOTES:

① INSTALL NEW CORPORATION STOP ON MAIN.

② INSTALL NEW SERVICE LINE.

③ INSTALL METER, VAULT, FRAME AND LID. CONCRETE METER VAULTS WITH HEAVY FRAME AND COVER SHALL BE INSTALLED IN AREAS OF VEHICULAR TRAFFIC.

④ INSTALL TAIL PIECE AND TIE–IN TO CUSTOMER SERVICE LINE. IF EXISTING TAIL PIECE OR CUSTOMER SERVICE LINE IS LEAD OR GALVANIZED IRON THEN FOLLOW CURRENT INSTALLATION PROCEDURES PER THE LOUISVILLE WATER PROJECT MANAGER.

⑤ DISCONTINUE OLD SERVICE AT EXISTING WATER MAIN. DRIVEN FERRULES MUST BE REMOVED AND A TAPPING SADDLE INSTALLED AT TAP IF MAIN WILL REMAIN ACTIVE. (SEE SECT. 10.17)

⑥ ABANDON OLD METER VAULT, RETURN METER AND CAST IRON FRAME & COVER TO ALLMOND AVENUE, BACKFILL METER VAULT (SEE SECT.10.18)

* CONNECTION AS SHOWN IS A "LONG SERVICE" TO MAIN ON OPPOSITE SIDE OF ROAD. "SHORT SERVICE" IS DEFINED AS METER AND MAIN ON THE SAME SIDE OF ROADWAY.

LEGEND

○ = EXISTING METER VAULT

● = NEW METER VAULT

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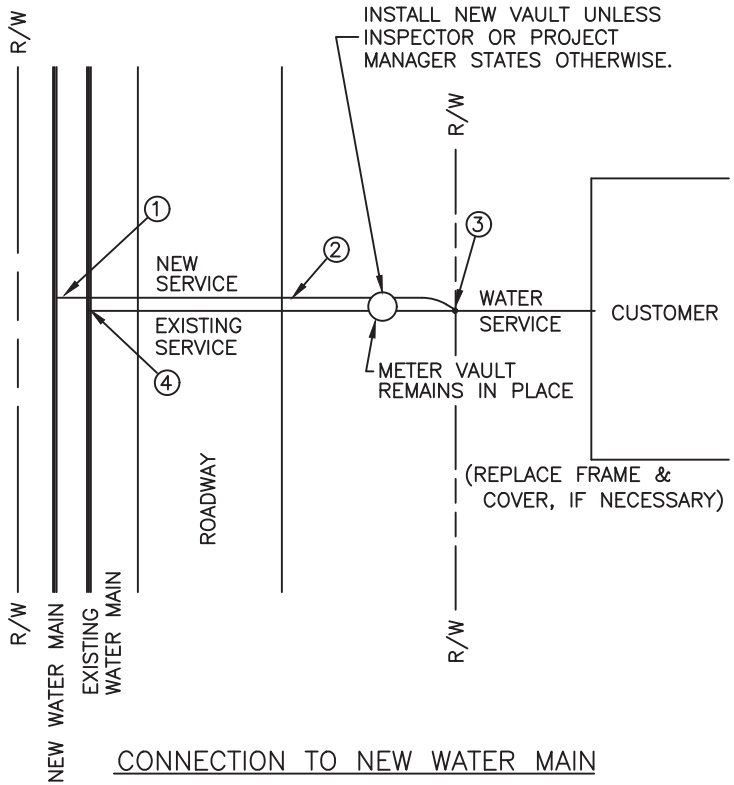
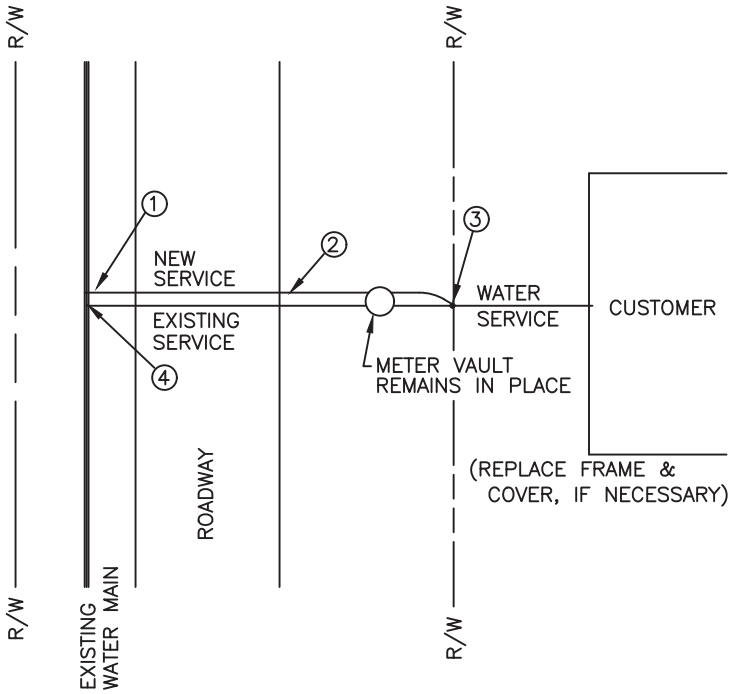
STANDARD DRAWING

RELOCATE SERVICE

DATE JULY 2021	SCALE NONE
DRAWING NO. 3440	SHEET 1 OF 1



CONNECTION TO NEW WATER MAIN



CONNECTION TO EXISTING WATER MAIN

LEGEND

◯ = EXISTING METER VAULT

NOTES:

① INSTALL NEW CORPORATION STOP ON MAIN.

② INSTALL NEW SERVICE LINE TO EXISTING METER STOP.

③ INSTALL TAIL PIECE AND TIE–IN TO CUSTOMER SERVICE LINE. IF EXISTING TAIL PIECE OR CUSTOMER SERVICE LINE IS LEAD OR GALVANIZED IRON THEN INSTALL TAIL PIECE AND TIE–IN TO CUSTOMER SERVICE LINE. IF CUSTOMER SERVICE LINE IS LEAD THEN FOLLOW CURRENT INSTALLATION PROCEDURES PER THE LOUISVILLE WATER PROJECT MANAGER.

⑤ DISCONTINUE OLD SERVICE AT EXISTING WATER MAIN. DRIVEN FERRULES MUST BE REMOVED AND REPAIR BAND INSTALLED AT TAP IF MAIN WILL REMAIN ACTIVE. (SEE SECT. 10.17)

⑥ REPLACE EXISTING VAULT, FRAME, AND COVER IN SAME LOCATION AS OLD METER VAULT UNLESS THE LOUISVILLE WATER PROJECT MANAGER OR INSPECTOR APPROVES OF LEAVING THE EXISTING VAULT IN PLACE.

* CONNECTION AS SHOWN IS A "LONG SERVICE" TO MAIN ON OPPOSITE SIDE OF ROAD. "SHORT SERVICE" IS DEFINED AS METER AND MAIN ON THE SAME SIDE OF ROADWAY.

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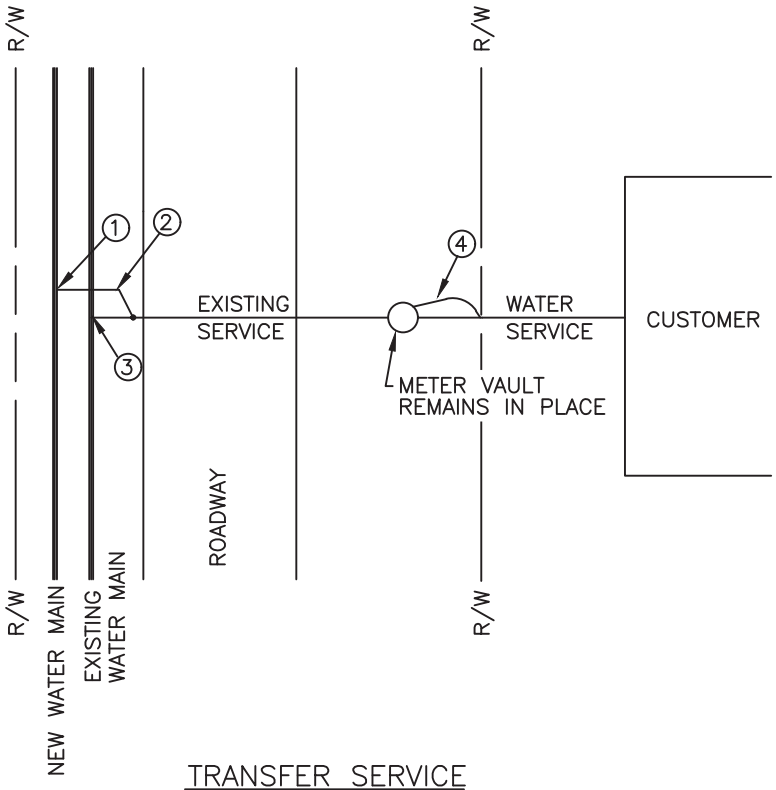
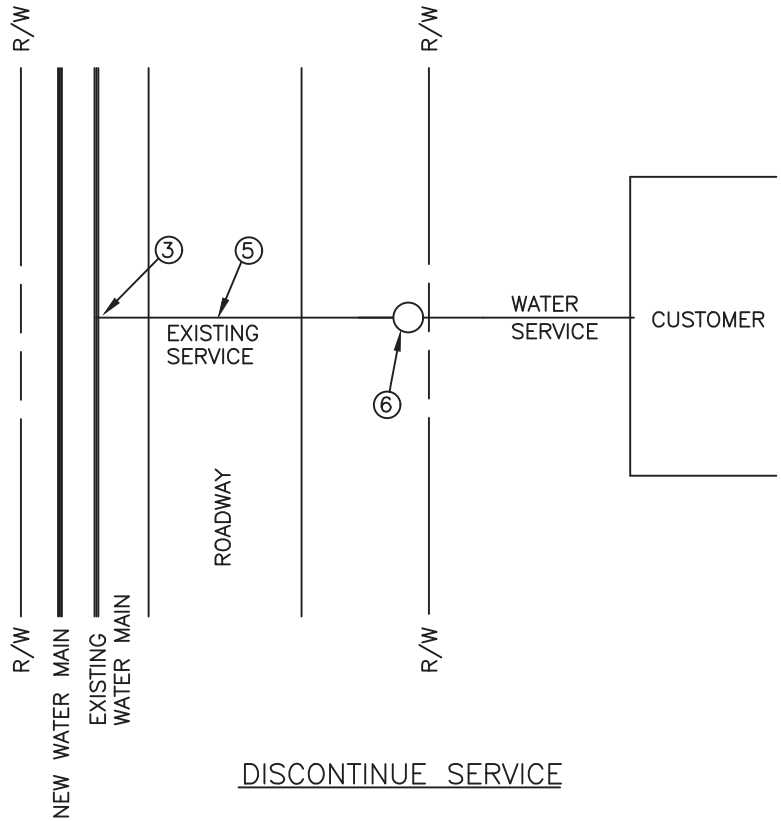
STANDARD DRAWING

RENEW SERVICE

DATE JULY 2021	SCALE NONE
DRAWING NO. 3441	SHEET 1 OF 1



TRANSFER SERVICE



DISCONTINUE SERVICE

NOTES:

① INSTALL NEW CORPORATION STOP ON MAIN.

② INSTALL NEW SERVICE LINE FROM NEW MAIN AND TIE–IN TO EXISTING SERVICE LINE. (AS REQUIRED)

③ DISCONTINUE OLD SERVICE AT EXISTING WATER MAIN. DRIVEN FERRULES MUST BE REMOVED AND REPAIR BAND INSTALLED AT TAP IF MAIN WILL REMAIN ACTIVE. (SEE SECT. 10.17)

④ INSTALL TAIL PIECE AND TIE–IN TO CUSTOMER SERVICE LINE. IF EXISTING TAIL PIECE OR CUSTOMER SERVICE LINE IS LEAD OR GALVANIZED IRON THEN INSTALL TAIL PIECE AND TIE–IN TO CUSTOMER SERVICE LINE. IF CUSTOMER SERVICE LINE IS LEAD THEN FOLLOW CURRENT INSTALLATION PROCEDURES PER THE LOUISVILLE WATER PROJECT MANAGER.

⑤ DISCONNECT AND PLUG SERVICE LINE.

⑥ ABANDON OLD METER VAULT, RETURN METER AND CAST IRON FRAME & COVER TO ALLMOND AVENUE, BACKFILL METER VAULT (SEE SECT.10.18)

* CONNECTION AS SHOWN IS A "LONG SERVICE" TO MAIN ON OPPOSITE SIDE OF ROAD. "SHORT SERVICE" IS DEFINED AS METER AND MAIN ON THE SAME SIDE OF ROADWAY.

LEGEND

◯ = EXISTING METER VAULT

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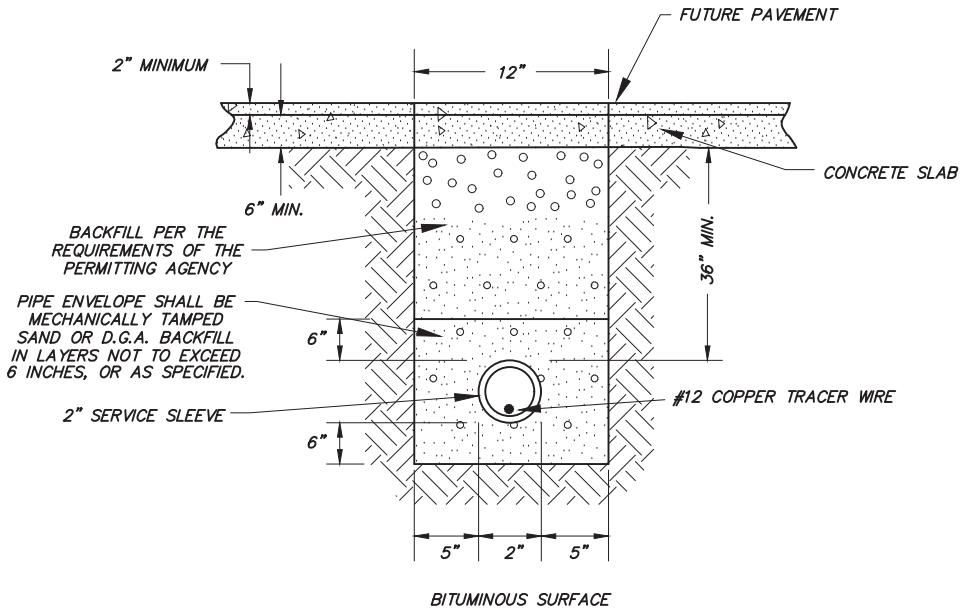
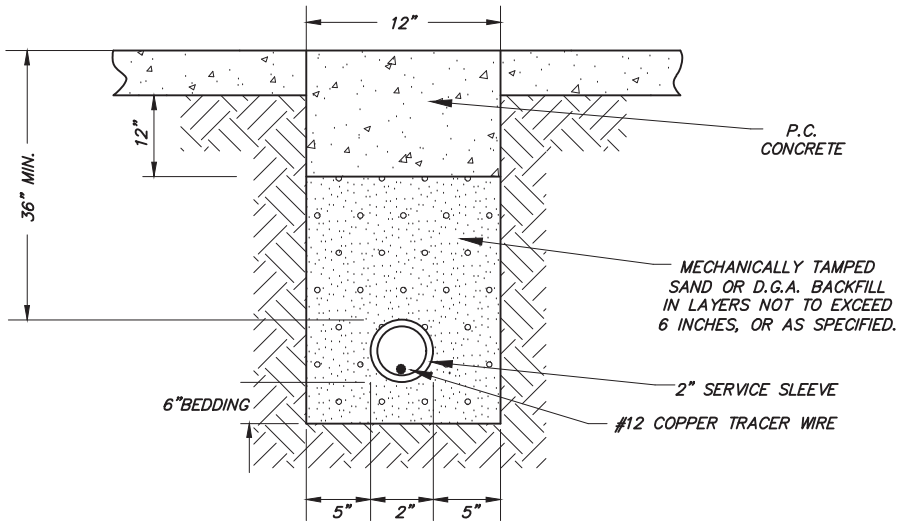
STANDARD DRAWING

TRANSFER SERVICE
DISCONTINUE SERVICE

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3442	SHEET	1 OF 1



BITUMINOUS SURFACE



CONCRETE PAVEMENT

SERVICE SLEEVE INSTALLATIONS

IN ORDER TO AVOID CURB AND PAVEMENT CUTS DURING SERVICE INSTALLATIONS, THE FOLLOWING PROCEDURES HAVE BEEN ESTABLISHED FOR NEW DEVELOPMENT PROJECTS:

- SERVICE SLEEVES ARE TO BE INSTALLED BY THE DEVELOPER'S WATER MAIN INSTALLATION CONTRACTOR AS SHOWN ON THE PLANS. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE; THE CONTRACTOR SHALL COORDINATE EXACT SERVICE SLEEVE LOCATIONS WITH THE DEVELOPER OR THEIR REPRESENTATIVE.
- WHEN THE SERVICE SLEEVES ARE SUPPLIED BY THE DEVELOPER, THE COMPANY WILL ADJUST THE DEVELOPER'S PROJECT MATERIAL COSTS TO REFLECT DEVELOPER–DOCUMENTED SLEEVE MATERIAL COST.
- SLEEVES MUST BE INSTALLED AT 36" COVER, AND ALIGNED SO THAT FUTURE INSTALLATION OF SERVICE PIPING CAN BE ACCOMPLISHED WITHOUT PAVEMENT, OR CURB CUTS. SLEEVES MUST BE INSTALLED IN A STRAIGHT LINE WITHOUT ANY BENDS OR OBSTRUCTIONS.
- ALL SERVICE SLEEVES MUST EXTEND AT LEAST 2 FEET BEYOND THE BACK OF CURBS, WITH SEALED END CAPS AND MARKED BY ABOVE–GRADE P.V.C. PIPE THAT SHALL BE PAINTED BLUE ON THE EXPOSED END EXTENDING A MIN. OF 6" ABOVE FINISH GRADE TO EACH END OF THE SERVICE SLEEVE OR OTHER MARKER ACCEPTABLE TO LOUISVILLE WATER.
- ALL SLEEVES MUST HAVE #12 COPPER TRACER WIRE INSTALLED THROUGH EACH SLEEVE AND THE TRACER WIRE MUST BE MADE ACCESSIBLE FOR THE COMPANY'S SERVICE INSTALLER FOR THE PURPOSE OF LOCATING THE SERVICE SLEEVE.

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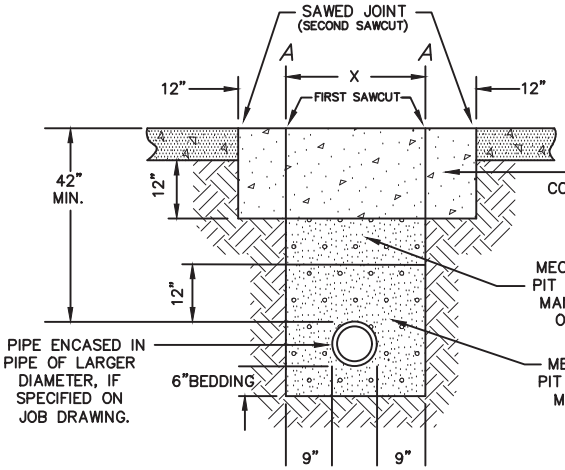
STANDARD DRAWING

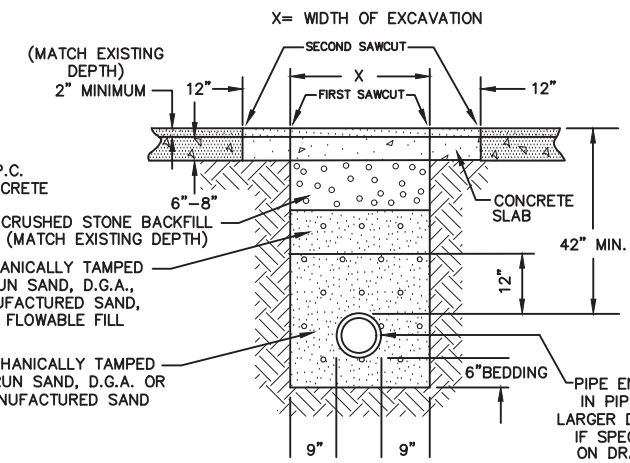
SERVICE SLEEVE INSTALLATION DETAIL

DATE	JULY 2021	SCALE	NONE
DRAWING NO.	3805	SHEET	1 OF 1

NOTE: FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE SIX(6) FEET OR MORE. IF LESS THAN 6, REMOVE PAVEMENT TO JOINT OR BREAK AND REPLACE ENTIRE SLAB.
CONCRETE SLAB UNDER BITUMINOUS SURFACE TO EXTEND 12 INCHES ON EACH SIDE OF TRENCH.

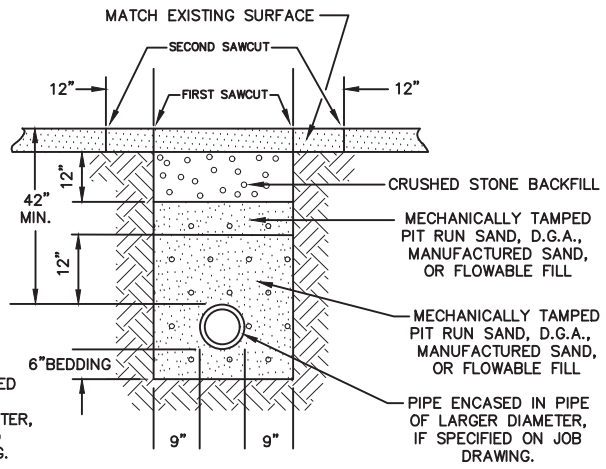


CONCRETE PAVEMENT



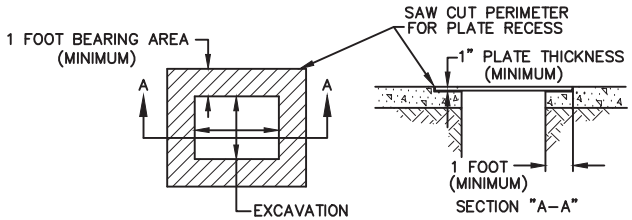
BITUMINOUS SURFACE 2"+

(12" CUTBACK IS NOT REQUIRED
WHEN FLOWABLE FILL IS USED)



BITUMINOUS SURFACE LESS THAN
2" AND TRAFFIC BOUND MACADAM

(12" CUTBACK IS NOT REQUIRED
WHEN FLOWABLE FILL IS USED)



TYPICAL RECESSED PLATE

NO SCALE

NOTE: REPLACE CONCRETE PAVEMENT WITH NEW PAVEMENT SAME THICKNESS OF EXISTING PAVEMENT + 12".
REPLACE BITUMINOUS PAVEMENT WITH SAME TYPE AND DEPTH AS EXISTING PAVEMENT.

STATE OF KENTUCKY SPECIFICATIONS

1. BEDDING SHALL BE PIT RUN SAND, DENSE-GRADE AGGREGATE, MANUFACTURED SAND MECHANICALLY COMPACTED PER SPECIFICATION SECTION 7.4 AND 7.5.

2. SELECT GRANULAR BACKFILL SHALL COMPLY WITH SPECIFICATION 7.6

3.. ANY USE OF NO. 57 STONE FOR BEDDING OR BACKFILL MUST BE APPROVED BY THE DIRECTOR OF ENGINEERING.

4. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE DURING THE 5 YEAR PERIOD AFTER THE DATE OF THE FINAL CONTRACT PAYMENT. ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.

5. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AMD EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH.

6. DILUTE SS1H (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL. PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.

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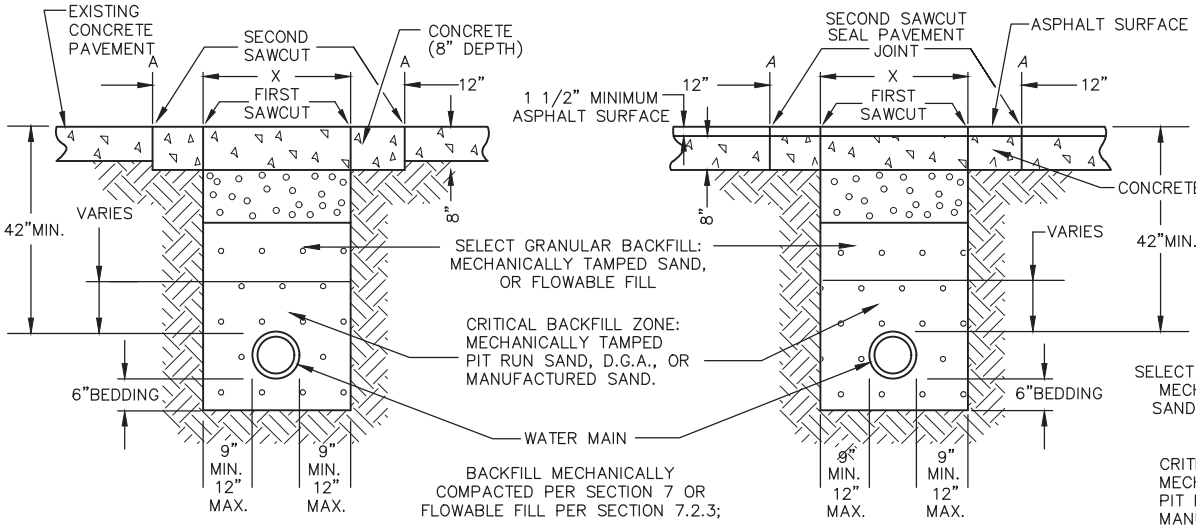
STANDARD DRAWING

STATE OF KENTUCKY BACKFILL AND PAVING RESTORATION

DATE	AUG. 2021	SCALE	NONE
DRAWING NO.	4000	SHEET	1 OF 1

NOTE: FROM POINTS "A" (CONCRETE PAVEMENT) TO NEAREST JOINT OR BREAK IN PAVEMENT MUST BE FOUR (4) FEET OR MORE. IF LESS THAN 4 REMOVE PAVEMENT TO JOINT OR BREAK AND REPLACE ENTIRE SLAB. CONCRETE SLAB UNDER BITUMINOUS SURFACE TO EXTEND 12" ON EACH SIDE OF TRENCH.



CONCRETE PAVEMENT

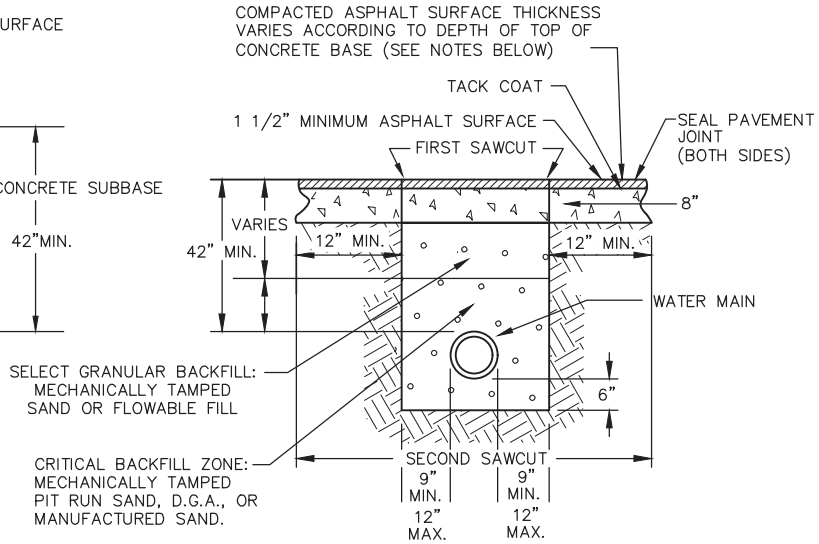
(12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

SEE KTC SPECIFICATION FOR SPECIAL PROVISIONS SECTION 76 PAGES 1–12 FOR PAVEMENT REPAIRS.

BITUMINOUS SURFACE

NEW ASPHALT SHALL BE A MINIMUM OF 1 1/2" THICK (12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

NOTE: THE CONCRETE BASE SHALL BE FLOAT FINISHED OR BROOMED OR LIGHTLY RAKED AFTER FLOATING TO A UNIFORM GRADE.



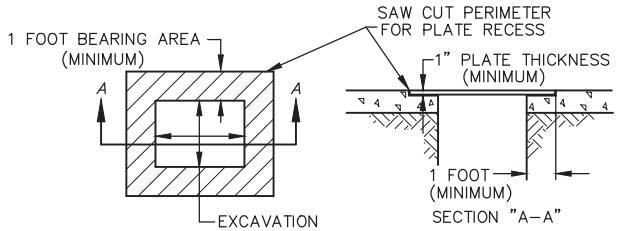
BACKFILL MECHANICALLY COMPACTED PER SECTION 7 OR FLOWABLE FILL PER SECTION 7.2.3;

BASE OTHER THAN CONCRETE HAVING AN ASPHALT SURFACE

(12" CUTBACK IS NOT REQUIRED WHEN FLOWABLE FILL IS USED)

NOTE: THE CONCRETE BASE SHALL BE FLOAT FINISHED OR BROOMED OR LIGHTLY RAKED AFTER FLOATING TO A UNIFORM GRADE.

1. CRITICAL BACKFILL ZONE SHALL CONSIST OF MECHANICALLY TAMPED PIT RUN SAND, DENSE–GRADE AGGREGATE, MANUFACTURED SAND PER SPECIFICATION SECTION 7.4 AND 7.5.
2. SELECT GRANULAR BACKFILL SHALL COMPLY WITH SPECIFICATION SECTION 7.6.
3. ANY USE OF NO. 57 STONE FOR BEDDING OR BACKFILL MUST BE APPROVED BY THE DIRECTOR OF ENGINEERING.
4. BACKFILLING UP TO BOTTOM OF SUBBASE ELEVATION SHALL BE COMPLETED PRIOR TO SECOND PAIR OF SAWCUTS AND EXCAVATION FOR THE ADDITIONAL 12" OF CONCRETE ON EACH SIDE OF THE TRENCH, UNLESS FLOWABLE FILL IS USED.
5. PLATES MUST BE SECURED AND/OR RECESSED AT ALL TIMES.
6. CONCRETE CAP MUST BE PLACED UNTIL CONCRETE REACHES STRENGTH REQUIREMENTS (MINIMUM 3500 PSI).
7. DILUTE SS1H (OR OTHER APPROVED TACK COAT MATERIAL) SHALL BE APPLIED AT THE RATE OF 0.1 GAL. PER SQUARE YARD OVER THE CONCRETE BASE. ALLOW SUFFICIENT TIME FOR IT TO "BREAK" BEFORE THE FINISHED BITUMINOUS CONCRETE IS PLACED, AND SEAL ALL JOINTS SECURELY AFTER PAVING.
8. PAVEMENT JOINTS SHALL BE SEALED WITH AN APPROVED JOINT SEALER AFTER PLACEMENT OF THE BITUMINOUS CONCRETE SURFACE. SEE SECTION 11.2 AND 11.3.
9. CONTRACTOR WILL BE HELD RESPONSIBLE DURING THE ENSUING 5 YEARS FOR PROPER BACKFILLING AND REPLACEMENT OF SURFACE. DURING THE 5 YEAR PERIOD AFTER THE DATE OF THE FINAL CONTRACT PAYMENT, ANY PAVEMENT SETTLEMENT SHALL BE IMMEDIATELY REPAIRED IN AN APPROVED MANNER AT THE EXPENSE OF THE CONTRACTOR.



TYPICAL RECESSED PLATE

NO SCALE

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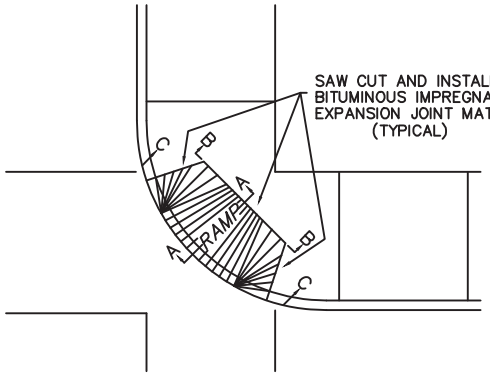
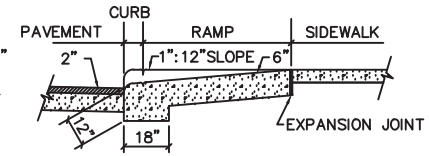
STANDARD DRAWING

METRO LOUISVILLE BACKFILL AND PAVING RESTORATION

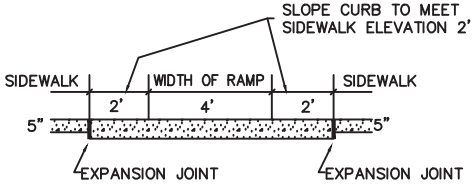
DATE	JULY 2021	SCALE	NONE
DRAWING NO.	4100	SHEET	1 OF 1



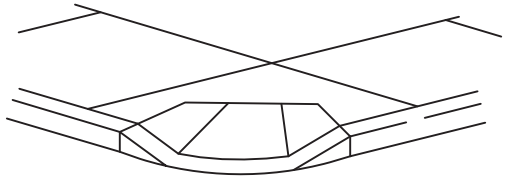
PLAN VIEW

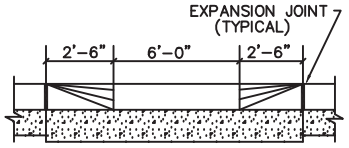


SECTION A–A



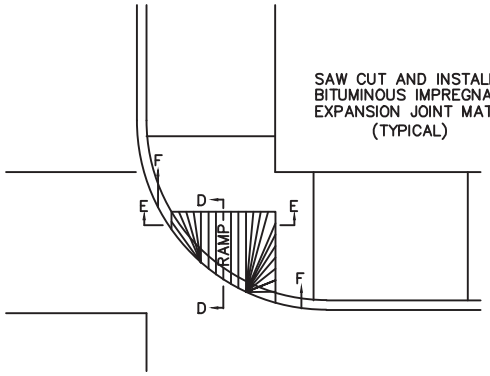
SECTION B–B



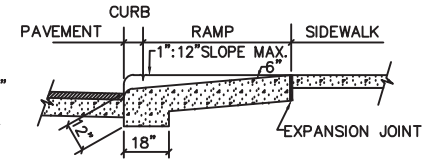


SECTION C–C

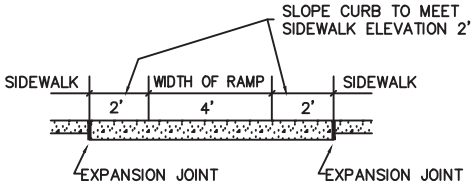
RAMP TYPE 1



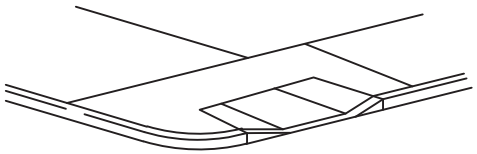
PLAN VIEW

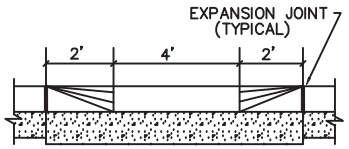


SECTION D–D



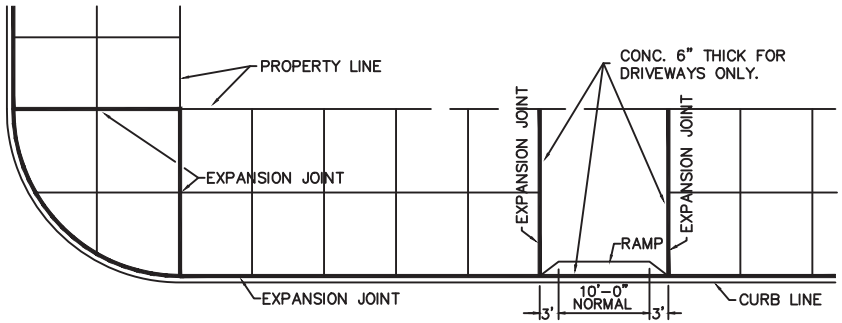
SECTION E–E





SECTION F–F

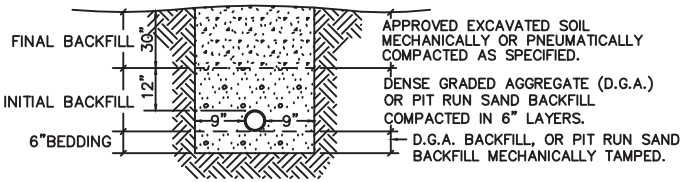
RAMP TYPE 2



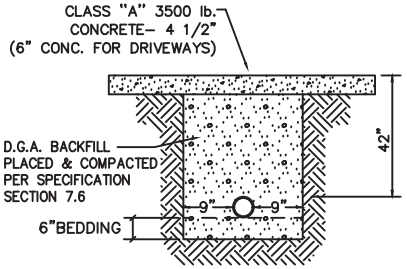
PLAN OF SIDEWALK AND DRIVEWAY–FULL WIDTH

NOTES:
ALL SIDEWALKS SHALL BE 5" THICK. ALL DRIVEWAYS SHALL BE 6" THICK. ALL CONCRETE SHALL BE CLASS "A"(3500 lb. CONCRETE). WOOD FLOAT FINISH FOR ALL WORK. AN APPROVED TYPE OF LIQUID CURING COMPOUND WILL BE PERMITTED. EXPANSION JOINTS ACROSS THE LINE OF THE WALK SHALL BE SPACED NOT MORE THAN 50' APART. EXPANSION JOINTS PARALLEL TO THE LINE OF WALK WILL BE REQUIRED AT THE BACK OF CURB FOR FULL WIDTH WALKS. AT DRIVEWAYS, EXPANSION JOINTS SHALL BE USED ON BOTH SIDES AGAINST THE SIDEWALK. OTHER JOINTS DETERMINED BY THIS LOCATION. AT DRIVEWAYS AND ENTRANCE WALKS ACROSS GRASS PLOTS, AN EXPANSION JOINT SHALL BE USED AT BACK OF CURB. ALL EXPANSION MATERIAL SHALL BE APPROVED NON–EXTRUDING PREFORMED STRIPS 1/2" THICK. BLOCKS SHALL BE MARKED OR SCORED IN SUITABLE SIZED BLOCKS, BUT NOT LESS THAN 4' OR MORE THAN 6' ON A SIDE. CONTRACTION JOINTS (PLANES OF WEAKNESS) SHALL BE AT EVERY THIRD BLOCK AND SHALL BE CUT AT LEAST 1 1/2" IN DEPTH (IN LIEU OF A SCORE). AT BACK OF WALK, TERRACE SHALL BE HAND TRIMMED OR FINISHED TO A 1 TO 1 SLOPE OR FLATTER.

ALL SIDEWALK AND DRIVEWAY CONSTRUCTION IN THE PUBLIC WAYS OF THE CITY OF LOUISVILLE SHALL CONFORM WITH THE REQUIREMENTS ON THIS SHEET UNLESS OTHERWISE APPROVED IN WRITING BY THE CHIEF ENGINEER. MINIMUM WIDTH OF SIDEWALK SHALL BE 5' EXCEPT WITH PERMISSION OF CHIEF ENGINEER.



BACKFILL NOT UNDER PAVEMENT



BACKFILL UNDER SIDEWALK

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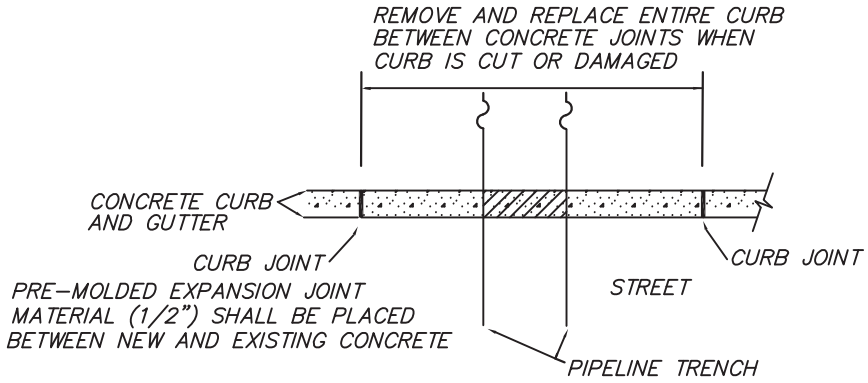
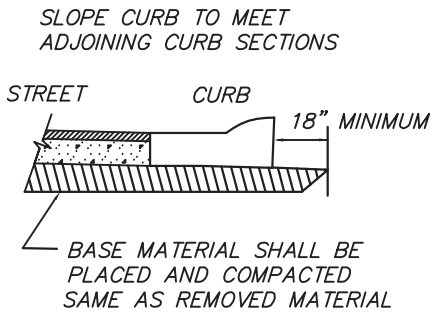
STANDARD DRAWING

SIDEWALK / BACKFILL DETAIL

DATE	MAY 2021	SCALE	NONE
DRAWING NO.	4400	SHEET	1 OF 1



PLAN VIEW



SECTION

CURB RESTORATION FOR PIPELINE INSTALLATION

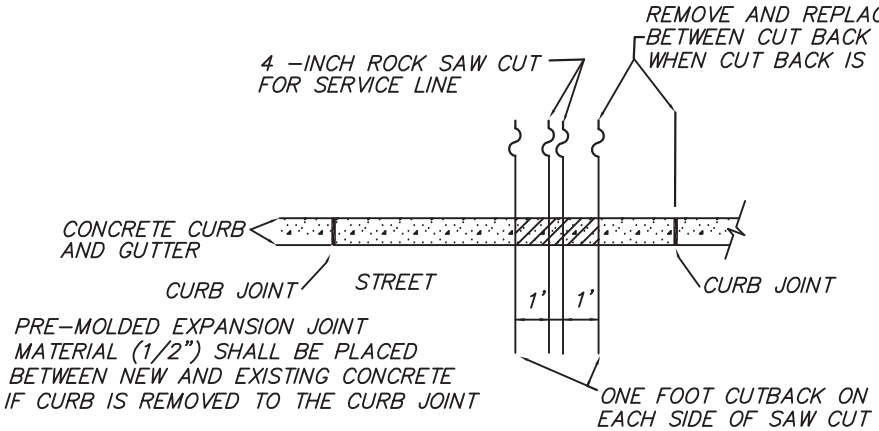
NOTES:

ALL CONCRETE SHALL BE A MINIMUM CLASS "A" (3500 lb. CONCRETE).

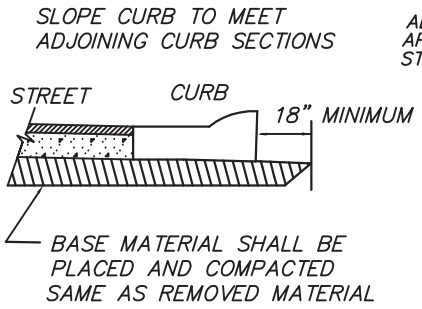
AN APPROVED TYPE OF LIQUID CURING COMPOUND WILL BE REQUIRED ON CONCRETE.

EXPANSION JOINT MATERIAL SHALL BE USED BETWEEN CURB JOINTS AND CURBS AND ADJOINING SIDEWALKS.

ALL EXPANSION MATERIAL SHALL BE APPROVED NON-EXTRUDING PREFORMED STRIPS (1/2" THICK).



PLAN VIEW



SECTION

CURB RESTORATION FOR SERVICE LINE INSTALLATION

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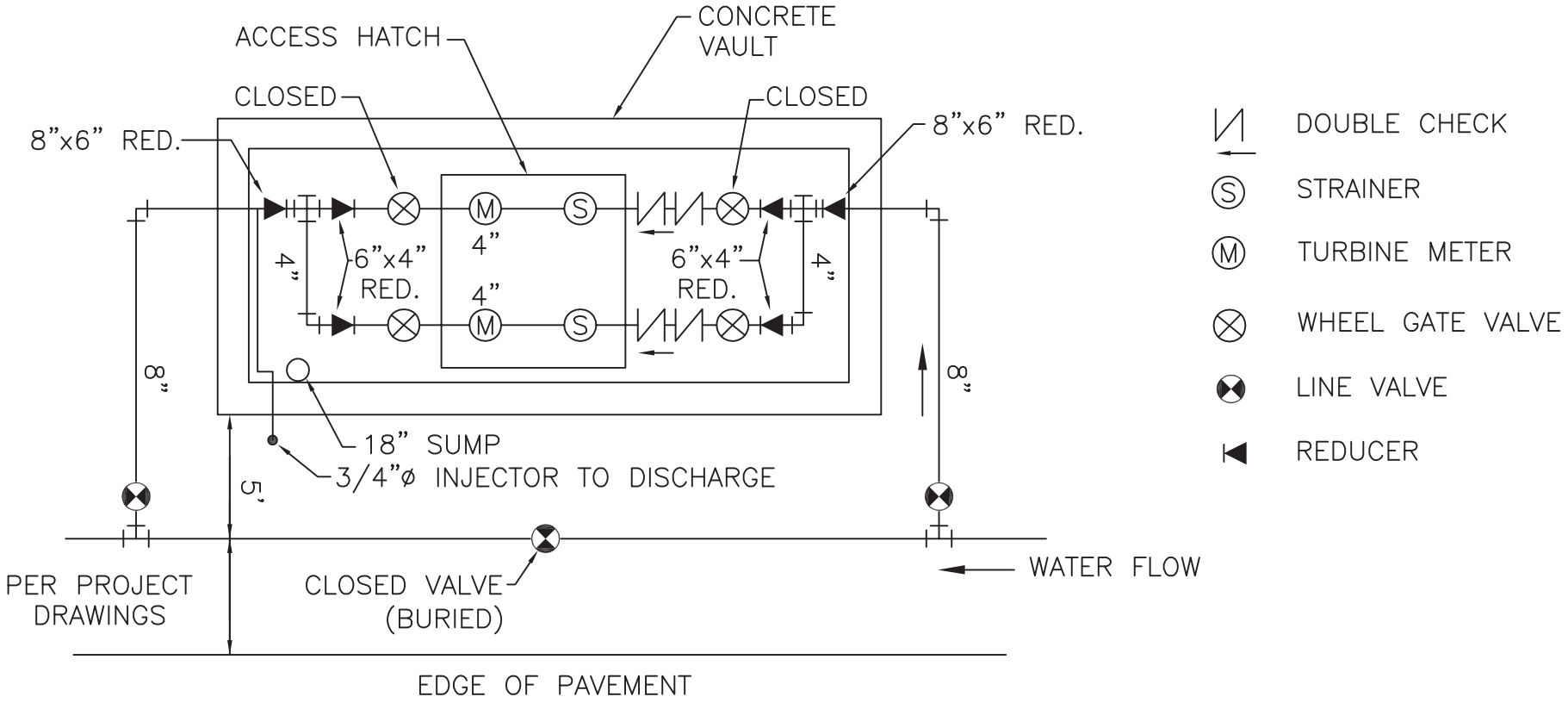
STANDARD DRAWING

CONCRETE CURB AND GUTTER RESTORATION DETAIL

DATE	AUGUST 2018	SCALE	NONE
DRAWING NO.	4410	SHEET	1 OF 1



MASTER METER LAYOUT

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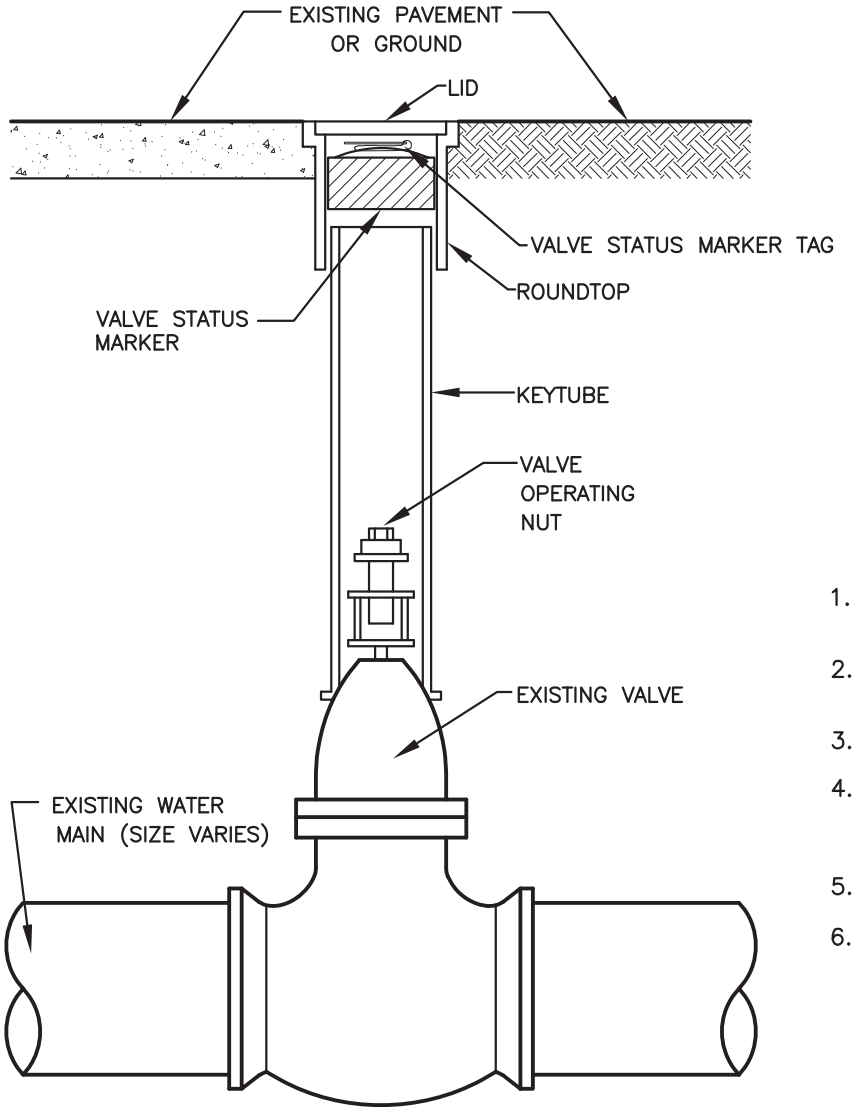
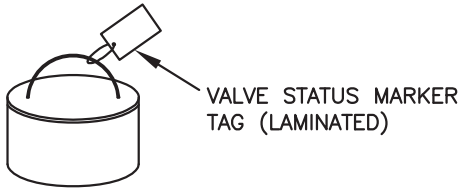
STANDARD DRAWING

TYPICAL MASTER METER DETAIL

DATE	AUGUST 2018	SCALE	NONE
DRAWING NO.	4600	SHEET	1 OF 1



VALVE STATUS MARKER
IN PLACE (TYPICAL)



VALVE STATUS MARKER

TYPICAL MARKER TAG NOTES:

1. PRESSURE PLANE BOUNDARY VALVE – DO NOT OPEN
2. CLOSED VALVE – DO NOT OPEN
3. LEFT HAND OPEN
4. TEMPORARY CONSTRUCTION –CLOSED VALVE: CONTACT LWC RADIO ROOM OR INSPECTION
5. VALVE PARTIAL OPEN # TURNS
6. NAME/DATE/CELL# (MORE DETAIL).

NOTES:

1. CONTACT PROJECT MANAGER OR COMPANY INSPECTOR FOR APPROVAL BEFORE OPERATING ANY VALVE.
2. NOTES ON PLUGS SHALL BE MADE USING A LAMINATED TAG ZIP TIED TO THE STRAP OR BY WRITING DIRECTLY ON TOP OF THE PLUG WITH A PERMANENT INK MARKER.

LOUISVILLE WATER COMPANY
550 S. 3RD STREET • LOUISVILLE, KENTUCKY 40202 • (502) 569-3600
SPENCER W. BRUCE, P.E. - PRESIDENT
TIMOTHY KRAUS, P.E. - VICE PRESIDENT / CHIEF ENGINEER

STANDARD DRAWING

VALVE STATUS MARKER

DATE	FEBRUARY 2020	SCALE	NONE
DRAWING NO.	5005	SHEET	1 OF 1

Kim Harpe - Director
Phone (502) 564-3020
FAX (502) 564-7759

DIVISION OF TRAFFIC OPERATIONS

PROJECT MATERIALS RELEASE FORM FOR SIGNAL AND LIGHTING

Note: Email form with signatures to KYTC's warehouse (kim.stamper@ky.gov) at least two (2) days prior to arrival for pickup. Ensure Contractor's delivery driver has a copy of form with signatures. Failure to do either may result in long delays or refusal to distribute materials upon arrival.

Item Number: **5-122.00**

County: **JEFFERSON**

Description: **2 SIGNALS: KY 864 @ BEULAH; KY 864 @ KY 1065**

Cabinets	Master code		
2	T-01-0020	Base Mounted 332 Cabinet	
2	T-01-0105	ATC Controller	
2	T-01-0106	1C w/Maxtime (this should go with item ATC controller)	
2	T-01-0501	Conflict Monitor, Model 2018	
5	T-01-0510	Isolator, Model 242 (1 for 2070, plus for ped detector and railroad)	
19	T-01-0700	Load Switches	

Signals			
17	T-02-0009	Siemens 3 Section Signal	
17	T-02-0032	Siemen 3 section backplate	
3	T-02-0033	Siemen 4 secton 12" signal (poly)	
1	T-02-0040	Siemen 5 section, 12 inch signal (poly)	
1	T-02-0041	Siemen 5 section backplate	
3	T-02-0043	Siemen 4-sec. straight signal backplate	
12	T-02-0090	Pedestrian signal housing	
6	T-02-0300	LED Module 12" red arrow	
13	T-02-0310	LED Module 12" yellow arrow	
10	T-02-0320	LED Module 12" green arrow	
15	T-02-0330	LED Module 12" red ball	
12	T-02-0340	LED Module 12" yellow ball	
12	T-02-0350	LED Module 12" green ball	
12	T-02-0365	LED Countdown Pedestrian Module	

Special items				
2	T-02-0504	Router (this includes power supply/antenna/cabling)		
2	T-09-0415	30 X 36 through 36 X 36 sign hanger (New)		
1	T-02-0650	Pedstl.top mntg.bkt One-way		
8	T-02-0661	Post Top for Pedestal (each)		
1	T-02-0670	Pedestal		
8	T-02-0672	4' Pedestal Post		
12	T-06-0710	Ped Detector Pole Mount FSA Box		
12	T-06-0730	Ped Button w/o Plunger		
6	T-17-0015	9 X 15 Countdown Ped Sign Left		
6	T-17-0016	9 X 15 Countdown Ped Sign Right		
1		Radar	**PROVIDED BY D5**	

Poles		
8	T-04-0051	Steel Strain Pole 36 foot

REQUIRED

Electrical Contractor Supervisor _____ Contact number for Supervisor _____

Project Engineer _____ Contact number for Project Engineer _____

Project Engineer attests that the mentioned contractor is the actual electrical contractor on this project

Signature of Project Engineer or Designee _____

SPECIAL NOTE FOR ELECTRONIC DELIVERY MANAGEMENT SYSTEM (e-Ticketing) ASPHALT

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

1.0 DESCRIPTION. Incorporate an e-Ticketing Delivery Software for weighed asphalt material delivered to the project to report loads and provide daily running totals of weighed asphalt material for pay items and incidental work during the construction processes from the point of measurement and loading to the point of incorporation to the project.

2.0 MATERIALS AND EQUIPMENT. Contractor shall supply material data in JavaScript Object Notation (JSON) documents to the KYTC e-Ticketing Delivery Software (KYTC e-Ticketing Portal) via Application Programming Interface (API) or direct connection. Test and verify that ticket data can be shared from the original source no fewer than 30 days prior to material placement activities. An e-Ticketing Delivery Software supplier can provide a qualified representative for on-site technical assistance during the initial setup, pre-construction verifications, and data management and processing as needed during the Project to maintain material data delivery capabilities. Virtual meetings may be hosted in lieu of on-site meetings when deemed appropriate by the Engineer.

Provide e-Ticketing Delivery Software that will meet the following:

1. The e-Ticketing Delivery Software shall be fully integrated with the Contractor's Load Read-Out scale system at the material source location.

2. The e-Ticketing Delivery Software shall provide real-time delivery to KYTC e-Ticketing Portal.

3. Transmit any updates to the ticket data within 5 minutes of a change.

3.0 CONSTRUCTION. Provide the Engineer with the manufacturer's specifications and all required documentation for data access at the pre-construction conference.

A. Construction Requirements

1. Install and operate software in accordance with the manufacturer's specifications.

2. Verify that all pertinent information is provided by the software within the requirements of this Special Note.

B. Data Deliverables

Provide to the Engineer a means in which to gather report summaries by way of iOS apps, web pages, or any other method at the disposal of the Engineer. The Engineer may request data at any time during the project.

1. Asphalt Material

a. **Real-time Continuous Data Items**

Provide the Engineer access to JSON documents capable of being transmitted through the KYTC's e-Ticketing Portal that displays the following information in real-time with a web-based system compatible with iOS and Windows environments.

- Each Truck
  - Supplier Name
  - Supplier Address
  - Supplier Phone
  - Plant location
  - Date
  - Time at source
  - Project Location

- Contract ID#
- Carrier Name
- Unique Truck ID
- Description of Material
- Mix Design Number
- Gross, Tare and Net Weight
- Weighmaster

4.0 MEASUREMENT. The Department will not measure the electronic delivery management system.

5.0 PAYMENT. The Department will not measure this work for payment and will consider all items contained in this note to be incidental to the asphalt mixtures on the project, as applicable.

May 5, 2025

SPECIAL NOTE FOR ELECTRONIC DELIVERY MANAGEMENT SYSTEM (e-Ticketing) AGGREGATE

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

1.0 DESCRIPTION. Incorporate an e-Ticketing Delivery Software for weighed aggregate material delivered to the project to report loads and provide daily running totals of weighed aggregate material for pay items and incidental work during the construction processes from the point of measurement and loading to the point of incorporation to the project.

2.0 MATERIALS AND EQUIPMENT. Contractor shall supply material data in JavaScript Object Notation (JSON) documents to the KYTC e-Ticketing Delivery Software (KYTC e-Ticketing Portal) via Application Programming Interface (API) or direct connection. Test and verify that ticket data can be shared from the original source no fewer than 30 days prior to material placement activities. An e-Ticketing Delivery Software supplier can provide a qualified representative for on-site technical assistance during the initial setup, pre-construction verifications, and data management and processing as needed during the Project to maintain material data delivery capabilities. Virtual meetings may be hosted in lieu of on-site meetings when deemed appropriate by the Engineer.

Provide e-Ticketing Delivery Software that will meet the following:

1. The e-Ticketing Delivery Software shall be fully integrated with the Contractor's Load Read-Out scale system at the material source location.

2. The e-Ticketing Delivery Software shall provide real-time delivery to KYTC e-Ticketing Portal.

3. Transmit any updates to the ticket data within 5 minutes of a change.

3.0 CONSTRUCTION. Provide the Engineer with the manufacturer's specifications and all required documentation for data access at the pre-construction conference.

A. Construction Requirements

1. Install and operate software in accordance with the manufacturer's specifications.

2. Verify that all pertinent information is provided by the software within the requirements of this Special Note.

B. Data Deliverables

Provide to the Engineer a means in which to gather report summaries by way of iOS apps, web pages, or any other method at the disposal of the Engineer. The Engineer may request data at any time during the project.

1. Aggregate Material

a. **Real-time Continuous Data Items**

Provide the Engineer access to JSON documents capable of being transmitted through the KYTC's e-Ticketing Portal that displays the following information in real-time with a web-based system compatible with iOS and Windows environments.

- Each Truck
  - Supplier Name
  - Supplier Address
  - Supplier Phone
  - Plant location
  - Date
  - Time at source
  - Project Location

- Contract ID#
- Carrier Name
- Unique Truck ID
- Description of Material
- Load Number
- Gross, Tare and Net Weight
- Weighmaster

4.0 MEASUREMENT. The Department will measure the electronic delivery management system as a lump sum item.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

1. Payment is full compensation for all work associated with providing all required equipment, training, and documentation.

2. Payment will be full compensation for costs related to providing the e-Ticketing Delivery Software, including integration with plant load-out systems, and report viewing/exporting process. All quality control procedures including the software representative's technical support and on-site training shall be included in the Contract lump sum price.

Code	Pay Item	Pay Unit
26248EC	ELECTRONIC DELIVERY MGMT SYSTEM-AGG	LS

May 5, 2025

SPECIAL NOTE FOR DOLOMITIC POLISH-RESISTANT AGGREGATE IN CLASS A 0.38-IN. AND 0.50-IN. NOMINAL ASPHALT MIXTURES

Contrary to Subsection 403.03.03, when utilizing a dolomitic polish-resistant aggregate as the coarse portion of the Class A 0.38-in. or 0.50-in.-nominal asphalt surface mixture, provide an asphalt mixture conforming to the following requirements:

- 70 percent of total combined aggregate is Class A polish-resistant aggregate.
- Any coarse aggregate utilized in the mixture shall be classified as Class A polish-resistant.
- Non-dolomitic substitutes from other Class A sources may be used as direct substitutes
- All mixes must have DFT testing/results submitted to Division of Materials with any supporting documentation prior to completion of the project.

Dynamic Friction Testing Procedure. Prepare samples for DFT analysis in accordance with PP 104. Friction testing shall be conducted by an AASHTO-accredited facility and data shall be provided in accordance with ASTM E1911 conforming to the following three-wheel polishing schedule. Variations to the testing frequency or methodology shall be coordinated with Division of Materials prior to testing.

Polishing Cycles
5,000
25,000
75,000
150,000

SPECIAL NOTE FOR RECYCLED ASPHALT PAVEMENT (RAP) STOCKPILE MANAGEMENT

I. GENERAL

The use of reclaimed asphalt pavement (RAP) from Department projects or other approved sources in hot mix asphalt (HMA) or warm mix asphalt (WMA) shall be subject to stockpile management and handling of material as described in this section.

The Department approves RAP on a stockpile basis, following the process set forth in this method. The contractor's responsibilities in the process are as follows:

- To obtain the Department's approval of all RAP prior to its use on a Department project and to deliver test data and samples as required
- To monitor and preserve the quality and uniformity of the approved material during storage and handling, adding no unapproved material to the existing stockpile
- To comply with the Department's requirements regarding replenishment of approved stockpiles

The Department will approve RAP based on its composition and variability in gradation and asphalt content, and on visual inspections of the stockpile, which the Department may conduct at its discretion. The Department may withdraw approval of a stockpile if the requirements of this specification are not followed in good faith.

The Maximum Percentage Allowed in a mix design will be based on these criteria and on the category of RAP source, as defined in this document.

II. APPROVAL PROCESS

Qualified asphalt producers (listed in List of Approved Materials-Asphalt Mixing Plants) may submit requests for RAP stockpile approval to the Asphalt Branch, Division of Materials, in the Annual Certification for Previously Approved Asphalt Mixing Plants and Related Equipment. The requester shall provide test results as prescribed in Part IID. The Division of Materials may, at their discretion, collect samples or inspect a RAP stockpile consistent with Section IIE.

Upon completion of the review of testing results and, if applicable, visual inspection, the Division of Materials, Asphalt Branch will approve or disapprove the material by letter and will assign a Stockpile Identification Number for each approved RAP stockpile. Note: The contractor's average gradation and asphalt content, as listed in the approval letter, shall be the gradation used in subsequent mix designs. The approval letter will state the applicable limits on the use of the material in mix designs and will summarize the Department's findings, listing the average gradation and asphalt content from the contractor's tests and the corresponding values found by the Department. Where the Maximum Percentage Allowed is low due to variability, the contractor may elect to improve the uniformity of the material by further processing and may again sample, test, and request approval for the material.

No material shall be added to a stockpile after it has been approved, except as provided in Parts V, VI, and VII below.

IIA. RAP Quality Management Plan

For a contractor to receive approval to use RAP on any department project, a RAP Quality Management Plan must first be approved by the department. The RAP Quality Management Plan shall be submitted to the

Division of Materials annually for approval as part of the Contractor's Quality Control Plan/Checklist. The Quality Management Plan is required to demonstrate how the Contractor will provide consistency and quality of material utilized in all asphalt mixes produced for use on Department projects. The Quality Management Plan shall include:

- Unprocessed RAP Stockpiles
  - Designation of stockpile(s) as single or multiple source
  - Designation of stockpile(s) as classified or unclassified
  - Designation of stockpile(s) as captive or continuously replenishing
  - Plan for how stockpile(s) is built (layers, slope, etc.)
  - Plan to minimize stockpile(s) contamination
- Processing and Crushing
  - Equipment used to feed screener or crusher
  - Excavation process based on equipment type
- Processing Millings
  - Single Project or Source
    - Screening, Fractionation, or Crushing plan
  - Multiple Source
    - Process to achieve uniform material from stockpile
    - Screening, Fractionation, or Crushing plan
- Processed RAP Stockpiles
  - Minimization of segregation
  - Minimization of moisture

IIB. RAP Stockpile Placement

All processed RAP stockpiles shall be placed on a sloped, paved surface. The requirement for a paved surface may be waived by the Cabinet if the Contractor's RAP Quality Management Plan demonstrates effective material handling that will minimize deleterious material from beneath the processed stockpile entering the plant. *No processed stockpile will be placed directly on grass or dirt.*

IIC. Stockpile Identification Signs

RAP stockpiles shall be identified with posted signs displaying the gradation of material in the stockpile (course, intermediate, or fine). These signs shall be made of weatherproof material and shall be highly visible. Numerals shall be easily readable from outside the stockpile area. If a stockpile exists in two or more parts, each part must have its own sign.

IID. Standard Approval Procedure

The Contractor shall obtain random samples representative of the entire stockpile and shall have each sample tested for gradation and asphalt content according to KM 64-426, KM 64-427, and AASHTO T308. The material samples must be in its final condition after all crushing and screening. At least one sample shall be obtained for each 1,000 tons of processed RAP, with a minimum of five samples per stockpile. Sampling shall be performed according to the method prescribed for asphalt mix aggregates in the Department's Materials Field Testing and Sampling Manual and KM 64-601. The minimum sampling size (after quartering) for tests of RAP samples is 1,500 g. except for samples containing particles more than one inch in diameter, for which the minimum is 2,000 g.

To request approval of a RAP stockpile, submit the following documents to the Division of Materials. It is the requester's responsibility to correctly address, label, and deliver these submittals:

• Submit request for approval at beginning of the paving season as part of the Annual Certification for Previously Approved Asphalt Mixing Plants and Related Equipment.

• If requesting approval after paving season begins, submit memo, including stockpile portion of the inspection list for Annual Certification for Previously Approved Asphalt Mixing Plants and Related Equipment, to Division of Materials.

• Reports of the tests prescribed above using the Stockpile <INSERT NAME> document.

• A drawing of the plant site showing the location of the stockpile to be approved *and all other stockpiles on the premises*

Mail, deliver or email the request form, with test reports and site drawing, to:

Kentucky Transportation Cabinet
Division of Materials
ATTN: Asphalt Branch Manager
1227 Wilkinson Boulevard
Frankfort, Kentucky 40601

Robert.Semones@ky.gov

IIE. Tests and inspections by the Department

The Department shall have the right to observe the collection of samples, or to perform the sampling and testing as a verification of contractor submittal. As a condition of approval, the Department may at any time inspect and sample RAP stockpiles for which approval has been requested and may perform additional quality control tests to determine the consistency and quality of the material.

The approval letter issued by the Department will include any results of verification testing performed by the Cabinet. The approved contractor results should be used by mix design technicians in the design calculations.

III. RAP STOCKPILE TIERED MANAGEMENT AND EFFECTIVE BINDER CONTENT

The stockpile management and approval requirements will be tiered based on the maximum cold feed percentages as defined in this section and Table 1. below.

Table 1. Tiered Testing Requirements

Mix Type	0-≤12%	12-≤20%	20-≤35%
Surface	Tier 1	Tier 2	Tier 3
Base	Tier 1	Tier 2	Tier 3

NOTE: All asphalt mixes and binder selection will be subject to Section 409 of the current Standard Specifications.

The following requirements will apply based on the percentage of RAP in the mix.

Tier 1

Tier 1 mixes (less than or equal to 12% RAP) will be subject to the requirements of sections IIA, IIB, and IIC.

Tier 2

Tier 2 mixes (12% to less than 20% RAP) will be subject to the requirements of Section II in its entirety and Table 2 requirements.

Tier 3

Tier 3 Asphalt Base mixes with 20% to less than 35% RAP, Tier 3 Asphalt Surface mixes with 20% to less than 30% RAP will be subject to Section II in its entirety and Table 2 requirements.

IV. MAXIMUM PERCENTAGE OF RAP ALLOWED

The Maximum Percent of RAP allowed in mix designs shall be the lowest percentage determined by the gradation and asphalt content of the RAP, as established under the criteria below, and requirements listed in Section III.

Limits according to range in gradation and bitumen content

The Maximum Percent of RAP Allowed, based on gradation and asphalt content, shall be determined by the Department using the standard deviation of these values. This standard deviation will be calculated using data provided by the contractor from at least five samples. While the contractor is required to provide the data from these tested samples, the Department retains the discretion to perform its own sampling and testing to support or verify its findings. An apparent outlier shall not be considered in determining these ranges. Where one result appears to be unrepresentative of the whole, two or more additional samples shall be tested. The outlying value of all tests shall then be excluded from the range. The maximum percentage of RAP allowable shall be the lowest percentage determined according to Table 2 below.

Table 2. Maximum Percent RAP According to Variability in Test Results

	Standard Deviation as calculated above:		
Surface			
% asphalt content	< 0.4	< 0.5	
% passing No. 200 sieve	< 1.25	< 1.5	
% passing Median Sieve	< 4.0	< 5.0	
	Allowable RAP Cold Feed %		
	Tier 3 - 20%-30%	Tier 2 - 12%-20%	Tier 1 - 0%-12%
Base			
% asphalt content	< 0.5	< 0.75	
% passing No. 200 sieve	< 1.5	< 2.25	
% passing Median sieve	< 5.0	< 7.0	
	Allowable RAP Cold Feed %		
	Tier 3 - 20%-35%	Tier 2 - 12%-20%	Tier 1 - 0%-12%

NOTE: These allowances notwithstanding, the Contractor is required to maintain the mixture within the Mixture Control Tolerances of Kentucky Method 443.
The percentage allowable in mix designs shall be limited to meet the design criteria for viscosity established in the Standard Specifications.

V. GENERAL STOCKPILE REQUIREMENTS AND REPLENISHMENT

V.A. Single Pavement Source

Early approval of material from a single pavement source. When a new stockpile is to consist entirely of millings removed from a single existing pavement, the stockpile may be approved based on samples taken during the milling and processing operations, prior to completion of milling. The initial stockpile may be approved as either a new stockpile or a new stockpile in continual replenishment status.

For continual replenishment status, samples shall be taken from the processed stockpile after it reaches 1,000 tons. A total of five initial samples, plus one additional sample for every 1,000 tons, is required. As prescribed in Part II above, the contractor shall test all samples and deliver the test results, together with a letter request for approval in Continual Replenishment status, to the address indicated. The stockpile shall be subject to initial approval as prescribed above in Part II. Once approved, it may be replenished without further approvals as provided in Part VII below.

V.B. Heterogeneous or contaminated material

Asphalt pavement millings containing traffic detection loops, raised pavement markers, or other debris must be separated and excluded before stockpiling RAP for approval for use in KYTC asphaltic concrete mixtures.

No material other than RAP from an approved stockpile shall be included in mixtures for State projects. The following materials are specifically excluded:

• Material contaminated with foreign matter such as liquids, soil, concrete, or debris

• Plant waste, especially waste containing abnormal concentrations of bitumen, drum build-up, or material from spills or plant clean-up operations

The following materials shall not be added to or placed in proximity to an approved stockpile but may be accumulated in a separate stockpile and submitted for approval according to Part III:

- Production mixtures returned to the plant for any reason.
- Mis-proportioned mixtures, especially those generated at start-up.

VI. REPLENISHMENT OF STOCKPILES

An approved RAP stockpile may be replenished with Department approval, provided the replenishment material meets all necessary requirements for approval and maintains uniformity in gradation and asphalt content as outlined in this document.

VI.A. Procedure and approval criteria

The procedure for requesting approval of a stockpile replenishment, that is not in continual replenishment status, shall be the same as for approval of an original stockpile, and the material for the replenishment shall meet all criteria for approval as a new stockpile. RAP proposed for replenishment shall be sampled and tested by the Contractor for gradation and asphalt cement as prescribed in Section II above. The Laboratory shall

review these results and provide approval for use in Department asphalt mix designs, according to Table 2 above.

VI.B. Effect of replenishment on existing approved mix designs

Replenishment of a stockpile may render certain mix designs invalid, depending on the percent RAP allowed in the design and on the difference in average properties between the old and new stockpiles. A replenished stockpile may be used as the RAP ingredient in an existing approved design provided that:

1. The Maximum Percent Allowed for the replenishment stockpile equals or exceeds the percent RAP called for in the mix design. In no case may the Maximum Percent Allowed be exceeded.

However, if a mix design calls for up to 5.0 percent more than the Maximum Percent Allowed for the replenishment, the *design* may be adjusted, with approval, to use the lower percent allowed, provided that the production mixture continues to meet all acceptance criteria. For example, a design which calls for 20 percent RAP may be adjusted and produced with 15 percent if it continues to meet for acceptance.

VII. CONTINUAL REPLENISHMENT WITHOUT RE-APPROVAL

At the request of the contractor, a previously approved stockpile may be placed in Continual Replenishment Status and may be replenished any number of times without re-approval provided that:

1. Replenishment is within six months of the last stockpile addition.
2. The contractor shall continue to monitor and test the materials added to the stockpile and shall forward these results to the Division of Materials for every 1,000 tons of RAP added to the stockpile.
3. The contractor must certify that replenishment materials are free of contaminants.
4. The Department shall be notified by letter to the Director of the Division of Materials that the stockpile is being replenished on a continual basis.
5. The RAP Maximum Percent Allowed for continual replenishment shall be limited by Sections III and IV.

Note: Upon request, one 20-pound sample bag of RAP for each Continual Replenishment Stockpile shall be submitted to the Division of Materials for petrographic analysis every 12 months.

The Department may inspect, sample, and test such stockpiles at its discretion and may, upon determining that the stockpile is unsuitable, withdraw approval of the material and all mix designs which include it. Approval of the stockpile may be withdrawn at any time based upon extreme or erratic ingredient proportions, unsuitable ingredients, or poor performance, as determined by the Division of Materials, Asphalt Branch. The Department will conduct periodic comparison testing on the opposite quarters of samples submitted by the Contractor for special replenishment approval category. The approval of the stockpile may be withdrawn if

erroneous information was found on the contractor's testing and/or improper sampling procedures were involved after a thorough investigation.

VIII. DEPLETION OF STOCKPILE AND EXPIRATION OF APPROVAL

When a stockpile has been fully depleted, the Contractor may replenish it within 24 months after the date of depletion; a depleted stockpile not replenished after 24 months will be removed from the approved list and may not be replenished.

Approval of a stockpile may be withdrawn if, in the finding of the Division of Materials, Asphalt Branch, the total amount of material used in new mixtures equals the total tonnage of the original stockpile plus all approved replenishments. Six years from the original approval of a stockpile or from its most recent replenishment, a stockpile shall be presumed to be depleted, and its approval shall expire. This shall apply to all stockpiles, regardless of status or history of use.

IX. RECORDS

The Contractor shall maintain records at the plant site on all RAP stockpiles. These records shall be available for inspection by representatives of the Department and shall include the following:

- All test results.
- The Department's approval letter for each stockpile and replenishment, together with the Contractor's requests for approval and all data submitted therewith.
- A current drawing of all stockpile locations at the plant site, including unapproved stockpiles, showing stockpile numbers of all stockpiles approved for State work.

X. RELOCATION OF STOCKPILE

If material from an approved RAP stockpile is to be moved to another location, the contractor shall seek approval from the Department prior to its further use on State projects. A letter request shall be submitted to the Division of Materials indicating the current stockpile location, the total quantity of material to be moved, and the amount, if any, to remain in the current location. The Division of Materials will issue an approval letter applicable to the new location.

June 18, 2025

SPECIAL NOTE
FOR PROJECT COMPLETION DATE AND LIQUIDATED DAMAGES

Jefferson County

Major Revision of the intersection located at the Outer Loop, Fegenbush Ln, and Beulah Church Rd.

Item No. 5-122.00

FAILURE TO COMPLETE WORK ON TIME

Specified fixed completion date for this contract is June 30, 2027. For each calendar day beyond a fixed completion date of June 30, 2027, the Department will assess liquidated damages per Section 108.09 of the current edition of the Standard Specifications for Road and Bridge Construction.

All liquidated damages will be applied cumulatively.

All other applicable portions of KYTC Standard Specifications Section 108 apply.

KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF RIGHT OF WAY & UTILITIES

TC 62-226
Rev. 01/2016
Page 1 of 1

RIGHT OF WAY CERTIFICATION

☒ Original	☐ Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #	**COUNTY**	**PROJECT # (STATE)**	**PROJECT # (FEDERAL)**
5-122.00	Jefferson	1381 JL04 056 6899501R	
PROJECT DESCRIPTION			
Major Revision of the intersection at Outer Loop, Fegenbush Ln, and Beulah Church Road.			

☐ **No Additional Right of Way Required**

Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.

☒ **Condition # 1 (Additional Right of Way Required and Cleared)**

All necessary right of way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.

☐ **Condition # 2 (Additional Right of Way Required with Exception)**

The right of way has not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract

☐ **Condition # 3 (Additional Right of Way Required with Exception)**

The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction.

Total Number of Parcels on Project	40	**EXCEPTION (S) Parcel #**	**ANTICIPATED DATE OF POSSESSION WITH EXPLANATION**
Number of Parcels That Have Been Acquired			
Signed Deed	36		
Condemnation	4		
Signed ROE			

Notes/ Comments (Text is limited. Use additional sheet if necessary.)

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	
Signature		Signature	Tom Boykin Digitally signed by Tom Boykin Date: 2022.08.29 09:06:24 -04'00'
Date		Date	
Right of Way Director		**FHWA**	
Printed Name		Printed Name	
Signature	Digitally signed by Kelly Divine Date: 2022.08.29 11:51:18 -05'00'	Signature	
Date		Date	

UTILITIES AND RAIL CERTIFICATION NOTE

Project:	**5-122.00**	**Jefferson County**	**CR 1005 H**
Funding Source:	**JL04 056 68995 02U**		
Description:	**MAJOR REVISION OF THE INTERSECTION LOCATED AT THE OUTER LOOP, FEGENBUSH LANE, AND BEULAH CHURCH ROAD.**		
Mile Point:	**3.004 To 3.239**		

GENERAL UTILITY NOTES

1. Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.

2. The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. The contractor is instructed to contact KY 811 for the location of existing underground utilities. Contact shall be made a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY 811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom are to be contacted through their individual Protection Notification Center. It may be necessary for the contractor to contact the County Court.

3. The contractor should be aware that there is UTILITY WORK INCLUDED IN THIS ROAD CONSTRUCTION CONTRACT. The Contractor shall review the GENERAL UTILITY NOTES AND INSTRUCTIONS which may include KYTC Utility Bid Item Descriptions, utility owner supplied specifications, plans, list of utility owner preapproved subcontractors, and other instructions. Utility contractors may be added via addendum if KYTC is instructed to do so by the utility owner. Potential contractors must seek prequalification from the utility owner. Any revisions must be sent from the utility owner to KYTC a minimum of one week prior to bid opening.

4. The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due

UTILITIES AND RAIL CERTIFICATION NOTE

Project:	**5-122.00**	**Jefferson County**	**CR 1005 H**
Funding Source:	**JL04 056 68995 02U**		
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Mile Point:	**3.004 To 3.239**		

to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs. The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

DO NOT DISTURB THE FOLLOWING FACILITIES LOCATED WITHIN THE PROJECT

AT&T (Communication)

Charter (Communication)

Louisville Gas & Electric (Electric)

Louisville Gas & Electric (Gas)

Metropolitan Sewer District (Sanitary Sewer)

Uniti (Communication)

Verizon MCI (Communication)

The Contractor is fully responsible for protection of all utilities listed above

UTILITIES AND RAIL CERTIFICATION NOTE

Project:	**5-122.00**	**Jefferson County**	**CR 1005 H**
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Mile Point:	**3.004 To 3.239**		

THE FOLLOWING FACILITY OWNERS ARE RELOCATING/ADJUSTING THEIR FACILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

Louisville Gas & Electric (electric) – The company has completed electric relocations along the west side of Beulah Church Rd (south) and continuing along the south side of Fegenbush Lane between the two project intersections, and along the north side of Fegenbush Lane north of the Outer Loop / S Watterson Trail intersection. Along the east side of S Watterson Trail. Along the north side of Beulah Church Rd (east).

Louisville Gas & Electric (gas) – The company has completed gas main relocations along the west side of Beulah Church Rd (south) and continuing along the south side of Fegenbush Lane. Along the south side of Beulah Church Rd (east).

Uniti (communication) – The company has aerial communication lines on the LG&E pole route along the north side of Fegenbush Lane and Beulah Church Rd (east).

Charter (communication) – The company has aerial communication lines on the LG&E pole route throughout the project.

THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE OWNER OR THEIR SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

AT&T (communication) – The company has aerial communication lines on the LG&E pole route throughout the project. The contractor should be aware AT&T relocation activities will likely extend into **April 2026**.

THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

Louisville Water Company – the company has water main relocations which have been included in the roadway project.

Form Revised 10/01/2025

UTILITIES AND RAIL CERTIFICATION NOTE

Project:	**5-122.00**	**Jefferson County**	**CR 1005 H**
Funding Source:	**JL04 056 68995 02U**		
Description:	**MAJOR REVISION OF THE INTERSECTION LOCATED AT THE OUTER LOOP, FEGENBUSH LANE, AND BEULAH CHURCH ROAD.**		
Mile Point:	**3.004 To 3.239**		

RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

No Rail Involvement

AREA FACILITY OWNER CONTACT LIST

1. AT&T - KY - Communication

Scott Roche - Phone: (502) 348-4528 Email: sr8832@att.com

2. Louisville Gas & Electric - Natural Gas

Caroline Justice - Phone: (502) 627-3708 Email: caroline.justice@lge-ku.com

3. Louisville Gas & Electric – Electric

Caroline Justice - Phone: (502) 627-3708 Email: caroline.justice@lge-ku.com

4. Louisville Water Company - Water

Pat Howard - Phone: (502) 569-3615 Email: phoward@louisvillewater.com

5. Metropolitan Sewer District - Sewer

Taylor Friesz - Phone: (502) 540-6163 Email: Taylor.Friesz@louisvillemsd.org

6. Charter Communications - CATV

Michael "Ben" York - Phone: (502) 548-1632 Email: Michael.York@charter.com

7. Uniti "previously Windstream" – Communication

James Galvin - Phone: (270) 748-9249 Email: James.Galvin@uniti.com

8. Verizon MCI – Communication

Jeff Tucker – Phone: (502) 830-1827 Email: jeffrey.tucker@verizon.com

Form Revised 10/01/2025

GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in utility owner supplied specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, utility owner supplied specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

PROTECTION OF EXISTING UTILITIES

The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

PREQUALIFIED UTILITY CONTRACTORS

Some utility owners may require contractors that perform relocation work on their respective facilities as a part of the road contract be prequalified or preapproved by the utility owner**. Utility contractors may be added via addendum if KYTC is instructed to do so by the utility owner. Potential contractors must seek prequalification from the utility owner. Any revisions must be sent from the utility owner to KYTC a minimum of one week prior to bid opening.** Those utility owners with a prequalification or preapproval requirement are as follows:

> The roadway contractor is required to use a utility subcontractor who is pre-qualified by Louisville Water Company for 4" - 16" ductile iron water mains, and 24" - 60" prestressed concrete water mains.

The bidding contractor needs to review the above list and choose from the list of approved subcontractors at the end of these general notes as identified above before bidding. When the list of approved subcontractors is provided, only subcontractors shown on the following list(s) will be allowed to work on that utility as a part of this contract. In such instances, the utility subcontractor is not required to be prequalified with the KYTC Division of Construction Procurement.

IF A UTILITY SUPPLIED CONTRACTOR LIST IS NOT PROVIDED

When the above list of approved subcontractors for the utility work is not provided, the utility work can be completed by the prime contractor, or a prime contractor-chosen subcontractor. In such instances, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the work type of "Utilities" (I33). Those who would like to become prequalified may contact the Division of Construction Procurement at (502) 564-3500. Please note: it could take up to 30 calendar days for prequalification to be approved. The prequalification does not have to be approved prior to the bid, but must be approved before the subcontract will be approved by KYTC and the work can be performed.

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word "Inspector" or "Resident Project Representative" appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Inspector" or "Resident Project Representative" is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns . If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact, or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

CUSTOMER SERVICE AND LATERAL ABANDONMENTS When temporary or permanent abandonment of customer water, gas, or sewer services or laterals are necessary during relocation of utilities included in the contract, the utility contractor shall perform these abandonments as part of the contract as incidental work. No separate payment will be made for service line and lateral abandonments. The contractor shall provide all labor, equipment and materials to accomplish the temporary or permanent abandonment in accordance with the plans, specifications and/or as directed by the engineer. Abandonment may include, but is not limited to, digging down on a water or gas main at the tap to turn off the tap valve

or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be "in-kind" as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

BELOW ARE NOTES FOR WHEN "INST" ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text **"Inst"** at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor's bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

"No materials are being supplied by the utility owner(s).

All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor's expense.

Major Revision of the intersection located at the Outer Loop, Fegenbush Ln, and Beulah Church Rd.
5-122.00
Jefferson County

KPDES NOI for Stormwater Discharges Associated with Construction Activity Under the KPDES General Permit

eNOI transaction ID - a6617er8-dqgp-6e80-pe60-vxiic67h0e9i

Kentucky Transportation Cabinet

Highway District 5 (1)

And

_____(2), Construction

Kentucky Pollutant Discharge Elimination System Permit KYR10 Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

***MAJOR REVISION OF THE INTERSECTION LOCATED AT THE OUTER LOOP, FEGENBUSH LANE, AND BEULAH CHURCH ROAD.* (1)**

Project: PCN 5 – 122.00

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District 5 (1)
2. Resident Engineer: (2)
3. Contractor name: (2)

   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):
4. Project Control Number (2)
5. Route (Address): (1) **Louisville, KY Jefferson County @ the intersections of Outer Loop, Fegenbush Lane, Watterson Trail, and Beulah Church Road.**
6. Latitude/Longitude (project mid-point) dd/mm/ss, dd/mm/ss (1)
   Lat: 38 8.27 N
   Long: 85 36.87 W
7. County (project mid-point) (1) **Jefferson**
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description) (1)
   MAJOR REVISION OF THE INTERSECTIONS LOCATED AT THE OUTER LOOP, FEGENBUSH LANE, AND BEULAH CHURCH.

KYTC BMP Plan for Project PCN 5-122.00

2. Order of major soil disturbing activities (2) and (3)

3. Projected volume of material to be moved (1) **24,098 CU YD**

4. Estimate of total project area (acres) (1) **11.0.**

5. Estimate of area to be disturbed (acres) (1) **11.0**

6. Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information.(1)

7. Data describing existing soil condition (1) & (2)

   Undisturbed soil samples were randomly obtained through the existing pavement, directly beneath the DGA, and tested by the Geotechnical Branch. The testing shows the soils are high in silt content. Silts are very moisture sensitive. Therefore, subgrade problems are anticipated in those areas where the template is in a very small fill (less than 3 ft) or in a cut condition. The majority of the project will consist of roadway template in a cut or a fill less than 3 ft. Therefore, a working platform constructed with Kentucky Coarse Aggregate # 2's, 3's or 23's wrapped with Geotextile Fabric will be required directly beneath roadway template and extending under the curb and gutter for the entire project. By using a working platform for the entire project, the designer can incorporate the working platform into the pavement design as a one-foot (1') rock roadbed. Wrapping Kentucky Coarse Aggregate with fabric is cost effective because it prevents the soils or DGA from filtrating into these coarse aggregates. The working platform shall also serve as a drainage blanket by placing short sections of perforated drainpipe into the bottom of the Kentucky Coarse Aggregate. The drainpipe should be located at the drop inlets. Based on previous projects in areas containing this material the actual thickness may exceed 1 ft. The actual elevation and thickness shall be adjusted so that it also serves as the minimum 1-ft rock roadbed for pavement design. These adjustments will be determined by the Engineer during construction and may depend on seasonal fluctuations in the water table. For estimating purposes, a 1-ft working platform shall be used for the entire project.

   No stability analyses were deemed necessary due to the shallow cut and fill conditions.

8. Data describing existing discharge water quality (if any) (1) & (2)

9. Receiving water name (1)

10. TMDLs and Pollutants of Concern in Receiving Waters: (1 DEA)

11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

12. Potential sources of pollutants:

The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

B. Sediment and Erosion Control Measures:

1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.

Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as “Do Not Disturb” until the contractor and resident

engineer prepare the plan for BMPs to be employed. The initial BMP's shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA's as the work progresses. All DDA's will have adequate BMP's in place before being disturbed.

3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

   - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
   - At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.
   - Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
     - Leaving areas undisturbed when possible.
     - Silt basins to provide silt volume for large areas.
     - Silt Traps Type A for small areas.
     - Silt Traps Type C in front of existing and drop inlets which are to be saved
     - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
     - Brush and/or other barriers to slow and/or divert runoff.
     - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
     - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
     - Non-standard or innovative methods.
   - Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
     - Silt Traps Type B in ditches and/or drainways as they are completed
     - Silt Traps Type C in front of pipes after they are placed
     - Channel Lining
     - Erosion Control Blanket
     - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.

- Non-standard or innovative methods

➢ Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
  - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
  - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
  - Additional Channel Lining and/or Erosion Control Blanket.
  - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
  - Special BMP's such as Karst Policy

➢ Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
  - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
  - Permanent Seeding and Protection
  - Placing Sod
  - Planting trees and/or shrubs where they are included in the project

➢ BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are: (1) **The Erosion Control sheets are include in the Highway Plan set**.

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes

will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

- **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

- **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas

prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1) – **None specified in plan set**

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1) – **None specified in plan set**

F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.

- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non – Storm Water discharges

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- Water from water line flushings.
- Water form cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

H. Groundwater Protection Plan (3)

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

_____ 2. (e) land treatment or land disposal of a pollutant;

_____ 2. (f) Storing, …, or related handling of hazardous waste, solid waste or special waste, …, in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

_____ 2. (g) …. Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

_____ 2. (j) Storing or related handling of road oils, dust suppressants, …., at a central location;

_____ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

_____ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

_____ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

(a) General information about this project is covered in the Project information;
(b) Activities that require a groundwater protection plan have been identified above;
(c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
(d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
(e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of

KYTC BMP Plan for Project PCN 5-122.00

employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.

(f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections

(g) Certification (see signature page.)

KYTC BMP Plan for Project PCN 5-122.00

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:
Address:
Address:

Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)

Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000

Click here for Instructions
(Controls/KYR10%20Instructions.pdf)

Click here to obtain information and a copy of the KPDES General Permit.
(https://eec.ky.gov/Environmental-Protection/Water/PermitCert/KPDES/Documents/KYR10PermitPage.pdf)

(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

General Comments:

Applicant Comment:

EEC Reviewer Comment:

Reason for Submittal:(*)	Agency Interest ID:	Permit Number:(✓)
Application for New Permit Coverage	Agency Interest ID	KPDES Permit Number

If change to existing permit coverage is requested, describe the changes for which modification of coverage is being sought:(✓)

ELIGIBILITY:
Stormwater discharges associated with construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.

COVERAGE:
Applicants shall complete and submit the eNOI-SWCA a minimum of seven (7) days before the proposed date for commencement of construction activities. Applicants shall receive written notification from the Division of Water before being authorized to discharge under the terms of the KYR10 General Permit.

EXCLUSIONS:
The following are excluded from coverage under this general permit:
1) Are conducted at or on properties that have obtained an individual KPDES permit for the discharge of other wastewaters which requires the development and implementation of a Best Management Practices (BMP) plan;
2) Any operation that the DOW determines an individual permit would better address the discharges from that operation;
3) Any project that discharges to an Impaired Water listed in the most recent Integrated Report, §305(b) as impaired for sediment and for which an approved TMDL has been developed.

SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
KYTC DISTRICT 5	Matt	MI	Bullock

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
8310 Westport Road	Louisville	Kentucky	40242

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
matt.bullock@ky.gov	502-210-5400	Phone

Additional Facility Operator information(Co-Permittee) required ?(*)
No

Section I Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION II -- GENERAL SITE LOCATION INFORMATION

Project Name:(*)	Status of Owner/Operator(*)	SIC Code(*)
5-122.00	State Government	1611 Highway and Street (

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
KYTC DISTRICT 5	Matt	MI	Bullock

Site Physical Address:(*)
KY-1065 & KY-864

City:(*)
Louisville

State:(*)
Kentucky

Zip:(*)
40228

County:(*)
Jefferson

Latitude(decimal degrees)(*)
DMS to DD Converter
(https://www.fcc.gov/media/radio/dms-decimal)
38.137623
5 or 6 decimal places

Longitude(decimal degrees)(*)
-85.613579
5 or 6 decimal places

Section II Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION

Section III requires part A or part B to be completed.

Project Description:(*)
Intersection Improvement

Was the pre-development land used for agriculture ?(*)
No

Will there be demolition of any structure built or renovated before January 1, 1980 ? (*)
No

Select the type of construction site (check all that apply)(*)

- [ ] Single-Family Residential
- [ ] Multi-Family Residential
- [ ] Commercial
- [ ] Industrial
- [ ] Institutional

- [x] Highway or Road
- [ ] Utility
- [ ] Other

a. For single projects provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
16.33	16.33
Anticipated Start Date:(✓)	**Anticipated Completion Date:(✓)**
3/1/2026	6/30/2027

b. For common plans of development provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
# Acre(s)	# Acre(s)
Number of individual lots in development, if applicable:(✓)	**Number of lots in development:(✓)**
# lot(s)	# lot(s)
Total acreage of lots intended to be developed:(✓)	**Number of acres intended to be disturbed at any one time:(✓)**
Project Acres	Disturbed Acres
Anticipated Start Date:(✓)	**Anticipated Completion Date:(✓)**

List Building Contractor(s) at the time of Application:(✓)

Company Name

Section III Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION IV -- INFORMATION IS ALWAYS REQUIRED FOR ONSITE POINT OF DISCHARGE AND RECEIVING WATER

Complete the following table if the permitted site discharges to a water body. Please note that if you enter a row in hte below table, all columns are required to be filled out.

Unnamed Tributary?: Does discharge enter an unnamed tributary prior to entering a named receiving water?

Latitude in decimal degrees: Format must be between 36.490000 and 39.150000, with a minimum of 5 decimal points of accuracy.

Longitude in decimal degrees: Format must be between -89.580000 and -81.960000, with a minimum of 5 decimal points of accuracy.

Receiving Water Name: Receiving water name must be from the following list of possible receiving waters.(click here for a list (Controls/ReceivingStream.htm)). If the discharge flows into an unnamed tributary, please enter the first "named" receiving water for which the unnamed tributary(ies) eventually flows into.

Discharge Point(s):(*)

Unnamed Tributary?	Longitude	Receiving Water Name	
Yes	38.134269	-85.613639	Little Cedar Creek
Yes	38.137000	-85.612408	Little Cedar Creek
Yes	38.137378	-85.610525	Little Cedar Creek
Yes	38.139278	-85.614842	Little Cedar Creek
Yes	38.137461	-85.609689	Little Cedar Creek
Yes	38.135178	-85.613458	Little Cedar Creek
Yes	38.136750	-85.613186	Little Cedar Creek
Yes	38.138656	-85.614900	Little Cedar Creek
Yes	38.139106	-85.616772	Little Cedar Creek
Yes	38.140200	-85.618450	Pennsylvania Run
Yes	38.140283	-85.618367	Pennsylvania Run
Yes	38.137042	-85.612756	Little Cedar Creek
Yes	38.137033	-85.612664	Little Cedar Creek

This grid can be edited either directly on this page or by editing the information in an excel sheet.
If you would like to edit this information in an excel sheet, first use the right button (export) to download the sheet.
After adding your data, save the sheet, and use the left button (import) to import the same file to this grid.

Section IV Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION V -- Section V MUST BE COMPLETED IF WITHIN A MS4 AREA

Name of MS4:

MSD MS4

Section V Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION VI -- WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY, FLOODPLAIN OR THE RIPARIAN ZONE?

Will the project require construction activities in a water body or the riparian zone?: (*)	No
If Yes, describe scope of activity:(✓)	Describe the scope of activity
Is a Clean Water Act 404 permit required?:(*)	No
Is a Clean Water Act 401 Water Quality Certification required?:(*)	No

Section VI Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION VII -- NOI PREPARER INFORMATION

First Name:(*)	M.I.:	Last Name:(*)	Company Name:(*)

Kourosh	MI	Namin	KYTC DISTRICT 5

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
8310 Westport Road	Lousville	Kentucky	40242

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
kourosh.namin@ky.gov	502-764-0078	Phone

Section VII Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION VIII -- ATTACHMENTS

Facility Location Map:(*)	Upload file
Supplemental Information:	Upload file

Section VIII Comments:

Applicant Comment:

EEC Reviewer Comment:

SECTION IX -- CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:(*)	Title:(*)

Matt Bullock	Executive Director

First Name:(*)	M.I.:	Last Name:(*)
Matt	MI	Bullock

eMail Address:(*)	Business Phone:(*)	Alternate Phone:	Signature Date:(*)
matt.bullock@ky.gov	502-210-5400	Phone	8/8/2025

Section IX Comments:

Applicant Comment:

EEC Reviewer Comment:

Click to Save Values for Future Retrieval | Click for Review Complete | Click to Submit Deficiency

Andy Beshear
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
300 Sower Boulevard
Frankfort, Kentucky 40601
Phone: (502) 564-2150
Fax: 502-564-4245

Rebecca W. Goodman
SECRETARY

Anthony R. Hatton
COMMISSIONER

August 14, 2025

Matthew Bullock
KYTC District 5
8310 Westport Rd
Louisville, KY 402423042

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10T763
5-122.00
Permit Type: Construction Stormwater
AI ID: 133659
Jefferson County, Kentucky

Dear Matthew Bullock :

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Construction Activities (KYR100000)" master general permit. Your coverage becomes effective on the date of this letter. This coverage automatically terminates two years from the effective date of your coverage unless an extension is requested prior to the termination date, or the Division of Water revokes coverage, whichever comes first. During this period of coverage all discharges shall comply with the conditions of the KYR100000 master general permit. This permit and links to the eNOI (and permit coverage extension) and eNOT forms can be found on our website:
https://eec.ky.gov/Environmental-Protection/Water/PermitCert/KPDES/Documents/KYR10PermitPage.pdf.

Any person aggrieved by the issuance of a permit final decision may demand a hearing pursuant to KRS 224.10-420(2) within thirty (30) days from the date of the issuance of this letter. Any demand for a hearing on the permit shall be filed in accordance with the procedures specified in KRS 224.10-420, 224.10-440, 224.10-470, and the regulations promulgated thereto. The request for hearing should be submitted in writing to the Energy and Environment Cabinet, Office of Administrative Hearings, 211 Sower Boulevard, Frankfort, Kentucky 40601 and the Commonwealth of Kentucky, Energy and Environment Cabinet, Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601. For your record keeping purposes, it is recommended that these requests be sent by certified mail. The written request must conform to the appropriate statutes referenced above.

Any questions concerning the general permit and its requirements should be directed to me at 502-782-7076 or email me at Robin.Snider@ky.gov

Construction Site GPS Coordinates: 38.137623, -85.613579
Receiving Water: Little Cedar Creek

Sincerely,

Robin M. Snider

Robin Snider
Surface Water Permits Branch
Division of Water

cc: Kourosh Namin , eNOI Preparer
Todd Giles, Louisville Regional Office

KENTUCKY TRANSPORTATION CABINET
COMMUNICATING ALL PROMISES (CAP)

Item No. 5 - 122 **County:** Jefferson **Route:** 864 **Project Manager:** KEITH DOWNS

Item No. 5 - 122 **County:** Jefferson **Route:** 1,005 **Project Manager:** KEITH DOWNS

Item No. 5 - 122 **County:** Jefferson **Route:** 1,065 **Project Manager:** KEITH DOWNS

CAP #	Date of Promise	Promise made to:	Location of Promise:	CAP Description
1	8/17/16	Bay Max	Parcel 6	Contractor should coordinate with the property owner to have owner run electricity for sign during construction before new entrance is constructed. Electric will be run under the entrance location.
2	7/25/25	VICTORY BAPTIST CHURCH	P-002	A 90-day notification will be given to the church prior to the removal of the sign.
3	7/25/25	JAMES A. HACK, RITA J. HACK, JAMES R. HACK	P-008	Any of the asphalt parking lot within the Temporary Easement that is disturbed during construction shall be restored with new asphalt pavement. The reconstructed entrance, beyond the concrete apron, and within the new right of way, shall be asphalt pavement.
4	7/25/25	RA HOLDINGS, ADDINGTON, ETAL	P-010	Paint Spray Booth shall be included in property acquired.
5	7/25/25	CORNERSTONE I, LLC	P-019	• KYTC shall not utilize more than 5 parking spaces for temporary easement at any one time. • KYTC will provide access and minimize interference with Walgreens' customer access, where reasonably possible, at all times during construction. • The easement shall not be used for the storage of construction equipment and/or vehicles. • The easement shall be accessed by KYTC and its contractors from the public right of way. • In the months of November and December, KYTC and its contractors will work with Walgreen' on-site manager to minimize construction on Parcel 19. • KYTC or its contractor shall contact Walgreens' on-site manager prior to construction on Parcel 19. • Utility relocations are expected to begin in the Fall of 2015 and construction is expected to be complete in 2018. • KYTC agrees to utilize the temporary easement as shown on the revised red-line drawing attached hereto as Exhibit A. (see MOU in parcel file) • KYTC agrees to restore Parcel 19, Tract F, at no cost to Walgreens, and to the same condition which existed prior to the commencement of KYTC work.
6	7/25/25	HIGHVIEW BAPTIST CHURCH, INC	P-020	The existing garage located at approximately Sta. 131+50 Right, will be removed as part of the project. The property owner agrees to sign a Consent & Release for building removal at no additional compensation.
7	7/25/25	BRIAN L. WOOD & THERESE R. WOOD	P-021	• KYTC will remove the tree and grind the stump to restore ground at existing tree. • KYTC will place a "Do Not Disturb" note on the plans to protect the sign. • Access to the parking lot shall be maintained during construction.
8	7/25/25	R. J. STARK & WANDA STARK & ROBERT J. STARK, JR.	P-032	KYTC agrees to have the proposed entrance constructed to a total width of 50 ft.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATING ALL PROMISES (CAP)

Item No. 5 - 122 **County:** Jefferson **Route:** 864 **Project Manager:** KEITH DOWNS

Item No. 5 - 122 **County:** Jefferson **Route:** 1,005 **Project Manager:** KEITH DOWNS

Item No. 5 - 122 **County:** Jefferson **Route:** 1,065 **Project Manager:** KEITH DOWNS

CAP #	Date of Promise	Promise made to:	Location of Promise:	CAP Description
9	7/25/25	DONNA SKAGGS-MELTON	P-049	• KYTC agrees to revise plans based on the attached plan sheets. • The existing entrance will remain in its entirety after construction is complete. • The contractor shall not remove or disturb the approximately 36” diameter oak tree within the teardrop driveway of Parcel 49 located approximately 65 feet right of the proposed centerline of South Watterson Trail during construction. • Donna Skaggs is in no way granting a permanent drainage easement to KYTC.
10	7/25/25	DONNA SKAGGS-MELTON	P-490	The “2’ F.B. EARTH DITCH” on the east side of S. Watterson Trail between the approximate stations of 52+70 and 53+25 shown on project plan sheet R21, Revised Plan Date: October 4, 2017, will be changed to a buried pipe with a minimum equivalent diameter of 18 inches.
11	7/25/25	WAYNE DAVIS & GLORIA DAVIS	P-050	The contractor shall not remove or disturb the two 36” diameter oak trees located approximately 50 feet right of the proposed centerline of South Watterson Trail during construction.

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

STANDARD SPECIFICATIONS

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2019* and *Standard Drawings, Edition of 2020.*

SUPPLEMENTAL SPECIFICATIONS

The contractor shall use the Supplemental Specifications that are effective at the time of letting. The Supplemental Specifications can be found at the following link:
http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx

1I

SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

2.0 MATERIALS.

2.1 General. Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
3) Provide a controller consisting of:
   a) Keyboard or keypad.
   b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
   c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
   d) Logic circuitry to control the sequence of messages and flash rate.
4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
11) Provide a photocell control to provide automatic dimming.

1I

12) Allow an on-off flashing sequence at an adjustable rate.
13) Provide a sight to aim the message.
14) Provide a LED display color of approximately 590 nm amber.
15) Provide a controller that is password protected.
16) Provide a security device that prevents unauthorized individuals from accessing the controller.
17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/
/KEEP/LEFT/⇐⇐⇐/
/LOOSE/GRAVEL/AHEAD/
/RD WORK/NEXT/**MILES/
/TWO WAY/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/
/REDUCE/SPEED/**MPH/
/BRIDGE/WORK/***0 FT/
/MAX/SPEED/**MPH/
/SURVEY/PARTY/AHEAD/
/MIN/SPEED/**MPH/
/ICY/BRIDGE/AHEAD/ /ONE LANE/BRIDGE/AHEAD/
/ROUGH/ROAD/AHEAD/
/MERGING/TRAFFIC/AHEAD/
/NEXT/***/MILES/
/HEAVY/TRAFFIC/AHEAD/
/SPEED/LIMIT/**MPH/
/BUMP/AHEAD/
/TWO/WAY/TRAFFIC/

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Power.

1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be

1I

the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

11F

SPECIAL NOTE FOR TURF REINFORCING MAT

1.0 DESCRIPTION. Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's Current Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS.

2.1 Turf Reinforcement Mat (TRM). Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

2.2 Classifications

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, channels with high shear stresses, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Properties	Type 1	Type 2	Type 3	Type 4
Maximum Slope (H:V)	1:1	1:1	0.5:1	0.5:1
Un-vegetated Shear	≥ 2.0 lbs/ft^2 (≥ 96 Pa)	≥ 2.0 lb/ft2 (≥ 96 Pa)"	≥ 2.0 lb/ft2 (≥ 96 Pa)	≥ 2.0 lb/ft2 (≥ 96 Pa)

11F

Stress[b, c, d] ASTM D6460				
Vegetated Shear Stress [c, d, e, f] ASTM D6460	≥ 6.0 lbs/ft^2 (≥ 287 Pa)	≥ 8.0 lb/ft2 (≥ 383 Pa)	≥ 10.0 lb/ft2 (≥ 479 Pa)	≥ 12.0 lb/ft2 (≥ 575 Pa)
Seedling Emergence [d] ASTM D7322	≥ 250%	≥ 250%	≥ 250%	≥ 250%
MD Material Tensile Strength [d, f] ASTM D6818	≥ 150 lbs/ft (≥ 2.2 kN/m)	≥ 175 lbs/ft (≥ 2.6 kN/m)	≥ 200 lbs/ft (≥ 2.9 kN/m)	≥ 1,500 lbs/ft (≥ 21.9 kN/m)
TD Material Tensile Strength [d, f] ASTM D6818	≥ 150 lbs/ft (≥ 2.2 kN/m)	≥ 175 lbs/ft (≥ 2.6 kN/m)	≥ 200 lbs/ft (≥ 2.9 kN/m)	≥ 1,500 lbs/ft (≥ 21.9 kN/m)
Mass Per Unit Area [d] ASTM D6566	≥ 8.0 oz/yd^2 (≥ 271 g/m^2))	≥ 8.0 oz/yd^2 (≥ 271 g/m2)	≥ 8.0 oz/yd^2 (≥ 271 g/m2)	≥ 8.0 oz/yd2 (≥ 271 g/m2)
Material Thickness [d] ASTM D6525	≥ 0.25 in (≥ 6.35 mm)	≥ 0.25 in (≥ 6.35 mm)	≥ 0.25 in (≥ 6.35 mm)	≥ 0.25 in (≥ 6.35 mm)
UV Stability [c, e] ASTM D4355	≥ 80% @ 500 hrs	≥ 80% @ 500 hrs	≥ 80% @ 1,000 hrs	≥ 90% @ 1,000 hrs

a. For Type 4 mats, property values tested per ASTM D6818 and D6525 are reported as minimum average roll values (MARVs). MARVs are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

b. Required minimum shear stress TRM (un-vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss during successive, minimum 30 minute flow events in large scale testing.

c. Acceptable large-scale testing protocol may include ASTM D6460, or other independent testing deemed acceptable by the engineer. Large-scale performance testing typically involves limited soil types and vegetative stands, therefore it is recommended that an appropriate factor of safety be used in design and product selection (see Guidance Document for further information).

d. Typical values are calculated as the average value, it yields a 50% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

e. Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss during successive, minimum 30 minute flow events in large scale testing.

f. For TRMs containing degradable components, property values must be obtained on the non-degradable portion of the matting alone.

NOTE: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forcers may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

2.3 Quality Assurance Sampling, Testing, and Acceptance

A) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure

97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

B) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.

C) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.

D) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials. Mats that exceed the criteria for KYTC Types 1-4 are available. Contact an erosion control material supplier for more information.

2.4 Fasteners. When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

3.0 CONSTRUCTION., Provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

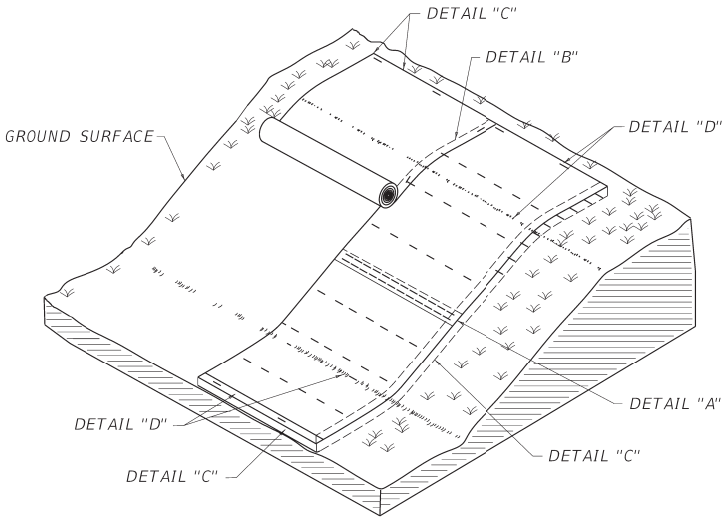
3.1 Site Preparation. Smoothly grade areas to be treated with matting and compact. Remove large
rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

3.2 Installation. Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface. Infill and overfill the mat with a minimum of ½" of soil as directed by the Manufacturer.

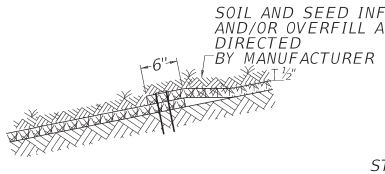
4.0 MEASUREMENT. The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer's Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

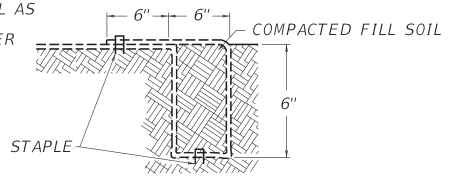
Code	Pay Item	Pay Unit
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard



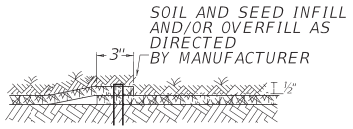
TURF MAT
SLOPE INSTALLATION



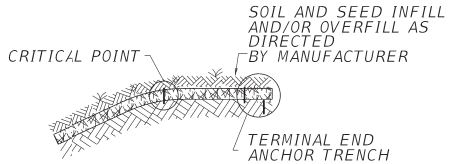
TRANSVERSE OVERLAP
DETAIL "A"

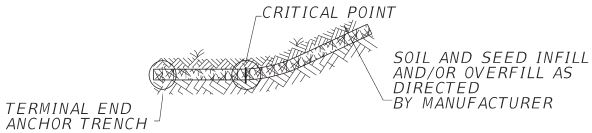


ANCHOR TRENCH
DETAIL "C"



LONGITUDINAL OVERLAP
DETAIL "B"





CRITICAL POINTS
DETAIL "D"

~ NOTES ~

1. CONSTRUCT A 6" X 6" ANCHOR TRENCH AT THE BEGINNING OF THE SLOPE. LINE THE ANCHOR TRENCH WITH TURF REINFORCING MAT LEAVING 12" EXTENDING PAST THE ANCHOR TRENCH. FASTEN THE MAT MATERIAL INTO THE ANCHOR TRENCH ON 12" CENTERS BACKFILL THE TRENCH WITH TOPSOIL AND COMPACT. COVER THE AREA WITH THE REMAINING 12" OF THE MAT'S TERMINAL END LEAVING 6" TO OVERLAP THE TURF REINFORCING MAT. SECURE THE 6" OVERLAP WITH STAPLES ON 12" CENTERS.
2. UNROLL THE MAT DOWN THE SLOPE AND PLACE IN DIRECT CONTACT WITH THE SOIL SURFACE. INSURE THAT THE SOIL SURFACE IS GRADED SMOOTHLY AND DOES NOT CONTAIN IRREGULARITIES.
3. SECURELY FASTEN THE MAT TO THE SOIL BY INSTALLING STAPLES AT A MINIMUM RATE OF 1.5 PER SQ. YD. ANCHORS SHALL BE SELECTED SO THAT THEY HAVE SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT. INCREASE ANCHORING FREQUENCY FOR SITE CONDITIONS (LOOSE, SANDY, OR WET SOILS) AS DIRECTED BY THE ENGINEER AND MANUFACTURER'S REPRESENTATIVE.
4. OVERLAP EDGES OF MATS ACCORDING TO THE LONGITUDINAL AND TRANSVERSE OVERLAP DETAILS. STAPLE LONGITUDINAL OVERLAPS WITH 2 ROWS OF STAPLES STAGGERED AT 4". STAPLE TRANSVERSE OVERLAPS WITH 1 ROW OF STAPLES SPACED AT 12'.
5. CONSTRUCT A 6"X 12" ANCHOR TRENCH AT THE TOE OF THE SLOPE FOLLOWING SIMILAR PROCEDURE DENOTED FOR THE TOP OF THE SLOPE ANCHOR TRENCH.
6. ENSURE THAT THE MAT IS IN DIRECT CONTACT WITH THE SOIL SURFACE WITH NO PROJECTIONS OR PROTRUSIONS.
7. INFILL AND OVERFILL THE MAT WITH A MINIMUM OF ½" TOPSOIL. APPLY SEEDING AND PROTETION AS DIRECTED BY THE MANUFACTURER. USE SEED MIX TYPE 1 AS DEFINED IN SECTION 212.03.03. TOPSOIL IS THE SOIL PROFILE DEFINED TECHNICALLY AS "A" HORIZON BY THE SOIL SCIENCE SOCIETY OF AMERICA. USE LOOSE, FRIABLE TOPSOIL THAT IS FREE OF STONES 1" OR GREATER IN OVERALL DIMENSIONS, ADMIXTURE OF SUBSOIL, REFUSE, STUMPS, ROOTS, BRUSH, WEEDS AND OTHER MATERIALS THAT PREVENT THE FORMATION OF A SUITABLE SEED BED. DO NOT USE TOPSOIL FROM SITES HAVING JOHNSON GRASS, CANADA THISTLE, QUACK GRASS, NODDING THISTLE OR EXCESSIVE AMOUNTS OF WEEDS OR THEIR RHIZOMES.

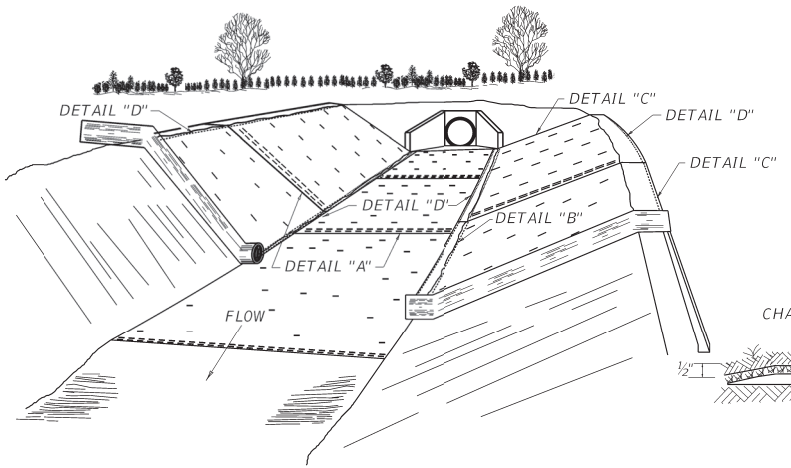
SUBMITTED _____ 01-24-2023
DIVISION DIRECTOR — DATE

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
TEAM KENTUCKY

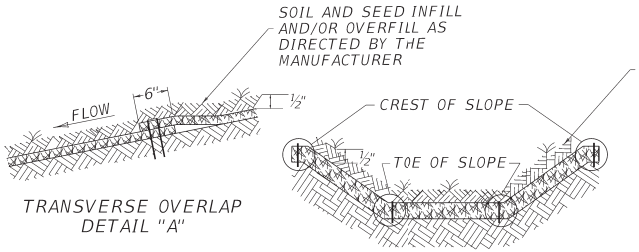
DRAWING TITLE: SEPIA 22 - TURF MAT SLOPE INSTALLATION

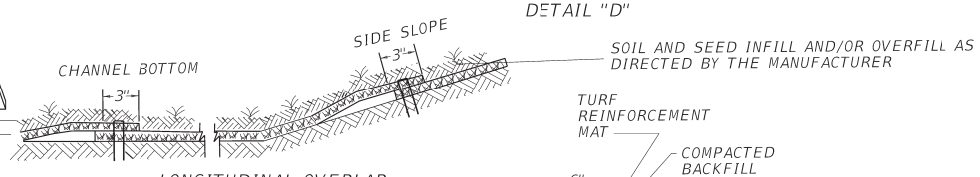
ITEM NO. COUNTY OF
SHEET NO.

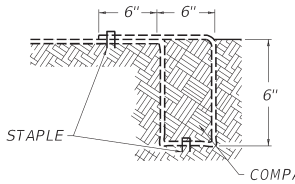
OpenRoads Designer v10.16.2.267 USER: cwillmerdinger FILE NAME: C:\PWWORK\KYTC_CWILLMERDINGER\D2168265\RDI040 - TURF MAT SLOPE INSTALLATION.DGN



TURF MAT
CHANNEL INSTALLATION







~ NOTES ~

1. CONSTRUCT A 6" X 6" ANCHOR TRENCH AT THE UPSTREAM END OF THE CHANNEL. LINE THE ANCHOR TRENCH WITH TURF REINFORCIG MAT LEAVING 12" EXTENDING PAST THE ANCHOR TRENCH. FASTEN THE MAT MATERIAL INTO THE ANCHOR TRENCH ON 12" CENTERS BACKFILL THE TRENCH WITH TOPSOIL AND COMPACT. COVER THE AREA WITH THE REMAINING 12" OF THE MAT'S TERMINAL END LEAVING 6" TO OVERLAP THE TURF REINFORCING MAT. SECURE THE 6" OVERLAP WITH STAPLES ON 12" CENTERS.
2. UNROLL THE MAT PARALLEL TO THE PRIMARY DIRECTION OF WATER FLOW AND PLACE IN DIRECT CONTACT WITH THE SOIL SURFACE. INSURE THAT THE SOIL SURFACE GRADED SMOOTHLY AND DOES NOT CONTAIN IRREGULARITIES.

③ EXCAVATE 6" X 6" CHECK SLOTS EVERY 25' ALONG THE LENGTH OF THE CHANNEL. LINE THE SIDE AND BOTTOM OF THE SLOT WITH THE MAT AND THEN PULL BACK OVER. FASTEN WITH STAPLES ON 12" CENTERS. FILL THE CHECK SLOT WITH TOPSOIL, COMPACT, AND CONTINUE UNROLLING MAT DOWN THE CHANNEL.

4. CONTINUE UNROLLING THE MAT DOWNSTREAM OVER THE COMPACTED SLOT TO THE NEXT CHECK SLOT OR TERMINAL ANCHOR TRENCH. IF MORE THAN ONE SECTION OF MAT, AS SHOWN IN THE TRANSVERSE OVERLAP DETAIL, IS USED OVERLAP UPSTREAM MATS OVER TOP OF THE DOWNSTREAM MAT 6" AND SECURE. IF MATS ARE PLACED PARALLEL TO EACH OTHER ALONG THE CHANNEL, PLACE CHANNEL SECTIONS FIRST, THEN OVERLAP SIDE SLOPE SECTIONS 3" OVER THE CHANNEL SECTIONS AS SHOWN IN THE LONGITUDINAL OVERLAP DETAIL, AND SECURE WITH STAPLES ON 12" CENTERS. PROCEED UP THE SIDE SLOPES IN THE SAME MANNER UNTIL THE TOP OF CHANNEL IS REACHED.
5. SECURE MATS WHILE UNROLLING ON SIDESLOPES AND CHANNEL BOTTOMS WITH STAPLES AT A FREQUENCY THE TABLE INDICATES. USE STAPLES HAVING SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT. INCREASE ANCHORING FREQUENCY AS DIRECTED BY THE ENGINEER AND MANUFACTURER'S REPRESENTATIVE.
6. INFILL AND OVERFILL THE MAT WITH A MINIMUM OF ½" TOPSOIL. APPLY SEEDING AND PROTECTION AS DIRECTED BY THE MANUFACTURER. USE SEED MIX TYPE 1 AS DEFINED IN SECTION 212.03.03. TOPSOIL IS THE SOIL PROFILE DEFINED TECHNICALLY AS "A" HORIZON BY THE SOIL SCIENCE SOCIETY OF AMERICA. USE LOOSE, FRIABLE TOPSOIL THAT IS FREE OF STONES 1" OR GREATER IN OVERALL DIMENSIONS, ADMIXTURE OF SUBSOIL, REFUSE, STUMPS, ROOTS, BRUSH, WEEDS AND OTHER MATERIALS THAT PREVENT THE FORMATION OF A SUITABLE SEED BED. DO NOT USE TOPSOIL FROM SITES HAVING JOHNSON GRASS, CANADA THISTLE, QUACK GRASS, NODDING THISTLE OR EXCESSIVE AMOUNTS OF WEEDS OR THEIR RHIZOMES.

SLOPE GRADE	ANCHORING FREQUENCY
UP TO 2H:1V	1.5 ANCHORS/SQYD
2H:1V TO 1H:1V	2.0 ANCHORS/SQYD
STEEPER THAN 1H:1V AND CHANNEL BOTTOMS	3.0 ANCHORS/SQYD

SUBMITTED W. J. Logan 01-24-2023
DIVISION DIRECTOR DATE

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
TEAM KENTUCKY

DRAWING TITLE: SEPIA 23 - TURF MAT CHANNEL INSTALLATION

ITEM NO. COUNTY OF
SHEET NO.

OpenRoads Designer v10.16.2.267 USER: cwillmerdinger FILE NAME: C:\PWWORK\KYTC_CWILLMERDINGER\D2168266\RDI041 - TURF MAT CHANNEL INSTALLATION.DGN

SPECIAL NOTE FOR BARCODE LABEL ON PERMANENT SIGNS

1.0 DESCRIPTION. Install barcode label on sheeting signs. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

2.0 MATERIALS. The Department will provide the Contractor with a 2 inch x 1 inch foil barcode label for each permanent sheeting sign. A unique number will be assigned to each barcode label.

The Contractor shall contact the Operations and Pavement Management Branch in the Division of Maintenance at (502) 564-4556 to obtain the barcode labels.

3.0 CONSTRUCTION. Apply foil barcode label in the lower right quadrant of the sign back. Signs where the bottom edge is not parallel to the ground, the lowest corner of the sign shall serve as the location to place the barcode label. The barcode label shall be placed no less than one-inch and no more than three inches from any edge of the sign. The barcode must be placed so that the sign post does not cover the barcode label.

Barcodes shall be applied in an indoor setting with a minimum air temperature of 50°F or higher. Prior to application of the barcode label, the back of the sign must be clean and free of dust, oil, etc. If the sign is not clean, an alcohol swab shall be used to clean the area. The area must be allowed to dry prior to placement of the barcode label.

Data for each sign shall include the barcode number, MUTCD reference number, sheeting manufacturer, sheeting type, manufacture date, color of primary reflective surface, installation date, latitude and longitude using the North American Datum of 1983 (NAD83) or the State Plane Coordinates using an x and y ordinate of the installed location.

Data should be provided electronically on the TC 71-229 Sign Details Information and TC 71-230 Sign Assembly Information forms. The Contractor may choose to present the data in a different format provided that the information submitted to the Department is equivalent to the information required on the Department TC forms. The forms must be submitted in electronic format regardless of which type of form is used. The Department will not accept PDF or handwritten forms. These completed forms must be submitted to the Department prior to final inspection of the signs. The Department will not issue formal acceptance for the project until the TC 71-229 and TC-230 electronic forms are completed for all signs and sign assemblies on the project.

4.0 MEASUREMENT. The Department will measure all work required for the installation of the barcode label and all work associated with completion and submission of the sign inventory data (TC 71-229 and TC 71-230).

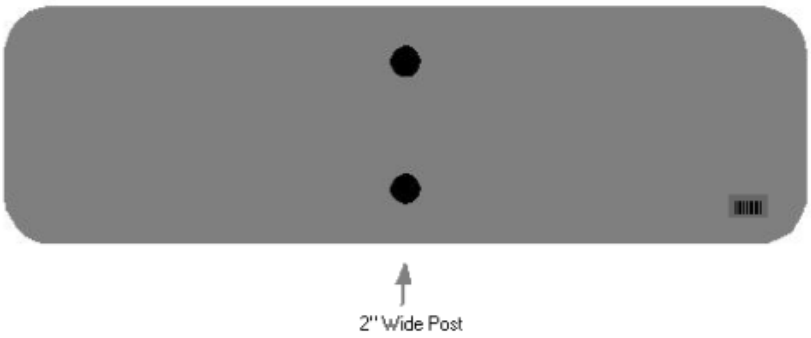
The installation of the permanent sign will be measured in accordance to Section 715.

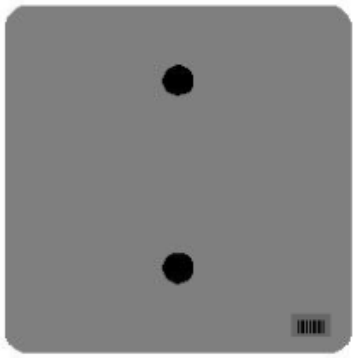
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24631EC	Barcode Sign Inventory	Each

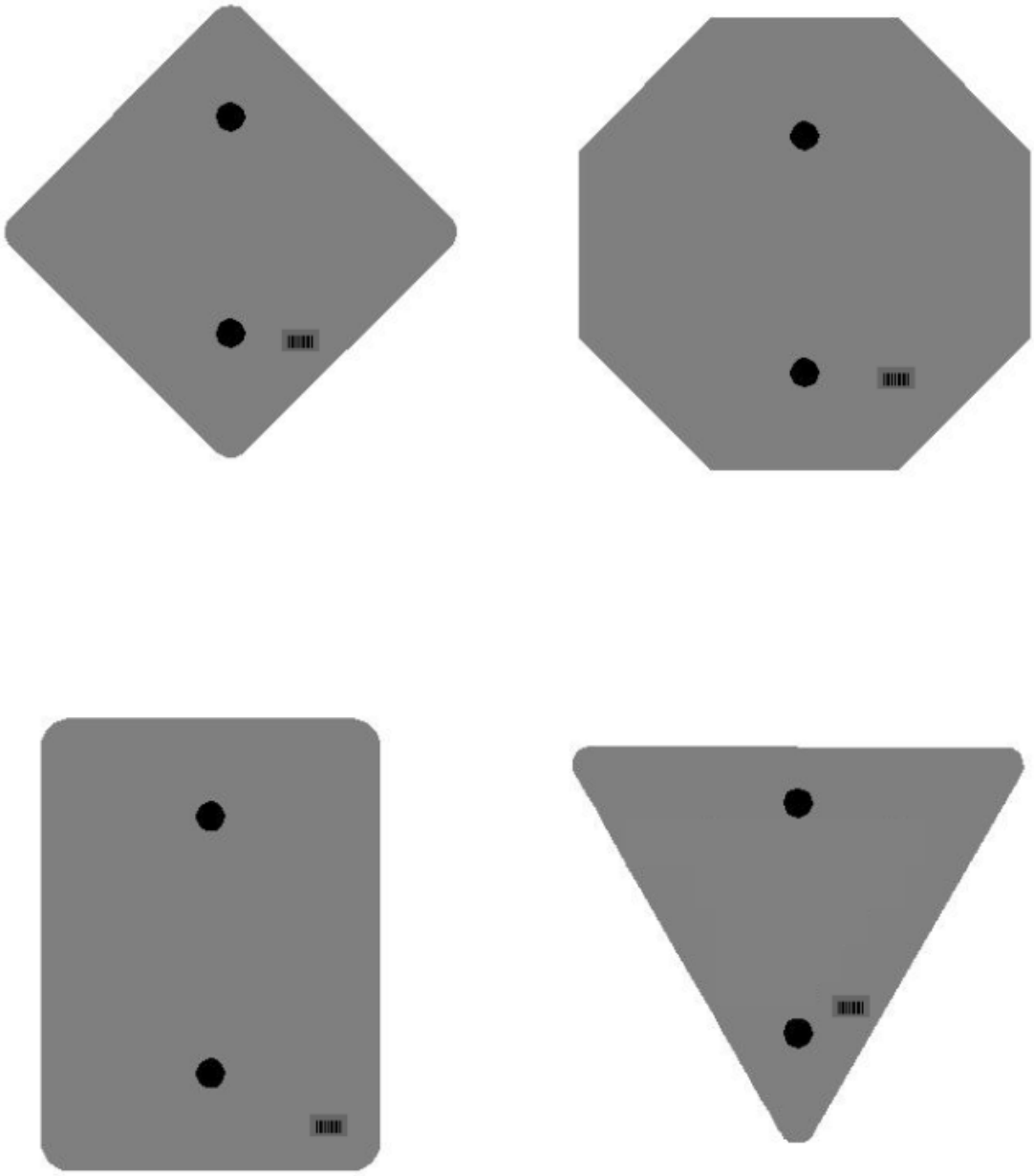
The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment as full compensation for all work required under this special note.

One Sign Post





One Sign Post



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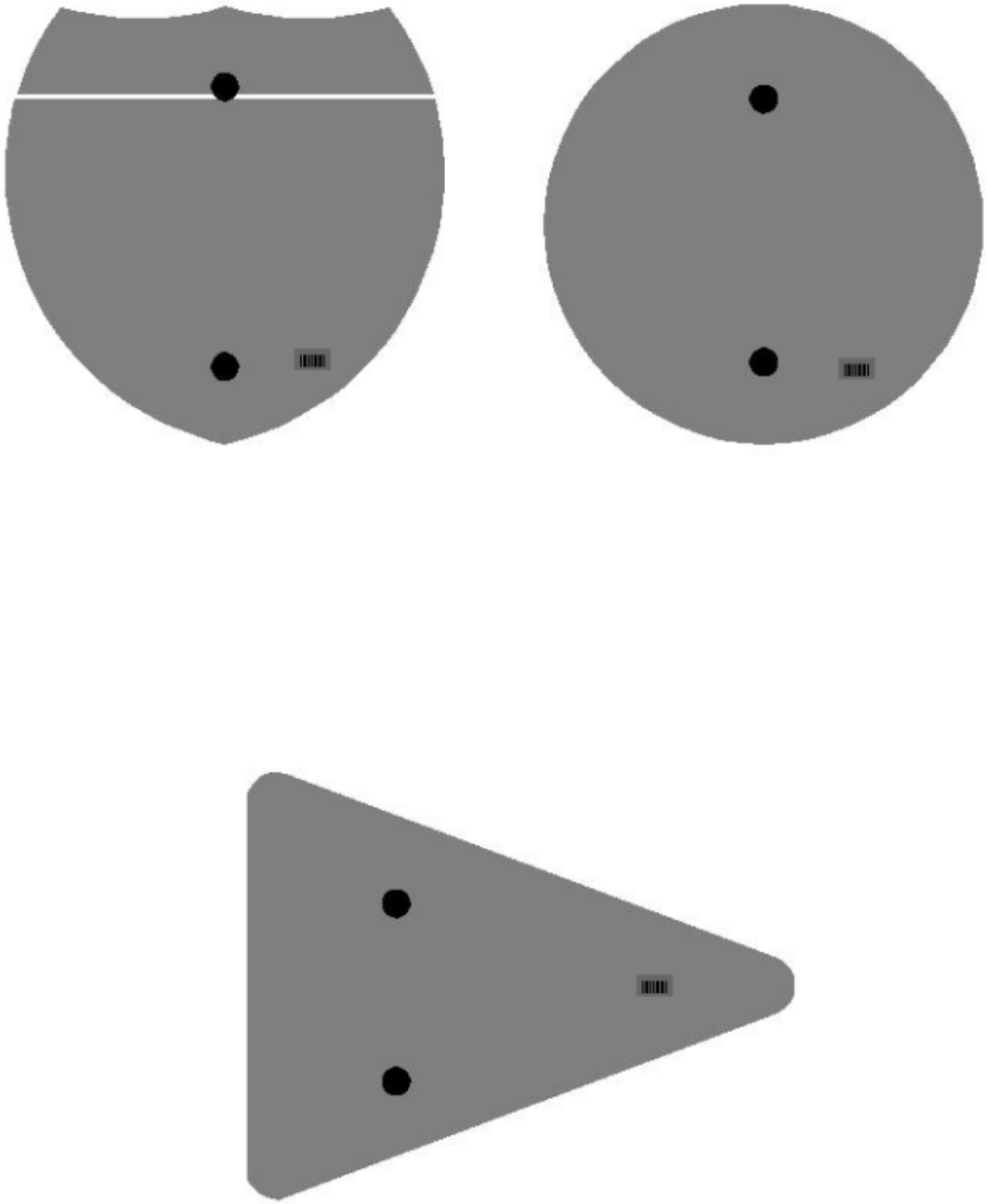
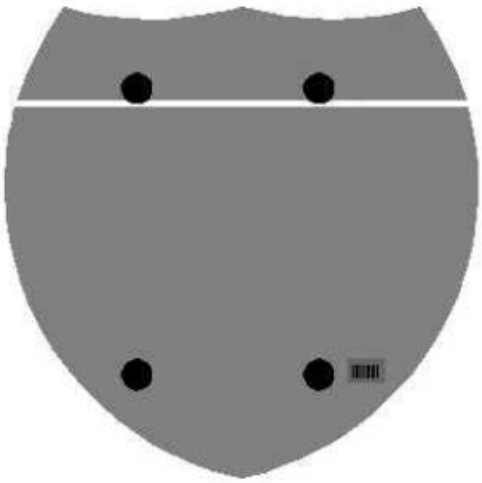
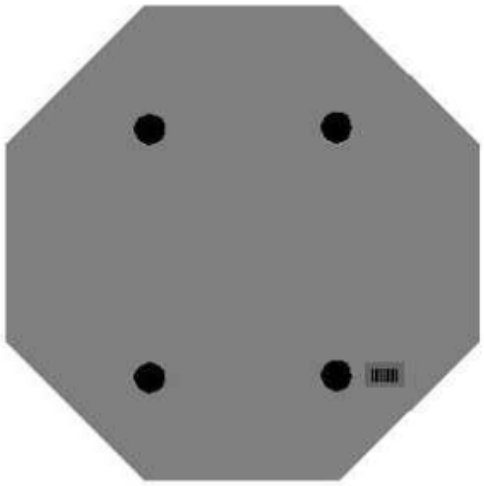


Double Sign Post

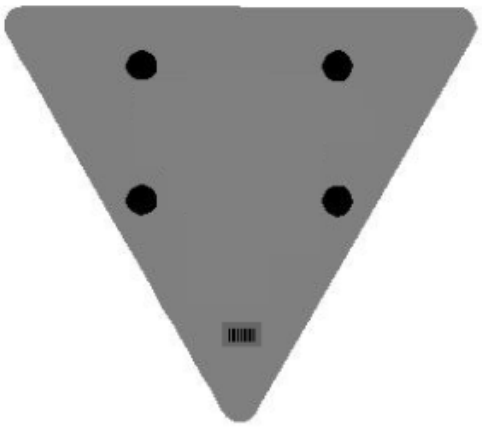


Interstate
Shield



48" Stop

2 Post Signs



PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

LABOR AND WAGE REQUIREMENTS
APPLICABLE TO OTHER THAN FEDERAL-AID SYSTEM PROJECTS

I. APPLICATION

1. These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work or by subcontract. The contractor's organization shall be construed to include only workmen employed and paid directly by the contractor and equipment owned or rented by him, with or without operators.

2. The contractor shall insert in each of his subcontracts all of the stipulations contained in these Required Provisions and such other stipulations as may be required.

3. A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

II. NONDISCRIMINATION OF EMPLOYEES

AN ACT OF THE KENTUCKY
GENERAL ASSEMBLY TO PREVENT
DISCRIMINATION IN EMPLOYMENT
KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

EXECUTIVE BRANCH CODE OF ETHICS

The Executive Branch Code of Ethics created by Kentucky Revised Statutes (KRS) Chapter 11A, effective July 14, 1992, establishes the ethical standards that govern the conduct of all executive branch employees. The Executive Branch Code of Ethics, which states, in part:

KRS 11A.040 (7) provides:

A present or former public servant listed in KRS 11A.010(9)(a) to (g) shall not, within one (1) year following termination of his or her office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of one (1) year, he or she personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his or her tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

a) The date of leaving office or termination of employment; or
b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not to obtain private benefits.

If you have worked for the executive branch of state government within the past year, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 1025 Capital Center Drive, Suite 105, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: March 11, 2025

Kentucky Equal Employment Opportunity Act of 1978

The requirements of the Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) shall apply to this Contract. The apparent low Bidder will be required to submit EEO forms to the Division of Construction Procurement, which will then forward to the Finance and Administration Cabinet for review and approval. No award will become effective until all forms are submitted and EEO/CC has certified compliance. The required EEO forms are as follows:

- EEO-1: Employer Information Report
- Affidavit of Intent to Comply
- Employee Data Sheet
- Subcontractor Report

These forms are available on the Finance and Administration's web page under ***Vendor Information, Standard Attachments and General Terms*** at the following address: **https://www.eProcurement.ky.gov**.

Bidders currently certified as being in compliance by the Finance and Administration Cabinet may submit a copy of their approval letter in lieu of the referenced EEO forms.

For questions or assistance please contact the Finance and Administration Cabinet by email at **finance.contractcompliance@ky.gov** or by phone at 502-564-2874.

EMPLOYEE RIGHTS
UNDER THE FAIR LABOR STANDARDS ACT

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

FEDERAL MINIMUM WAGE
$7.25 PER HOUR
BEGINNING JULY 24, 2009

OVERTIME PAY

At least 1½ times your regular rate of pay for all hours worked over 40 in a workweek.

CHILD LABOR

An employee must be at least **16** years old to work in most non-farm jobs and at least **18** to work in non-farm jobs declared hazardous by the Secretary of Labor.

Youths **14** and **15** years old may work outside school hours in various non-manufacturing, non-mining, non-hazardous jobs under the following conditions:

No more than
- **3** hours on a school day or **18** hours in a school week;
- **8** hours on a non-school day or **40** hours in a non-school week.

Also, work may not begin before **7 a.m.** or end after **7 p.m.**, except from June 1 through Labor Day, when evening hours are extended to **9 p.m.** Different rules apply in agricultural employment.

TIP CREDIT

Employers of "tipped employees" must pay a cash wage of at least $2.13 per hour if they claim a tip credit against their minimum wage obligation. If an employee's tips combined with the employer's cash wage of at least $2.13 per hour do not equal the minimum hourly wage, the employer must make up the difference. Certain other conditions must also be met.

ENFORCEMENT

The Department of Labor may recover back wages either administratively or through court action, for the employees that have been underpaid in violation of the law. Violations may result in civil or criminal action.

Employers may be assessed civil money penalties of up to $1,100 for each willful or repeated violation of the minimum wage or overtime pay provisions of the law and up to $11,000 for each employee who is the subject of a violation of the Act's child labor provisions. In addition, a civil money penalty of up to $50,000 may be assessed for each child labor violation that causes the death or serious injury of any minor employee, and such assessments may be doubled, up to $100,000, when the violations are determined to be willful or repeated. The law also prohibits discriminating against or discharging workers who file a complaint or participate in any proceeding under the Act.

ADDITIONAL INFORMATION

- Certain occupations and establishments are exempt from the minimum wage and/or overtime pay provisions.
- Special provisions apply to workers in American Samoa and the Commonwealth of the Northern Mariana Islands.
- Some state laws provide greater employee protections; employers must comply with both.
- The law requires employers to display this poster where employees can readily see it.
- Employees under 20 years of age may be paid $4.25 per hour during their first 90 consecutive calendar days of employment with an employer.
- Certain full-time students, student learners, apprentices, and workers with disabilities may be paid less than the minimum wage under special certificates issued by the Department of Labor.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

WHD U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Wage and Hour Division

WHD Publication 1088 (Revised July 2009)

PART IV

BID ITEMS

251128

PROPOSAL BID ITEMS

Report Date 11/19/25

251128

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	9,574.00	TON		$	
0020	00190		LEVELING & WEDGING PG64-22	500.00	TON		$	
0030	00214		CL3 ASPH BASE 1.00D PG64-22	8,894.00	TON		$	
0040	00356		ASPHALT MATERIAL FOR TACK	19.00	TON		$	
0050	02099		CEM CONC ENT PAVEMENT-6 IN	137.00	SQYD		$	
0060	02101		CEM CONC ENT PAVEMENT-8 IN	447.00	SQYD		$	
0070	22906ES403		CL3 ASPH SURF 0.38A PG64-22	2,845.00	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0080	00078		CRUSHED AGGREGATE SIZE NO 2	15,250.00	TON		$	
0090	01000		PERFORATED PIPE-4 IN	400.00	LF		$	
0100	01740		CORED HOLE DRAINAGE BOX CON-4 IN	50.00	EACH		$	
0110	01791		ADJUST MANHOLE FRAME TO GRADE	4.00	EACH		$	
0120	01810		STANDARD CURB AND GUTTER	7,932.00	LF		$	
0130	01875		STANDARD HEADER CURB	640.00	LF		$	
0140	01921		STANDARD BARRIER MEDIAN TYPE 4	35.00	SQYD		$	
0150	01923		STANDARD BARRIER MEDIAN TYPE 5	1,504.00	SQYD		$	
0160	02014		BARRICADE-TYPE III	12.00	EACH		$	
0170	02159		TEMP DITCH	1,277.00	LF		$	
0180	02160		CLEAN TEMP DITCH	639.00	LF		$	
0190	02200		ROADWAY EXCAVATION	24,098.00	CUYD		$	
0200	02242		WATER	50.00	MGAL		$	
0210	02429		RIGHT-OF-WAY MONUMENT TYPE 1	70.00	EACH		$	
0220	02545		CLEARING AND GRUBBING 11.0 ACRES	1.00	LS		$	
0230	02555		CONCRETE-CLASS B	65.00	CUYD		$	
0240	02562		TEMPORARY SIGNS	1,045.00	SQFT		$	
0250	02585		EDGE KEY	253.00	LF		$	
0260	02602		FABRIC-GEOTEXTILE CLASS 1	26,500.00	SQYD		$	
0270	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	28,790.00	SQYD	$2.00	$	$57,580.00
0280	02608		FABRIC-GEOTEXTILE CLASS 4A	37,500.00	SQYD		$	
0290	02611		HANDRAIL-TYPE A-1	90.00	LF		$	
0300	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0310	02671		PORTABLE CHANGEABLE MESSAGE SIGN	5.00	EACH		$	
0320	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		$	
0330	02677		ASPHALT PAVE MILLING & TEXTURING	647.00	TON		$	
0340	02701		TEMP SILT FENCE	2,102.00	LF		$	
0350	02703		SILT TRAP TYPE A	2.00	EACH		$	
0360	02704		SILT TRAP TYPE B	9.00	EACH		$	
0370	02705		SILT TRAP TYPE C	75.00	EACH		$	
0380	02706		CLEAN SILT TRAP TYPE A	2.00	EACH		$	
0390	02707		CLEAN SILT TRAP TYPE B	9.00	EACH		$	

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PROPOSAL BID ITEMS

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0400	02708		CLEAN SILT TRAP TYPE C	75.00	EACH		$	
0410	02720		SIDEWALK-4 IN CONCRETE	3,425.00	SQYD		$	
0420	02726		STAKING	1.00	LS		$	
0430	05950		EROSION CONTROL BLANKET	1,537.00	SQYD		$	
0440	05952		TEMP MULCH	27,564.00	SQYD		$	
0450	05953		TEMP SEEDING AND PROTECTION	20,694.00	SQYD		$	
0460	05963		INITIAL FERTILIZER	1.30	TON		$	
0470	05964		MAINTENANCE FERTILIZER	2.10	TON		$	
0480	05985		SEEDING AND PROTECTION	37,196.00	SQYD		$	
0490	05990		SODDING	4,257.00	SQYD		$	
0500	05992		AGRICULTURAL LIMESTONE	26.00	TON		$	
0510	06511		PAVE STRIPING-TEMP PAINT-6 IN	16,000.00	LF		$	
0520	06542		PAVE STRIPING-THERMO-6 IN W	11,854.00	LF		$	
0530	06543		PAVE STRIPING-THERMO-6 IN Y	14,207.00	LF		$	
0540	06547		PAVE STRIPING-THERMO-12 IN Y	150.00	LF		$	
0550	06550		PAVE STRIPING-TEMP REM TAPE-W	5,000.00	LF		$	
0560	06551		PAVE STRIPING-TEMP REM TAPE-Y	5,000.00	LF		$	
0570	06565		PAVE MARKING-THERMO X-WALK-6 IN	1,308.00	LF		$	
0580	06568		PAVE MARKING-THERMO STOP BAR-24IN	356.00	LF		$	
0590	06569		PAVE MARKING-THERMO CROSS-HATCH	589.00	SQFT		$	
0600	06574		PAVE MARKING-THERMO CURV ARROW	63.00	EACH		$	
0610	06610		INLAID PAVEMENT MARKER-MW	24.00	EACH		$	
0620	06611		INLAID PAVEMENT MARKER-MY	83.00	EACH		$	
0630	06612		INLAID PAVEMENT MARKER-BY	25.00	EACH		$	
0640	10020NS		FUEL ADJUSTMENT	20,714.00	DOLL	$1.00	$	$20,714.00
0650	10030NS		ASPHALT ADJUSTMENT	65,707.00	DOLL	$1.00	$	$65,707.00
0660	20588EC		INSTALL PROJECT IDENTIFICATION SIGNS	5.00	EACH		$	
0670	21289ED		LONGITUDINAL EDGE KEY	3,390.00	LF		$	
0680	21417ES717		PAVE MARK THERMO CONE CAP-SOLID YELLOW	163.00	SQFT		$	
0690	22664EN		WATER BLASTING EXISTING STRIPE	15,000.00	LF		$	
0700	22680EN		QWICK CURB MEDIAN SEPARATOR	168.00	LF		$	
0710	23158ES505		DETECTABLE WARNINGS	1,196.00	SQFT		$	
0720	23274EN11F		TURF REINFORCEMENT MAT 1	207.00	SQYD		$	
0730	23607EC		PAVE MARK THERMO-LANE REDUCTION ARROW	9.00	EACH		$	
0740	26248EC		ELECTRONIC DELIVERY MGMT SYSTEM - AGG	1.00	LS		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0750	00440		ENTRANCE PIPE-15 IN	146.00	LF		$	
0760	00443		ENTRANCE PIPE-24 IN	84.00	LF		$	
0770	00521		STORM SEWER PIPE-15 IN	2,580.00	LF		$	
0780	00522		STORM SEWER PIPE-18 IN	2,953.00	LF		$	
0790	00524		STORM SEWER PIPE-24 IN	447.00	LF		$	
0800	00526		STORM SEWER PIPE-30 IN	257.00	LF		$	
0810	00528		STORM SEWER PIPE-36 IN	40.00	LF		$	

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PROPOSAL BID ITEMS

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0820	00530		STORM SEWER PIPE-48 IN	60.00	LF		$	
0830	00554		STORM SEWER PIPE-24 IN EQUIV	117.00	LF		$	
0840	00560		STORM SEWER PIPE-48 IN EQUIV	53.00	LF		$	
0850	01202		PIPE CULVERT HEADWALL-15 IN	3.00	EACH		$	
0860	01204		PIPE CULVERT HEADWALL-18 IN	2.00	EACH		$	
0870	01208		PIPE CULVERT HEADWALL-24 IN	3.00	EACH		$	
0880	01209		PIPE CULVERT HEADWALL-24 IN EQUIV	1.00	EACH		$	
0890	01212		PIPE CULVERT HEADWALL-36 IN	1.00	EACH		$	
0900	01216		PIPE CULVERT HEADWALL-48 IN	1.00	EACH		$	
0910	01217		PIPE CULVERT HEADWALL-48 IN EQUIV	1.00	EACH		$	
0920	01432		SLOPED BOX OUTLET TYPE 1-15 IN	2.00	EACH		$	
0930	01456		CURB BOX INLET TYPE A	40.00	EACH		$	
0940	01487		CURB BOX INLET TYPE F	7.00	EACH		$	
0950	01496		DROP BOX INLET TYPE 3	2.00	EACH		$	
0960	01544		DROP BOX INLET TYPE 11	10.00	EACH		$	
0970	01559		DROP BOX INLET TYPE 13G	15.00	EACH		$	
0980	01644		JUNCTION BOX-30 IN	1.00	EACH		$	
0990	01650		JUNCTION BOX	2.00	EACH		$	
1000	02483		CHANNEL LINING CLASS II	9.00	TON		$	
1010	02484		CHANNEL LINING CLASS III	76.00	TON		$	
1020	08100		CONCRETE-CLASS A	8.34	CUYD		$	

Section: 0004 - SIGNING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1030	04740		POLE BASE	2.00	EACH		$	
1040	06406		SBM ALUM SHEET SIGNS .080 IN	407.00	SQFT		$	
1050	06410		STEEL POST TYPE 1	659.00	LF		$	
1060	06412		STEEL POST MILE MARKERS	2.00	EACH		$	
1070	20418ED		REMOVE & RELOCATE SIGNS	1.00	EACH		$	
1080	21373ND		REMOVE SIGN	8.00	EACH		$	
1090	21596ND		GMSS TYPE D	3.00	EACH		$	
1100	22939ND		INSTALL LUMINAIRE POLE	2.00	EACH		$	
1110	24526ED		INSTALL-BEACON CONTROLLER-2 CIRCUIT	2.00	EACH		$	
1120	24631EC		BARCODE SIGN INVENTORY	87.00	EACH		$	
1130	24955ED		REMOVE SIGNAL EQUIPMENT	2.00	EACH		$	

Section: 0005 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1140	04820		TRENCHING AND BACKFILLING	240.00	LF		$	
1150	04844		CABLE-NO. 14/5C	3,690.00	LF		$	
1160	04845		CABLE-NO. 14/7C	2,825.00	LF		$	
1170	04886		MESSENGER-15400 LB	1,055.00	LF		$	
1180	04932		INSTALL STEEL STRAIN POLE	8.00	EACH		$	
1190	04953		TEMP RELOCATION OF SIGNAL HEAD	12.00	EACH		$	
1200	06472		INSTALL SPAN MOUNTED SIGN	2.00	EACH		$	

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PROPOSAL BID ITEMS

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1210	20093NS835		INSTALL PEDESTRIAN HEAD-LED	12.00	EACH		$	
1220	20188NS835		INSTALL LED SIGNAL-3 SECTION	17.00	EACH		$	
1230	20189NS835		INSTALL LED SIGNAL-5 SECTION	1.00	EACH		$	
1240	20266ES835		INSTALL LED SIGNAL- 4 SECTION	3.00	EACH		$	
1250	20390NS835		INSTALL COORDINATING UNIT	2.00	EACH		$	
1260	21743NN		INSTALL PEDESTRIAN DETECTOR	12.00	EACH		$	
1270	23157EN		TRAFFIC SIGNAL POLE BASE	36.00	CUYD		$	
1280	23222EC		INSTALL SIGNAL PEDESTAL	1.00	EACH		$	
1290	23235EC		INSTALL PEDESTAL POST	8.00	EACH		$	
1300	24528ED		TETHER WIRE	1,055.00	LF		$	
1310	24900EC		PVC CONDUIT-1 1/4 IN-SCHEDULE 80	140.00	LF		$	
1320	24901EC		PVC CONDUIT-2 IN-SCHEDULE 80	180.00	LF		$	
1330	24908EC		INSTALL SIGNAL CONTROLLER-TY ATC	2.00	EACH		$	
1340	24955ED		REMOVE SIGNAL EQUIPMENT	2.00	EACH		$	
1350	26119EC		INSTALL RADAR PRESENCE DETECTOR TYPE A	7.00	EACH		$	

Section: 0006 - WATER MAIN RELOCATIONS

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1360	01314		PLUG PIPE	13.00	EACH		$	
1370	02690		SAFELOADING	423.00	CUYD		$	
1380	14010		W ENCASEMENT STEEL BORED RANGE 5	230.00	LF		$	
1390	14019		W FIRE HYDRANT ASSEMBLY	6.00	EACH		$	
1400	14021		W FIRE HYDRANT REMOVE	6.00	EACH		$	
1410	14030		W METER RELOCATE	27.00	EACH		$	
1420	14032		W METER/FIRE SERVICE COMBO VAULT	7.00	EACH		$	
1430	14035		W PIPE DUCTILE IRON 04 INCH	95.00	LF		$	
1440	14036		W PIPE DUCTILE IRON 06 INCH	290.00	LF		$	
1450	14037		W PIPE DUCTILE IRON 08 INCH	95.00	LF		$	
1460	14039		W PIPE DUCTILE IRON 12 INCH	4,045.00	LF		$	
1470	14042		W PIPE DUCTILE IRON 24 INCH	635.00	LF		$	
1480	14090		W TAPPING SLEEVE AND VALVE SIZE 2	1.00	EACH		$	
1490	14094		W TIE-IN 06 INCH	3.00	EACH		$	
1500	14095		W TIE-IN 08 INCH	1.00	EACH		$	
1510	14097		W TIE-IN 12 INCH	5.00	EACH		$	
1520	14100		W TIE-IN 24 INCH	2.00	EACH		$	
1530	14104		W VALVE 04 INCH	1.00	EACH		$	
1540	14105		W VALVE 06 INCH	5.00	EACH		$	
1550	14106		W VALVE 08 INCH	1.00	EACH		$	
1560	14108		W VALVE 12 INCH	9.00	EACH		$	
1570	14111		W VALVE 24 INCH	1.00	EACH		$	
1580	14145		W SERV COPPER LONG SIDE 1 IN	3.00	EACH		$	
1590	14147		W SERV COPPER LONG SIDE 2 IN	1.00	EACH		$	
1600	14148		W SERV COPPER LONG SIDE 3/4 IN	1.00	EACH		$	
1610	14149		W SERV COPPER SHORT SIDE 1 IN	2.00	EACH		$	
1620	14152		W SERV COPPER SHORT SIDE 3/4 IN	9.00	EACH		$	
1630	14191		W SERV COPPER SHORT SIDE 5/8 IN	12.00	EACH		$	
1640	14192		W SERV COPPER LONG SIDE 5/8 IN	3.00	EACH		$	

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PROPOSAL BID ITEMS

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Section: 0007 - DEMOBILIZATION &/ OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1650	02568		MOBILIZATION	1.00	LS		$	
1660	02569		DEMOBILIZATION	1.00	LS		$	