CALL NO. 300

CONTRACT ID. 181004

BRACKEN COUNTY

FED/STATE PROJECT NUMBER FD04 SPP 012 1159 000-005

DESCRIPTION BROOKSVILLE TO AA HIGHWAY(KY-1159)

WORK TYPE GRADE & DRAIN WITH ASPHALT SURFACE

PRIMARY COMPLETION DATE 7/1/2019

LETTING DATE: January 26,2018

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME January 26,2018. 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.

TABLE OF CONTENTS

PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 06

CONTRACT ID - 181004

FD04 SPP 012 1159 000-005

COUNTY - BRACKEN

PCN - DE01211591804
FD04 SPP 012 1159 000-005

BROOKSVILLE TO AA HIGHWAY(KY-1159) RECONSTRUCT KY-1159 FROM BROOKSVILLE TO KY-9/AA HIGHWAY., A DISTANCE OF 01.02 MILES.GRADE & DRAIN WITH ASPHALT SURFACE SYP NO. 06-08311.00.

GEOGRAPHIC COORDINATES LATITUDE 38:42:17.00 LONGITUDE 84:05:02.00

COMPLETION DATE(S):

COMPLETED BY 07/01/2019 APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

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 Expedite Bidding Program available on the Internet web site of the Department of Highways, Division of Construction Procurement. (www.transportation.ky.gov/construction-procurement)

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.

SPECIAL NOTE FOR COMPOSITE OFFSET BLOCKS

Contrary to the Standard Drawings (2016 edition) the Cabinet will allow 6" composite offset blocks in lieu of wooden offset blocks, except as specified on proprietary end treatments and crash cushions. The composite blocks shall be selected from the Cabinet's List of Approved Materials.

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 fax (502) 564-7299 or 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/contract). 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 contractor, as defined in KRS 45A.030 (9) 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 contract for the purpose of financial audit or program review. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the contract and shall be exempt from disclosure as provided in KRS 61.878(1)(c). 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.

In the event of a dispute between the contractor and the contracting agency, Attorney General, or the Auditor of Public Accounts over documents that are eligible for production and review, the Finance and Administration Cabinet shall review the dispute and issue a determination, in accordance with Secretary's Order 11-004.

06/01/16

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 Expedite Bidding Program. Submittal of the Affidavit should be done along with the bid in Bid Express.

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 UTILITY INSPECTIONS BY THE UTILITY OWNERS

Unless otherwise noted, Section references herein are to the Department's Standard Specifications for Road and Bridge Construction. All applicable portions of the Department's Standard Specifications apply unless specifically modified herein.

1. DESCRIPTION. It is estimated this project will require 35 days of inspection by the Water Utility Owner and 45 days of inspection by the Gas Utility Owner. Guidelines for determining when utility inspections are needed will be defined below. The rate for utility inspections for this project will be $345 per day per Utility Owner inspector. The Contractor shall not be responsible for the cost of the first 35 days of inspection by the Water Utility Owner and first 45 days of inspection by the Gas Utility Owner.

2. DEFINITION OF INSPECTIONS BY THE OWNER. The particular utility work being performed will define when inspection by the Utility Owner is required and the number of inspectors needed. At least 2 weeks notice to each Utility Owner from the Contractor is required before inspection by the Utility Owner(s) will be provided. It will remain the Contractor's responsibility to schedule work, including any down time, so as to minimize the use of Utility Owner inspection services. The Department retains no responsibility for coordinating Utility Owner inspection services between the Utility Owner and the Contractor.

It will be the Contractor's responsibility to communicate to the Utility Owner inspector when inspections will be needed or suspended. Inspections by the Utility Owner will be required, but not limited to: whenever pipe is being joined, bedding is placed, pipe and appurtenances are being placed, initial backfill is placed, or whenever any other activity is being performed that could be considered a construction activity affecting the integrity of the utility to function long term as it is intended. Inspections will also be required by the Utility Owner for delivered materials, pressure testing, and any other function of utility construction which would normally require inspection by the Utility Owner.

Failure of the Contractor to make notice to the Utility Owner of when work is being performed that would require inspection by the Utility Owner will result in the possibility of the Contractor having to expose, remove, reinstall, and/or replace the uninspected portions of work at the Contractor's expense. The effort required of the utility Contractor to satisfy the requirements of inspection by the Utility Owner shall be at the discretion of the Utility Owner and KYTC Section Engineer. Failure of the Contractor to satisfy the Utility Owner inspection requirements may result in non-payment of the disputed work. The KYTC Section Engineer shall make all final decisions in all disputed work when the Utility Owner and the Owner inspector cannot resolve disputes directly.

All other inspections, such as remaining trench backfill above initial backfill, traffic control, and restoration shall be performed by the KYTC Section Engineer or his inspectors. The KYTC Section Engineer or his inspectors will also be recording and reporting pay quantities. <u>The time of the KYTC inspector(s) shall not count toward the number of inspection days by the Utility Owner.</u>

SPECIAL NOTE FOR UTILITY INSPECTIONS BY THE UTILITY OWNERS

3. REDUCTION AND EXTENSION OF UTILITY OWNER INSPECTION TIME. Based upon the Kentucky Standard Specifications, any changes in contract time for this project will be by change order. If the nature of the work in the change order necessitates additional use of Utility Owner inspection services, then that shall be identified in that change order and the number of calendar days for Utility Owner inspection services shall be increased. By signing the change order, the Contractor waives all rights to any future request to change the number of days of Utility Owner inspection associated with the work in that change order. Since the number of days involves the cost to the Department and not the Contractor, the number of days of Utility Owner inspection shall not be reduced.

4. MEASUREMENT. The Utility Owner(s) will keep track of calendar days that Utility Owner inspection is performed. Any day of which an inspector arrives on-site and is not needed due to unpredicted or unexpected weather conditions, or for any other reason beyond the control or knowledge of the Contractor to predict shall not count against the total number of days of inspection charged to the project. On any day where the inspector arrives on site and work cannot be performed due to predictable Contractor scheduling conflicts, equipment failures, or any other failure due to contractor fault, and the Contractor failed to make advance timely notice to the inspector that inspection was not needed on that day, an inspection day **will** be charged to the project. If conditions are such that a prediction can be made by the Contractor that work will not be performed on a day as originally scheduled and the Contractor can make notice to the Utility Owner inspector by no later than 7 PM on the preceding day, then the day of inspection will not be charged to the project.

The Utility Owner will furnish to the Contractor and the KYTC Section Engineer weekly statements showing the number of Utility Owner inspection days charged for the period. Utility Owner Inspection Statements will be furnished to the Contractor and KYTC Section Engineer within 7 calendar days of the end of each weekly period in which inspection was performed by the Utility Owner. The Contractor acknowledges acceptance of, and agreement with, all weekly statements unless the Contractor submits a written protest to the KYTC Section Engineer containing supporting evidence for a change within 14 calendar days of receiving the weekly statement.

If the number of calendar days of Utility Owner inspection exceeds 35 days for water work or 45 days for gas work, then the Contractor will be charged for each day that additional Owner inspection is needed multiplied by the daily rate of $345. This will be in addition to any liquidated damages or other reimbursements that the contract or the Kentucky Standard Specifications may require. This charge will continue, based upon actual Utility Owner inspection use, until Formal Acceptance.

If upon Formal Acceptance the total number of calendar days that Utility Owner inspection is performed is less than 35 days for water work or 45 days for gas work no additional monies will be given to the Contractor.

It is anticipated that the overhead utilities will not be relocated until August 1, 2018.

A Fixed Completion Date of July 1, 2019 will be established for this entire project.

Special Note for Crushed Stone Base - Modified

This Special Note will apply where indicated on the plans or in the proposal. Section reference herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

1.0 DESCRIPTION: Follow the Standard Specifications for Crushed Stone Base, sections 302 and 805, except the gradation and any payment reductions shall follow the table below. Contractor must remove and replace any material falling outside the reduction chart values.

GRADATION - CRUSHED STONE BASE - MODIFIED (1)							
Payment Reduction	Sieve Size-Percent passing						
	2 1/2 inch	1 1/2 inch	3/4 inch	3/8 inch	No. 4	No. 30	No. 200
0%	100	90-100	60-95	30-70	15-45	5-20	0-5
10%		88-99	58-59	28-29		3-4	
10%	98-99		96-97	71-72		21-22	
20%		86-87	56-57	26-27	14	1-2	
20%	96-97		98	73	46	23	
30%		84-85	54-55	24-25	13	0	
30%	95		99	74	47	24	
50%		83	53	23	12		
50%	94		100	75	48	25	6

(1) Gradation to be performed by wet sieve KM 64-620 or AASHTO T 11/27.

2.0 PAYMENT. The Department will pay for Crushed Stone Base - Modified as per the standard specifications for Crushed Stone Base, section 302, except the pay item will be as follow:

Code	Pay Item	Pay Unit
24965EC	CRUSHED STONE BASE - MODIFIED	TON

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 2012 Standard Specifications for Road and Bridge Construction.

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

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)
06-8311.00	Bracken	FD04 012 1159 000-005	

PROJECT DESCRIPTION

Reconstruct KY-1159 from Brooksville to KY-9/AA Highway

☐ **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	67	EXCEPTION (S) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired		67	
Signed Deed	67		
Condemnation			
Signed ROE			

Notes/ Comments (Use Additional Sheet if necessary)

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Mike Bezold
Signature		Signature	
Date		Date	10/30/2017
Right of Way Director		**FHWA**	
Printed Name	Dan Loy	Printed Name	
Signature	Dan Loy	Signature	
Date	09 Nov 2017	Date	

UTILITIES AND RAIL CERTIFICATION NOTE

BRACKEN COUNTY
FD04 012 85050 01U
KY-1159 FROM BROOKSVILLE TO AA HIGHWAY
SIX YEAR PLAN ITEM NUMBER 06-8311.00

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Damage to Utilities

Any intentional or accidental disruption of service due to damage to sewer or water mains caused by any of the contractor's operations without three days advance notice to the utility owner shall be cause for the Cabinet to charge liquidated damages in the amount of five thousand dollars per day ($5,000/day) per occurrence against the contractor until such time as the utility main is restored.

Any intentional or accidental disruption of any individual water or sewer service caused by any of the contractor's operations without three days advance notice to the utility owner shall be cause for the Cabinet to charge liquidated damages in the amount of five hundred dollars per day ($500/day) per occurrence against the contractor until such time as service is restored.

In the case of a main disruption, liquidated damages shall be charged at the main disruption rate only. Liquidated damages shall not be charged in addition for service disruptions when a main disruption is involved.

Flowable Fill Requirement

The road contractor MUST use flowable fill as the backfill media any place gas, water and sewer lines cross under existing or proposed roadway surfaces. It should also be noted that the cost of the flowable fill shall be incidental to the cost of the gas, water or sewer line being installed.

External Utility Permits

Kentucky Division of Water permits for water relocation construction will be supplied at the preconstruction conference.

Abandoned Utilities

The contractor shall safeload the entire length of all abandoned pipes 6 inches in diameter and larger under proposed pavement and under any existing pavement that is to remain. The contractor shall safeload the entire length of all abandoned pipes 15 inches and larger which will be located outside of proposed pavement but within project limits. A "Safeloading" bid item has been included in the road contract. The safeloading criteria above shall be observed unless otherwise directed by the Section Engineer or his representative.

Utility Phasing

The contractor should be aware that some utilities will need to be relocated first to accommodate the relocation of others. The contractor should review the plans and draw his own conclusions as to the phasing of the work of various utilities. The contractor should pay close attention to the proximity of construction of new facilities when working in the vicinity of existing water mains to prevent blow-outs.

UTILITIES AND RAIL CERTIFICATION NOTE

BRACKEN COUNTY
FD04 012 85050 01U
KY-1159 FROM BROOKSVILLE TO AA HIGHWAY
SIX YEAR PLAN ITEM NUMBER 06-8311.00

Road Construction Field Adjustments To Accommodate Utilities

Some minor adjustments to road work may be required in the field to work around some poles and other utility infrastructure. The road contractor should discuss any adjustments with the Section Engineer or his inspector as they arise. The adjustments anticipated are to ditches and other such minor items so that poles and such are not in the center bottom of ditches where debris may collect.

Special Note for Utility Owner Inspection

Contained elsewhere in the proposal is a special note related to limitations on Utility Owner inspection time and Contractor responsibility for inspection overruns. Please refer to the note for further details.

NOTE: DO NOT DISTURB THE FOLLOWING UTILITIES LOCATED WITHIN THE PROJECT DISTURB LIMITS

The nature of the location of the project will require the contractor to work around multiple underground and overhead utilities. The contractor shall use caution to avoid damage to these utilities.

The Contractor is fully responsible for protection of all utilities listed above

THE FOLLOWING COMPANIES ARE RELOCATING/ADJUSTING THEIR UTILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

No utilities will have been relocated prior to construction. Water and gas facilities are to be relocated by the road contractor. Electric, CATV, and telephone facilities will be relocated by the utility owners concurrently with the road construction.

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE COMPANY OR THE COMPANY'S SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

Bluegrass Energy, Bracken Cablevision and Windstream Telephone have overhead facilities that will be relocated by the utility owners concurrently with road construction. **The Department estimates the relocation of these utilities will be complete by August 1, 2018. This date is an estimation. The successful contractor should be aware that relocations by these utility owners may not be complete by this date should unforeseen extenuating circumstances arise.** The road contractor will be required to coordinate and cooperate with these utility owners and their contractors until completion of their work.

The Department will consider submission of a bid as the Contractor's agreement to not make any claims for additional compensation due to delays or other conditions created by the operations of Bluegrass Energy, Bracken Cablevision, or Windstream Telephone. Working days will not be charged for those days on which work on these facilities is delayed, as provided in the current edition of the KY Standard Specifications for Road and Bridge Construction. Should a difference of opinion arise as to the rights of

UTILITIES AND RAIL CERTIFICATION NOTE

BRACKEN COUNTY
FD04 012 85050 01U
KY-1159 FROM BROOKSVILLE TO AA HIGHWAY
SIX YEAR PLAN ITEM NUMBER 06-8311.00

the Contractor and others working within the limits of, or adjacent to the project, the KYTC Section Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the Department's work in general harmony and in a satisfactory manner, and his decision shall be final and binding upon the Contractor.

THE FOLLOWING COMPANIES HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE ROAD CONTRACTOR AS INCLUDED IN THIS CONTRACT

Bracken County Water District and City of Brooksville gas facilities are to be relocated by the road contractor using plans inserted into the road construction plans and specifications inserted into the project proposal. Appropriate utility bid items have been included in the contract bid documents.

Notes:

- Utility pipeline fittings are not bid as separate pay items in new utility main installations in this contract. Fittings are considered incidental to pipe and other items.
- Bidding contractors should note that several other items of pay for utility work have been modified from previous road contracts. The contractor should thoroughly review the Standard Utility Bid Item Descriptions for each utility discipline included in the contract. These bid item descriptions are included elsewhere in the project proposal.

THE FOLLOWING RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☒ **No Rail Involved** ☐ **Minimal Rail Involved (See Below)** ☐ **Rail Involved (See Below)**

UNDERGROUND FACILITY DAMAGE PROTECTION – BEFORE YOU DIG

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

UTILITIES AND RAIL CERTIFICATION NOTE

BRACKEN COUNTY
FD04 012 85050 01U
KY-1159 FROM BROOKSVILLE TO AA HIGHWAY
SIX YEAR PLAN ITEM NUMBER 06-8311.00

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 Clerk to determine what utility companies have facilities in the area. Non-compliance with these directives can result in the enforcement of penalties.

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

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 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.

Please Note: The information presented in this Utility Note is informational in nature and the information contained herein is not guaranteed.

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information

UTILITY CONTACT INFORMATION WILL BE PROVIDED AT THE PRECONSTRUCTION CONFERENCE.

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. Those utility owners with a prequalification or preapproval requirement are as follows:

> **Only Bracken County Water District requires preapproval of contractors by the utility owner. The list of preapproved water contractors is at the end of water specifications. Gas work in this contract does not require preapproval of contractors by the utility owner.**

The bidding contractor needs to review the preapproved contractor list(s) contained elsewhere in this proposal for those utilities listed above that preapprove contractors. When the list of approved contractors is provided, only contractors shown on those list(s) will be allowed to work on that utility as a part of this contract.

When a utility chooses not to preapprove utility contractors, the utility work can be completed by the prime contractor or subcontractor of his choosing.

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 utility materials will be supplied by the utility owners to the contractor on this project. All materials shall be supplied by the contractor or subcontractor performing utility relocations.**

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.

Standard Gas Bid Item Descriptions

BOLLARDS This item is for payment for furnishing and installing protective guard posts at above ground utility installations. A bollard may consist of, but not limited to, a steel post set in concrete or any other substantial post material. This item shall include all labor, equipment, and materials needed for complete installation of the bollard as specified by the utility owner specifications and plans. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: A bid code for this item has been established in standard roadway bid items and shall be used for payment of this item. The bid code is 21341ND.

G DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of gas main under streets, creeks, etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall be for all sizes and not be size specific. No separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

G ELECTRONIC ID MARKER This bid item is to pay for labor, equipment, computer programing, and installation of an electronic ID marker at the locations shown on the plans or as directed by the engineer. The marker may be in the form of a ball, disk, cylinder, post, or other shape as required by specification and may be buried, at grade, or above grade as specified. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Paid EACH (EA) when complete.

NOTE: This bid item is not for payment of standard non-electronic markers or monuments. A separate "Line Marker" bid item is established for this purpose.

G ENCASEMENT STEEL BORED This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, vents, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

G ENCASEMENT STEEL OPEN CUT This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, vents, labor, and equipment to open cut and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

G FARM TAP AND REGULATOR This item is for the installation of gas service tap and regulator assembly on a gas transmission main. This item shall include excavation, labor, equipment, and all tapping, piping, fittings, and regulator materials to install the farm tap and regulator assembly in accordance with the plans, specifications, and standard drawings complete and ready for use. Only one pay item has been established for Farm Tap and Regulator installations. Payment shall be made under this item regardless of farm tap service and regulator size. No separate pay items will be established for size variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G LINE MARKER This item is for payment for furnishing and installing a gas utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

NOTE: This bid item is not for payment of "Electronic ID Markers". Electronic ID Markers are paid under a separate bid item.

G MAIN ABANDON This bid item is in full payment for all efforts in abandonment of all gas mains and facilities shown to be abandoned on the plans, for removal of any sections of abandoned main that is in conflict with road construction, and for nitrogen purge and plug of any sections of main that are to remain. All work shall be done in accordance with the plans and specifications, and in accordance with

all pipeline safety regulations. This bid item is for all work to abandon and purge gas main in the total project regardless of size or length. No adjustment in the unit bid price will be allowed if the scope of work described in this item should increase in this contract for any reason. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item is to be paid LUMP SUM (LS) when complete.

G MAIN POINT RELOCATE This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the locations shown on the plans. This bid item is to be used to relocate an existing gas main at point locations such as to clear a conflict at a proposed drainage structure, pipe or any other similar short relocation situation. All new materials are to be used. The materials provided shall be of the same type and specification as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case by case basis. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Main Point Relocate shall not be paid on a linear feet basis; but shall be paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

G METER AND REGULATOR This bid item description shall be used for all meter and regulator bid items of every size except those defined as "Special". These pay items are for all labor, equipment, and materials needed for the installation of a service meter and regulator assembly at the locations shown on the plans or as directed by the engineer in accordance with specifications and standard drawings complete and ready for use. Materials to be provided under this bid item shall include, but are not limited to, meter, regulator, piping, fittings, building anchoring brackets, and hardware needed to create and install the assembly. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G PIPE This description shall apply to all polyethylene/plastic and steel pipe bid items of every size and type to be used as gas main, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), corrosion protective coatings of steel pipe and fittings, labor, equipment, excavation, bedding, restoration, pressure testing, backfill, etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. For steel pipe, this bid item shall include all cathodic protection anodes, lead wire, test boxes or stations, and any accessories. No additional payment will be made for rock excavation. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. Measurement of quantities under this item shall be through valves (including horizontal measurements through above grade valves), fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Please refer to the Utility

Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

G REGULATOR STATION Includes all labor, equipment, materials and restoration, to install a new gas regulator station as indicated on plans and on standard drawings compete and ready for use. Only one pay item has been established for regulator station installations. Payment shall be made under this item regardless of regulator station size. No separate pay items will be established for size variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: This item is to be used to pay for regulator stations to reduce the pressure of gas from a higher pressure main to feed a lower pressure main. This item is not to be used to pay for regulators used on individual customer service lines.

G SERVICE LONG SIDE This bid item description shall apply to all service line installations of every size bid up to and including 2 inch inside diameter, except those service bid items defined as "Special". This item includes the specified piping material, main tap, coupling for connecting the new piping to the surviving existing piping, encasement of 2 inches or less internal diameter (if required by plan or specification), labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where the ends of the service connection are on opposite sides of the public roadway and the service line crosses the centerline of the public roadway as shown on the plans. The length of the service line is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. This pay item does not include installation or relocation of meters. Meters will be paid separately. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. No additional payment will be made for rock excavation or for special bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G SERVICE SHORT SIDE This bid item description shall apply to all service line installations of every size up to and including 2 inch internal diameter, except those service bid items defined as "Special". This item includes installation of the specified piping material of the size specified on plans, encasement of 2 inches or less internal diameter (if required by plan or specification), main tap, coupling for connecting the new piping to the surviving existing piping, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations were both ends of the service connection are on the same side of the public roadway, or when an existing service crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service line is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the service crosses a private residential or commercial entrance; but, not a public roadway. Private or commercial entrances shall not be considered a public

roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. This pay item does not include installation or relocation of meters. Meters will be paid separately. This bid item shall also include the cost of pre and/or post directional bore gas installation video inspection of adjacent sanitary and storm sewer mains, manholes, and laterals when the utility specifications associated with the contract require such video inspection. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G SERVICE RELOCATE This item is for the relocation of an existing gas service line where a meter is not involved, and where an existing service line can easily be adjusted by excavating alongside and moving the line horizontally and/or vertically a short distance without cutting the service line to avoid conflicts with road construction. This item shall include excavation, labor, equipment, bedding, and backfill to relocate the line in accordance with the plans and specifications complete and ready for use. Payment under this item shall be for each location requiring relocation. Payment shall be made under this item regardless of service size or relocation length. No separate pay items will be established for size or length variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G TIE-IN This bid description shall be used for all polyethylene/plastic or steel gas main tie-in bid items of every size except those that include a temporary bypass or are defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, restoration, testing and backfill required to make the gas main tie-in as shown on the plans, and in accordance with the specifications complete and ready for use. Pipe for tie-ins shall be paid under separate bid items. No additional payment will be made for rock excavation. This bid item shall also include material and placement of flowable fill backfill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G TIE-IN W/BYPASS This bid description shall be used for all polyethylene/plastic or steel gas main tie-in bid items that include temporary bypass of every size except those defined as "Special". This item includes all labor, equipment (including tapping, stopple and/or squeeze equipment), excavation, permanent and temporary fittings (including, but not limited to, tees, split tees, bends, reducers, plugs, caps, and couplings), temporary bypass piping, restoration, testing and backfill required to make the gas main tie-in with temporary bypass as shown on the plans, and in accordance with the specifications complete and ready for use. Mainline pipe for tie-ins shall be paid under separate bid items. No additional payment will be made for rock excavation. This bid item shall also include material and placement of flowable fill backfill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: The tie-in size reflected in the bid item reflects the nominal internal diameter size of the main gas line being tied-in, not the bypass pipe size.

G VALVE This description shall apply to all buried valves of every size and type required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be

for gas valves being installed with new main. This item includes the valve as specified in the plans and specifications, protective coating and corrosion protection, labor, equipment, excavation, valve box and valve stem extensions, backfill, restoration, testing, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G VALVE ABOVE GRADE This description shall apply to all above grade valve assemblies of every size and type required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for above grade gas valves being installed with new main. This item includes the above grade valve, pipe, and fittings as specified in the plans, specifications and standard drawings. This bid items shall also include protective coating and corrosion protection, labor, equipment, excavation, backfill, restoration, testing, etc., required to install the specified above grade valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G VALVE BOX ADJUST Includes all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, etc. to adjust the top of the box to finished grade complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

G WELD X-RAY INSPECTION This description shall apply to all radiographic x-ray inspections of steel pipe joints of every size within the pipe size ranges given in the bid item text. This bid includes all labor, equipment, materials, to assess the acceptability of the weld to comply with specifications and to industry and regulatory standards. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) for each pipe joint inspected.

Standard Water Bid Item Descriptions

W AIR RELEASE VALVE This bid item description shall apply to all air release valve installations of every size except those defined as "Special". This item shall include the air release valve, main to valve connecting line or piping, manhole, vault, structure, access casting or doors, tapping the main, labor, equipment, excavation, proper backfill and restoration required to install the air release valve at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. All air release/vacuum valves on a project shall be paid under one bid item regardless of size. No separate pay items will be established for size variations. Only in the case of the uniqueness of a particular air release valve would a separate bid item be established. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

BOLLARDS This item is for payment for furnishing and installing protective guard posts at above ground utility installations. A bollard may consist of, but not limited to, a steel post set in concrete or any other substantial post material. This item shall include all labor, equipment, and materials needed for complete installation of the bollard as specified by the utility owner specifications and plans. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: A bid code for this item has been established in standard roadway bid items and shall be used for payment of this item. The bid code is 21341ND

W CAP EXISTING MAIN This item shall include the specified cap, concrete blocking and/or mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the cap at the location shown on the plans or as directed in accordance with the specifications. This item is not to be paid on new main installations. This pay item is only to be paid to cap existing mains. Caps on new mains are incidental to the new main. Any and all caps on existing mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W DIRECTIONAL BORE Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized in order to minimize the impact of open cut for the installation of water main under streets, creeks, and etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at each end of the bore when specified to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract regardless of size. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT CONCRETE Includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, and etc., to construct the concrete encasement of the water main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasement shall be paid under one bid item included in the contract regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT STEEL BORED This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to bore and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The sizes of encasement to be paid under the size ranges specified in the bid items shall be as follows:

Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W ENCASEMENT STEEL OPEN CUT This item shall include the steel encasement pipe size as specified on the plans and in the specifications, casing spacers, end seals, labor, and equipment to open cut and install the encasement in accordance with the plans and specifications, complete and ready for use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

Range 1 = All encasement sizes greater than 2 inches to and including 6 inches
Range 2 = All encasement sizes greater than 6 inches to and including 10 inches
Range 3 = All encasement sizes greater than 10 inches to and including 14 inches
Range 4 = All encasement sizes greater than 14 inches to and including 18 inches
Range 5 = All encasement sizes greater than 18 inches to and including 24 inches
Range 6 = All encasement sizes greater than 24 inches

(Encasement sizes of 2 inches internal diameter or less shall not be paid separately; but, shall be considered incidental to the carrier pipe.) Payment under this bid item shall not include the carrier pipe. Carrier pipe shall be paid under a separate bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W FIRE HYDRANT ADJUST Includes all labor, equipment, excavation, materials, and backfill to adjust the existing fire hydrant using the fire hydrant manufacturer's extension kit for adjustments of 18" or less. Adjustments greater than 18" require anchoring couplings and vertical bends to adjust to grade. The Contractor will supply and install all anchor couplings, bends, fire hydrant extension, concrete blocking, restoration, granular drainage material, etc, needed to adjust the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. This also includes allowing for the utility owner inspector to inspect the existing fire hydrant prior to adjusting, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

W FIRE HYDRANT ASSEMBLY Includes all labor, equipment, new fire hydrant, isolating valve and valve box, concrete pad around valve box (when specified in specifications or plans), piping, anchoring tee, anchoring couplings, fire hydrant extension, excavation, concrete blocking, granular drainage material, backfill, and restoration, to install a new fire hydrant assembly as indicated on plans and on standard drawings compete and ready for use. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FIRE HYDRANT RELOCATE This item includes all labor and equipment to remove the existing fire hydrant from its existing location and reinstalling at a new location. This item shall include a new isolating valve and valve box, concrete pad around valve box (when required in specifications or plans), new piping, new anchoring tee, anchoring couplings, fire hydrant extensions, concrete blocking, restoration, granular drainage material, excavation, and backfill as indicated on plans, specifications, and on standard drawings compete and ready for use. This item shall also include allowing for utility owner inspector to inspect the existing fire hydrant prior to reuse, contractor returning unusable fire hydrants to the utility owner warehouse and picking up a replacement hydrant for use, if the existing fire hydrant is determined unfit for reuse. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FIRE HYDRANT REMOVE This bid item includes removal of an abandoned fire hydrant, isolating valve, and valve box to the satisfaction of the engineer. The removed fire hydrant, isolating valve and valve box shall become the property of the contractor for his disposal as salvage or scrap. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FLUSH HYDRANT ASSEMBLY This item shall include the flushing hydrant assembly, service line, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the flush hydrant at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W FLUSHING ASSEMBLY This item shall include the flushing device assembly, service line, meter box and lid, tapping the main, labor, equipment, excavation, backfill, and restoration required to install the

flushing device at the location shown on the plans and in accordance with the specifications and standard drawings, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W LEAK DETECTION METER This item is for payment for installation of a water meter at main valve locations where shown on the plans for detection of water main leaks. The meter shall be of the size and type specified in the plans or specifications. This item shall include all labor, equipment, meter, meter box or vault, connecting pipes between main and meter, main taps, tapping saddles, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready for use. No separate payment will be made under any other contract item for connecting pipe or main taps. Any and all leak detection meters shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete and ready for use.

W LINE MARKER This item is for payment for furnishing and installing a water utility line marker as specified by the utility owner specifications and plans. A line marker may consist of a post or monument of whatever materials specified and shall include markings and/or signage on same as specified by plans or specifications. This item shall include all labor, equipment, and materials needed for complete installation of the marker. This item shall be paid EACH (EA) when complete.

W MAIN POINT RELOCATE This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the locations shown on the plans. This bid item is to be used to relocate an existing water main at point locations such as to clear a conflict at a proposed drainage structure, pipe or any other similar short relocation situation, and where the existing pipe material is to be reused. The contractor shall provide any additional pipe or fitting material needed to complete the work as shown on the plans and specifications. The materials provided shall be of the same type and specification as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case by case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Water Main Relocate shall not be paid on a linear feet basis; but, shall be Paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

W METER This item is for payment for installation of all standard water meters of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER ADJUST This item includes all labor, equipment, excavation, materials, backfill, restoration, and etc., to adjust the meter casting to finished grade (whatever size exists) at the location shown on the plans or as directed in accordance with the specifications and standard drawings complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER RELOCATE This item includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, and etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, and etc., from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. The new service pipe (if required) will be paid under short side or long side service bid items. Any and all meter relocations of 2 inches or less shall be paid under one bid item included in the contract regardless of size. Each individual relocation shall be paid individually under this item; however, no separate bid items will be established for meter size variations of 2 inches ID or less. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER VAULT SIZE RANGE 1 OR 2 This item is for payment for installation of an underground structure for housing of a larger water meter, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s) valve(s), all piping, and fitting materials associated with installing a functioning meter and vault in accordance with the plans, standard drawings, and specifications, complete and ready for use. The size shall be the measured internal diameter of the meter and piping to be installed. The size meter vault to be paid under size 1 or 2 shall be as follows:

Size Range 1 = All meter and piping sizes greater than 2 inches up to and including 6 inches
Size Range 2 = All meter and piping sizes greater than 6 inches

This item shall be paid EACH (EA) when complete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

W METER/FIRE SERVICE COMBO VAULT This item is for payment for installation of an underground structure for housing of a water meter and fire service piping, fittings, and valves as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or access doors, the specified meter(s), valve(s), all piping, and fitting materials associated with installing a functioning meter and fire service vault in accordance with the plans and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W METER WITH PRESSURE REDUCING VALVE (PRV) This item is for payment for installation of all standard water meters with pressure reducing valves (PRV) of all sizes 2 inches ID or less as specified on the plans. This item shall include all labor, equipment, meter, PRV, meter box, casting, yoke, and any other associated material needed for installation of a functioning water meter with PRV in accordance with the plans and specifications, complete and ready for use. This item shall include connections to the new or existing water service line. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

This item shall be paid EACH (EA) when complete.

W PIPE This description shall apply to all PVC, ductile iron, and polyethylene/plastic pipe bid items of every size and type to be used as water main, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test boxes (if required by specification), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, sanitizing, backfill, and etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings complete and ready for use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and proposed pavement, and wherever else specified on the plans or in the specifications. This item shall include all temporary and permanent materials and equipment required to pressure test and sanitize mains including, but not limited to, pressurization pumps, hoses, tubing, gauges, main taps, saddles, temporary main end caps or plugs and blocking, main end taps for flushing, chlorine liquids or tablets for sanitizing, water for testing/sanitizing and flushing (when not supplied by the utility), chlorine neutralization equipment and materials, and any other items needed to accomplish pressure testing and sanitizing the main installation. This item shall also include pipe anchors, at each end of polyethylene pipe runs when specified to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W PLUG EXISTING MAIN This item shall include the specified plug, concrete blocking and/or anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug in an existing in-service main that is to remain at the location shown on the plans or as directed in accordance with the specifications. Any and all plugs on all existing in-service mains shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

NOTE: This utility bid item is not to be paid on new main installations or abandoned mains. This pay item is to plug existing in-service mains only. Plugs on new mains are incidental to the new main just like all other fittings.

NOTE: Plugging of existing abandon mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications For Road And Bridge Construction and paid using Bid Code 01314 Plug Pipe.

W PRESSURE REDUCING VALVE This description shall apply to all pressure reducing valves (PRV) of every size required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for PRVs being installed with new main. This item includes the PRV as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), pit or vault, backfill, restoration, testing, disinfection, and etc., required to install the specified PRV at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, PRVs shall be restrained. PRV restraint shall be considered incidental to the

PRV and adjoining pipe. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W PUMP STATION This item is for payment for installation of pumps and an above or below ground structure for housing of the pumps. This item shall include all pumps, piping, fittings, valves, electrical components, building materials, concrete, any other appurtenances, labor, equipment, excavation, and backfill, to complete the pump station installation as required by the plans, standard drawings, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LUMP SUM (LS) when complete.

W REMOVE TRANSITE (AC) PIPE This item shall include all labor, equipment, and materials needed for removal and disposal of the pipe as hazardous material. All work shall be performed by trained and certified personnel in accordance with all environmental laws and regulations.
Any and all transite AC pipe removed shall be paid under one bid item included in the contract regardless of size. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

W SERVICE LONG SIDE This bid item description shall apply to all service line installations of every size bid up to and including 2 inch inside diameter, except those service bid items defined as "Special". This item includes the specified piping material, main tap, tapping saddle (if required), and corporation stop materials, coupling for connecting the new piping to the surviving existing piping, encasement of 2 inches or less internal diameter (if required by plan or specification), labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service installations where the ends of the service connection are on opposite sides of the public roadway and the service line crosses the centerline of the public roadway as shown on the plans. The length of the service line is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for special bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W SERVICE SHORT SIDE This bid item description shall apply to all service line installations of every size up to and including 2 inch internal diameter, except those service bid items defined as "Special". This item includes installation of the specified piping material of the size specified on plans, encasement of 2 inches or less internal diameter (if required by plan or specification), main tap, tapping saddle (if required), corporation stop, coupling for connecting the new piping to the surviving existing piping, labor, equipment, excavation, backfill, testing, disinfection, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and

ready for use. This bid item is to pay for service installations were both ends of the service connection are on the same side of the public roadway, or when an existing service crossing a public roadway will remain and is being extended, reconnected, or relocated with all work on one side of the public roadway centerline as shown on the plans. The length of the service line is not to be specified and shall not be restricted to any minimum or maximum length. Payment shall be made under this item even if the service crosses a private residential or commercial entrance; but, not a public roadway.
Private or commercial entrances shall not be considered a public roadway in defining payment under this item. The contractor shall draw his own conclusions as to the length of piping that may be needed. This pay item does not include installation or relocation of meters. Meters will be paid separately. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W SERVICE RELOCATE This item is for the relocation of an existing water service line where a meter is not involved, and where an existing service line can easily be adjusted by excavating alongside and moving the line horizontally and/or vertically a short distance without cutting the service line to avoid conflicts with road construction. This item shall include excavation, labor, equipment, bedding, and backfill to relocate the line in accordance with the plans and specifications complete and ready for use. Payment under this item shall be for each location requiring relocation. Payment shall be made under this item regardless of service size or relocation length. No separate pay items will be established for size or length variation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W STRUCTURE ABANDONMENT This item is to be used to pay for abandonment of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, and etc. Payment under this time shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to water construction, (i.e., abandonment of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in place and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W STRUCTURE REMOVAL This item is to be used to pay for removal of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, and etc. Payment under this time shall not be limited to size or scope; however structures with connecting pipes of 2 inches or less shall not be paid under this item; but, shall be considered incidental to water construction, (i.e., removal of standard water meters up to and including 2 inches would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted backfill for removal of the structure and restoration complete. No separate bid items will be established for size or structure variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W TAPPING SLEVE AND VALVE SIZE 1 OR 2 This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready for use in accordance with

the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

Size 1 = All live tapped main sizes up to and including 8 inches
Size 2 = All live tapped main sizes greater than 8 inches

Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W TIE-IN This bid description shall be used for all main tie-in bid items of every size except those defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, disinfection, testing and backfill required to make the water main tie-in as shown on the plans, and in accordance with the specifications complete and ready for use. Pipe for tie-ins shall be paid under separate bid items. This item shall be paid EACH (EA) when complete.

W VALVE This description shall apply to all valves of every size required in the plans and specifications except those bid items defined as "Special". Payment under this description is to be for gate or butterfly valves being installed with new main. This item includes the valve as specified in the plans and specifications, polyethylene wrap (if required by specification), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specification), restoration, testing, disinfection, and etc., required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. If required on plans and/or proposed adjoining DIP is restrained, valves shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. This description does not apply to cut-in valves. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE ANCHOR EXISTING This bid item is intended to pay for installation of restraint hardware on an existing valve where no restraint exists to hold the valve in place to facilitate tie-ins and other procedures where restraint is prudent. This work shall be performed in accordance with water specifications and plans. This bid item shall include all labor equipment, excavation, materials and backfill to complete restraint of the designated valve, regardless of size, at the location shown on the plans, complete and ready for use. Materials to be provided may include, but is not limited to, retainer glands, lugs, threaded rod, concrete, reinforcing steel or any other material needed to complete the restraint. Should the associated valve box require removal to complete the restraint, the contractor shall reinstall the existing valve box, the cost of which shall be considered incidental to this bid item. No separate bid items are being provided for size variations. All sizes shall be paid under one bid item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE BOX ADJUST Includes all labor, equipment, valve box and valve stem extensions (if required), excavation, backfill, concrete pad around valve box (when specified in specifications or plans), restoration, and etc., to adjust the top of the box to finished grade complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE CUT-IN This bid description is for new cut-in valve installations of all sizes where installation is accomplished by cutting out a section of existing main. This item shall include cutting the existing pipe, supplying the specified valve, couplings or sleeves, valve box, concrete pad around valve box (when required in specifications or plans), labor, equipment, and materials to install the valve at the locations shown on the plans, or as directed by the engineer, complete and ready for use. Any pipe required for installation shall be cut from that pipe removed or supplied new by the contractor. No separate payment will be made for pipe required for cut-in valve installation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

W VALVE VAULT This item is for payment for installation of an underground structure for housing of specific valve(s) as required by the plans and specifications. This item shall include all labor, equipment, excavation, concrete, manhole castings or doors, the specified valve(s), all piping, and fitting materials associated with installing a functioning valve vault in accordance with the plans, standard drawing, and specifications, complete and ready for use. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

WATER AND GAS SPECIFICATIONS

FOR

BRACKEN COUNTY WATER DISTRICT

AND

CITY OF BROOKSVILLE

TABLE OF CONTENTS

SPECIAL CONDITIONS

1. PROJECT CONSTRUCTION OBSERVATION

The construction observation services shall be provided by the ENGINEER. The Observer shall be on the project as much as possible; however, due to meetings, etc. there may be times when he is not with the crew. Therefore, the CONTRACTOR shall not backfill any main lines and/or appurtenances, structures or other installed infrastructure until the Observer has seen and accepted the work for payment.

Any work backfilled without the Observer's knowledge and consent shall not be allowed for payment to the CONTRACTOR and shall be uncovered for inspection at no additional cost to the OWNER or ENGINEER.

2. UNCLASSIFIED EXCAVATION

All excavation is unclassified. No extra payment will be allowed for rock excavation of any kind. It is the CONTRACTOR's responsibility to make any additional investigations to determine depth, location or competency of rock within the project area.

3. CONFLICTING SECTIONS/STATEMENTS IN CONTRACT DOCUMENTS

a. General

It shall be noted that if any provisions in these Contract Documents is in conflict and/or is inconsistent with any other section or provisions, then the most stringent shall apply per the interpretation of the ENGINEER and/or OWNER.

4. FEDERAL/STATE/LOCAL REGULATIONS

The CONTRACTOR shall abide by all local and state laws or ordinances to the extent that such requirements do not conflict with federal laws or regulations. Compliance with any and all applicable laws and/or regulations is strictly the CONTRACTOR's responsibility.

5. SILTATION AND SOIL EROSION

The CONTRACTOR shall make every effort during construction to minimize siltation and soil erosion and comply with all local and state codes that pertain to this project. Any applicable permits shall be the CONTRACTOR's responsibility to obtain, at no additional cost to the OWNER.

6. ROUGH CLEAN UP

a. Rough clean up shall be performed on a daily basis concurring with the daily rate of production for pay items, amounts and/or quantities listed in the schedule of values and/or Bid Schedule.

b. The CONTRACTOR is to provide sufficient labor and equipment for clean up as to not impede production schedules.

c. Rough clean up shall be defined as follows:

1. All open ditches shall be backfilled on a daily basis.

2. Debris (rocks, roots, timber, etc.) shall be removed from the job site on a daily basis. This material may be stockpiled with the consent of the OWNER and the ENGINEER in designated locations. Any such locations shall be arranged by the CONTRACTOR with the written consent of the property owner.

3. Remaining backfill material (soil) shall be windrowed back on top of the ditch line, compacted and leveled giving consideration for settlement.

d. At the direction of the ENGINEER, OWNER, or their appointed representatives, the CONTRACTOR shall readdress areas if identified as not being adequate in the initial rough clean up process.

7. QUANTITIES OF MATERIALS

The quantities of materials listed on the Bid Schedule are estimates only and are subject to changes in the field. The CONTRACTOR shall verify these quantities before ordering materials. In the event of an under run or over run of materials, the CONTRACTOR shall be responsible for any shipping and/or restocking fees.

8. DISPOSAL OF TRENCH WATER

The CONTRACTOR shall not dispose of any trench water by allowing it to enter any sanitary sewer system without first obtaining written permission to do so from the owner of said system. Documentation of written permission must be provided to the ENGINEER and OWNER.

9. RECORD DRAWINGS

The CONTRACTOR shall maintain a set of plans with current mark ups showing any changes made in the field to the location, orientation, etc. of any element of the project during construction. This set of plans shall be provided to the ENGINEER at the conclusion of the project and shall be used by the ENGINEER in developing the most accurate set of construction Record Drawings possible for the OWNER. Upon request by the CONTRACTOR, the set of plans shall be returned.

10. CASING PIPE SURVEY REQUIREMENTS

The CONTRACTOR shall provide a licensed land surveyor in the State of Kentucky to determine the horizontal and vertical location of all casing pipes under State and Federal highways on projects involving Kentucky Transportation Cabinet Utility Relocations. This information shall be provided to the ENGINEER along with the CONTRACTOR's field mark ups of the drawings to assist in the development of accurate Record Drawings.

11. CONTRACTOR SURVEY REQUIREMENTS

At the conclusion of a project, the CONTRACTOR shall provide the ENGINEER with electronic survey data from a licensed Professional Land Surveyor in the state of Kentucky. The provided data shall include horizontal and elevation data for the rim, invert and any other penetrations of all structures involved in the project. The data shall also include horizontal data for water lines, gas lines, water valves, gas valves, hydrants, meters, casing pipes and any other items that would be deemed relevant by the ENGINEER. The data shall be in a format and coordinate system stipulated by the ENGINEER and shall be provided to the ENGINEER prior to final payment to the CONTRACTOR.

12. PIPELINE TESTING

CONTRACTOR shall pressure test sections of water line or force main no greater than 3,500 feet in length. Gravity sewers shall be tested in sections between manholes.

Water main shall be tested in accordance with the pressures list7ed in the table below and the contents of the technical specifications.

Pipe Classification	Test Pressure
PVC SDR-21, Cl. 200	185 psi
PVC SDR-17, Cl. 250	215 psi
PVC C-900 DR14, Cl. 200	250 psi
Ductile Iron, Cl. 350	350 psi

13. PROJECT REQUIREMENTS

All Contractors bidding this project should be aware of the following requirements; while not all inclusive, the list is representative of those items that will be enforced by the Engineer during this project.

Contractor shall use the following materials:

A. Installation of Trace Wire-Contractor to install #14 AWG THWN Insulated Copper Wire along all water main. Trace Wire shall be attached to the top of pipe with duct tape. Tracer wire shall also be run up into meter boxes and be connected to the locater pin on concrete collars for valves. All splices shall be made with silicone filled wire connectors.

B. METER SETTER: MUELLER model B-2577-2

C. TANDEM SETTER: MUELLER model B-2577-R208

D. PRESSURE REGULATOR for tandem setter: WILKINS #600 LUSC and shall include the necessary fittings and ''S'' tube and shall be installed in setter.

E. METER: BADGER Model 25 – 5/8''x3/4'' with Orion RTR Transmitter.

F. CORP. STOP: MUELLER H-15008 with inlet tapered thread & CTS compression fitting.

G. SERVICE LINE: ¾'' CTS 200 psi for short side services and 1'' CTS 200 psi for long side services.

H. TAPPING SADDLES: MUELLER brass series S-1300 with AWWA tapered threads.

I. METER BOXES: 18''x24'' Hancore

J. METER LIDS: Pro-Source Model PS500

K. All gate valves on branch line of tees and fire hydrant tees shall be mechanically restrained in addition to thrust blocking and shall be sized appropriately for the line used.

L. Flush hydrants shall be Mueller Centurion Single Nozzle Flush Hydrant. Hydrant shoe and isolation valve shall be the same size as the water main.

M. Fire hydrants shall be Mueller Super Centurion A423 with a 6'' shoe.

SECTION 01016
Occupancy

PART 1 GENERAL

1.1 PARTIAL OCCUPANCY BY OWNER

Whenever, in the opinion of the OWNER, any section or portion of the Work or any structure is in suitable condition, it may be put into use upon the written order of the OWNER and such usage will not be held in any way as an acceptance of said Work or structure, or any part thereof, or as a waiver of any of the provisions of these Specifications and the Contract. Pending final completion and acceptance of the Work, all necessary repairs and replacements, due to defective materials or workmanship or operations of the CONTRACTOR, for any section of the Work so put into use shall be performed by the CONTRACTOR at CONTRACTOR'S own expense.

END OF SECTION

SECTION 01041
Project Coordination

PART 1 GENERAL

1.1 SCOPE

A. Management of the Project shall be through the use of a logical method of construction planning, inspection, scheduling and cost value documentation.

B. The work under this Section includes all surface and subsurface condition inspections and coordination by the CONTRACTOR necessary for the proper and complete performance of the Work.

C. This Section applies to the work of every division and every section of these Specifications.

1.2 SITE CONDITIONS

A. Inspection

1. Prior to performing any work under a section, the CONTRACTOR shall carefully inspect the installed work of other trades and verify that all such work is complete to the point where the work under that section may properly commence.

2. The CONTRACTOR shall verify that all materials, equipment and products to be installed under a section may be installed in strict accordance with the original design and pertinent reviewed shop drawings.

B. Discrepancies

1. In the event of discrepancy, immediately notify the ENGINEER.

2. Do not proceed with construction in areas of discrepancy until all such discrepancies have been fully resolved.

1.3 COORDINATION

A. Carefully coordinate work with all other trades and subcontractors to insure proper and adequate interface of the work of other trades and subcontractors with the work of every section of these Specifications.

B. The CONTRACTOR shall coordinate operations with all utility companies in or adjacent to the area of CONTRACTOR's work. The CONTRACTOR shall require said utilities to identify in the field their property and provide drawings as necessary to locate them.

END OF SECTION

SECTION 01055
Construction Staking

PART 1 GENERAL

1.1 SCOPE

A. Construction staking shall include all the surveying work required to layout the Work and control the location of the finished construction. The full responsibility for holding to alignment and grade shall rest upon the CONTRACTOR. All work under this Contract shall be constructed in accordance with the lines and grades on the Drawings or as given by the ENGINEER or OWNER.

B. The OWNER will provide one bench mark and a baseline adjacent to the work site. The CONTRACTOR shall be responsible for setting offsets from these points and all other layout, staking and all other surveying required for the Work.

C. The CONTRACTOR shall safeguard all points, stakes, grade marks, bench marks and monuments established on the Work, shall bear the cost of re-establishing same if disturbed and shall assume the entire expense of rectifying work improperly constructed due to failure to maintain and protect such established points, stakes and marks.

D. Measurement of quantities for payment purposes which are different from drawing dimensions is included in this work.

1.2 QUALITY ASSURANCE

A. The CONTRACTOR shall furnish documentation prepared by a surveyor currently registered in the State of Kentucky confirming that staking is being done to the lines and grades shown in the Contract Documents. This requires that the CONTRACTOR hire, at the CONTRACTOR's own expense, a currently registered surveyor, acceptable to the OWNER, to provide ongoing confirmation of construction staking.

B. Any deviations from the Drawings shall be confirmed by the ENGINEER prior to construction.

PART 2 PRODUCTS

2.1 EQUIPMENT

The CONTRACTOR shall furnish and use surveying equipment and supplies maintained in good working order.

PART 3 EXECUTION

3.1 FINAL GRADES

Any variance with plan grades shall be identified by the surveyor and confirmed by the ENGINEER prior to installation of any improvements.

3.2 UTILITIES

A. Staking of utilities shall be done in accordance with generally accepted practice for the type of utility involved and as specified elsewhere in these Specifications.

END OF SECTION

SECTION 01340
Shop Drawings, Product Data and Samples

PART 1 GENERAL

1.1 SCOPE

A. The work under this Section includes submittal to the ENGINEER of shop drawings, product data and samples required by the various sections of these Specifications.

B. Submittal Contents: The submittal contents required are specified in each section.

C. The following forms shall be used for all major components of the work:

1. Typical Maintenance Summary Form

2. Notice of Start of Manufacturing

3. Notice of Shipment of Equipment

4. Notice of Schedule Impact

The forms are included at the back of this section.

D. Definitions: Submittals are categorized as follows:

1. Shop Drawings

a. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.

b. Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated) or appropriate number of prints hereof, with name or preparer (firm name) indicated. The Contract Drawings shall not be traced or reproduced by any method for use as or in lieu of detail shop drawings. Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action" markings by the ENGINEER to be used in connection with the Work.

c. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, specification section, schedule or room numbers shown on the Contract Drawings.

d. Minimum assembly drawings sheet size shall be 24 x 36-inches.

e. Minimum detail sheet size shall be 8-1/2 x 11-inches.

f. Minimum Scale:
(1) Assembly Drawings Sheet, Scale: 1-inch = 30 feet.

(2) Detail Sheet, Scale: 1/4-inch = 1 foot.

2. Product Data

a. Product data includes standard printed information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.

b. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.

3. Samples

a. Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or, where indicated, for more detailed testing and analysis.

b. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples, not less than three units, where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where the ENGINEER'S selection is required. Prepare samples to match the ENGINEER'S sample where indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the ENGINEER. ENGINEER will note "test" samples, except as otherwise indicated, for other requirements, which are the exclusive responsibility of the

CONTRACTOR.

4. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the Work but not processed as shop drawings, product data or samples.

1.2 SPECIFIC CATEGORY REQUIREMENTS

A. General: Except as otherwise indicated in the individual work sections, comply with general requirements specified herein for each indicated category of submittal. Submittals shall contain:

1. The date of submittal and the dates of any previous submittals.

2. The Project title.

3. Numerical submittal numbers, starting with 1.0, 2.0, etc. Revisions to be numbered 1.1, 1.2, etc.

4. The Names of:

   a. Contractor

   b. Supplier

   c. Manufacturer

5. Identification of the product, with the Specification section number, permanent equipment tag numbers and applicable Drawing No.

6. Field dimensions, clearly identified as such.

7. Relation to adjacent or critical features of the Work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.

9. Notification to the ENGINEER in writing, at time of submissions, of any deviations on the submittals from requirements of the Contract Documents.

10. Identification of revisions on resubmittals.

11. An 8 x 3-inch blank space for CONTRACTOR and ENGINEER stamps.

12. CONTRACTOR'S stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the Work and of Contract Documents.

13. Submittal sheets or drawings showing more than the particular item under consideration shall have all but the pertinent description of the item for which review is requested crossed out.

1.3 ROUTING OF SUBMITTALS

A. Submittals and routine correspondence shall be routed as follows:

1. Supplier to CONTRACTOR (through representative if applicable)

2. CONTRACTOR to ENGINEER

3. ENGINEER to CONTRACTOR and OWNER

4. CONTRACTOR to Supplier

1.4 ADDRESS FOR COMMUNICATIONS

Engineer: HMB Professional Engineers, Inc.
3 HMB Circle
Frankfort, KY 40601
OFFICE (502) 695-9800
FAX (502) 695-9810

PART 2 PRODUCTS

2.1 SHOP DRAWINGS

A. Unless otherwise specifically directed by the ENGINEER, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the Work.

B. Submit all shop assembly drawings, larger than 11 x 17-inches, in the form of one reproducible transparency with two opaque prints or bluelines.

C. Submit all shop drawings, 11 x 17-inches and smaller, in the form of six opaque

prints or bluelines.

D. One reproducible for all submittals larger than 11 x 17-inches and no more than three prints of other submittals will be returned to the CONTRACTOR.

2.2 MANUFACTURER'S LITERATURE

A. Where content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for the ENGINEER'S review.

B. Submit the number of copies which are required to be returned (not to exceed three) plus three copies which will be retained by the ENGINEER.

2.3 SAMPLES

A. Samples shall illustrate materials, equipment or workmanship and established standards by which completed work is judged.

B. Unless otherwise specifically directed by the ENGINEER, all samples shall be of the precise article proposed to be furnished.

C. Submit all samples in the quantity which is required to be returned plus one sample which will be retained by the ENGINEER.

2.4 COLORS

A. Unless the precise color and pattern is specifically described in the Contract Documents, wherever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the ENGINEER for review and selection.

B. Unless all available colors and patterns have identical costs and identical wearing capabilities, and are identically suited to the installation, completely describe the relative costs and capabilities of each.

PART 3 EXECUTION

3.1 CONTRACTOR'S COORDINATION OF SUBMITTALS

A. Prior to submittal for the ENGINEER'S review, the CONTRACTOR shall use all means necessary to fully coordinate all material, including the following procedures:

1. Determine and verify all field dimensions and conditions, catalog numbers and similar data.

2. Coordinate as required with all trades and all public agencies involved.

3. Submit a written statement of review and compliance with the requirements of all applicable technical Specifications as well as the requirements of this Section.

4. Clearly indicate in a letter or memorandum on the manufacturer's or fabricator's letterhead, **all deviations** from the Contract Documents.

B. Each and every copy of the shop drawings and data shall bear the CONTRACTOR'S stamp showing that they have been so checked. Shop drawings submitted to the ENGINEER without the CONTRACTOR'S stamp will be returned to the CONTRACTOR for conformance with this requirement.

C. The Owner may backcharge the CONTRACTOR for costs associated with having to review a particular shop drawing, product data or sample more than two times to receive a "No Exceptions Taken" mark.

D. Grouping of Submittals

1. Unless otherwise specifically permitted by the ENGINEER, make all submittals in groups containing all associated items.

2. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the CONTRACTOR'S responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to the ENGINEER along with CONTRACTOR'S comments as to compliance, non-compliance or features requiring special attention.

E. Schedule of Submittals: Within 30 days of Contract award and prior to any shop drawing submittal, the CONTRACTOR shall submit a schedule showing the estimated date of submittal and the desired approval date for each shop drawing anticipated. A reasonable period shall be scheduled for review and comments. Time lost due to unacceptable submittals shall be the CONTRACTOR'S responsibility and some time allowance for resubmittal shall be provided. The schedule shall provide for submittal of items which relate to one another to be submitted concurrently.

3.2 TIMING OF SUBMITTALS

A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for

possible revision and resubmittal, and for placing orders and securing delivery.

B. In scheduling, allow sufficient time for the ENGINEER'S review following the receipt of the submittal.

3.3 REVIEWED SHOP DRAWINGS

A. ENGINEER Review

1. Allow a minimum of 14 days for the ENGINEER'S initial processing of each submittal requiring review and response, except allow longer periods where processing must be delayed for coordination with subsequent submittals. The ENGINEER will advise the CONTRACTOR promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the ENGINEER on each submittal as to whether processing time is critical to progress of the Work, and therefore the Work would be expedited if processing time could be foreshortened.

2. Acceptable submittals will be marked "No Exceptions Taken". A minimum of three copies will be retained by the ENGINEER for ENGINEER'S and the OWNER'S use and the remaining copies will be returned to the CONTRACTOR.

3. Submittals requiring minor corrections before the product is acceptable will be marked "Make Corrections Noted". The CONTRACTOR may order, fabricate and ship the items included in the submittals, provided the indicated corrections are made. Drawings must be resubmitted for review and marked "No Exceptions Taken" prior to installation or use of products.

4. Submittals marked "Amend and Resubmit" must be revised to reflect required changes and the initial review procedure repeated.

5. The "Rejected - See Remarks" notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the CONTRACTOR shall repeat the initial review procedure utilizing acceptable products.

6. Only two copies of items marked "Amend and Resubmit" and "Rejected - See Remarks" will be reviewed and marked. One copy will be retained by the ENGINEER and the other copy with all remaining unmarked copies will be returned to the CONTRACTOR for resubmittal.

B. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The CONTRACTOR shall maintain at the job site a complete set of shop drawings bearing the ENGINEER'S stamp.

C. Substitutions: In the event the CONTRACTOR obtains the ENGINEER'S approval for the use of products other than those which are listed first in the Contract Documents, the CONTRACTOR shall, at the CONTRACTOR'S own expense and using methods approved by the ENGINEER, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.

D. Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the CONTRACTOR of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The ENGINEER'S review shall not relieve the CONTRACTOR of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The CONTRACTOR is responsible for dimensions to be confirmed and correlated at the job site. The CONTRACTOR is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

3.4 RESUBMISSION REQUIREMENTS

A. Shop Drawings

1. Revise initial drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.

2. Indicate on drawings all changes which have been made other than those requested by the ENGINEER.

B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal, with the resubmittal number shown.

END OF SECTION

SECTION 02010
Subsurface Conditions

PART 1 GENERAL

1.1 DESCRIPTION

A. Investigation: The CONTRACTOR shall visit the site and become acquainted with site conditions. Prior to bidding, prospective CONTRACTORS may make their own site and subsurface investigations to satisfy themselves with site and subsurface conditions. The CONTRACTOR shall be responsible for obtaining rights of ingress and egress to private property for site and subsurface investigation and shall assume all responsibility for any damage to property caused as a result of the CONTRACTOR's investigation.

B. No geotechnical investigation has been performed on this site for the utilities. The CONTRACTOR is responsible for making their own determination of subsurface conditions.

END OF SECTION

SECTION 02200
Earthwork

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Extent of earthwork is indicated on the Drawings.

1. Excavation and backfill of trenches for water lines, sewer lines, gas lines, and associated items.

1.2 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of any governing authorities having jurisdiction.

B. Compaction requirements will be the same as specified for the roadway construction.

1.3 JOB CONDITIONS

A. Existing Utilities: Prior to commencement of work, the CONTRACTOR shall locate existing underground utilities in areas of the work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

B. Use of Explosives: The CONTRACTOR (or any of his subcontractors) shall not bring explosives onto site or use in work without prior written permission from the OWNER. All activities involving explosives shall be in compliance with the rules and regulations of the Kentucky Department of Mines and Minerals, Division of Explosives and Blasting and any other Governing Authorities having Jurisdiction. CONTRACTOR is solely responsible for handling, storage, and use of explosive materials when their use is permitted.

1. The CONTRACTOR shall not be permitted to utilize any explosives prior to submitting an acceptable Pre-Blast Survey to the ENGINEER and OWNER of any structures within 500 feet of any proposed blast. Pre-Blast Survey shall be conducted by a qualified and approved independent third party at the expense of the CONTRACTOR

C. Protection of Persons and Property

1. Barricade open excavations occurring as part of this work and post with warning lights.

a. Operate warning lights as recommended by authorities having jurisdiction.

b. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

c. There shall be no pipeline ditches left open overnight. The CONTRACTOR is solely responsible for project site safety.

PART 2 EXECUTION

2.1 EXCAVATION

A. Excavation for Pavements

1. Cut surface under pavements to comply with cross-sections, elevations, and grades as shown.

B. Trench Excavation

1. The CONTRACTOR shall include in his unit price for piping all trenching and backfill necessary for installation of all pipelines as planned and specified. Trenching shall include clearing and grubbing of all trash, weeds, briars, trees, stumps encountered in trenching. The CONTRACTOR shall dispose of such material at no extra cost to the OWNER. Shrubs shall be removed, maintained and replanted in the same or adjacent location as the ENGINEER or owner may direct. Trenching also includes such items as railroad, street, road, sidewalk, pipe, and small creek crossings; cutting, moving or repairing damage to fences, posts, gates, and other surface structures regardless of whether shown on the Drawings.

2. All existing facilities shall be protected from danger or damage while pipelines are being constructed and backfilled, and from damage due to settlement of the backfill.

3. In the event any existing structure is damaged, repair and restoration shall be made at once and backfill shall not be replaced until this is done. Restoration and repair shall be such that the damaged structure is equal to or better than its original condition and can serve its purpose as completely as before, per the interpretation of the ENGINEER and/or OWNER. All such restoration and repair shall be done without extra cost to the OWNER.

4. Trenches must be dug to lines and grades shown on the Drawings. Hand trenching may be required in areas where machine trenching would result in undue damage to existing structures and facilities.

5. Excavation shall be open trenches, except where otherwise shown on the Drawings, for tunneling, boring, or jacking under structures, railroad, sidewalks and roads.

6. Sheeting and shoring of trenches shall be provided at the expense of the CONTRACTOR where necessary to protect life, property and the new or existing structures from damage or to maintain maximum permissible trench widths at top of pipe. All necessary materials, including, but not limited to, sheeting, sheet piling, trench jacks, braces, shores and stringers, shall be used to hold trench walls. Sheeting and shoring may be withdrawn as the trenches are being backfilled, after backfill has been tamped over top of the pipe at least 18 inches. If removal before backfill is completed to surface endangers adjacent structures, such as buildings, pipelines, street paving, and sidewalks, then the sheeting and shoring shall be left in place until such danger has passed, and then pulled if practical. Voids caused by sheeting withdrawal shall be backfilled and tamped. If not withdrawn, sheeting shall be cut off at least 18 inches below final surface grade, so there is no obstruction at the ground level. In the event the OWNER directs the CONTRACTOR to leave shoring materials in place, the OWNER will reimburse the CONTRACTOR for the reasonable cost of leaving such materials in place.

7. Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction, and instability caused by neglect of the CONTRACTOR, the necessary stabilization shall be paid for at unit prices established in the Contract. In the event no particular bid price is applicable, then the payment for stabilization will be negotiated.

8. The location of the pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before construction on any line is started that would indicate desirable changes in location. The OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by extra units of materials and construction actually involved. The OWNER is under no obligation to locate pipelines so they may be excavated by machine or otherwise for the convenience of the CONTRACTOR.

9. Tunneling and/or directional bores may be used at the CONTRACTOR’S option as an alternate to open-cut trenching, at no extra cost to the OWNER. The annular space between plates and excavation shall be either permanently placed pea gravel or sand, pumped grout (3 parts sand and 1 part Portland cement by volume) or other suitably installed material approved by the ENGINEER. Backfilling shall be kept close to the heading and completed after each day's work. Where grout is used for backfill, injection holes with threaded plugs shall be provided in linear

plates at various levels and in sufficient number of effectively grout to void around the tunnel. A minimum of 3 grout holes shall be provided in each 8 feet of tunnel length. Grout shall be injected in the lower holes first, proceeding upward as the void is filled. Plugs shall be installed after each hole is filled and grout stops shall be provided behind plates as necessary to ensure complete filling of the void. In tunneling under buildings, the CONTRACTOR will be responsible for all damage resulting from his operations and methods of excavation and backfilling. Boring may also be used at the CONTRACTOR'S option as an alternate to tunneling or open-cut trenching, at no extra cost to the OWNER.

10. Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe or conduit.

    a. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.

    b. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6-inch layer of crushed stone or gravel prior to installation of pipe.

    c. For pipes or conduit 3 inches or less in nominal size and for flat-bottomed, multiple-duct conduit units, excavate to subbase depth indicated or, if not indicated, then to 4 inches below bottom of work to be supported.

    d. For pipes or conduit 6 inches or larger in nominal size, tanks, and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth indicated or, if not otherwise indicated, to 6 inches below bottom of work to be supported.

    e. Except as otherwise indicated, excavation for exterior water-bearing piping (water, steam, condensate, drainage) so top of piping is no less than 3 feet 0 inches below finish grade.

    f. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

    g. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.

    h. Concrete is specified in Division 3.

i. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the ENGINEER or OWNER. Use care in backfilling to avoid damage or displacement of pipe systems.

j. For piping or conduit less than 3 feet 0 inches below surface of roadways, furnish and install steel casing pipe, minimum wall thickness of 1/4", of sufficient diameter to carry the pipe or conduit and spacers to at least two feet beyond outside edge of pavement or as required by Governing Authorities (typically not less than Ditchline to Ditchline).

C. Cold Weather Protection

1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F (1°C).

2.2 BACKFILL AND FILL

A. Backfilling Trenches

1. Backfilling shall be accomplished as soon as practical after pipe has been laid and jointing and alignment approved and after the OWNER or ENGINEER has observed the work. Packing of crushed rock between joints shall be the usual procedure as the laying progresses. This is in order to avoid danger of misalignment from slides, flooding or other causes. Any work backfilled prior to acceptance by the OWNER or ENGINEER is at the CONTRACTOR'S risk. Upon Request, the CONTRACTOR shall uncover any such wok for inspection at no cost to the OWNER or ENGINEER.

2. Soil compaction during construction shall be as specified for the roadway construction.

3. Any special requirements of the Transportation Cabinet in regard to backfilling will take precedence over the following general Specifications.

4. The backfill over the pipe shall be in accordance with the standard details shown on the Drawings for bedding and backfilling pipe and any other applicable sections of the Contract Documents.

5. Flowable fill shall be used as backfill for utilities located within roadway as shown on the typical detail.

6. In case maximum permissible trench widths (as designated by the pipe manufacturer) are exceeded, the CONTRACTOR shall furnish crushed rock backfill or flowable fill to a minimum of 12 inches over the top of pipe at no extra cost to the OWNER.

7. In the case of street, highway, sidewalk and driveway crossings; or within any roadway paving; or about manholes, valve and meter boxes; the backfill must be mechanically tamped in not over 6 inch layers, measured loose. Alternate method of compacting backfill shall be used, if refill material is in large hard lumps (crushed rock excepted) which cannot be consolidated without leaving voids.

8. In the case of tunnels, the annular space between plates and excavation shall be either permanently placed pea gravel or sand, pump grout (3 parts sand and 1 part Portland cement by volume) or other suitably installed material approved by the ENGINEER. Backfilling shall be kept close to the heading and completed after each day's work. Where grout is used for backfill, injection holes with threaded plugs shall be provided in liner plates at various levels and in sufficient number to effectively grout the void around the tunnel. A minimum of 3 grout holes shall be provided in each 8 feet of tunnel length. Grout shall be injected in the lower holes first, proceeding upward as the void is filled. Plugs shall be installed after each hole is filled and grout stops shall be provided behind plates as necessary to ensure complete filling of the void.

9. Where traffic on streets, driveways, sidewalks and highways requires temporary surfacing, backfilling shall be terminated 4 inches below original ground level and 4 inches to 6 inches of dense graded aggregate shall be placed on the trench. Backfills shall be maintained easily passible to traffic at original ground level, until acceptance of project or replacement of paving or sidewalks.

10. The CONTRACTOR shall protect all sewer, gas, electric, telephone, water and drain pipes or conduits from damage while pipelines are being constructed and backfilled, and from danger due to settlement of trench backfill. Any repairs required as a result of Project Construction Activities by the CONTRACTOR shall be accomplished by the CONTRACTOR at no cost to the OWNER or ENGINEER.

11. No extra payment shall be made for backfilling of any kind, except as specified hereinbefore. Backfilling shall be included as a part of the lump sum bid for pipelines. No extra payment will be made to the CONTRACTOR for supplying outside materials for backfill.

12. On completion of the project, all backfills shall be dressed; holes filled; and surplus material hauled away. All permanent walks, street paving, roadway, etc., shall be restored and seeding and sodding performed as required. The CONTRACTOR shall return to the Project Site at any time within the Warranty Period to address any deficiencies in the above work at no cost to the OWNER.

2.3 GRADING

A. General

1. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

2.4 PAVEMENT SUBBASE COURSE

A. General

1. Subbase course consists of placing subbase material, in layers of specified thickness, over subgrade surface to support a pavement base course.

2. See other roadway specifications for paving specifications. In ALL cases requirements of the Kentucky Transportation Cabinet shall be met by the CONTRACTOR.

2.5 MAINTENANCE

A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

C. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

END OF SECTION

SECTION 02255

Crushed Stone and Dense Graded Aggregate

PART 1 GENERAL

1.1 SCOPE

A. Furnish and install crushed stone for miscellaneous uses as shown on the Drawings, as called for in the Specifications.

B. Sizes, types, and quality of crushed stone are specified in this Section, but its use for replacement of unsuitable material, pavement base, and similar uses is specified in detail elsewhere in the Specifications. The ENGINEER may order the use of crushed stone for purposes other than those specified in other sections, if, in his opinion, such use is advisable. Payment for same will be subject to negotiation.

PART 2 PRODUCTS

2.1 MATERIALS

A. When referred to in these Specifications, crushed stone shall be Number 57 graded in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Latest Edition, unless otherwise noted.

B. When referred to in these Specifications, dense graded aggregate (DGA) shall be crushed stone classified by the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Latest Edition, and conforming to the following requirements:

Sieve Size	Percent Passing
1 inch	100
3/4 inch	70-100
3/8 inch	50-80
#4	35-65
#10	25-50
#40	15-30
#200	5-12

PART 3 EXECUTION

3.1 INSTALLATION

A. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross sections, and depths. No minimum compacted density, method of compaction, or compaction equipment is required since a nominal amount of compaction effort with vibration can establish the desired intergranular locking of the aggregate under controlled placement depth. Acceptable compaction can be achieved with pneumatic-tired and tracked equipment and rollers.

B. All compaction operation shall be performed to the satisfaction of the ENGINEER.

C. Crushed stone shall be placed in those areas as shown on the Drawings, as may be directed by the ENGINEER and as required by the Contract Documents.

END OF SECTION

SECTION 02665
Water Mains and Accessories

PART 1 GENERAL

1.01 SCOPE

A. This Section describes products to be incorporated into the water mains and requirements for the installation and use of these items. Furnish all products and perform all labor necessary to fulfill the requirements of these Specifications.

B. General: Supply all products and perform all work in accordance with applicable American Society for Testing and Material (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), or other recognized standards. Latest revisions of all standards are applicable.

1.02 QUALIFICATIONS

If requested by the ENGINEER, submit evidence that manufacturers have consistently produced products of satisfactory quality and performance for a period of at least two years.

1.03 SUBMITTALS

Complete shop drawings and engineering data for all products shall be submitted to the ENGINEER in accordance with the requirements of Section 01340 of these Specifications.

1.04 TRANSPORTATION AND HANDLING

A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Do not drop or dump materials. Any materials dropped or dumped will be subject to rejection without additional justification. Pipe handled on skids shall not be rolled or skidded against the pipe on the ground.

B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front end loader. Do not use material damaged in handling. Slings, hooks or pipe tongs shall be

padded and used in such a manner as to prevent damage to the exterior coatings or internal lining of the pipe.

1.05 OWNER FURNISHED MATERIALS (Not Used)

1.06 STORAGE AND PROTECTION

A. Store all pipe which cannot be distributed along the route. CONTRACTOR shall make arrangements for the use of suitable storage areas.

B. Stored materials shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt or foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

C. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tier shall be kept off the ground on timbers, rails or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. At least two rows of timbers shall be placed between tiers and chocks, affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipe in adjacent tiers.

D. Stored mechanical and push-on joint gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.

E. Mechanical-joint bolts shall be handled and stored in such a manner that will ensure proper use with respect to types and sizes.

1.07 QUALITY ASSURANCE

The manufacturer shall provide written certification to the ENGINEER that all products furnished comply with all applicable requirements of these Specifications.

PART 2 PRODUCTS

2.01 PIPING MATERIALS AND ACCESSORIES

A. Ductile Iron Pipe (DIP)

1. Ductile iron pipe shall be manufactured in accordance with AWWA C151 (latest edition). All pipe, except specials, shall be furnished in nominal lengths of 18 to 20 feet. Sizes will be as shown on the Drawings. All pipe shall have a minimum pressure rating as indicated in the following table, and corresponding minimum wall thickness, unless otherwise specified or shown on the Drawings:

Pipe Sizes (inches)	Pressure Class (psi)
4 - 12	350
14 - 18	250
20	250
24	200
30 - 54	250
60 - 64	200

2. Flanged pipe minimum wall thickness shall be equal to Special Class 53. Flanges shall be furnished by the pipe manufacturer.

3. Pipe and fittings shall be cement lined in accordance with AWWA C104 (latest edition). Pipe and fittings shall be furnished with a bituminous outside coating.

4. Fittings shall be ductile iron and shall conform to AWWA C110 or AWWA C153 (latest edition) with a minimum rated working pressure of 250 psi or as indicated on plans.

5. Joints

   a. Unless shown or specified otherwise, joints shall be push-on or restrained joint type for pipe and standard mechanical, push-on or restrained joints for fittings. Push-on and mechanical joints shall conform to AWWA C111 (latest edition). Restrained joints for pipe and fittings shall be American "FLEX-RING" or "LOK-RING", Clow "SUPER-LOCK", or U.S. Pipe "TR FLEX". No field welding of restrained joint pipe will be permitted. No mega lug type restraints are allowed on 24" and 30" water line.

   b. Restrained joint pipe (RJP) on supports shall have bolted joints and shall be specifically designed for clear spans of at least 36 feet.

c. Flanged joints shall meet the requirements of ANSI B16.1, Class 125.

6. Provide the appropriate gaskets for mechanical and flange joints. Gaskets for flange joints shall be made of 1/8-inch thick, cloth reinforced rubber; gaskets may be ring type or full face type.

7. Provide the necessary bolts for mechanical, restrained and flange connections. Bolts for flange connections shall be steel with American Regular unfinished square or hexagon heads. Nuts shall be steel with American Standard Regular hexagonal dimensions, all as specified in ANSI B17.2. All bolts and all nuts shall be threaded in accordance with ANSI B1.1, Coarse Thread Series, Class 2A and 2B fit. Mechanical joint glands shall be ductile iron.

8. Acceptance will be on the basis of the ENGINEER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards.

9. If the water main is located within a 200 feet radius of an underground storage tank (UST), special rubber gaskets shall be provided for the water main joints. These gaskets shall be manufactured of ''nitrate rubber'' material or other acceptable material possessing superior resistance to deterioration from petroleum based products. This requirement will apply to the gaskets supplied for mechanical joints and push-on joints.

B. Polyvinyl Chloride Pipe (PVC) - **(C-900)**

1. All PVC pipe shall have belled ends for push-on type jointing and shall conform to AWWA C900, ductile iron pipe equivalent outside diameters. The pipe shall have a Dimension Ratio (DR) of **14** and shall be capable of withstanding a working pressure of **200** psi. Pipe shall be supplied in minimum lengths of 20 feet.

2. All fittings shall be of cast or ductile iron meeting the requirements of AWWA C110 or AWWA C153 with a minimum rated working pressure of **250** psi. Fittings shall be cement lined in accordance with AWWA C104. Fittings shall be furnished with a bituminous outside coating. Special adapters shall be provided, as recommended by the manufacturer, to adapt the PVC pipe to mechanical jointing with cast or ductile iron pipe, fittings or valves.

3. Detection tape shall be provided over all PVC water mains.

4. Acceptance will be on the basis of the ENGINEER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards, including the National Sanitation Foundation. Additionally, each piece of pipe shall be stamped "NSF Approved".

C. Polyethylene Pipe and Fittings

1. The CONTRACTOR shall furnish and install high density polyethylene pipe meeting these Specifications at the locations indicated on the Plans and in other sections of these Specifications.

a. High Density polyethylene pipe shall be manufactured and tested in conformance to the requirements of the latest revision of the American Society for Testing and Materials designation ASTM D-3350 ''Polyethylene Plastic Pipe and Fittings Materials''.

b. High density Polyethylene pipe shall have a grade designation of PE 3406 and a cell classification designation of P 355434C.

c. High density polyethylene pipe shall be joined by means of butt fusion.

d. Fittings for high density polyethylene pipe shall be manufactured of the same materials as the pipe. Unless otherwise indicated, all fittings shall be joined to the pipe by butt fusion techniques.

2.02 VALVES

A. Gate Valves (GV)

1. 3-Inches in Diameter and Smaller: Gate valves shall be bronze, heavy duty, rising stem, wedge type with screwed or union bonnet. Valve ends shall be threaded or solder type as appropriate. Valves shall have a minimum 200 psi working pressure for water (125 psi working pressure for steam). Valves shall be made in the U.S.A. Gate valves shall be equal to Crane No. 428 (threaded) or Crane No. 1334 (solder end).

2. 4-Inches Through 12-Inches in Diameter: Gate valves 4-inches through 12-inches shall be resilient wedge type conforming to the requirements of AWWA C509 rated for 200 psi working pressure.

   a. Valves shall be provided with two O-ring stem seals with one O-ring located above and one O-ring below the stem collar. The area between the O-rings shall be filled with lubricant to provide lubrication to the thrust collar bearing surfaces each time the valve is operated. At least one anti-friction washer shall be utilized to further minimize operating torque. All seals between valve parts, such as body and bonnet, bonnet and bonnet cover, shall be flat gaskets or O-rings.

   b. The valve gate shall be made of cast iron having a vulcanized, synthetic rubber coating, or a seat ring attached to the disc with retaining screws. Sliding of the rubber on the seating surfaces to compress the rubber will not be allowed. The design shall be such that compression-set of the rubber shall not affect the ability of the valve to seal when pressure is applied to either side of the gate. The sealing mechanism shall provide zero leakage at the water working pressure when installed with the line flow in either direction.

   c. All internal ferrous surfaces shall be coated with epoxy to a minimum thickness of 4 mils. The epoxy shall be non-toxic, impart no taste to the water and shall conform to AWWA C550, latest revision.

   d. Gate valves 4 through 12-inches shall be manufactured by American-Darling, Mueller or M & H Valve.

2.03 FIRE HYDRANTS (FH)

A. All fire hydrants shall conform to the requirements of AWWA C502 for 250 psi working pressure. Hydrants shall be the compression type, closing with line pressure. The valve opening shall not be less than [5-1/4-inches].

B. In the event of a traffic accident, the hydrant barrel shall break away from the standpipe at a point above grade and in a manner which will prevent damage to the barrel and stem, preclude opening of the valve, and permit rapid and inexpensive restoration without digging or cutting off the water.

C. The means for attaching the barrel to the standpipe shall permit facing the hydrant a minimum of eight different directions.

D. Hydrants shall be fully bronze mounted with all working parts of bronze. Valve seat ring shall be bronze and shall screw into a bronze retainer.

E. All working parts, including the seat ring shall be removable through the top without disturbing the barrel of the hydrant.

F. The operating nut shall match those on the existing hydrants. The operating threads shall be totally enclosed in an operating chamber, separated from the hydrant barrel by a rubber O-ring stem seal and lubricated by a grease or an oil reservoir.

G. Hydrant shall be a non-freezing design and be provided with a simple, positive, and automatic drain which shall be fully closed whenever the main valve is opened.

H. Hose and pumper connections shall be breech-locked, pinned, or threaded and pinned to seal them into the hydrant barrel. Each hydrant shall have two 2-1/2-inch hose connections and one 4-1/2-inch pumper connection, all with National Standard threads and each equipped with cap and non-kinking chain.

I. Hydrants shall be furnished with a mechanical joint connection to the spigot of the 6-inch hydrant lead.

J. Minimum depth of bury shall be 4.5 feet. Provide extension section where necessary for proper vertical installation and in accordance with manufacturer's recommendations.

K. All outside surfaces of the barrel above grade shall be painted with enamel equal to Koppers Glamortex 501 in a color to be selected by the Owner.

L. Hydrants shall be traffic model and shall be Mueller Super Centurion or approved equal.

2.04 VALVE BOXES (VB) AND EXTENSION STEMS

A. All valves shall be equipped with valve boxes. The valve boxes shall be cast iron two-piece screw type with drop covers. Valve boxes shall have a 5.25-inch inside diameter. Valve box covers shall weigh a minimum of 13 pounds. The valve boxes shall be adjustable to 6-inches up or down from the nominal required cover over the pipe. Valve boxes shall be of sufficient length that

bottom flange of the lower belled portion of the box is below the valve operating nut. Ductile or cast iron extensions shall be provided as necessary. Covers shall have "WATER VALVE" or "WATER" cast into them. Valve boxes shall be manufactured in the United States.

B. All valves shall be furnished with extension stems, as necessary, to bring the operating nut to within 30-inches of the top of the valve box. Connection to the valve shall be with a wrench nut coupling and a set screw to secure the coupling to the valve's operating nut. The coupling and square wrench nut shall be welded to the extension stem. Extension stems shall be equal to Mueller A-26441 or M & H Valve Style 3801.

C. All Valve Boxes shall be installed with Concrete Collars as Indicated on the Detail Sheet.

2.05 VALVE MARKERS (VM) (NOT USED)

2.06 TAPPING SLEEVES AND VALVES (TS&V)

Tapping sleeves shall be cast or ductile iron of the split-sleeve, mechanical joint type. The CONTRACTOR shall be responsible for determining the outside diameter of the pipe to be connected to prior to ordering the sleeve. Valves shall be gate valves furnished in accordance with the specifications shown above, with flanged connection to the tapping sleeve and mechanical joint connection to the branch pipe. The tapping sleeve and valve shall be supplied by the valve manufacturer. Tapping sleeves shall be equal to American-Darling, Mueller or M & H Valve.

2.07 TAPPING SADDLES

Tapping saddles shall be brass body type with O-ring gasket. Tapping saddles shall be equal to Mueller Series H-134 Service Clamp.

2.08 CORPORATION COCKS AND CURB STOPS

Corporation cocks and curb stops shall be ground key type, shall be made of bronze conforming to ASTM B 61 or B 62, and shall be suitable for the working pressure of the system. Ends shall be suitable for flared tube compression type joint. Threaded ends for inlet and outlet of corporation cocks shall conform to AWWA C800; coupling nut for connection to flared copper

tubing shall conform to ANSI B16.26. Corporation cocks and curb stops shall be manufactured by Mueller or Ford or approved equal.

2.09 AIR VALVES (NOT USED)

2.10 METER SETTERS

The meter setter shall be a tandem coppersetter as shown on the standard detail drawings with 3/4" double purpose ends and be 15" high with padlock wing. It shall be all purpose, designed for 5/8" x 3/4" meter and be of sufficient height to raise meters above the bottom of the meter box. The meter setter shall be Ford, or equal. Meter setters shall have an inverted key inlet valve.

Setters shall be installed so that the meters are centered in the meter box.

The water service line shall be extended a minimum of 18" beyond the meter box on the customer end. The end of the extension shall be capped or plugged to prevent entry of foreign material until the connection is made.

2.11 WATER METERS

Water meter shall be cold water displacement type meeting all requirement of AWWA C700-77. The meter sizes shall be 5/8-inch x 3/4-inch meters for 3/4" service rated at a flow of 20 gpm and 1" meters for 1" service rated at a flow of 50 gpm. Meters shall be of frost-proof design and be rotating disk type. The meters shall be equipped with a straight-reading register recording in U.S. Gallons hermetially sealed to prevent fogging and with a removable corrosion resistant strainer screen between the outer case and measuring chamber. Register shall be equipped with a device to afford capability for accurately testing each meter according to AWWA Standards. The body case shall have the manufacturer's serial number imprinted thereon and have raised markings to indicate the direction of flow. Water meters shall be "_____" or approved equal.

2.12 HYDRANT TEES (Not Used)

2.13 ANCHOR COUPLINGS (Not Used)

2.14 VALVE KEYS

The CONTRACTOR shall provide to the OWNER one valve key for every five valves provided, but no more than three and not less than one valve key. Valve keys shall be 72-inches long with a tee handle and a 2-inch square wrench nut. Valve keys shall be furnished by the valve manufacturer. Valve keys shall be equal to Mueller A-24610 or ACIPCO No. 1303.

2.15 CONCRETE

Concrete shall have a compressive strength of not less than 3000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5-inches. For job mixed concrete, submit the concrete mix design for approval by the Engineer. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

PART 3 EXECUTION

3.01 EXISTING UTILITIES AND OBSTRUCTIONS

A. The Drawings indicate utilities or obstructions that are known to exist according to the best information available to the OWNER. The CONTRACTOR shall call the agencies or departments that own and/or operate utilities in the vicinity of the construction work site at least 72 hours (three business days) prior to construction to verify the location of the existing utilities.

B. Existing Utility Location: The following steps shall be exercised to avoid interruption of existing utility service.

1. Provide the required notice to the utility owners and allow them to locate their facilities. Field utility locations are valid for only 10 days after original notice. The CONTRACTOR shall ensure, at the time of any excavation, that a valid utility location exists at the point of excavation.

2. Expose the facility, for a distance of at least 200 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have

repaired, any damage to utilities resulting from locating or exposing their true location.

3. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.

4. Maintain a log identifying when phone calls were made, who was called, area for which utility relocation was requested and work order number issued, if any. The CONTRACTOR shall provide the ENGINEER an updated copy of the log bi-weekly, or more frequently if required.

C. Conflict with Existing Utilities

1. Horizontal Conflict: Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed water main does not permit safe installation of the water main by the use of sheeting, shoring, tieing-back, supporting, or temporarily suspending service of the parallel or crossing facility. The CONTRACTOR may change the proposed alignment of the water main to avoid horizontal conflicts if the new alignment remains within the available right-of-way or easement, complies with regulatory agency requirements and after a written request to and subsequent approval by the EENGINEER or OWNER. Where such relocation of the water main is denied by the ENGINEER or OWNER, the CONTRACTOR shall arrange to have the utility, main, or service relocated.

2. Vertical Conflict: Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed water main does not permit the crossing without immediate or potential future damage to the utility, main, service, or the water main. The CONTRACTOR may change the proposed grade of the water main to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the ENGINEER or OWNER. Where such relocation of the water main is denied by the ENGINEER or OWNER, the CONTRACTOR shall arrange to have the utility, main, or service relocated.

D. Electronic Locator: Have available at all times an electronic pipe locator and a magnetic locator, in good working order, to aid in locating existing pipe lines or other obstructions.

E. Water and Sewer Separation

1. Water mains should maintain a minimum 10 foot edge-to-edge separation from sewer lines, whether gravity or pressure. If the main cannot be installed in the prescribed easement or right-of-way and provide the 10 foot separation, the separation may be reduced, provided the bottom of the water main is a minimum of 18-inches above the top of the sewer. Should neither of these two separation criteria be possible, the water main shall be installed below the sewer with a minimum vertical separation of 18-inches.

2. The water main, when installed below the sewer, shall be encased in concrete with a minimum 6-inch concrete depth to the first joint in each direction. Where water mains cross the sewer, the pipe joint adjacent to the pipe crossing the sewer shall be cut to provide maximum separation of the pipe joints from the sewer.

3. No water main shall pass through, or come in contact with, any part of a sanitary sewer manhole.

3.02 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS

A. Install pipe lines and appurtenances along highways, streets and roadways in accordance with the applicable regulations of, and permits issued by, the Transportation Cabinet, local county and city with reference to construction operations, safety, traffic control, road maintenance and repair.

B. Traffic Control

1. The CONTRACTOR shall provide, erect and maintain all necessary barricades, suitable and sufficient lights and other traffic control devices; provide qualified flagmen where necessary to direct traffic; take all necessary precautions for the protection of the work and the safety of the public.

2. Construction traffic control devices and their installation shall be in accordance with the current Manual On Uniform Traffic Control Devices for Streets and Highways and the Department of Highways Specifications, latest edition.

3. Placement and removal of construction traffic control devices shall be coordinated with the Department of Transportation, local county and city, a minimum of 48 hours in advance of the activity.

4. Placement of construction traffic control devices shall be scheduled ahead of associated construction activities. Construction time in street right-of-way shall be conducted to minimize the length of time traffic is disrupted. Construction traffic control devices shall be removed immediately following their useful purpose. Traffic control devices used intermittently, such as "Flagmen Ahead", shall be removed and replaced when needed.

5. Existing traffic control devices within the construction work zone shall be protected from damage. Traffic control devices requiring temporary relocation shall be located as near as possible to their original vertical and horizontal locations. Original locations shall be measured from reference points and recorded in a log prior to relocation. Temporary locations shall provide the same visibility to affected traffic as the original location. Relocated traffic control devices shall be reinstalled in their original locations as soon as practical following construction.

6. Construction traffic control devices shall be maintained in good repair and shall be clean and visible to affected traffic for daytime and nighttime operation. Traffic control devices affected by the construction work zone shall be inspected daily.

7. Construction warning signs shall be black legend on an orange background. Regulatory signs shall be black legend on a white background. Construction sign panels shall meet the minimum reflective requirements of the Department of Transportation, local county and city. Sign panels shall be of durable materials capable of maintaining their color, reflective character and legibility during the period of construction.

8. Channelization devices shall be positioned preceding an obstruction at a taper length as required by the current Manual On Uniform Traffic Control Devices for Streets and Highways, as appropriate for the speed limit at that location. Channelization devices shall be patrolled to insure that they are maintained in the proper position throughout their period of use.

9. All Traffic Control requirements in Roadway Contract shall be followed in addition to the requirements listed above.

C. Construction Operations

1. Perform all work along highways, streets and roadways to minimize interference with traffic.

2. Stripping: Where the pipe line is laid along road right-of-way, strip and stockpile all sod, topsoil and other material suitable for right-of-way restoration.

3. Trenching, Laying and Backfilling: Do not open the trench any further ahead of pipe laying operations than is necessary. Backfill and remove excess material immediately behind laying operations. Complete excavation and backfill for any portion of the trench in the same day.

4. Shaping: Reshape damaged slopes, side ditches, and ditch lines immediately after completing backfilling operations. Replace topsoil, sod and any other materials removed from shoulders.

5. Construction operations shall be limited to 400 feet along areas within KY Transportation Cabinet jurisdiction, including clean-up and utility exploration.

D. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner which obstructs traffic. Sweep all scattered excavated material off of the pavement in a timely manner.

E. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.

1. The CONTRACTOR shall make provisions for handling all flows in existing creeks, ditches, sewers and trenches by pipes, flumes or other approved methods at all times when his operations would, in any way, interfere with the natural functioning of said creeks, ditches, sewers and drains. The CONTRACTOR shall at all times during construction provide and maintain sufficient equipment for the disposal of all water which enters the excavation, both in open cut trenches and in tunnels, to render such excavation firm and dry, until the structures to be built thereon are completed.

F. Landscaping Features: Landscaping features shall include, but are not necessarily limited to: fences; property corners; cultivated trees and shrubbery;

manmade improvements; subdivision and other signs within the right-of-way and easement. The CONTRACTOR shall take extreme care in moving landscape features and promptly re-establishing these features.

G. Maintaining Highways, Streets, Roadways and Driveways

1. Maintain streets, highways, roadways and driveways in suitable condition for movement of traffic until completion and final acceptance of the Work. All excavation shall be conducted in a manner to the last interruption to traffic.

2. During the time period between pavement removal and completing permanent pavement replacement, maintain highways, streets and roadways by the use of steel running plates. Running plate edges shall have asphalt placed around their periphery to minimize vehicular impact. The backfill above the pipe shall be compacted as specified elsewhere up to the existing pavement surface to provide support for the steel running plates.

3. Furnish a road grader or front-end loader for maintaining highways, streets, and roadways. The grader or front-end loader shall be available at all times.

4. Immediately repair all driveways that are cut or damaged. Maintain them in a suitable condition for use until completion and final acceptance of the Work. Driveways and other private and public access routes shall not be kept blocked or closed by the CONTRACTOR for more than a reasonable period of time without prior written approval from the property owner or controlling authority.

5. Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Transportation Cabinet. It is the responsibility of the CONTRACTOR to coordinate all work with and notify the above-named agencies, and to provide all necessary signs, barricades, lights, flagmen, and other items for maintenance of traffic.

6. Public travel shall be maintained, unrestricted, wherever and whenever possible. Detours shall be provided when so directed by the appropriate agency. Adequate precautions shall be taken to provide for the safety of both vehicular and pedestrian traffic. Emergency vehicles shall be provided access to construction area at all times.

7. Unless specifically directed otherwise by the ENGINEER, not more than five hundred (500') feet of trench shall be opened ahead of the pipe laying, and not more than five hundred (500') feet of open ditch shall be left behind the pipe laying. All barricades, lanterns, watchmen, and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the CONTRACTOR.

8. When so required, or when directed by the ENGINEER, only one-half (1/2) of the street crossing and road crossings shall be excavated before placing temporary bridges over the side excavated for the convenience of the traveling public.

9. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridges at the direction of the ENGINEER. Excavated materials shall be disposed of so as to cause the least interference, and in every case the deposition of excavated materials shall be satisfactory to the ENGINEER.

H. Property Protection

1. Extreme care shall be taken to protect trees, fences, poles, crops and all other property from damage unless their removal is authorized by the ENGINEER. Any damaged property shall be restored to as good or better than original condition and shall meet with the approval of the ENGINEER and OWNER.

2. The CONTRACTOR has the right to fully utilize the easement unless specifically stated otherwise on the plans or by the ENGINEER. If any irreplaceable trees, fences, poles or crops, such as tobacco, corn, soy beans and such (excluding pasture land), occur on the easement the CONTRACTOR shall obtain the ENGINEER's and OWNER's approval prior to removing or otherwise causing damage to any of these items.

3. Beyond the limits of the easement the CONTRACTOR shall be responsible for any damage caused by his operations and/or his personnel.

3.03 PIPE DISTRIBUTION

A. Pipe shall be distributed and placed in such a manner that will not interfere with traffic.

B. No pipe shall be strung further along the route than 1000 feet beyond the area in which the CONTRACTOR is actually working without written permission from the OWNER.

C. No street or roadway may be closed for unloading of pipe without first obtaining permission from the proper authorities. The CONTRACTOR shall furnish and maintain proper warning signs and obstruction lights for the protection of traffic along highways, streets and roadways upon which pipe is distributed.

D. No distributed pipe shall be placed inside drainage ditches.

E. Distributed pipe shall be placed as far as possible from the roadway pavement, but no closer than five feet from the roadway pavement, as measured edge-to-edge.

3.04 LOCATION AND GRADE

A. The Drawings show the alignment of the water main and the location of valves, hydrants and other appurtenances.

B. Construction Staking

1. The base lines for locating the principal components of the work and a bench marks adjacent to the work are shown on the Drawings if Available. Base lines shall be defined as the line to which the location of the water main is referenced, i.e., edge of pavement, road centerline, property line, right-of-way or survey line. The CONTRACTOR shall be responsible for performing all survey work required for constructing the water main, including the establishment of base lines and any detail surveys needed for construction. This work shall include the staking out of permanent and temporary easements to insure that the CONTRACTOR is not deviating from the designated easements.

2. The level of detail of survey required shall be that which the correct location of the water main can be established for construction and verified by the ENGINEER or OWNER. Where the location of components of the water main, e.g. tunnels and fittings, are not dimensioned, the establishment on the location of these components shall be based upon scaling these locations from the Drawings with relation to readily identifiable land marks, e.g., survey reference points, power poles, manholes, etc.

C. Reference Points

1. The CONTRACTOR shall take all precautions necessary, which includes, but is not necessarily limited to, installing reference points, in order to protect and preserve the centerline or baseline established by the ENGINEER.

2. Reference points shall be placed, at or no more than three feet, from the outside of the construction easement or right-of-way. The location of the reference points shall be recorded in a log with a copy provided to the ENGINEER and OWNER for use, prior to verifying reference point locations. Distances between reference points and the manhole centerlines shall be accurately measured to 0.01 foot.

3. The CONTRACTOR shall give the ENGINEER reasonable notice that reference points are set. The reference point locations must be verified by the ENGINEER prior to commencing clearing and grubbing operations.

D. After the CONTRACTOR locates and marks the water main centerline or baseline, the CONTRACTOR shall perform clearing and grubbing.

E. Construction shall begin at a connection location and proceed without interruption. Multiple construction sites shall not be permitted without written authorization from the ENGINEER for each site.

F. The CONTRACTOR shall be responsible for any damage done to reference points, base lines, center lines and temporary bench marks, and shall be responsible for the cost of re-establishment of reference points, base lines, center lines and temporary bench marks as a result of the operations.

3.05 LAYING AND JOINTING PIPE AND ACCESSORIES

A. Lay all pipe and fittings to accurately conform to the lines and grades established by the ENGINEER.

B. Pipe Installation

1. Proper implements, tools and facilities shall be provided for the safe performance of the Work. All pipe, fittings, valves and hydrants shall be lowered carefully into the trench by means of slings, ropes or other suitable

tools or equipment in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.

2. All pipe, fittings, valves, hydrants and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the ENGINEER, who may prescribe corrective repairs or reject the materials.

3. All lumps, blisters and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and free from dirt, sand, grit or any foreign materials before the pipe is laid. No pipe containing dirt shall be laid.

4. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. No debris, tools, clothing or other materials shall be placed in the pipe at any time.

5. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.

6. It is not mandatory to lay pipe with the bells facing the direction in which work is progressing.

7. Applying pressure to the top of the pipe, such as with a backhoe bucket, to lower the pipe to the proper elevation or grade, shall not be permitted.

8. Detection tape shall be buried 4 to 10-inches deep. Should detection tape need to be installed deeper, the CONTRACTOR shall provide 3-inch wide tape. In no case shall detection tape be buried greater than 20-inches from the finish grade surface.

C. Alignment and Gradient

1. Lay pipe straight in alignment and gradient or follow true curves as nearly as practicable. Do not deflect any joint more than the maximum deflection recommended by the manufacturer.

2. Maintain a transit, level and accessories on the job to lay out angles and ensure that deflection allowances are not exceeded.

D. Expediting of Work: Excavate, lay the pipe, and backfill as closely together as possible. Do not leave unjointed pipe in the trench overnight. Backfill and compact the trench as soon as possible after laying and jointing is completed. Cover the exposed end of the installed pipe each day at the close of work and at all other times when work is not in progress. If necessary to backfill over the end of an uncompleted pipe or accessory, close the end with a suitable plug, either push-on, mechanical joint, restrained joint or as approved by the ENGINEER.

E. Joint Assembly

1. Push-on, mechanical, flange and restrained type joints shall be assembled in accordance with the manufacturer's recommendations.

2. The CONTRACTOR shall inspect each pipe joint within 200 feet on either side of main line valves to insure 100 percent seating of the pipe spigot, except as noted otherwise.

3. Each restrained joint shall be inspected by the CONTRACTOR to ensure that it has been "homed" 100 percent.

4. The CONTRACTOR shall internally inspect each pipe joint to insure proper assembly for pipe 24-inches in diameter and larger after the pipe has been brought to final alignment.

F. Cutting Pipe: Cut ductile iron pipe using an abrasive wheel saw. Cut PVC pipe using a suitable saw; remove all burrs and smooth the end before jointing. The CCONTRACTOR shall cut the pipe and bevel the end, as necessary, to provide the correct length of pipe necessary for installing the fittings, valves, accessories and closure pieces in the correct location. Only push-on or mechanical joint pipe shall be cut.

G. Polyethylene Encasement: Installation shall be in accordance with AWWA C105 and the manufacturer's instructions. All ends shall be securely closed with tape and all damaged areas shall be completely repaired to the satisfaction of the Engineer.

H. Valve and Fitting Installation

1. Prior to installation, valves shall be inspected for direction of opening, number of turns to open, freedom of operation, tightness of pressure-containing bolting and test plugs, cleanliness of valve ports and especially seating surfaces, handling damage and cracks. Defective valves shall be corrected or held for inspection by the ENGINEER. Valves shall be closed before being installed.

2. Valves, fittings, plugs and caps shall be set and joined to the pipe in the manner specified in this Section for cleaning, laying and joining pipe, except that 12-inch and larger valves shall be provided with special support, such as treated timbers, crushed stone, concrete pads or a sufficiently tamped trench bottom so that the pipe will not be required to support the weight of the valve. Valves shall be installed in the closed position.

3. A valve box shall be provided on each underground valve. They shall be carefully set, centered exactly over the operating nut and truly plumbed. The valve box shall not transmit shock or stress to the valve. The bottom flange of the lower belled portion of the box shall be placed below the valve operating nut. This flange shall be set on brick, so arranged that the weight of the valve box and superimposed loads will bear on the base and not on the valve or pipe. Extension stems shall be installed where depth of bury places the operating nut in excess of 30-inches beneath finished grade so as to set the top of the operating nut 30-inches below finished grade. The valve box cover shall be flush with the surface of the finished area or such other level as directed by the ENGINEER.

4. In no case shall valves be used to bring misaligned pipe into alignment during installation. Pipe shall be supported in such a manner as to prevent stress on the valve.

5. A valve marker shall be provided for each underground valve. Unless otherwise detailed on the Drawings or directed by the ENGINEER, valve markers shall be installed 6-inches inside the right-of-way or easement.

I. Hydrant Installation

1. Prior to installation, inspect all hydrants for direction of opening, nozzle threading, operating nut and cap nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage and cracks. Defective hydrants shall be corrected or held for inspection by the ENGINEER.

2. All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the roadway, with pumper nozzle facing the roadway, except that hydrants having two-hose nozzles 90 degrees apart shall be set with each nozzle facing the roadway at an angle of 45 degrees.

3. Hydrants shall be set to the established grade, with the centerline of the lowest nozzle at least 12-inches above the ground or as directed by the ENGINEER.

4. Each hydrant shall be connected to the main with a 6-inch branch controlled by an independent 6-inch valve. When a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand from the bottom of the trench to at least 6-inches above the drain port opening in the hydrant to a distance of 12-inches around the elbow.

5. When a hydrant is set in clay or other impervious soil, a drainage pit 2 x 2 x 2 feet shall be excavated below each hydrant and filled with coarse gravel or crushed stone mixed with coarse sand under and around the elbow of the hydrant and to a level of 6-inches above the drain port.

6. Hydrants shall be located as shown on the Drawings or as directed by the ENGINEER. In the case of hydrants that are intended to fail at the ground-line joint upon vehicle impact, specific care must be taken to provide adequate soil resistance to avoid transmitting shock moment to the lower barrel and inlet connection. In loose or poor load bearing soil, this may be accomplished by pouring a concrete collar approximately 6-inches thick to a diameter of 24-inches at or near the ground line around the hydrant barrel.

3.06 CONNECTIONS TO WATER MAINS

A. Make connections to existing pipe lines with tapping sleeves and valves, unless specifically shown otherwise on the Drawings.

B. Location: Before laying pipe, locate the points of connection to existing water mains and uncover as necessary for the ENGINEER or OWNER to confirm the nature of the connection to be made.

C. Interruption of Services: Make connections to existing water mains only when system operations permit. Operate existing valves only with the specific authorization and direct supervision of the Owner.

D. Tapping Saddles and Tapping Sleeves

1. Holes in the new pipe shall be machine cut, either in the field or at the factory. No torch cutting of holes shall be permitted.

2. Prior to attaching the saddle or sleeve, the pipe shall be thoroughly cleaned, utilizing a brush and rag, as required.

3. Before performing field machine cut, the watertightness of the saddle or sleeve assembly shall be pressure tested. The interior of the assembly shall be filled with water. An air compressor shall be attached, which will induce a test pressure as specified in this Section. No leakage shall be permitted for a period of five minutes.

4. After attaching the saddle or sleeve to an existing main, but prior to making the tap, the interior of the assembly shall be disinfected. All surfaces to be exposed to potable water shall be swabbed or sprayed with a one percent hypochlorite solution.

E. Connections Using Solid Sleeves: Where connections are shown on the Drawings using solid sleeves, the CONTRACTOR shall furnish materials and labor necessary to make the connection to the existing pipe line.

F. Connections Using Couplings: Where connections are shown on the Drawings using couplings, the CONTRACTOR shall furnish materials and labor necessary to make the connection to the existing pipe line, including all necessary cutting, plugging and backfill.

G. All connections to AC pipe shall meet all federal, state, and local regulations and requirements.

3.07 VALVE BOX ADJUSTMENT

A. Valve Boxes shall be adjusted to the finished elevation of the pavement, sidewalk, or ground.

3.08 THRUST RESTRAINT

A. Provide restraint at all points where hydraulic thrust may develop.

B. Concrete Blocking

1. Provide concrete blocking for all bends, tees, valves, and other points where thrust may develop, except where other exclusive means of thrust restraint are specifically shown on the Drawings.

2. Concrete shall be as specified in this Section.

3. Form and pour concrete blocking at fittings as shown on the Drawings and as directed by the ENGINEER. Pour blocking against undisturbed earth. Increase dimensions when required by over excavation.

3.09 INSPECTION AND TESTING

A. Pressure and Leakage Test

1. All sections of the water main subject to internal pressure shall be pressure tested in accordance with AWWA C600. A section of main will be considered ready for testing after completion of all thrust restraint and backfilling.

2. Each segment of water main between main valves shall be tested individually.

3. Test Preparation

a. For water mains less than 24-inches in diameter, flush sections thoroughly at flow velocities, greater than 2.5 feet per second, adequate to remove debris from pipe and valve seats. For water mains 24-inches in diameter and larger, the main shall be carefully swept clean, and mopped if directed by the ENGINEER. Partially open valves to allow the water to flush the valve seat.

b. Partially operate valves and hydrants to clean out seats.

c. Provide temporary blocking, bulkheads, flanges and plugs as necessary, to assure all new pipe, valves and appurtenances will be pressure tested.

d. Before applying test pressure, air shall be completely expelled from the pipeline and all appurtenances. Insert corporation cocks at highpoints to expel air as main is filled with water as necessary to supplement automatic air valves. Corporation stops shall be constructed as detailed on the Drawings with a meter box.

e. Fill pipeline slowly with water. Provide a suitable pump with an accurate water meter to pump the line to the specified pressure.

f. The differential pressure across a valve or hydrant shall equal the maximum possible, but not exceed the rated working pressure. Where necessary, provide temporary backpressure to meet the differential pressure restrictions.

g. Valves shall not be operated in either the opening or closing direction at differential pressures above the rated pressure.

4. Test Pressure: Test the pipeline at 50 psi above the rated working pressure measured at the lowest point for at least two hours. Maintain the test pressure within 5 psi of the specified test pressure for the test duration. Should the pressure drop more than 5 psi at any time during the test period, the pressure shall be restored to the specified test pressure. Provide an accurate pressure gage with graduation not greater than 5 psi.

5. Leakage

a. Leakage shall be defined as the sum of the quantity of water that must be pumped into the test section, to maintain pressure within 5 psi of the specified test pressure for the test duration plus water required to return line to test pressure at the end of the test. Leakage shall be the total cumulative amount measured on a water meter.

b. The OWNER assumes no responsibility for leakage occurring through existing valves.

6. Test Results: No test section shall be accepted if the leakage exceeds the limits determined by the following formula:

$$L = \frac{SD\,(P)^{1/2}}{133{,}200}$$

Where:
L = allowable leakage, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches

P = average test pressure during the leakage test, in pounds per square inch (gauge)

As determined under Section 4 of AWWA C600.

If the water main section being tested contains lengths of various pipe diameters, the allowable leakage shall be the sum of the computed leakage for each diameter. The leakage test shall be repeated until the test section is accepted. All visible leaks shall be repaired regardless of leakage test results.

7. Completion: After a pipeline section has been accepted, relieve test pressure. Record type, size and location of all outlets on record drawings.

3.10 DISINFECTING PIPELINE

A. After successfully pressure testing each pipeline section, disinfect in accordance with AWWA C651 for the continuous-feed method and these Specifications.

B. Specialty Contractor: Disinfection shall be performed by an approved specialty contractor. Before disinfection is performed, the CONTRACTOR shall submit a written procedure for approval before being permitted to proceed with the disinfection. This plan shall also include the steps to be taken for the neutralization of the chlorinated water.

C. Chlorination

1. Apply chlorine solution to achieve a concentration of at least 50 milligrams per liter free chlorine in new line. Retain chlorinated water for 24 hours.

2. Chlorine concentration shall be recorded at every outlet along the line at the beginning and end of the 24 hour period.

3. After 24 hours, all samples of water shall contain at least 25 milligrams per liter free chlorine. Re-chlorinate if required results are not obtained on all samples.

D. Disposal of Chlorinated Water: Reduce chlorine residual of disinfection water to less than one milligram per liter if discharged directly to a body of water or to less than two milligrams per liter if discharged onto the ground prior to disposal. Treat water with sulfur dioxide or other reducing chemicals to neutralize chlorine residual. Flush all lines until residual is equal to existing system.

E. Bacteriological Testing: After final flushing and before the main is placed into service, the CONTRACTOR shall assist the OWNER in collecting samples from the line to have tested for bacteriological quality. Testing shall be performed by the OWNER at a laboratory certified by the State of Kentucky. Re-chlorinate lines until the required results are obtained.

3.11 PROTECTION AND RESTORATION OF WORK AREA

A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.

1. The CONTRACTOR shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.

2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.

3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.

4. The Transportation Cabinet's engineer shall be authorized to stop all work by the CONTRACTOR when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.

B. Man-Made Improvements: Protect, or remove and replace with the ENGINEER'S approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the Work.

C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the ENGINEER. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.

D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the CONTRACTOR. No stumps, wood piles, or trash piles will be permitted on the work site.

E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the Project in accordance with the applicable codes and rules of the appropriate county, state and federal regulatory agencies.

3.12 ABANDONING EXISTING WATER MAINS (Not Used)

A. All Existing water, sewer, and gas line to be abandoned shall be left in place unless the existing pipelines will be disturbed during road construction.

END OF SECTION

Section 02680
Gas Distribution System

PART 1 GENERAL

1.01 SCOPE

A. This Section discussed products to be incorporated into natural gas mains and requirements for the installation and use of these items. The Contractor shall perform all labor necessary to fulfill the requirements of these Specifications.

B. All work shall be in accordance with 49 CFR 102 and applicable American Society for Testing and Material (ASTM), American National Standards Institute (ANSI), American Petroleum Institute (API), and other recognized standards.

C. The Contractor shall provide natural gas distribution piping, fittings, tapping values, pressure regulating valves, shutoff valves, safety devices and other items required for a complete system. Any items, either temporary or permanent, that the Owner is not providing shall be provided by Contractor.

D. The Contractor shall provide transportation and handling of all equipment, materials and products as provided for in Paragraph 1.05 of this Section.

1.02 STORAGE AND PROTECTION

A. Contractor shall provide storage and protection of all equipment, materials and products as provided for in Paragraph 1.05 of these Specifications.

B. Store all pipes which cannot be distributed along the route. Make arrangements for the use of suitable storage areas.

C. Stored materials shall be kept safe from damage. The interior of all pipes, fittings and other appurtenances shall be kept from dirt or foreign matter at all times. Valves shall be drained and stored in a manner that will protect them from damage by freezing.

D. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom section shall be kept off the ground on timbers, rails or concretes. At least two rows of timbers shall be placed between tiers and chocks affixed to each other in order to prevent movement. The timbers shall be big enough to prevent contact between the pipes in adjacent tiers.

1.03 QUALITY ASSURANCE

A. Installation of natural gas system components shall be performed by skilled workers experienced in the installation of gas systems employed by and under direct supervision of a licensed utility contractor. Foreman shall meet requirements as prescribed by OSHA requirements as a competent person.

B. The Contractor shall certify compliance with drug testing requirements of 19CFR Sections 40.192, 193, 195, and 199. In addition, a drug policy agreement, Section 0200

provided by the owner must be submitted by the Contractor with the contract agreement.

C. Each polyethylene fusion joint operator shall present evidence of qualification to perform fusion joint operations as required by 49 CFR Section 192.285. All jointers shall be competent and experienced in polyethylene joining. They shall have a complete working knowledge of joining equipment and the preliminaries necessary for making ready to joint. They shall also be familiar with the precautions necessary to insure good results with a maximum of safety. Jointers shall be qualified by the manufacturer and a copy of this certification shall be furnished to the Owner before the work on the project begins. Prequalification tests shall be required if there is some specific reason to question a jointer's ability or if the jointer is not engaged in a given process of joining for a period of six months or more.

D. The Contractor shall submit an Operator Qualification Plan that meets or exceeds the owners plan for those tasks that the owner has determined to be covered tasks.

E. Horizontal Directional Drilling (HDD) operator(s) shall provide certification to the Owner of competency training by the HDD equipment manufacturer. The Contractor shall install pipe by HDD methods and requirements provided in Section 02230 of these Specifications.

1.04 STORAGE AND PROTECTION

A. Contractor shall provide storage and protections of all equipments, materials and products.

B. Store all pipes which cannot be distributed along the route. Make arrangements for the use of suitable storage areas.

C. Stored materials shall be kept safe from damage. The interior of all pipes, fittings and other appurtenances shall be kept free from dire or foreign matter at all times. Valves shall be drained and stored in a manner that will protect them from damage by freezing.

D. Pipe shall not be stacked higher than the limits recommended by the manufactured. The bottom row shall be kept off the ground on timbers, rails or concrete. At least two rows of timbers shall be placed between tiers and chocks affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipes in adjacent tiers.

PART 2 PRODUCTS

2.01 GENEERAL

A. Materials and Equipment:

1. Furnished by Contractor. Except as otherwise specified in Paragraph 2.01, all other materials and equipment required for this contract shall be furnished and paid for by the Contractor.
2. This includes all necessary tapping and inserting machines required for the "hot connection" and the services of manufacturer's representative. If necessary, to instruct the Contractors as the proper installations of the special fittings required to make the "hot connection".

B. Furnished by Owner: Except as otherwise specified in Paragraph 2.01, the Owner shall supply the contractor with the marking signs and/or posts.

2.02 NATURAL GAS PIPING MATERIALS FOR MAINS

A. Steel Pipe:
   1. All steel pipes shall be steel conforming to API5L, Grade X52 beveled end, electric resistance weld or seamless and shall be manufactured in the United States of America.
      a. Electric resistance welded carbon steel pipe shall conform to ANSI/ASME A135 in addition to API 5L-B.
      b. Seamless carbon steel pipe shall conform to ANSI/ASME A524 in addition to API-5L.
   2. Underground 8" (200mm) steel piping shall be 0.250" wall thickness, grade X52 pipes in accordance with 2.02 A above with a Polyken Synergy coasting.
      a. Below ground piping shall have welded connections in accordance with "Special Requirements for Steel Piping" herein.
   3. Above ground piping shall be Schedule 40 wall thickness pipe in accordance with 2.02 A above.
      a. Above ground piping shall have welded or flanged connections in accordance with "Special Requirements for Steel Piping" herein after.

B. Polyethylene (PE) Pipe:
   1. All polyethylene pipe shall be manufactured from resin qualifying for a Plastic Pipe Institute Material Designation of PE 2406.
   2. All polyethylene pipe shall have a Standard Dimensions Ration (SDR) of 11.
   3. All polyethylene pipe shall be YELLOWSTRIPES 8300.
   4. All polyethylene pipe shall conform to ASTM D 2513.

2.03 NATURAL GAS SERVICE PIPING

Service piping shall conform to ANSI/ASME 31.9.

2.04 VALVES

A. Steel Valves:

1. All steel valves shall be welded ends full opening ball valves, ANSI Class 150, wrench operated.
    a. All steel valves shall have 2 inch square nut adapters.
    b. All steel valves shall have readily accessible grease connection and an indicator clearly visible showing whether the valve is open or closed.
    c. All steel valves shall have the packing grease removed, shall be filled with grease as recommended by manufacturer and shall be turned to insure that the valve will operate properly.
2. All underground steel valves shall be provided with a high head extension to permit lubrication and operation of the valve from an extended position.
    a. All expansions shall be extended to within 6 inches of the top of the valve box.
3. All valves shall conform with API 6D, MSS-SP-25, MSS-SP-84, ASME B16.33, ASME B16.34 and/or ASME B15.38 as may be applicable.

B. Polyethylene (PE) Valves:
1. All polyethylene (PE) valves shall be manufactured from resin qualifying for a Plastic Pipe Institute material designation of PE 3408.
2. All polyethylene valves shall be butt fusion type of valves.
3. All polyethylene valves shall be Kerotest or Performance “Polyvalves” or as approved butt fusion, full opening ball valves compatible with YELLOWSTRIPE 8300 polyethylene pipe as noted in paragraph “Polyethylene Pipe” of subsection “Natural Gas Piping Materials for Mains”. Hereinafter.
4. All polyethylene valves shall have stabilizers installed to prevent excessive movement of the valve body during operation. See Polyethylene Valve Stabilizers Details hereinafter.
5. All polyethylene valves shall conform to ANSI/ASME B16.40 and MSS-SP-25.

2.05 VALVE BOXES

A. Valve boxes shall be two piece telescopic plastic. Diameter of valve box shall not be less than 6-1/4 inches.
B. Valve boxes shall be Mueller or as approved.
C. Valve boxes shall be of sufficient length so that no extensions are needed on the valve box.
1. Should a case arise that requires an extension to be used on a valve box, PVC schedule 40 water pipe shall be used.
2. The extension (PVC Pipe) shall be placed on the bottom of the valve box.
D. Valve boxes shall be installed plumb and extending above finished grades so that no water will stand around the valve box top.

E. Valve boxes shall have a concrete collar poured around the top of the box.

2.06 RISERS

A. Risers on polyethylene lines shall be Central anodeless risers.
   1. The transition of the risers shall be of the same material as the polyethylene pipe.
B. Risers shall be painted according to PAINTING, herein.
C. Risers shall conform to PFI-E524 and PFI-E831.

2.07 MISCELLANEOUS FITTINGS

A. Welded Fittings:
   1. All welded fittings for steel piping shall be Tube Turn, Midwest, or as approved steel butt welding standard strength (Sec. 40) fittings, conforming to ANSKASME 10.9, ANSKASME 10.9a, ANSKASME 10.25, MSS-SP-25, and manufactured in the United States of America.
B. Polyethylene Fittings:
   1. All polyethylene (PE) fittings shall be manufactured from resign qualifying for a Plastic Pipe Institute material designation of PE 8403.
   2. All polyethylene fittings shall be butt fusion type of fittings unless otherwise noted or called for in the plans.
   3. All polyethylene fittings shall be of the same material and compatible with the polyethylene pipe if it is not YELLOWSTRIPE 8300.
   4. All polyethylene fittings shall be compatible with YELLOWSTRIPE 8300 or as approved.
   5. All transition fittings (plastic or steel) shall be factory assembled and as otherwise specified in subsection Natural Gas Piping Materials for Mains, paragraph “Polyethylene Pipe” hereinabove and Polyethylene Fittings hereinabove.
   6. All polyethylene fittings shall conform to MSS-SP-25, ASTM D2613 and ASTM D3350.
   7. Tap tees shall be 2” IPS high volume side wall tension with butt fusion outlet.
   8. Service tees shall be side wall fusion type and include an integrated UMAC excess f... valves in the outlet (residential matters only).
C. Line Stopper Fittings:
   1. Line stoppers shall be capable of totally stopping the flow of gas in the line.
   2. Line stoppers and fittings shall be manufactured by Mueller, T.D. Williams or as approved line stopper fittings.
   3. See subsection Line Stopper Connections, hereinafter.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Handling and Laying Pipes:

1. Provide and use approved equipment for the safe and convenient handling of pipe, fittings, valves, and other gas piping materials. Unload all piping materials carefully, and lower them carefully into the trenches with suitable equipment in a manner that will prevent damage to the materials and their protective coatings. Do not under any circumstances drop or dump piping materials, either from transportation vehicles, or into trenches.
2. Pipe shall bear uniformly, firmly and continuously on the trench bottom.
3. Generally, do not lay pipe in a straight line in the trench. Where possible, lay pipe so that it continuously meanders from one side of the trenches to the other as much as the trench will permit, where narrow trench or other adverse conditions prevent this, provide slack loops in the piping, all as approved to permit free expansion and contraction of the pipe without subjecting it to successive stress.
4. Each time pipe laying is discontinued, tightly plug all open ends of the last piping laid, and at all times keep all openings in previously laid piping tightly plugged, all as required to prevent entry of water, dirt and other foreign matter.
5. Steel Pipes: After approval of welded joints, field coat and wrap all welds, fittings and other uncoated areas, and repair damaged areas in the factory applied coating as follows:
    a. Before Applying Field Coating and Wrapping: Remove from the surface to be coated and wrapped all dirt, mud, moisture, loose rust, welding slug, grease, and other foreign matter which may adversely affect the coating and wrapping.
    b. Steel, Fittings, and Valves: Coat and wrap these with “Tape-Coat” type wrapping material. Before applying wrapping, prime the cleaned surfaces with the coating manufacturer’s recommended primer. Then apply the tape in accordance with the manufacturer’s recommendations, overlapping the mills applied pipe coating at least three inches on each side of each field coating application.
    c. Steel Pipe Joints: Coat and wrap with heat shrink sleeves as approved by Engineer. Before applying sleeve, prime the cleaned surfaces with the manufacturer recommended primer. Apply sleeve in accordance with the manufacturer installation procedures overlapping the applied coating at least three inches on each side.

6. Polyethylene pipe shall be installed to confirm the ANSI/ASTM D2774 and PPI recommended procedures.

B. Operating Pressure:
   1. All pipe work included in this contract will be operated at the following:
      a. 275 psig maximum pressure (steel piping)
      b. 80 psig maximum pressure (PE piping)

3.02 SPECIAL REQUIREMENTS FOR STEEL PIPING

A. Coating of Steel Lines (Underground Piping)
   1. Mill Coating: All underground piping shall have a Polyken Synergy coating.
   2. After approval of welded joints, field coat and wrap all welds, fittings, and other uncoated areas of steel pipe, fittings, and valves, and repair damaged areas in the factory applied coating, as follows:
      a. Before applying field coating and wrapping, Remove from the surfaces to be coated and wrapped all dirt, mud, moisture, loose rust, welding slag, grease, and other foreign matter which may adversely affect the coating and wrapping.
      b. Pipes, joints, fittings: Coat and tape these with “Tape Coat”, “Joint Tape”, type wrapping material. Before applying wrapping prime the cleaned surfaces with the coating manufacturer’s recommendations, overlapping the mill applied coating at least 3” in each side of each field coating application.
   3. Field coating will be accepted only after it has passed the “Electric Holiday” test specified in subsection Testing Paragraph D, hereinafter.

B. Steel Joints and Connections:
   1. Underground:
      a. Connections to valves and other items having flanged ends shall be flanged and bolted type.
      b. Under no conditions shall threaded fittings be used underground.
   2. Above Ground:
      a. Connections to flanged items shall be flanged and bolted type.
      b. Connections to steel pipe shall be welded.

C. Flanged Connections:
   1. Make up flanged joints with proper gaskets and tighten diagonally opposite bolts alternately to obtain uniform gasket compression and leak proof joints.
   2. See FLANGED JOINT DETAILS and BOLTING PATTERN DETAILS, hereinafter.

D. Welded Connections:

1. Welded shall be butt type made with approved acetylene or arc welding equipment.
2. Use welding tees at all branch connections in gas piping.
3. Use welding elbows at all turns in gas piping. Bending or pipe will not be permitted.
4. No welding shall be done directly on any valves or any other items not having ends designed for welding.
5. Level all ends of pipes and fittings which are to be welded and cleanly and accurately cut and shape each end to the proper contour to fit the surface to which it is to be joined. Do not make welded connections directly to any valves. Align piping properly before welding, and maintain rigidly in alignment during welding. All welds shall be leak proof and sound throughout, shall be fused thoroughly for full thickness of pipe wall, and shall be free from slag inclusions, gas pockets, surface porosity, overlaps, undercuts, excess convexity, and other defects. Weld surfaces shall be free from loose sculp, rust slag, or other foreign materials.
6. Cut off and re-weld unsatisfactory welded joints or replace the pipe and fittings involved with new materials, as approved.
7. All welds shall have a minimum of three passes.
8. All welding, welds and welded connections shall conform to ANSI/AWS D10.12, ANSI/AWS C5.6, ANSI/AWS D10.11, NFPA 51, NFPA 51B, API 1104, Section IIA of the ASME Boiler and Pressure Vessel Code and/or Section IX of the ASME Boiler and Pressure Vessel Code.

E. Welder's Qualifications:

1. All welding shell be done ONLY by welding operators who have satisfactorily passed the welders qualifications test in accordance with the applicable requirements of the herein specified codes and regulations. Welding operators will be accepted who have test certificates which are satisfactory to the Engineer. Otherwise, before being accepted for any welding on this Project, welding operators will be required to pass the above specified test as constructed by an approved Independent testing laboratory at the Contractors expense.
2. Contractor shall present copies of the welding certificates to the Owner for his files at the preconstruction conference.
3. Each welding operator shall identify his welds with an approved stamp.
4. When required by the Owner a sample weld will be removed and sent to an Independent testing lab to be destructively tested.

5. If more than two welds or 10% of the welds fail the welder will not be allowed to weld on this job until sufficient proof that the welder has re-qualified along and a retest is submitted to the Owner for approval.
6. Welders shall qualify under API 1104.

3.03 SPECIAL REQUIREMENTS FOR POLYETHYLENE PIPING

A. Polyethylene Joints and Connections:
   1. Connections shall be made by butt fusion or sidewall fusion. No socket fusion will be allowed.
   2. Connections to steel piping shall be made with factory assembled transition fittings.
   3. All joints and connections of polyethylene pipe, fittings, and valves shall be made by heat fusion in accordance with the pipe and fitting manufacturer's heat fusion procedures.
   4. Contractor shall submit to the Owners written copy of the fusion procedures that will be used in this contract.
   5. Fusion connections shall conform to ANSI/ASTM D2657.

B. Polyethylene Pipe Joints:
   1. All fusion pipe joining shall be done ONLY by operators qualified to make fusion joints under the procedures given herein.
   2. Contractor shall present written proof to Owner for his files (at construction conference) that pipe fusion operators are qualified under these procedures.
   3. When required by the Owner a sample joint will be removed and sent to an independent testing lab to be destructively tested.
   4. If more than three joints or 5% of the joints fail by destructive methods the joiner will not be able to join plastic pipe on this job until sufficient proof that the joiner has requalified, submitted samples of his joints and made satisfactory joints in the presence of Owner.

C. Polyethylene to Steel Connections: All polyethylene to steel joints shall be made using factory assembled transition fittings. All transition fittings used in the system shall have PE3408 polyethylene pipe on the polyethylene side of the fitting and Schedule 40, beveled end, steel pipe on the steel side of the fitting.

3.04 CONNECTIONS TO EXISTING PIPING

A. "Hot" Connections to Existing Steel Piping shall be done ONLY by certified operators and proof of certification shall be provided to Owner before starting work.
   1. Contractor shall maintain continuity of gas service. At Contractor's expense, provide all necessary special fitting and equipment to accomplish this. All

fittings shall be welding type suitable for the maximum operating pressure specified or as approved. Fittings shall include split tees, line stoppers, bypass piping, bypass valves, purging valves, equalizer connections, plugs, flanges, and other necessary items. Finish tapping and inserting machines as required to make the connections. Install all special fittings in strict accordance with the manufacturer's recommendations.

2. Follow all safety precautions during "Hot Tapping" operations and have fIre control apparatuses handy at all times.

B. Line Stopper Connections:

1. This type connection shall be used only when the flow of gas between points is to be stopped temporarily to replace a section of piping or associated items (valves, gaskets, fittings, etc.)
2. At the Contractors expense, provide all necessary special fittings shall be welding type suitable for the maximum operating pressures specified hereinbefore, of Mueller, T.D. Williamson, or as approved make. Fittings shall include split tees, line stoppers, purging valves, equalizer connections, plugs, flanges, and other necessary items. Furnish tapping and inserting machines as required to make the connections. Install all special fittings in strict accordance with the manufacturer's recommendations.
3. Once the replacement is made the stoppers shall be removed and the section of piping put back in service.

C. "Hot" Connections of Polyethylene Pipe to Existing Polyethylene Pipe:

1. All connections shall be done ONLY by certified operators and proof of certification shall be submitted to Owner before work is started.
2. Contractor shall maintain continuity of gas service. At Contractors expense, provide all necessary special fitting and equipment of the same pressure ratings as pipe material. All fittings shall be type suitable for the maximum operating pressures specified hereinbefore, or as approved. Furnish tapping and inserting machines and other necessary items as required to make the connections. Install all special fittings in strict accordance with the manufacturer's recommendations.
3. Follow all safety precautions during "Hot Tapping" operations and have fire control apparatuses handy at all times.

D. "Cold" Connections:

1. Schedule all piping work such that no customer service is disconnected from a source of gas for more than one day.

2. Disregard for the above Section of the Specification will be considered just cause for the Owner to shut down the construction work until such time that the work is adequately scheduled.
3. Open cut installation shall follow the following general sequence.
    a. Install new piping in trench.
    b. Test new piping – make repairs and retest as necessary for approval.
    c. Pressurize new piping, purging all air and explosive mixtures from the piping.
    d. Disconnect service piping from existing mains and reconnect piping to new main (coordinate this work with the Owner so the customer's appliances and equipment can be disconnected before outage and pilots relit after service is reconnected.)
    e. Soap test all new connections which were not tested under (b) above.

3.05 SERVICE PIPING AND APPURTENANCES

A. Service Piping:
    1. Existing service piping will remain in service to the greatest extent possible.
    2. Service piping shall be connected to new polyethylene mains with PE tap tees, polyethylene reducers (where needed) and 3/4" PE pipe as shown on the Drawings.

3.06 VALVE INSTALLATION

A. Setting Valves and Boxes:
    1. Install each valve as the pipe laying progress to the valve location, with valve operation stem plumb at approximate location indicated but at exact location as approved.
    2. Before installing each valve, examine it carefully, see to it that it is in proper working condition, remove all dirt and foreign matter there from, remove packing grease, repack with proper grease as recommended by manufacture, and turn valve closed and open.
    3. Valves shall not be installed in a position to cause any type of strain, stress or unequal pressure on the flanged ends.

3.07 LOWERING EXISTING PIPE

A. All applicable requirements herein shall apply to lowering existing piping and in addition the following requirements shall apply there to.
B. For each length of existing piping required to be lowered, proceed generally as follows:

1. Excavate as required to uncover the pipes for its full lowering length.
2. Before disturbing pipe, advise the Owner that the pipe is ready for his inspection.
3. The Owner will inspect all uncovered pipe in its original position, determine the exact lengths of pipe to be lowered and the exact lengths of pipe which shall remain in existing position, and advise the Contractor to proceed accordingly.
4. Excavate over the pipe and along the side of the pipe as required and lower the pipe, or leave the pipe in the present position, as authorized by the Owner.
5. Disconnect existing customers' services, and reconnect them to the lowered pipe, as required.
6. Patch and repair all pipe coating which has been damaged by the excavating and lowering operations, using materials to match the existing coating materials.
7. Provide all necessary temporary supports for piping during the excavation under the pie, and avoid all unnecessary damage to the pipe coating.
8. After pipe has been lowered, test all steel pipe coating with an "Electric Holiday Detector".
9. Finally, obtain Owners approval of lowered pipe, and backfill over all pipe as specified.

3.08 MISCELLANEOUS CROSSINGS

A. Highway and Road Crossings:
   1. State Highway Crossings:
      a. At no cost to the Contractor, the Owner will obtain permission from the Highway Department for each required crossing of a highway by a line.
      b. Do all work on the highway rights-of-way under line supervision of the Highway Department, and in strict accordance with its requirements. DO NOT UNDER ANY CIRCUMSTANCES PLACE ANY EXCAVATED MATERIALS, CONSTRUCTION MATERIALS, CONSTRUCTION EQUIPMENT, OR OTHER ITEMS ON THE HIGHWAY PAVEMENT. Arrange all work to avoid all unnecessary inference with highway traffic. As soon as practicable after installation of each gas line across the highway, restore all highway property at the location is at least the condition that existed prior to the beginning or work thereon.
      c. Open cut will be permitted only when a directional bore is not possible.
   2. All other road crossing: Install pipe in accordance with all State, County, and Local requirements as applicable.

B. Driveway, Parking Lots, and Sidewalk Crossings: All sidewalks, driveways, curb and gutter and parking lots that are concrete or asphalt shall be bored in accordance with Section 02230 Pipe Installation by Directional Drilling unless otherwise indicated.

3.09 BACKFILLING

A. General: Do not backfill over pipes until leakage and Electric Holiday tests (steel pipe) have been approved. Immediately after approval of these tests, backfill the trenches as specified below.

B. All locations: After the pipe work has been approved, thoroughly hand tamp all backfill into joint holes around and over the pipe work until a six inch cover has been tamped over the tops of the pipes.

C. Pipe Under Paved Areas, Including Area With Existing Paving and Areas Proposed to Be Paved: From six inches above pipe taps up to paving sub grade backfill only with crushed stone. Tamp these areas to obtain at least the density of the undisturbed site soil.

D. Pipe Under Non-Paved Areas: Place all backfill from 8 inches above pipe top up to finished grade by approved methods. Windrow excess excavated material over line trenches, and alter sufficient settlement satisfactory to the Owner has occurred, complete the surface dressing, surplus material removal, and surface cleanup.

E. Pipe Crossing Streets, Roads, Gravel Driveways, and Dirt Driveways: Backfill the trenches and make the crossing unusable by vehicular traffic immediately after laying pipe and obtaining approval thereof, and maintain these crossings usable by vehicular traffic until project acceptance. Do not under any circumstances leave a street or road crossing or a private driveway unusable overnight.

F. Backfill Materials, Except as Otherwise Specified:
    1. Up to 12 inches above tops of pipe; Backfill only with selected earth which is free of rocks, stones, bricks, broken concrete, rubbish, wood, vegetable materials.
    2. From 12 inches above tops of pipes up to finished grade, Backfill with any materials removed from the excavation and suitable for backfill, except of not use of backfill material and pieces of the following materials which are larger than 6 inches in their greatest dimensions: rock, stone, concrete, asphalt paving, or masonry. Dispose of all excavated materials which are not replaced as backfill, as approved.

G. Final Backfilling Requirements: Refilling smooth off as required all backfill which settles so that all backfill finally conforms to the original ground surfaces, not only at the time of project acceptance, but also for the duration of the guaranteed period. This

includes removing and repairing all pavements which may have been damaged by settlement.

3.10 REPLACEMENT OF SHOULDER MATERIALS

A. All existing crushed stone shoulder surfaces which are disturbed by the gas work shall be restored to the conditions which existed prior to the commencing of this work.

B. Reuse existing crushed stone materials to the general probable extent and provide additional new materials as required. New crushed stone materials shall conform to applicable state and local specifications. Depth of crush stone shall match that of existing shoulder surfacing.

3.11 TRENCHING , EXCAVATING, STORING BRACING AND DEWATERING

A. Except as otherwise indicated, specified herein, or authorized, make all excavations by open cut.

B. Excavate trenches to the indicated lines and locations to provide uniform and continuous bearing and support of the pipe on firm undisturbed earth. Where necessary to make joints in the trench, provide ample joint holes in trench to facilitate this. Trench depths shall be as required to provide the specified MINIMUM cover over the top of the pipes; as required to permit pipes to pass under culverts, roads, driveways, existing pipelines, and other obstructions; and as required to accommodate valves and boxes. Trench widths shall be as required for the proper laying and joining of pipes, and the proper placing and compacting of backfill, but in no case shall a trench be more than 24 inches wider than the diameter of the pipe to be laid therein except in dual trench installations. Prepare the final sub grade accurately with hand tools, and in special cases where required cut the trenches entirely by hand. Where excavation is carried below proper subgrade, before laying pipe, bring the trench bottom up to the proper subgrade by backfilling with approved material placed in three inch maximum thickness loose layers, and thoroughly compact each layer as required to provide uniform and continuous bearing and support for the pipe.

    1. Where rock is encountered, remove it and prepare the final subgrade with #10 backfill material as specified under Rock Excavation and Blasting hereinafter.

C. MINIMUM cover over tops of pipes shall be:

    1. 36 inch, except where rock is encountered.
    2. 30 inch, where rock is encountered.
    3. As required, under Highways, creeks, and other special conditions.

D. IN ALL CASES, THE SPECIFIED MINIMUM COVER OVER PIPES SHALL BE BASED UPON FINAL FINISHED SURFACES, INCLUDING PAVING, IF ANY.

E. Store and brace trenches and excavations as required to protect personnel adjacent structures, and adjacent property. Where required by the conditions encountered, store and brace trenches and excavations in accordance with Occupational Safety and Health (OSHA) Act of 1970 (PL 91-598), as amended. Contractor shall pay particular attention to the OSHA Part 1928, Subpart P "Excavation, Trenching & Sharing" as described in OSHA 2225.

F. Provide and maintain in proper working order all necessary dewatering equipment required to remove water from excavations. Where quicksand or other water bearing strata are encountered, install and connect the necessary rise of water in the excavation until the work has been installed properly and will be unaffected by submersion.

G. Do not install any work until excavations are free of water, mud and loose earth. Do not install any work on frozen ground.

H. Install pipe crossing concrete driveways, asphalt driveways, and other special conditions by directional boring. Install pipe crossing dirt or gravel drives by open cut, unless otherwise authorized.

I. Where the trench bottom at required subgrade is found to be unstable or includes ashes, cinders, or any type of refuse, vegetable or other organic material or large pieces of fragments of inorganic material which in the Owners opinion should be removed, excavate and remove such unsutable material. Before laying pipe, bring the trench bottom up to proper subgrade by backfilling with approved material placed in three inch maximum thickness loose layers, and thoroughly compact each layer as required to provide uniform and continuous bearing and support for the pipe.

3.12 ROCK EXCAVATION AND BLASTING

A. Wherever used as the name of an excavated material the term "rock" shall mean any one or more of the following materials which in the Owner's opinion require for their removal drilling and blasting, wedging, sledging or barring, or breaking up with power operated hand tools, boulders, pieces or concrete, concrete, and masonry, each weighing more than 250 pounds; and solid sledge rock, concrete and masonry, each with more than ½" cubic yard of volume.

B. There will be no special pay provision for rock excavation in the contract. If rock is encountered it will be considered normal excavation requirements.

C. Except as otherwise specified in subsection Trenching, Excavating, Storing, Bracing and Dewatering herein, where rock is encountered in pipe trenches, remove all rock from sides of trench to provide at least 8 inch clearance all around pipe, remove all rock from required subgrade, broken concrete rubbish, vegetable materials, or other unapproved materials, to provide uniform and continuous beating for the pipe.

D. Only in special cases where authorized, due to adverse field conditions where rock is encountered in pipe trenches, remove the rock only as required to clear the pipe at least four inches all around, and lay the pipe with a protective wrapping of "Rock Shield" and backfill with #10 or selected earth which is free of rocks, stones, brick, cinders, broken concrete, rubbish, vegetable materials or other unapproved materials; to provide uniform and continuous bearing for the pipe. Remove all jagged rock edges which could penetrate the "Rock Shield" and puncture the pipe or pipes coating.

E. Where blasting is required, conduct all blasting operations only with properly qualified and licensed personnel in accordance with all applicable ordinances and regulations. Cover all blasts with heavy timbers or other approved coverings and use all other safety precautions as required to prevent personal injury and property damage. Repair all damage caused by blasting operators.

1. Recommendations of the IME shall be followed.
2. ANSI/NFPA 485 shall be followed.

3.13 DIRT FOR PIPE BACKING

A. Where rock or other conditions unsuitable for supporting pipe are encountered, a 6 inch layer of #10 or dirt which is free or rocks, stones, bricks, cinders, broken concrete, rubbish, wood, vegetable materials, and other unsuitable materials shall be placed in the trench to support pipe. A similar 12 inch layer of #10 or dirt shall also be placed over the pipe.

B. See Backfilling, hereinafter.

3.14 CUTTING AND REPLACING PAVEMENT AND OTHER SPECIAL SURFACES

Restore to at least the conditions which existed before excavation, all surfaces which have been disturbed by the pipeline installation in accordance with State, County, and Local requirements as applicable.

3.15 DIRECTIONAL DRILLING

All existing highways, roads, sidewalks, driveways, curb and gutter and parking lots that are concrete or asphalt shall be bored in accordance with Section D2230 Pipe Installation by Directional Drilling unless otherwise indicate.

3.16 CLEANING OF LINES

A. Internal Cleaning:

1. Prior to meeting: Internally clean all new piping with a suitable pig type cleaner forced by air pressure through the pipe line two or more times until the line is thoroughly cleaned.
    a. Steel Pipe:
        i. The first two cleanings shall be performed with a wire brush type pig.
        ii. All subsequent cleanings may be performed with a polyurethane or polyethylene type pig.
        iii. Should a large amount of water be present during pigging the line shall be added using a suitable squeeze type pig.
    b. Polyethylene Pipe:
        i. All pigging shall be performed with a polyurethane or polyethylene non-abrasive type pig.
        ii. Should a large amount of water be present during pigging the line shall be drilled using a suitable squeeze type pig.
2. Provide a suitable barrier in front of the open ends of the pipe to catch the cleaners and prevent injury to personnel.
3. The line shall be pigged a minimum of three times or until the line as thoroughly cleaned.
4. After pigging the line air shall be forced through the line to ensure all smaller particles and dust are removed.
5. The compressor used in forcing the pig through the line or blowing air through the line shall in no way inject any type of lubricant or any foreign matter into the line.

3.17 TESTING

A. Furnish approved testing equipment, give Owner ample advance notice of all proposed tasks, and conduct all tests in the Owner's presence in an approved manner.

B. Pressure Tests:
    1. Test all steel piping with 500 psi air and/or insert gas pressure, measure the test pressure with an accurate recording type pressure gauge with 24 hour chart or electronic recorder.
    2. Test all PE piping with 100 psi air and/or insert gas pressure, measure the test pressure with an accurate recording type pressure gauge with 24 hour chart of electronic recorder.

3. Test gauge shall show no drop in pressure for 24 hours after the source of test pressure has been disconnected from the pipeline involved in the test and the temperature of the test medium has been showed to equalize.
4. Locate and repair all leaks which may be disclosed by the tests, and repeat the tests as required for approval.
5. All charts used in the tests shall be identified with the test chart, section of pipeline involved, test pressure, and Contractors signature.

C. Deliver to the Owner the original copy of the test chart.
1. All test charts shall be twelve inch twenty four hour recording charts.
2. All test gauges shall be a minimum of 4.5 inches in diameter or bigger depending on the accuracy required for the test with a range equal to twice the test pressure.
3. All tests shall have a gauge at the point where the air or inert gas is being put into the line, at the point furthest from the recording chart and one at the point where the recording chart is located.
4. At no time shall less than two gauges be on any line being tested.
5. Service lines shall be tested for a period of no less than one hour as director by the Owner.
6. Piping shall in no case show any drop in pressure during the test except what may occur due to temperature changes.
7. It is strongly recommended that once the pipe has been pressurized to the proper pressure that it sit for a period of time to allow pressure and temperature equalization.
8. Compressors used in pumping the line up shall in no way inject any type of oil, lubricant or any foreign matter into the line.

D. Liquid Leak Tests (Soap Test):
1. All above ground fittings, equipment, gauges, piping and joints shall be tested with a suitable liquid leak detection solution before any paint or coating is applied.
2. The test shall show no sign of any leaks (bubbling).
3. The test results shall be noted.

E. Coating Tests (Steel Pipe):
1. Test all pipe coating, including mill applied and field applied coating, with an “Electric Holiday Detector”, using proper test voltage as recommended b the coating manufacturer for the type of coating involved.
2. Repair all “Holidays” which may be disclosed by the tests, and repeat the test as required for approval.

3. Coating test shall conform with ANSI/ASTM G62.

F. Pipeline Electrical Continual Testing (Steel Pipe):

1. The Contractor shall test the electrical continuity of all sections of pipe to be monitored between each pair of adjacent corrosion monitoring test stations or between the ends of pipe sections less than 152.4 m (500') apart. Each pipe section shall be considered electrically continuous when the measured longitudinal resistance of each pipe section is no greater than 20% higher than the theoretical resistance of that section of pipe. If testing indicates inadequate electrical continuity, the Contractor shall excavate to investigate and locate improperly bonded pipe joints and make repairs until electrical continuity is accomplished to the satisfaction of the Utility Engineer.

3.18 PURGING

A. New Lines: before placing in service, purge all new lines with gas to remove all air and explosive materials, using proper safety precautions.

1. Purging gas will be furnished by the Owner. Do not waste gas unnecessarily.

B. Existing piping: Before temporarily or permanently taking existing piping out of service, purge all piping with air to remove all gas and explosive mixtures using proper safety precautions.

3.19 CLEAN UP

A. Clean up the work areas as the work progresses. Negligence to proper cleaning up which causes undue inconvenience to citizens, or presents an unsightly or dangerous condition, or causes embarrassments to civic officials will be sufficient reason; for rejection of construction estimates until the unsatisfactory conditions have been remedied.

B. After all work is complete make a final clean up of all areas where work has been done..

3.20 FIRE PROTECTION

A. At all times during the work under this contract, maintain suitable approved fire extinguishing equipment near the locations where work is in progress, and especially in the vicinity of "hot connection" and purging operation.

B. Use every possible safety precaution to prevent fire and explosions, and comply with all applicable safety and fire prevention codes.

C. Portable the extinguishing equipment shall conform to national Fire Protection Associations Standard Section 10.

D. The storage and use of flammable and explosive liquids, solids and devices shall be in accordance with the applicable section of the National Fire Protection Association Codes, Standards and Recommended Practices.
E. Section 1 of the NFPA standards shall be followed at all times.

3.21 EXISTING UTILITIES

A. At all times maintain in a minimum of one foot of clearance between gas piping and all other underground utilities.
B. To the greatest extent possible maintain a minimum clearance of three to five feet between proposed piping and existing utilities.
C. Coordinate all work with other utility personnel to assist them in maintaining service to their customers.

3.22 CONSTRUCTION PERSONEL

A. Welder shall include one qualified electric arc and gas welder along with all equipment and supplies necessary to make electric arc and/or welds and cuts.
B. Backhoe operators shall include on qualified operator with a rubber tired backhoe with all equipment and supplies necessary to perform excavation and backfill operations.
C. Foreman shall include one qualified construction crew foreman capable of handling and supervising all types of construction personnel.
D. Laborer shall include one laborer capable of performing the various duties expectant from a laborer in pipe laying operations.

3.23 STEEL MAIN BRIDGE CROSSING

A. Steel pipe material used on the bridge shall conform to the requirements of carbon steel pipe as specified in Section 02880 of these Specifications.
B. Coating shall be thin film fusion bonded epoxy with a minimum 14 mils of Powercrete. Welded joint coating shall be approved two-part epoxy system or shrink sleeve.
C. 8” (200mm) steel pipe shall be 0.322” wall thickness and 8” (160mm) steel pipe shall be 0.280” wall thickness.
D. Pipe rollers shall be non-conductive to prevent the passing of current from the pipeline to bridge structure and rebars.
E. The Contractor shall test the electrical continuity of all sections of pipe in accordance with 3.17 F above.
F. Where applicable, all supports, rocks, brackets, bolts, nuts, screws, washers and so forth shall be of corrosion-resistant materials or protected against corrosion by corrosion-resistant materials. Stainless Steel or hot dip galvanizing after fabrication is acceptable.
G. The Contractor shall install expansion joints to permit the pipe to expand and contract with temperature and bridge movement.

END OF SECTION

BRACKEN COUNTY WATER DISTRICT APPROVED CONTRACTORS

Only the below listed contractors are preapproved to perform water relocation construction under this contract:

Tilton Excavating
828 Tilton Lane
Mt. Olivet, KY 41064
(606) 782-5039
waymantilton@yahoo.com
Contact Person: Wayman Tilton

Martin Contracting
2371 Irvine Road
Richmond, KY 40475
(859) 623-0112
Shawn.martin@martincontracting.net
Contact Person: Shawn Martin

G&W Construction Company
6730 Flemingsburg Road
Morehead, KY 40351
(606) 784-2396
gandwconst@windstream.net
Contact Person: Darrell Alderman

Kentucky Transportation Cabinet

Highway District 6

And

_____(2), Construction

Kentucky Pollutant Discharge Elimination System Permit KYR10 Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

KY 1159 Spot Improvements from Brooksville to Bladestone

Project: PCN ## - #### Item 06-8311.00

KyTC BMP Plan for Project PCN ## -

Project information

Note – (1) = Design (2) = Construction (3) = Contractor

1. Owner – Kentucky Transportation Cabinet, District 6

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) 903 Bladeston Pike, Brooksville, KY 41004

6. Latitude/Longitude (project mid-point) dd/mm/ss, dd/mm/ss 38^42’17” north, 84^05’02” west

7. County (project mid-point) Bracken County

8. Project start date (date work will begin): (2)

9. Projected completion date: (2)

KyTC BMP Plan for Project PCN ## - ####

A. Site description:

1. Nature of Construction Activity (from letting project description) Spot Improvements

2. Order of major soil disturbing activities (2) and (3)

3. Projected volume of material to be moved 130,287 CY

4. Estimate of total project area (acres) 20.7 Acres

5. Estimate of area to be disturbed (acres) 20.7 Acres

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. 0.9

7. Data describing existing soil condition (2)

8. Data describing existing discharge water quality (if any) (2)

9. Receiving water name, Locust Creek

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. <u>All DDA’s will have adequate BMP’s in place before being disturbed.</u>

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 : N/A

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.

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.

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 successfully completed the KEPSC-RI course as required by Section 213.02.02 of the Standard Specifications for Road and Bridge Construction, current edition.
- 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.

KyTC BMP Plan for Project PCN ## - ####

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 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 ## -

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.

SPECIAL NOTE

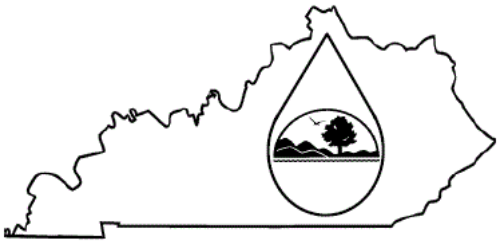
Filing of eNOI for KPDES Construction Stormwater Permit

County: Bracken **Route: US 62**
Item No.: 6-8311 **KDOW Submittal ID:** 8655ecf2-9a2a-4e92-9855-f3011c3e2c32

Project Description: KY 1159 Spot Improvements

A Notice of Intent for obtaining coverage under the Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Stormwater Discharges Associated with Construction Activities (KYR10) has been drafted, copy of which is attached. Upon award, the Contractor will be identified in Section III of the form as the "Building Contractor" and it will be submitted for approval to the Kentucky Division of Water. The Contractor shall be responsible for advancing the work in a manner that is compliant with all applicable and appropriate KYTC specifications for sediment and erosion control as well as meeting the requirements of the KYR10 permit and the KDOW.

If there are any questions regarding this note, please contact David Waldner, Director, Division of Environmental Analysis, TCOB, 200 Mero Street, Frankfort, KY 40622, Phone: (502) 564-7250.



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/KPDES_FormKYR10_Instructions.htm)

Click here to obtain information and a copy of the KPDES General Permit. (http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf)

(*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field

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.

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:(✓)
Kentucky Transportation Cabinet	Robert	A	Yeager

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
421 Buttermilk Pike	Covington	Kentucky	41017

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
Matt.arlinghaus@ky.gov	(859)341-2700	(859)341-2707

SECTION II -- GENERAL SITE LOCATION INFORMATION

Project Name:(*)	Status of Owner/Operator(*)	SIC Code(*)
KY 1159 Spot Improvements	State Government	1611 Highway and Street Const

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
Kentucky Trasportation Cabinet	Craig	MI	Moore

Site Physical Address:(*)
903 Bladestone Pike

City:(*)	State:(*)	Zip:(*)
Brooksville	Kentucky	41004

County:(*)	Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal)	Longitude(decimal degrees)(*)
Bracken	38.704722	-84.083889

SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION

Project Description:(*)
KY 1159 Spot Improvements

a. For single projects provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
20.7	20.7
Anticipated Start Date:(✓)	Anticipated Completion Date:(✓)
3/1/2018	10/1/2018

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 IV -- IF THE PERMITTED SITE DISCHARGES TO A WATER BODY THE FOLLOWING INFORMATION IS REQUIRED

Discharge Point(s):

	Unnamed Tributary?	Latitude	Longitude	Receiving Water Name	
1	No	38.6951167	-84.070350	Goose Creek	Delete
2	No	38.6951333	-84.069842	Locust Creek	Delete
3	No	38.6958333	-84.070419	Goose Creek	Delete
4	No	38.6960500	-84.069992	Locust Creek	Delete
5	No	38.6972278	-84.071231	Locust Creek	Delete
6	No	38.7062278	-84.085231	Locust Creek	Delete
7	No	38.7069472	-84.087158	Goose Creek	Delete
8	No	38.7071583	-84.086597	Goose Creek	Delete
9	No	38.7085333	-84.088483	Goose Creek	Delete
10	No	38.7122250	-84.091681	Goose Creek	Delete

SECTION V -- IF THE PERMITTED SITE DISCHARGES TO A MS4 THE FOLLOWING INFORMATION IS REQUIRED

Name of MS4:

Date of application/notification to the MS4 for construction site permit coverage:	Discharge Point(s):(*)
Date	

	Latitude	Longitude	
+			

SECTION VI -- WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY 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 scope of activity
Is a Clean Water Act 404 permit required?:(*)	No

Is a Clean Water Act 401 Water Quality Certification required?:(*)	No

SECTION VII -- NOI PREPARER INFORMATION

First Name:(*)	M.I.:	Last Name:(*)	Company Name:(*)
Craig	MI	Moore	Kentucky Transportation Cabinet

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
421 Buttermilk Pike	Covington	Kentucky	41017

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
craig.moore@ky.gov	(859)341-2700	(859) 341-2707

SECTION VIII -- ATTACHMENTS

Facility Location Map:(*)	Upload file
Supplemental Information:	Upload file

SECTION IX -- CERTIFICATION

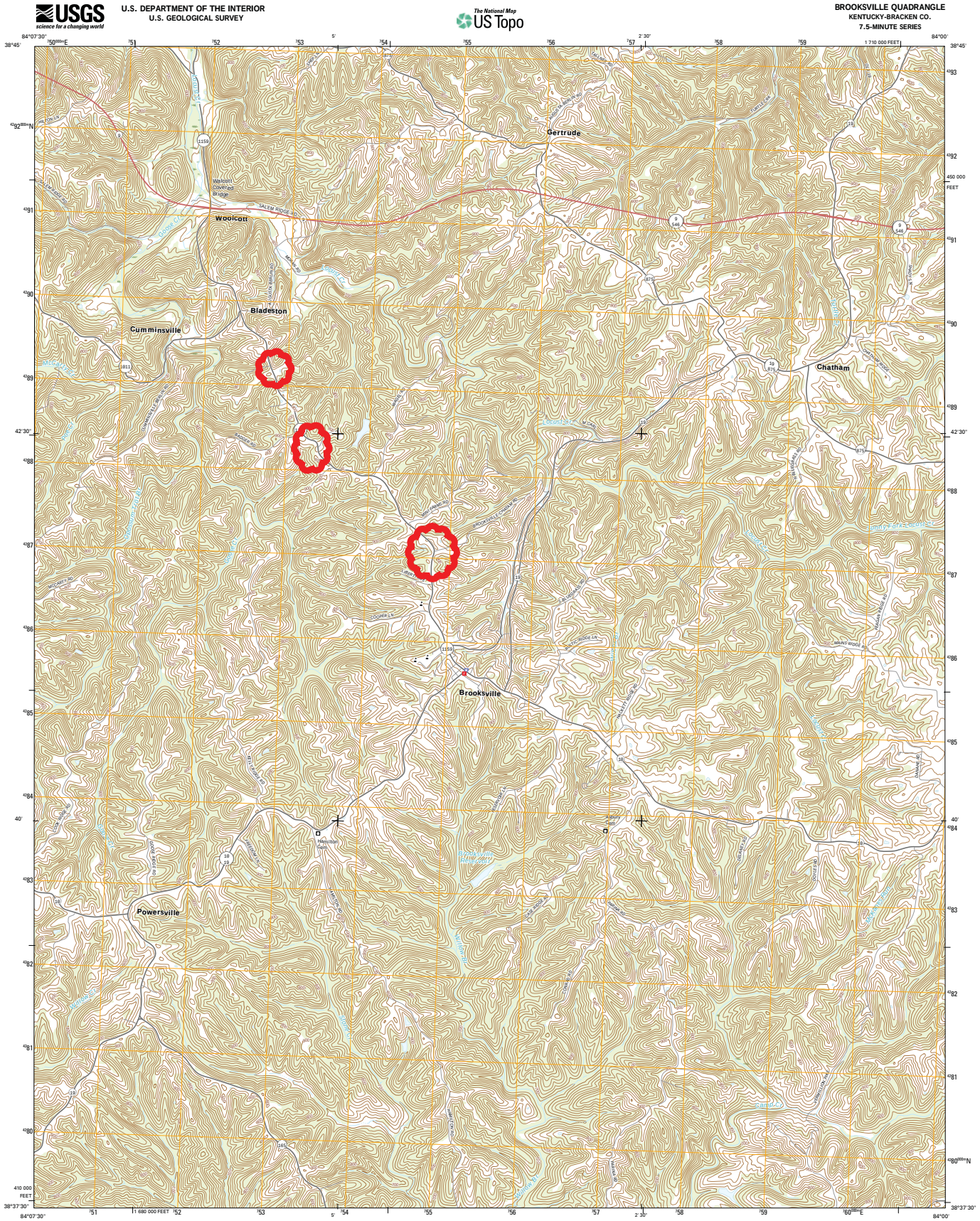
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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:(*)
Signature	Title

First Name:(*)	M.I.:	Last Name:(*)
First Name	MI	Last Name

eMail Address:(*)	Business Phone:(*)	Alternate Phone:	Signature Date:(*)
eMail Address	Phone	Phone	Date

Click to Save Values for Future Retrieval | Click to Submit to DEP



Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 16S
10 000-foot ticks: Kentucky Coordinate System of 1983 (north zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, July 2014
Roads.....U.S. Census Bureau, 2015 - 2016
Names.....GNIS, 2016
Hydrography.....National Hydrography Dataset, 2014
Contours.....National Elevation Dataset, 2002
Boundaries.....Multiple sources; see metadata file 1972 - 2016

Wetlands.....FWS National Wetlands Inventory 1977 - 2014

UTM GRID AND 2016 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
GH
Grid Zone Designation
16S

KENTUCKY TRANSPORTATION CABINET
COMMUNICATING ALL PROMISES (CAP)
ACTIVE

Item No. 6 - 8311 **Project Mgr.** MIKE BEZOLD

County BRACKEN **Route** KY-1159

CAP #	Date of Promise	Promise made to:	Location of Promise
1	14-DEC-15	Parcel 10	Station 113+50

CAP Description

THERE IS A SEPTIC TANK LOCATED NEAR THE BARN ON PACREL 10 (CLOS). THIS STRUCTURE IS NOT TO BE DISTURBED.

2	25-APR-16	Pat Taylor	Parcel 57

CAP Description

THE PLANS SHOW A PROPOSED ENTRANCE TO PARCEL 57 NEAR STATION 201+50. THE EXACT LOCATION OF THIS ENTRANCE WILL BE FIELD DETERMINED THROUGH DISCUSSIONS BETWEEN THE CONTRACTOR AND MR. TAYLOR. ENTRANCE SHALL BE LOCATED SOMEWHERE BETWEEN STATION 200+00 AND 201+50 AND EXTEND TO THE RIGHT OF WAY LINE.

GUARDRAIL DELIVERY VERIFICATION SHEET

Contract Id: _____ **Contractor: _____**

Section Engineer: _____ **District & County: _____**

DESCRIPTION	UNIT	QTY LEAVING PROJECT	QTY RECEIVED@BB YARD
GUARDRAIL (Includes End treatments & crash cushions)	LF	_____	_____
STEEL POSTS	EACH	_____	_____
STEEL BLOCKS	EACH	_____	_____
WOOD OFFSET BLOCKS	EACH	_____	_____
BACK UP PLATES	EACH	_____	_____
CRASH CUSHION	EACH	_____	_____
NUTS, BOLTS, WASHERS	BAG/BCKT	_____	_____
DAMAGED RAIL TO MAINT. FACILITY	LF	_____	_____
DAMAGED POSTS TO MAINT. FACILITY	EACH	_____	_____

****Required Signatures before Leaving Project Site***

Printed Section Engineer's Representative_____ & Date_____

Signature Section Engineer's Representative_____& Date_____

Printed Contractor's Representative_____& Date_____

Signature Contractor's Representative_____& Date_____

****Required Signatures after Arrival at Bailey Bridge Yard (All material on truck must be counted & the quantity received column completed before signatures)***

Printed Bailey Bridge Yard Representative_____ & Date_____

Signature Bailey Bridge Yard Representative_____& Date_____

Printed Contractor's Representative_____& Date_____

Signature Contractor's Representative_____& Date_____

**Payment for the bid item remove guardrail will be based upon the quantities shown in the Bailey Bridge Yard received column. Payment will not be made for guardrail removal until the guardrail verification sheets are electronically submitted to the Section Engineer by the Bailey Bridge Yard Representative.

Completed Form Submitted to Section Engineer Date: _____ By: _____

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

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 2012* and *Standard Drawings, Edition of 2016.*

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

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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.

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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

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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

11D

SPECIAL NOTE FOR ROCK BLASTING

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. This work consists of fracturing rock and constructing stable final rock cut faces using presplit blasting and production blasting techniques.

2.0 MATERIALS. Deliver, store, and use explosives according to the manufacturer's recommendations and applicable laws. Do not use explosives outside their recommended use date. Verify date of manufacture and provide copies of the technical data sheets (TDS) and material safety data sheets (MSDS) to the Engineer. Explosives and initiating devices include, but are not necessarily limited to, dynamite and other high explosives, slurries, water gels, emulsions, blasting agents, initiating explosives, detonators, blasting caps, and detonating cord.

3.0 CONSTRUCTION. Furnish copies or other proof of all-applicable permits and licenses. Comply with Federal, State, and local regulations on the purchase, transportation, storage, and use of explosive material. Regulations include but are not limited to the following:

1) KRS 351.310 through 351.9901.
2) 805 KAR 4:005 through 4:165
3) Applicable rules and regulations issued by the Office of Mine Safety and Licensing.
4) Safety and health. OSHA, 29 CFR Part 1926, Subpart U.
5) Storage, security, and accountability. Bureau of Alcohol, Tobacco, and Firearms (BATF), 27 CFR Part 181.
6) Shipment. DOT, 49 CFR Parts 171-179, 390-397.

3.1 Blaster-in-Charge. Designate in writing a blaster-in-charge and any proposed alternates for the position. Submit documentation showing the blaster-in-charge, and alternates, have a valid Kentucky blaster's license. Ensure the blaster-in-charge or approved alternate is present at all times during blasting operations.

3.2 **Blasting Plans.** Blasting plans and reports are for quality control and record keeping purposes. Blasting reports are to be signed by the blaster-in-charge or the alternate blaster-in-charge. The general review and acceptance of blasting plans does not relieve the Contractor of the responsibility whatsoever for conformance to regulations or for obtaining the required results. All blasting plans shall be submitted to the Engineer. The Engineer will be responsible for submitting the plan to the Central Office Division of Construction and the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at the following address: 2 Hudson Hollow, Frankfort, Kentucky, 40601.

A) General Blasting Plan. Submit a general blasting plan for acceptance at least 15 working days before drilling operations begin. Include, as a minimum, the following safety and procedural details:

1) Working procedures and safety precautions for storing, transporting, handling, detonating explosives. Include direction on pre and post blast audible procedures, methods of addressing misfires, and methods of addressing inclement weather, including lightning.
2) Proposed product selection for both dry and wet holes. Furnish Manufacturer's TDS and MSDS for all explosives, primers, initiators, and other blasting devices.
3) Proposed initiation and delay methods.
4) Proposed format for providing all the required information for the site specific blasting shot reports.

B) Preblast Meeting. Prior to drilling operations, conduct a preblast meeting to discuss safety and traffic control issues and any site specific conditions that will need to be addressed. Ensure, at a minimum, that the Engineer or lead inspector, Superintendent, blaster-in-charge, and all personnel involved in the blasting operation are present. Site specific conditions include blast techniques; communication procedures; contingency plans and equipment for dealing with errant blast material. The conditions of the General Blasting plan will be discussed at this meeting. Record all revisions and additions made to the blasting plan and obtain written concurrence by the blaster-in-charge. Provide a copy of the signed blast plan to the Engineer along with the sign in sheet from the preblast meeting.

3.3 Preblast Condition Survey and Vibration Monitoring and Control. Before blasting, arrange for a preblast condition survey of nearby buildings, structures, or utilities, within 500 feet of the blast or that could be at risk from blasting damage. Provide the Engineer a listing of all properties surveyed and any owners denying entry or failing to respond. Notify the Engineer and occupants of buildings at risk at least 24 hours before blasting.

Limit ground vibrations and airblast to levels that will not exceed limits of 805 KAR 4:005 through 4:165. More restrictive levels may be specified in the Contract.

Size all blast designs based on vibration, distance to nearest building or utility, blast site geometry, atmospheric conditions and other factors. Ground vibrations are to be controlled according to the blasting standards and scaled distance formulas in 805 KAR 4:020 or by the use of seismographs as allowed in 805 KAR 4:030. The Department will require seismographs at the nearest allowable location to the protected site when blasting occurs within 500 feet of buildings, structures, or utilities.

3.4 Blasting. Drill and blast at the designated slope lines according to the blasting plan. Perform presplitting to obtain smooth faces in the rock and shale formations. Perform the presplitting before blasting and excavating the interior portion of the specified cross section at any location. The Department may allow blasting for fall benches and haul roads prior to presplitting when blasting is a sufficient distance from the final slope and results are satisfactory to the Engineer. Use the types of explosives and blasting accessories necessary to obtain the required results.

Free blast holes of obstructions for their entire depth. Place charges without caving the blast hole walls. Stem the upper portion of all blast holes with dry sand or other granular material passing the 3/8-inch sieve. Dry drill cuttings are acceptable for stemming when blasts are more than 800 feet from the nearest dwelling.

Stop traffic during blasting operations when blasting near any road and ensure traffic does not pass through the Danger Zone. The blaster-in-charge will define the Danger Zone prior to each blast. Ensure traffic is stopped outside the Danger Zone, and in no case within 800 feet of the blast location.

Following a blast, stop work in the entire blast area, and check for misfires before allowing worker to return to excavate the rock.

Remove or stabilize all cut face rock that is loose, hanging, or potentially dangerous. Leave minor irregularities or surface variations in place if they do not create a hazard. Drill the next lift only after the cleanup work and stabilization work is complete.

When blasting operations cause fracturing of the final rock face, repair or stabilize it in an approved manner at no cost to the Department.

Halt blasting operations in areas where any of the following occur:

1) Slopes are unstable;
2) Slopes exceed tolerances or overhangs are created;
3) Backslope damage occurs;
4) Safety of the public is jeopardized;
5) Property or natural features are endangered;
6) Fly rock is generated; or
7) Excessive ground or airblast vibrations occur in an area where damage to buildings, structures, or utilities is possible.
8) The Engineer determines that materials have become unsuitable for blasting

Blasting operations may continue at a reasonable distance from the problem area or in areas where the problems do not exist. Make the necessary modifications to the blasting operations and perform a test blast to demonstrate resolution of the problem.

A) Drill Logs. Maintain a layout drawing designating hole numbers with corresponding drill logs and provide a copy of this information to the blaster prior to loading the hole. Ensure the individual hole logs completed by the driller(s) show their name; date drilled; total depth drilled; and depths and descriptions of significant conditions encountered during drilling that may affect loading such as water, voids, changes in rock type.

B) Presplitting. Conduct presplitting operations in conformance with Subsection 204.03.04 of the Standard Specifications for Road and Bridge Construction.

3.5 Shot Report. Maintain all shot reports on site for review by the Department. Within one day after a blast, complete a shot report according to the record keeping requirements of 805 KAR 4:050. Include all results from airblast and seismograph monitoring.

3.6 Unacceptable Blasting. When unacceptable blasting occurs, the Department will halt all blasting operations. Blasting will not resume until the Department completes its investigation and all concerns are addressed. A blast is unacceptable when it results in fragmentation beyond the final rock face, fly rock, excessive vibration or airblast, overbreak, damage to the final rock face or overhang. Assume the cost for all resulting damages to private and public property and hold the Department harmless.

When an errant blast or fly rock causes damage to or blocks a road or conveyance adjacent to the roadway, remove all debris from the roadway as quickly as practicable and perform any necessary repairs. Additionally, when specified in the Contract, the Department will apply a penalty.

Report all blasting accidents to the Division of Mine Reclamation and Enforcement, Explosives and Blasting Branch at 502-564-2340.

4.0 MEASUREMENT AND PAYMENT. The Department will not measure this work for payment and will consider all items contained in this note to be incidental to either Roadway Excavation or Embankment-in-Place, as applicable. However, if the Engineer directs in writing slope changes, then the Department will pay for the second presplitting operation as Extra Work.

The Department will measure for payment material lying outside the typical section due to seams, broken formations, or earth pockets, including any earth overburden removed with this material, only when the work is performed under authorized adjustments.

The Department will not measure for payment any extra material excavated because of the drill holes being offset outside the designated slope lines.

The Department will not measure for payment any material necessary to be removed due to the inefficient or faulty blasting practices.

June 15, 2012

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 2012 Standard Specifications for Road and Bridge Construction.

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).

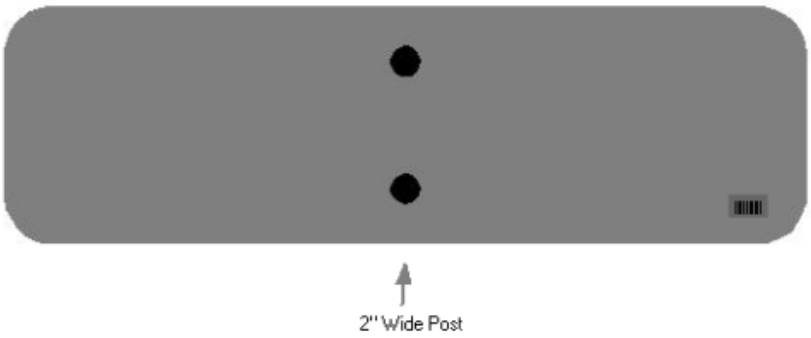
The installation of the permanent sign will be measured in accordance to Section 715.

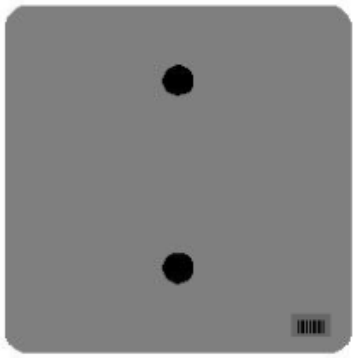
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24631EC	Barcode Sign Inventory	Each

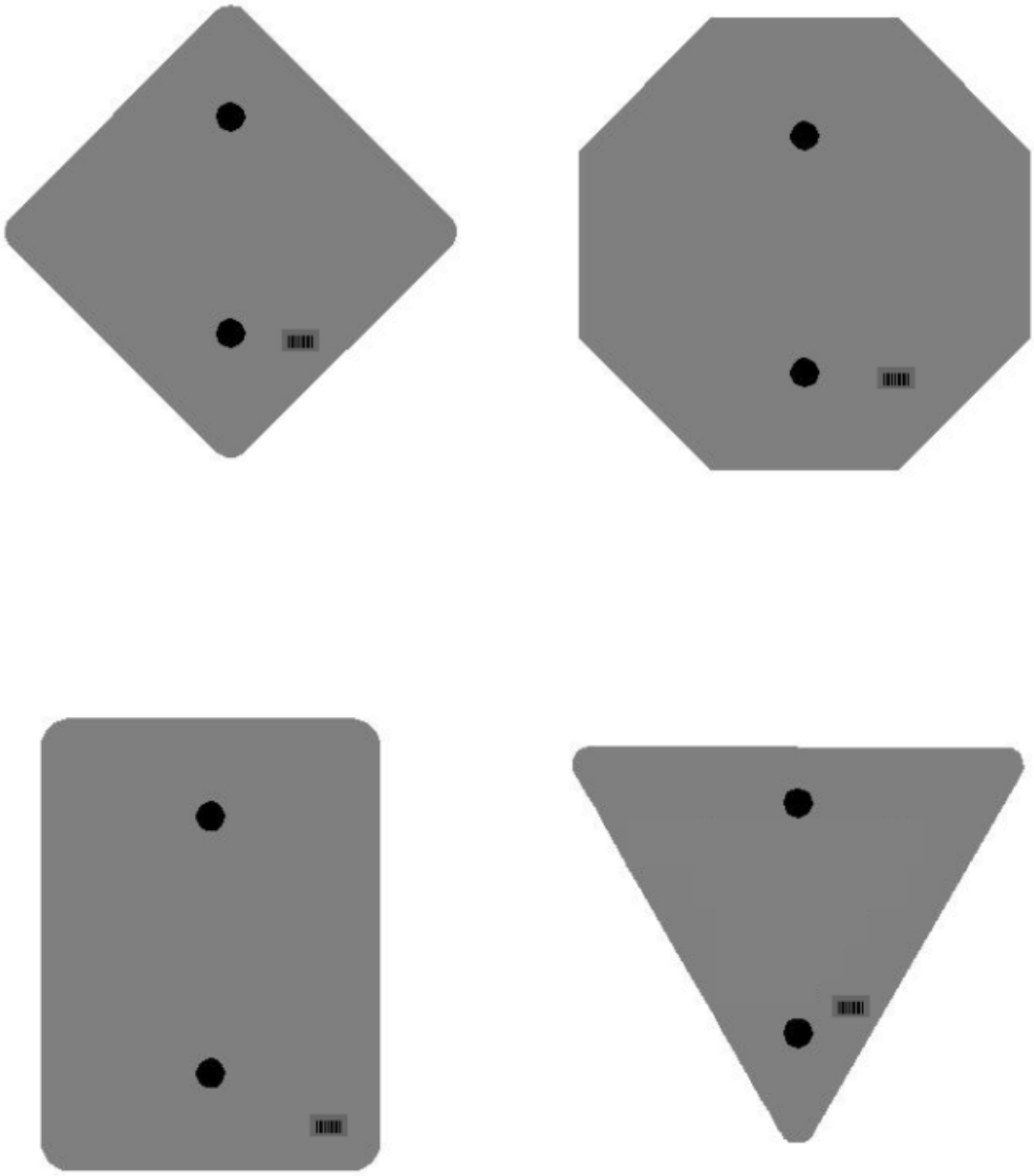
The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment as full compensation for all work required under this special note.

One Sign Post

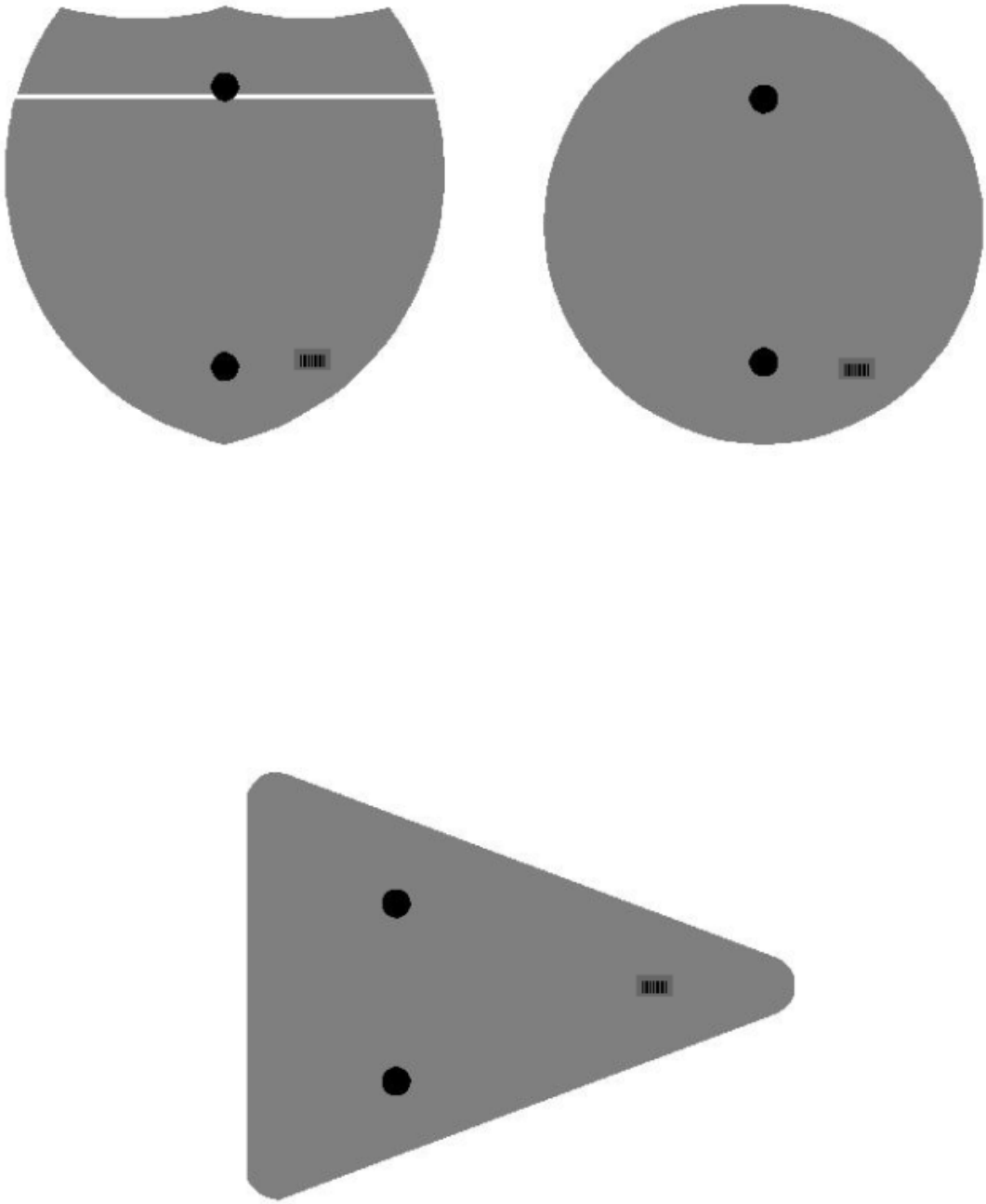




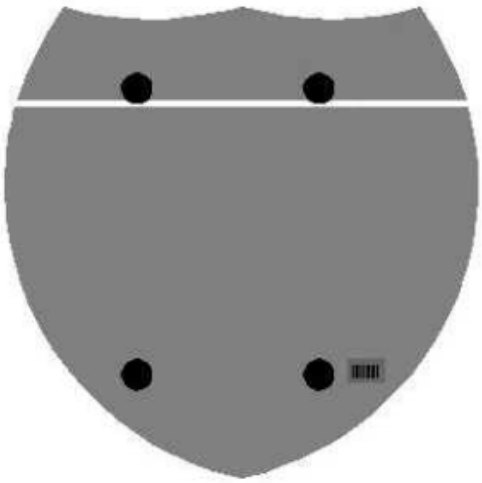
One Sign Post



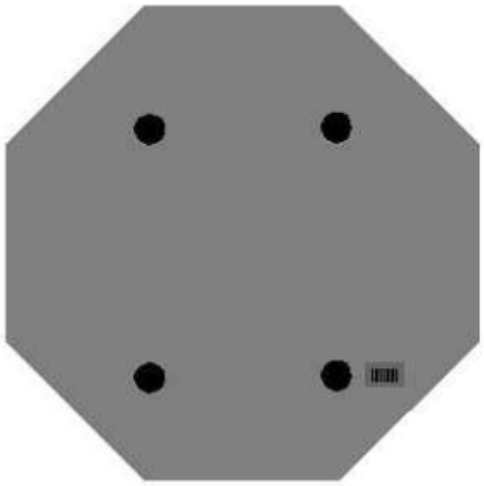
One Sign Post



Double Sign Post

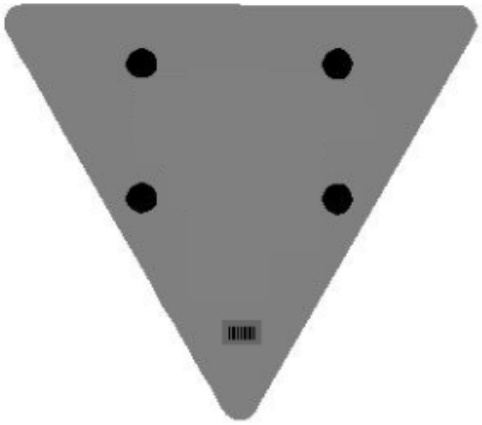


Interstate
Shield



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

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

> KRS 11A.040 (7) provides:
>
> No present or former public servant shall, within six (6) months following termination of his 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 six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his 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 as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, 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, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

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

U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

U.S. Department of Labor | Wage and Hour Division

PART IV

INSURANCE

INSURANCE

The Contractor shall procure and maintain the following insurance in addition to the insurance required by law:

1) Commercial General Liability-Occurrence form – not less than $2,000,000 General aggregate, $2,000,000 Products & Completed Aggregate, $1,000,000 Personal & Advertising, $1,000,000 each occurrence.

2) Automobile Liability- $1,000,000 per accident

3) Employers Liability:

   a) $100,000 Each Accident Bodily Injury
   b) $500,000 Policy limit Bodily Injury by Disease
   c) $100,000 Each Employee Bodily Injury by Disease

4) The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:
   a) "policy contains no deductible clauses."
   b) "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."

5) KENTUCKY WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

The cost of insurance is incidental to all contract items. All subcontractors must meet the same minimum insurance requirements.

PART V

BID ITEMS

PROPOSAL BID ITEMS

181004

Report Date 12/27/17

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00190		LEVELING & WEDGING PG64-22	257.00	TON		$	
0020	00212		CL2 ASPH BASE 1.00D PG64-22	5,616.00	TON		$	
0030	00301		CL2 ASPH SURF 0.38D PG64-22	1,558.00	TON		$	
0040	02101		CEM CONC ENT PAVEMENT-8 IN	110.00	SQYD		$	
0050	02677		ASPHALT PAVE MILLING & TEXTURING	257.00	TON		$	
0060	24965EC		CRUSHED STONE BASE - MODIFIED	6,313.00	TON		$	
0070	40099		PCC PAVEMENT	144.00	SQYD		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0080	00021		DRAINAGE BLANKET-EMBANKMENT	8,762.00	CUYD		$	
0090	01810		STANDARD CURB AND GUTTER	998.00	LF		$	
0100	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	35.00	EACH		$	
0110	02014		BARRICADE-TYPE III	6.00	EACH		$	
0120	02091		REMOVE PAVEMENT	2,592.00	SQYD		$	
0130	02223		GRANULAR EMBANKMENT	750.00	CUYD		$	
0140	02230		EMBANKMENT IN PLACE	130,197.00	CUYD		$	
0150	02242		WATER	1,500.00	MGAL		$	
0160	02351		GUARDRAIL-STEEL W BEAM-S FACE	3,110.00	LF		$	
0170	02360		GUARDRAIL TERMINAL SECTION NO 1	5.00	EACH		$	
0180	02371		GUARDRAIL END TREATMENT TYPE 7	3.00	EACH		$	
0190	02391		GUARDRAIL END TREATMENT TYPE 4A	12.00	EACH		$	
0200	02397		TEMP GUARDRAIL	450.00	LF		$	
0210	02545		CLEARING AND GRUBBING 20.7 ACRES	1.00	LS		$	
0220	02562		TEMPORARY SIGNS	450.00	SQFT		$	
0230	02585		EDGE KEY	174.00	LF		$	
0240	02599		FABRIC-GEOTEXTILE TYPE IV	10,232.00	SQYD		$	
0250	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	382.00	SQYD		$	
0260	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0270	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		$	
0280	02701		TEMP SILT FENCE	2,545.00	LF		$	
0290	02703		SILT TRAP TYPE A	21.00	EACH		$	
0300	02704		SILT TRAP TYPE B	21.00	EACH		$	
0310	02705		SILT TRAP TYPE C	21.00	EACH		$	
0320	02706		CLEAN SILT TRAP TYPE A	21.00	EACH		$	
0330	02707		CLEAN SILT TRAP TYPE B	21.00	EACH		$	
0340	02708		CLEAN SILT TRAP TYPE C	21.00	EACH		$	
0350	02720		SIDEWALK-4 IN CONCRETE	393.00	SQYD		$	
0360	02726		STAKING	1.00	LS		$	
0370	05950		EROSION CONTROL BLANKET	5,612.00	SQYD		$	
0380	05952		TEMP MULCH	66,728.00	SQYD		$	
0390	05953		TEMP SEEDING AND PROTECTION	50,045.00	SQYD		$	
0400	05963		INITIAL FERTILIZER	3.00	TON		$	

PROPOSAL BID ITEMS

181004

Report Date 12/27/17

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0410	05964		20-10-10 FERTILIZER	5.00	TON		$	
0420	05985		SEEDING AND PROTECTION	81,597.00	SQYD		$	
0430	05990		SODDING	443.00	SQYD		$	
0440	06406		SBM ALUM SHEET SIGNS .080 IN	123.00	SQFT		$	
0450	06407		SBM ALUM SHEET SIGNS .125 IN	12.00	SQFT		$	
0460	06410		STEEL POST TYPE 1	51.00	LF		$	
0470	06411		STEEL POST TYPE 2	221.00	LF		$	
0480	06510		PAVE STRIPING-TEMP PAINT-4 IN	20,364.00	LF		$	
0490	06514		PAVE STRIPING-PERM PAINT-4 IN	21,740.00	LF		$	
0500	06516		PAVE STRIPING-PERM PAINT-8 IN	160.00	LF		$	
0510	06568		PAVE MARKING-THERMO STOP BAR-24IN	72.00	LF		$	
0520	06574		PAVE MARKING-THERMO CURV ARROW	2.00	EACH		$	
0530	10020NS		FUEL ADJUSTMENT	58,874.00	DOLL		$	
0540	10030NS		ASPHALT ADJUSTMENT	29,052.00	DOLL		$	
0550	20458ES403		CENTERLINE RUMBLE STRIPS	3,679.00	LF		$	
0560	20550ND		SAWCUT PAVEMENT	2,607.00	LF		$	
0570	23158ES505		DETECTABLE WARNINGS	52.00	SQFT		$	
0580	24631EC		BARCODE SIGN INVENTORY	26.00	EACH		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0590	00078		CRUSHED AGGREGATE SIZE NO 2	534.00	TON		$	
0600	00440		ENTRANCE PIPE-15 IN	228.00	LF		$	
0610	00462		CULVERT PIPE-18 IN	305.70	LF		$	
0620	00464		CULVERT PIPE-24 IN	227.90	LF		$	
0630	00522		STORM SEWER PIPE-18 IN	121.80	LF		$	
0640	01000		PERFORATED PIPE-4 IN	350.00	LF		$	
0650	01010		NON-PERFORATED PIPE-4 IN	251.00	LF		$	
0660	01020		PERF PIPE HEADWALL TY 1-4 IN	3.00	EACH		$	
0670	01024		PERF PIPE HEADWALL TY 2-4 IN	1.00	EACH		$	
0680	01028		PERF PIPE HEADWALL TY 3-4 IN	1.00	EACH		$	
0690	01032		PERF PIPE HEADWALL TY 4-4 IN	4.00	EACH		$	
0700	01204		PIPE CULVERT HEADWALL-18 IN	5.00	EACH		$	
0710	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		$	
0720	01456		CURB BOX INLET TYPE A	2.00	EACH		$	
0730	01740		CORED HOLE DRAINAGE BOX CON-4 IN	1.00	EACH		$	
0740	02159		TEMP DITCH	2,545.00	LF		$	
0750	02160		CLEAN TEMP DITCH	1,273.00	LF		$	
0760	02483		CHANNEL LINING CLASS II	671.00	TON		$	
0770	02484		CHANNEL LINING CLASS III	110.00	TON		$	
0780	24814EC		PIPELINE INSPECTION	656.00	LF		$	

Section: 0004 - UTILITY-GAS

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0790	16003		G ENCASEMENT STEEL BORED RANGE 2	105.00	LF		$	

PROPOSAL BID ITEMS

181004

Report Date 12/27/17

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0800	16008		G ENCASEMENT STEEL OPEN CUT RANGE 1	104.00	LF		$	
0810	16009		G ENCASEMENT STEEL OPEN CUT RANGE 2	310.00	LF		$	
0820	16015		G PIPE POLYETHYLENE/PLASTIC 02 INCH	300.00	LF		$	
0830	16016		G PIPE POLYETHYLENE/PLASTIC 03 INCH	171.00	LF		$	
0840	16017		G PIPE POLYETHYLENE/PLASTIC 04 INCH	5,866.00	LF		$	
0850	16033		G SERVICE LONG SIDE 2 INCH	1.00	EACH		$	
0860	16034		G SERVICE LONG SIDE 3/4 INCH	2.00	EACH		$	
0870	16039		G SERVICE SHORT SIDE 3/4 INCH	10.00	EACH		$	
0880	16049		G VALVE POLYETHYLENE/PLASTIC 02 INCH	3.00	EACH		$	
0890	16050		G VALVE POLYETHYLENE/PLASTIC 03 INCH	1.00	EACH		$	
0900	16051		G VALVE POLYETHYLENE/PLASTIC 04 INCH	11.00	EACH		$	
0910	16065		G LINE MARKER	10.00	EACH		$	
0920	16068		G MAIN ABANDON SHEET U3	1.00	LS		$	
0930	16076		G SPECIAL ITEM	12.00	EACH		$	
0940	16079		G TIE-IN STEEL 04 INCH	4.00	EACH		$	
0950	16084		G TIE-IN W/BYPASS POLY/PLAS 02 INCH	1.00	EACH		$	
0960	16085		G TIE-IN W/BYPASS POLY/PLAS 03 INCH	1.00	EACH		$	
0970	16086		G TIE-IN W/BYPASS POLY/PLAS 04 INCH	4.00	EACH		$	

Section: 0005 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0980	02690		SAFELOADING	50.00	CUYD		$	
0990	14001		W AIR RELEASE VALVE 3/4 INCH	4.00	EACH		$	
1000	14003		W CAP EXISTING MAIN	5.00	EACH		$	
1010	14007		W ENCASEMENT STEEL BORED RANGE 2	65.00	LF		$	
1020	14013		W ENCASEMENT STEEL OPEN CUT RANGE 2	269.00	LF		$	
1030	14019		W FIRE HYDRANT ASSEMBLY	2.00	EACH		$	
1040	14028		W METER 3/4 INCH	9.00	EACH		$	
1050	14036		W PIPE DUCTILE IRON 06 INCH	152.00	LF		$	
1060	14057		W PIPE PVC 03 INCH	147.00	LF		$	
1070	14058		W PIPE PVC 04 INCH	255.00	LF		$	
1080	14059		W PIPE PVC 06 INCH	4,301.00	LF		$	
1090	14077		W SERV PE/PLST LONG SIDE 1 IN	2.00	EACH		$	
1100	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	12.00	EACH		$	
1110	14089		W TAPPING SLEEVE AND VALVE SIZE 1	5.00	EACH		$	
1120	14092		W TIE-IN 03 INCH	1.00	EACH		$	
1130	14103		W VALVE 03 INCH	1.00	EACH		$	
1140	14104		W VALVE 04 INCH	1.00	EACH		$	
1150	14105		W VALVE 06 INCH	5.00	EACH		$	
1160	14144		W LINE MARKER	8.00	EACH		$	

Section: 0006 - MOBILIZATION AND/OR DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1170	02568		MOBILIZATION	1.00	LS		$	

PROPOSAL BID ITEMS

181004

Page 4 of 4

Report Date 12/27/17

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1180	**02569**		**DEMOBILIZATION**	**1.00**	**LS**		**$**	
1190	**02676**		**MOBILIZATION FOR MILL & TEXT**	**1.00**	**LS**		**$**	