CALL NO. 202

CONTRACT ID. 161268

MAGOFFIN - MORGAN - WOLFE COUNTIES

FED/STATE PROJECT NUMBER NHPP 0061 (072)

DESCRIPTION MOUNTAIN PARKWAY (KY 9009) IN MORGAN, WOLFE & MAGOFFIN

WORK TYPE GRADE, DRAIN & SURFACE WITH BRIDGE

PRIMARY COMPLETION DATE 375 WORKING DAYS

LETTING DATE: December 09,2016

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME December 09,2016. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 10%

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

TABLE OF CONTENTS

PART I SCOPE OF WORK

- PROJECT(S), COMPLETION DATE(S), & LIQUIDATED DAMAGES
- CONTRACT NOTES
- FEDERAL CONTRACT NOTES
- TRAINEES
- ASPHALT MIXTURE
- INCIDENTAL SURFACING
- FUEL AND ASPHALT PAY ADJUSTMENT
- ASPHALT PAVEMENT RIDE QUALITY CAT A
- COMPACTION OPTION A
- MATERIAL TRANSFER VEHICLE (MTV)
- HOLD AWARD
- SPECIAL NOTE(S) APPLICABLE TO PROJECT
- PIPELINE INSPECTION
- TREE REMOVAL
- BRIDGE DEMOLITION, RENOVATION
- ASBESTOS ABATEMENT REPORT
- RIGHT OF WAY NOTES
- UTILITY IMPACT & RAIL CERTIFICATION NOTES
- GENERAL UTILITY NOTES
- WATER STANDARD UTILITY BID ITEMS
- WATERLINE SPECS
- DEPT OF ARMY - NATIONWIDE PERMIT
- KPDES STORM WATER PERMIT, BMP AND NOI
- COMMUNICATING ALL PROMISES
- MATERIAL SUMMARY

PART II SPECIFICATIONS AND STANDARD DRAWINGS

- SPECIFICATIONS REFERENCE
- SUPPLEMENTAL SPECIFICATION
- [SN-1I] PORTABLE CHANGEABLE SIGNS
- [SN-6U] STRUCTURAL MASS CONCRETE
- [SN-11C] DRILLED SHAFTS
- [SN-11D] ROCK BLASTING
- [SN-11E] BORING AND JACKING STEEL PIPE WITHOUT CARRIER PIPE
- [SN-11F] TURF REINFORCEMENT MAT
- [SN-11M] SPECIAL NOTE FOR BARCODES ON PERMANENT SIGNS
- [SN-11N] SPECIAL NOTE FOR LONGITUDINAL PAVEMENT JOINT ADHESIVE
- [SP-69] EMBANKMENT AT BRIDGE END BENT STRUCTURES

PART III EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

- FEDERAL-AID CONSTRUCTION CONTRACTS - FHWA 1273
- NONDISCRIMINATION OF EMPLOYEES
- EXECUTIVE BRANCH CODE OF ETHICS
- TRAINING SPECIAL PROVISIONS
- PROJECT WAGE RATES LOCALITY 2 / FEDERAL (OVER)
- NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EEO MAGOFFIN

- NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EEO MORGAN
- NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EEO WOLFE

PART IV INSURANCE

PART V BID ITEMS

PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 10

CONTRACT ID - 161268

NHPP 0061 (072)

COUNTY - MAGOFFIN

PCN - DE07790091668
NHPP 0061 (065)

MOUNTAIN PARKWAY (KY 9009) (MP 63.123) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.4 MILE EAST OF THE KY-134 JOHNSON CREEK BRIDGE TO 0.3 MILE WEST OF KY-3047 (SECTION 5) (MP 65.000), A DISTANCE OF 01.87 MILES.BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 10-00126.50.

GEOGRAPHIC COORDINATES LATITUDE 37:44:47.00 LONGITUDE 83:13:59.00

COUNTY - MORGAN

PCN - DE08890091668
NHPP 0061 (065)

MOUNTAIN PARKWAY (KY 9009) (MP 62.588) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.4 MILE EAST OF THE KY-134 JOHNSON CREEK BRIDGE TO 0.3 MILE WEST OF KY-3047 (MP 63.123), A DISTANCE OF 0.69 MILES.BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 10-00126.50.

GEOGRAPHIC COORDINATES LATITUDE 37:44:47.00 LONGITUDE 83:13:59.00

PCN - DE08890091669
NHPP 0061 (068)

MOUNTAIN PARKWAY (KY 9009) (MP 59.300) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM CR 1226 PARKWAY TUNNEL ROAD TO 0.4 MI EAST OF THE KY 134 JOHNSON CREEK BRIDGE - SECTION 6 (MP 62.588), A DISTANCE OF 03.30 MILES.GRADE, DRAIN & SURFACE WITH BRIDGE SYP NO. 10-00126.60.

GEOGRAPHIC COORDINATES LATITUDE 37:45:11.00 LONGITUDE 83:16:57.00

PCN - DE08890091670
NHPP 0061 (067)

MOUNTAIN PARKWAY (KY 9009) (MP 57.720) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.45 MILES WEST OF KY-205 TO CR-1226 PARKWAY ROAD TUNNEL (MP 59.300) GRADE & DRAIN SYP NO. 10-00126.70.

GEOGRAPHIC COORDINATES LATITUDE 37:45:44.00 LONGITUDE 83:19:51.00

COUNTY - WOLFE

PCN - DE11990091668
NHPP 0061 (067)

MOUNTAIN PARKWAY (KY 9009) (MP 56.800) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.45 MILES WEST OF KY-205 TO CR-1226 PARKWAY ROAD TUNNEL (MP 57.720) BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 10-00126.70.

GEOGRAPHIC COORDINATES LATITUDE 37:45:44.00 LONGITUDE 83:19:51.00

COMPLETION DATE(S):

375 WORKING Days	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

FEDERAL CONTRACT NOTES

The Kentucky Department of Highways, in accordance with the Regulations of the United States Department of Transportation 23 CFR 635.112 (h), hereby notifies all bidders that failure by a bidder to comply with all applicable sections of the current Kentucky Standard Specifications, including, but not limited to the following, may result in a bid not being considered responsive and thus not eligible to be considered for award:

102.02 Current Capacity Rating 102.10 Delivery of Proposals
102.8 Irregular Proposals 102.14 Disqualification of Bidders
102.9 Proposal Guaranty

CIVIL RIGHTS ACT OF 1964

The Kentucky Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Federal Department of Transportation (49 C.F.R., Part 21), issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin.

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071.

The U.S. Department of Transportation (DOT) operates the above toll-free “hotline” Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the “hotline” to report such activities.

The “hotline” is part of the DOT’s continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

SECOND TIER SUBCONTRACTS

Second Tier subcontracts on federally assisted projects shall be permitted. However, in the case of DBE’s, second tier subcontracts will only be permitted where the other subcontractor is also a DBE. All second tier subcontracts shall have the consent of both the Contractor and the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

It is the policy of the Kentucky Transportation Cabinet ("the Cabinet") that Disadvantaged Business Enterprises ("DBE") shall have the opportunity to participate in the performance of highway construction projects financed in whole or in part by Federal Funds in order to create a level playing field for all businesses who wish to contract with the Cabinet. To that end, the Cabinet will comply with the regulations found in 49 CFR Part 26, and the definitions and requirements contained therein shall be adopted as if set out verbatim herein.

The Cabinet, contractors, subcontractors, and sub-recipients shall not discriminate on the basis of race, color, national origin, or sex in the performance of work performed pursuant to Cabinet contracts. The contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted highway construction projects. The contractor will include this provision in all its subcontracts and supply agreements pertaining to contracts with the Cabinet.

Failure by the contractor to carry out these requirements is a material breach of its contract with the Cabinet, which may result in the termination of the contract or such other remedy as the Cabinet deems necessary.

DBE GOAL

The Disadvantaged Business Enterprise (DBE) goal established for this contract, as listed on the front page of the proposal, is the percentage of the total value of the contract.

The contractor shall exercise all necessary and reasonable steps to ensure that Disadvantaged Business Enterprises participate in a least the percent of the contract as set forth above as goals for this contract.

OBLIGATION OF CONTRACTORS

Each contractor prequalified to perform work on Cabinet projects shall designate and make known to the Cabinet a liaison officer who is assigned the responsibility of effectively administering and promoting an active program for utilization of DBEs.

If a formal goal has not been designated for the contract, all contractors are encouraged to consider DBEs for subcontract work as well as for the supply of material and services needed to perform this work.

Contractors are encouraged to use the services of banks owned and controlled by minorities and women.

CERTIFICATION OF CONTRACT GOAL

Contractors shall include the following certification in bids for projects for which a DBE goal has been established. BIDS SUBMITTED WHICH DO NOT INCLUDE CERTIFICATION OF DBE PARTICIPATION WILL NOT BE ACCEPTED. These bids will not be considered for award by the Cabinet and they will be returned to the bidder.

"The bidder certifies that it has secured participation by Disadvantaged Business Enterprises ("DBE") in the amount of_____percent of the total value of this contract and that the DBE participation is in compliance with the requirements of 49 CFR 26 and the policies of the Kentucky Transportation Cabinet pertaining to the DBE Program."

The certification statement is located in the electronic bid file. All contractors must certify their DBE participation on that page. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted.

DBE PARTICIPATION PLAN

Lowest responsive bidders must submit the *DBE Plan/ Subcontractor Request*, form TC 14-35 DBE, within 7 days of the letting. This is necessary before the Awards Committee will review and make a recommendation. **The project will not be considered for award prior to submission and approval of the apparent low bidder's DBE Plan/Subcontractor Request.**

The DBE Participation Plan shall include the following:

1 Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;

2 Description of the work each is to perform including the work item , unit, quantity, unit price and total amount of the work to be performed by the individual DBE. The Project Code Number (PCN), Category Number, and the Project Line Number can be found in the "material listing" on the Construction Procurement website under the specific letting;

3 The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows; a) If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:

- The entire expenditure paid to a DBE manufacturer;
- 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment; and
- The amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.

b) The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;

c) The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;

4 Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and

5 Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

UPON AWARD AND BEFORE A WORK ORDER WILL BE ISSUED

Contractors must submit the signed subcontract between the contractor and the DBE contractor, the DBE's certificate of insurance, and an affidavit for bidders, offerors, and contractors from the DBE to the Division of Construction Procurement. The affidavit can be found on the Construction Procurement website. If the DBE is a supplier of materials for the project, a signed purchase order and an affidavit for bidders, offerors, and contractors must be submitted to the Division of Construction Procurement.

Changes to DBE Participation Plans must be approved by the Cabinet. The Cabinet may consider extenuating circumstances including, but not limited to, changes in the nature or scope of the project, the inability or unwillingness of a DBE to perform the work in accordance with the bid, and/or other circumstances beyond the control of the prime contractor.

CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set and nine (9) copies of this information must be received in the

office of the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Cabinet considers in judging good faith efforts. This documentation may include written subcontractors' quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

The Good Faith Effort Package shall include, but may not be limited to information showing evidence of the following:

1 Whether the bidder attended any pre-bid meetings that were scheduled by the Cabinet to inform DBEs of subcontracting opportunities;
2 Whether the bidder provided solicitations through all reasonable and available means;
3 Whether the bidder provided written notice to all DBEs listed in the DBE directory at the time of the letting who are prequalified in the areas of work that the bidder will be subcontracting;
4 Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainly whether they were interested. If a reasonable amount of DBEs within the targeted districts do not provide an intent to quote or no DBEs are prequalified in the subcontracted areas, the bidder must notify the DBE Liaison in the Office of Minority Affairs to give notification of the bidder's inability to get DBE quotes;
5 Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise perform these work items with its own forces;
6 Whether the bidder provided interested DBEs with adequate and timely information about the plans, specifications, and requirements of the contract;
7 Whether the bidder negotiated in good faith with interested DBEs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached;
8 Whether quotations were received from interested DBE firms but were rejected as unacceptable without sound reasons why the quotations were considered unacceptable. The fact that the DBE firm's quotation for the work is not the lowest quotation received will not in itself be considered as a sound reason for rejecting the quotation as unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a DBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy DBE goals;
9 Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;
10 Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal; and
11 Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

FAILURE TO MEET GOOD FAITH REQUIREMENT

Where the apparent lowest responsive bidder fails to submit sufficient participation by DBE firms to meet the contract goal and upon a determination by the Good Faith Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the bidder will be offered the opportunity to meet in person for administrative reconsideration. The bidder will be notified of the Committee's decision within 24 hours of its decision. The bidder will have 24 hours to request reconsideration of the Committee's decision. The reconsideration meeting will be held within two days of the receipt of a request by the bidder for reconsideration.

The request for reconsideration will be heard by the Office of the Secretary. The bidder will have the opportunity to present written documentation or argument concerning the issue of whether it met the goal or made an adequate good faith effort. The bidder will receive a written decision on the reconsideration explaining the basis for the finding that the bidder did or did not meet the goal or made adequate Good Faith efforts to do so.

The result of the reconsideration process is not administratively appealable to the Cabinet or to the United States Department of Transportation.

The Cabinet reserves the right to award the contract to the next lowest responsive bidder or to rebid the contract in the event that the contract is not awarded to the low bidder as the result of a failure to meet the good faith requirement.

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

Failure by the prime contractor to fulfill the DBE requirements of a project under contract or to demonstrate good faith efforts to meet the goal constitutes a breach of contract. When this occurs, the Cabinet will hold the prime contractor accountable, as would be the case with all other contract provisions. Therefore, the contractor's failure to carry our the DBE contract requirements shall constitute a breach of contract and as such the Cabinet reserves the right to exercise all administrative remedies at its disposal including, but not limited to the following:

- Disallow credit toward the DBE goal;
- Withholding progress payments;
- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

PROMPT PAYMENT

The prime contractor will be required to pay the DBE within seven (7) working days after he or she has received payment from the Kentucky Transportation Cabinet for work performed or materials furnished.

CONTRACTOR REPORTING

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to complete and submit a signed and notarized affidavit (TC 18-7) and copies of checks for any monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These documents must be submitted within 10 days of being paid by the Cabinet.

Payment information that needs to be reported includes date the payment is sent to the DBE, check number, Contract ID, amount of payment and the check date. Before Final Payment is made on this contract, the Prime Contractor will certify that all payments were made to the DBE subcontractor and/or DBE suppliers.

The Prime Contractor should supply the payment information at the time the DBE is compensated for their work. Form to use is located at:
http://transportation.ky.gov/Construction/Pages/Subcontracts.aspx

The prime contractor should notify the KYTC Office of Civil Rights and Small Business Development seven (7) days prior to DBE contractors commencing work on the project. The contact is Melvin Bynes and the telephone number is (502) 564-3601.

Photocopied payments and completed, signed and notarized affidavit must be submitted by the Prime Contractor to: Office of Civil Rights and Small Business Development
6th Floor West 200 Mero Street
Frankfort, KY 40622

DEFAULT OR DECERTIFICATION OF THE DBE

If the DBE subcontractor or supplier is decertified or defaults in the performance of its work, and the overall goal cannot be credited for the uncompleted work, the prime contractor may utilize a substitute DBE or elect to fulfill the DBE goal with another DBE on a different work item. If after exerting good faith effort in accordance with the Cabinet's Good Faith Effort policies and procedures, the prime contractor is unable to replace the DBE, then the unmet portion of the goal may be waived at the discretion of the Cabinet.

3/24/2016

LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC – CARGO PREFERENCE ACT (CPA).

(REV 12-17-15) (1-16)

SECTION 7 is expanded by the following new Article:

102.10 **Cargo Preference Act – Use of United States-flag vessels.**

Pursuant to Title 46CFR Part 381, the Contractor agrees

- To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
- To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph 1 of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.
- To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

TRAINEES

In Compliance with the "TRAINING SPECIAL PROVISION" included in Part III of the Proposal, the Contractor will be required to employ a trainee(s) for this contract.

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.

MATERIAL TRANSFER VEHICLE (MTV)

Provide and use a MTV in accordance with Sections 403.02.10 and 403.03.05.

SPECIAL NOTE FOR AWARD OF CONTRACT

Contrary to section 103.02 of the Standard Specifications for Road and Bridge Construction, the Department may hold and not award the contract for a period not to exceed (90) calendar days from the date of letting.

MEMORANDUM

TO:	Patty Dunaway, PE State Highway Engineer, KYTC
THROUGH:	Paul Looney, PE Deputy State Highway Engineer for Project Development
FROM:	Marshall Carrier, PE Mountain Parkway Project Manager, KYTC S.H.E. Office
DATE:	October 28, 2016
SUBJECT:	Notice of Intent KYTC Item Nos. 10-126.70/.60/.50 Wolfe, Powell, Magoffin Counties Request for Combined Lettings

This is to announce that the Kentucky Transportation Cabinet (KYTC) intends to advertise and receive bids on December 9, 2016 for the reconstruction and widening to 4 lanes of three contiguous sections of the Mountain Parkway project as defined in the 2016 Highway Plan. These three contiguous projects will be advertised for individual bids. Additionally the three sections will be combined and advertised for a single combined bid. These four bid options are described as follows:

- Individual Item No. 10-126.70 – Widen the Mountain Parkway to 4 Lanes from West of the KY 205 Interchange MP 56.6 to MP 59.3
- Individual Item No. 10-126.60 – Widen the Mountain Parkway to 4 Lanes from MP 59.3 to East of KY 134 Bridge over Johnson Creek MP 62.5
- Individual Item No. 10-126.50 – Widen the Mountain Parkway to 4 Lanes from East of KY 134 Bridge over Johnson Creek MP 62.5 to West of KY 3047 MP 65.0
- Combined Item No. 10-126.7, 10-126.6 and 126.5 - Widen the Mountain Parkway to 4 Lanes from West of the KY 205 Interchange MP 56.6 to West of KY 3047 MP 65.0

A contractor may bid on any or all of the four options described above. The KYTC will then evaluate and advance contract(s) based on the following methodology:

A) A single combined contract may be advanced, subject to the Awards Committee approval, if the single combined bid for all three sections is lower than the sum total of the three lowest individual bids
B) Three individual contracts may be advanced, subject to the Awards Committee approval, if the sum total of the three individual bids is lower than the lowest single combined bid

The KYTC reserves the right to reject any bid in the scenarios described above.

Any questions on behalf of the contractors will be to the Division of Construction Procurement and all questions with corresponding responses will be posted.

This memo serves as request for approval from the State Highway Engineer's Office for an alternative letting method for three sub-projects within the Mountain Parkway Expansion Project as detailed above. If approval is granted, this memo will serve as notification to KYTC Construction Procurement to notify the public and make preliminary plans and other documents available for review in advance of the Notice to Contractors.

Cc: Patty Dunaway, KYTC
Dana Robbins, FHWA

DEMOLITION OF IMPROVEMENT- The contractor shall follow 40 CFR 61 Subpart M demolition regulations (NESHAP) and KYTC -Division of Right of Way & Utilities Specification for Removal of Improvements (TC 62-16). The contractor shall contact the Division of Air Quality Hazard Regional Office located at 223 Birch Street, Suite 2, Hazard, Kentucky 41701 Phone No. 606-435-6022 for proper notification requirements prior to demolition.

The following parcels have improvements that need to be demolished:

Parcel 504	Barn	Sheet R9
Parcel 506	Barn	Sheet R11

SPECIAL NOTE FOR
BRIDGE DEMOLITION, RENOVATION AND ASBESTOS ABATEMENT

If the project includes any bridge demolition or renovation, the successful bidder is required to notify Kentucky Division for Air Quality (KDAQ) via filing of form (DEP 7036) a minimum of 10 days prior to commencement of any bridge demolition or renovation work.

Any available information regarding possible asbestos containing materials (ACM) on or within bridges to be affected by the project has been included in the bid documents. These are to be included with the Contractor’s notification filed with the KDAQ. If not included in the bid documents, the Department will provide that information to the successful bidder for inclusion in the KDAQ notice as soon as possible. If there are no documents stating otherwise, the bidders should assume there are no asbestos containing materials that will in any way affect the work.

SPECIAL NOTE FOR
EXCESS MATERIAL SITES

MAGOFFIN/MORGAN COUNTY
KY 9009 – MOUNTAIN PARKWAY WIDENING
ITEM NO. 10-126.50

The construction activities of this project may result in a considerable amount of excess material. It is the contractor's responsibility to dispose of material in compliance with the United States Army Corps of Engineers (USACE) and the Kentucky Division of Water (DOW) rules and regulations pertaining to discharges into U.S. Waters. The Kentucky Transportation Cabinet (KYTC) has PENDING Section 404 & 401 permits for one excess material site along the project corridor. The location of the excess material site is identified in the accompanying map.

The contractor shall plan work in a manner that maximizes, to the most practical extent, the secured site first. Mitigation requirements resulting from the use of this excess material site will be in the form of in-lieu fees and will be paid by the KYTC prior to stream impacts occurring in the excess material site.

Any work associated with the excess material site will be incidental to the excavation cost including but not limited to the following items: Erosion Control Devices, Clearing and Grubbing, Seeding and Protection, Temporary and Permanent Drainage Ditches and Structures.

It is the contractor's responsibility to review the Sections 401 & 404 permits and maintain compliance with the 401 & 404 permits throughout the duration of the project.

If the contractor chooses to use other excess material site(s) (rather than or in addition to) the KYTC's designated excess material site, or modify the designated excess material site, it will be the responsibility of the contractor to acquire the necessary permits and certifications. When applying for new or modified permits obtain approval from the KYTC and obtain the new permit in the Contractor's name from the USACE. No additional contract time will be allowed for this process.

Questions concerning any potential impacts to "Waters of the United States" should be brought to the attention of the appropriate District Office for the Corps of Engineers for determination, prior to disturbance. Any fees associated with obtaining new or modified permit approvals for the disposal of excess material from the USACE or other appropriate regulatory agencies are the responsibility of the contractor.

SPECIAL NOTE FOR
EXCESS MATERIAL SITES

MORGAN COUNTY
KY 9009 – MOUNTAIN PARKWAY WIDENING
ITEM NO. 10-126.60

The construction activities of this project may result in a considerable amount of excess material. It is the contractor's responsibility to dispose of material in compliance with the United States Army Corps of Engineers (USACE) and the Kentucky Division of Water (DOW) rules and regulations pertaining to discharges into U.S. Waters. The Kentucky Transportation Cabinet (KYTC) has PENDING Section 404 & 401 permits for two excess material sites along the project corridor. The location of the excess material sites are identified in the accompanying map.

The contractor shall plan work in a manner that maximizes, to the most practical extent, the secured site first. Mitigation requirements resulting from the use of this excess material site will be in the form of in-lieu fees and will be paid by the KYTC prior to stream impacts occurring in the excess material site.

Any work associated with the excess material site will be incidental to the excavation cost including but not limited to the following items: Erosion Control Devices, Clearing and Grubbing, Seeding and Protection, Temporary and Permanent Drainage Ditches and Structures.

It is the contractor's responsibility to review the Sections 401 & 404 permits and maintain compliance with the 401 & 404 permits throughout the duration of the project.

If the contractor chooses to use other excess material site(s) (rather than or in addition to) the KYTC's designated excess material site, or modify the designated excess material site, it will be the responsibility of the contractor to acquire the necessary permits and certifications. When applying for new or modified permits obtain approval from the KYTC and obtain the new permit in the Contractor's name from the USACE. No additional contract time will be allowed for this process.

Questions concerning any potential impacts to "Waters of the United States" should be brought to the attention of the appropriate District Office for the Corps of Engineers for determination, prior to disturbance. Any fees associated with obtaining new or modified permit approvals for the disposal of excess material from the USACE or other appropriate regulatory agencies are the responsibility of the contractor.

SPECIAL NOTE FOR
EXCESS MATERIAL SITES

MAGOFFIN COUNTY
KY 9009 – MOUNTAIN PARKWAY WIDENING
ITEM NO. 10-126.70

The construction activities of this project may result in a considerable amount of excess material. It is the contractor's responsibility to dispose of material in compliance with the United States Army Corps of Engineers (USACE) and the Kentucky Division of Water (DOW) rules and regulations pertaining to discharges into U.S. Waters. The Kentucky Transportation Cabinet (KYTC) has PENDING Section 404 & 401 permits for two excess material sites along the project corridor. The location of the excess material site is identified in the accompanying map.

The contractor shall plan work in a manner that maximizes, to the most practical extent, the secured sites first. Mitigation requirements resulting from the use of this excess material site will be in the form of in-lieu fees and will be paid by the KYTC prior to stream impacts occurring in the excess material site.

Any work associated with the excess material site will be incidental to the excavation cost including but not limited to the following items: Erosion Control Devices, Clearing and Grubbing, Seeding and Protection, Temporary and Permanent Drainage Ditches and Structures.

It is the contractor's responsibility to review the Sections 401 & 404 permits and maintain compliance with the 401 & 404 permits throughout the duration of the project.

If the contractor chooses to use other excess material site(s) (rather than or in addition to) the KYTC's designated excess material site, or modify the designated excess material site, it will be the responsibility of the contractor to acquire the necessary permits and certifications. When applying for new or modified permits obtain approval from the KYTC and obtain the new permit in the Contractor's name from the USACE. No additional contract time will be allowed for this process.

Questions concerning any potential impacts to "Waters of the United States" should be brought to the attention of the appropriate District Office for the Corps of Engineers for determination, prior to disturbance. Any fees associated with obtaining new or modified permit approvals for the disposal of excess material from the USACE or other appropriate regulatory agencies are the responsibility of the contractor.

SPECIAL NOTE FOR

USE OF MTV ON RAMPS

This project requires the use of Materials Transfer Vehicle. In accordance with Section A of 403.03.05, the MTV will be required on the ramps as well as mainline.

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

SPECIAL NOTE

For Tree Removal

Magoffin and Morgan Counties
Mountain Parkway Reconstruction
Item No. 10-126.50

NO CLEARING OF TREES 5 INCHES OR GREATER (DIAMETER BREAST HEIGHT) FROM JUNE 1- JULY 31.

ADDITIONALLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR RECORDING AND REPORTING THE PROGRESS OF TREE REMOVAL THROUGHOUT THE ENTIRE PROJECT LENGTH (INCLUDING ANY EXCESS MATERIAL SITES, VALUE ENGINEERING AREAS, ETC.). REPORTING SHALL IDENTIFY THE LOCATION(S) CLEARED ON AERIAL MAPPING OF THE PROJECT AREA AND ALSO LIST THE ACREAGE OF FORESTED HABITAT REMOVED SINCE THE PREVIOUS REPORTING PERIOD. REPORTS SHALL BE PRODUCED BY THE CONTRACTOR AND PROVIDED TO KYTC DIVISION OF ENVIRONMENTAL ANALYSIS (DAVE HARMON; dave.harmon@ky.gov) BY APRIL 15TH (FOR THE PERIOD RUNNING OCTOBER 16TH THROUGH MARCH 31ST) AND AGAIN BY NOVEMBER 1ST (FOR THE PERIOD RUNNING APRIL 1ST THROUGH OCTOBER 15TH). REPORTING EFFORTS SHALL START IN YEAR 2016 AND CONTINUE UNTIL PROJECT COMPLETION.

If there are any questions regarding this note, please contact David Waldner, Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY 40601, Phone: (502) 564-7250.

SPECIAL NOTE

For Tree Removal

Morgan County
Mountain Parkway Reconstruction
Item No. 10-126.60

NO CLEARING OF TREES 5 INCHES OR GREATER (DIAMETER BREAST HEIGHT) FROM JUNE 1- JULY 31.

ADDITIONALLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR RECORDING AND REPORTING THE PROGRESS OF TREE REMOVAL THROUGHOUT THE ENTIRE PROJECT LENGTH (INCLUDING ANY EXCESS MATERIAL SITES, VALUE ENGINEERING AREAS, ETC.). REPORTING SHALL IDENTIFY THE LOCATION(S) CLEARED ON AERIAL MAPPING OF THE PROJECT AREA AND ALSO LIST THE ACREAGE OF FORESTED HABITAT REMOVED SINCE THE PREVIOUS REPORTING PERIOD. REPORTS SHALL BE PRODUCED BY THE CONTRACTOR AND PROVIDED TO KYTC DIVISION OF ENVIRONMENTAL ANALYSIS (DAVE HARMON; dave.harmon@ky.gov) BY APRIL 15TH (FOR THE PERIOD RUNNING OCTOBER 16TH THROUGH MARCH 31ST) AND AGAIN BY NOVEMBER 1ST (FOR THE PERIOD RUNNING APRIL 1ST THROUGH OCTOBER 15TH). REPORTING EFFORTS SHALL START IN YEAR 2016 AND CONTINUE UNTIL PROJECT COMPLETION.

If there are any questions regarding this note, please contact David Waldner, Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY 40601, Phone: (502) 564-7250.

SPECIAL NOTE

For Tree Removal

Morgan and Wolfe Counties
Mountain Parkway Reconstruction
Item No. 10-126.70

NO CLEARING OF TREES 5 INCHES OR GREATER (DIAMETER BREAST HEIGHT) FROM APRIL 1 - OCTOBER 14.

If there are any questions regarding this note, please contact David Waldner, Director, Division of Environmental Analysis, 200 Mero Street, Frankfort, KY 40601, Phone: (502) 564-7250.

Special Note for Bridge Demolition, Renovation and Asbestos Abatement

If the project includes any bridge demolition or renovation, the successful bidder is required to notify Kentucky Division for Air Quality (KDAQ) via filing of form (DEP 7036) a minimum of 10 days prior to commencement of any bridge demolition or renovation work.

Any available information regarding possible asbestos containing materials (ACM) on or within bridges to be affected by the project has been included in the bid documents. These are to be included with the Contractor's notification filed with the KDAQ. If not included in the bid documents, the Department will provide that information to the successful bidder for inclusion in the KDAQ notice as soon as possible. If there are no documents stating otherwise, the bidders should assume there are no asbestos containing materials that will in any way affect the work.

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 7/24/2014

Re: Asbestos Inspection Report for Magoffin 10-126.50

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 10-126.50

Bridge # 077B00043N

Description: The concrete and paint samples collected were negative for asbestos. The Concrete Sealant, Joint Compound, and Guardrail Mastic samples were pointed counted below 1%. No abatement necessary.

Inspection Date: July 8th, 2014

Results

The results show no ACM abatement is required.

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable 077 B000043N Samplers (signature):
Project or Subject Reference Magoffin 10-126.50 B000043N	

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
M43-1	Paint Chip	7-8-14	11:25	Asbestos	Paint	Yellow		N/A
M43-2	Guard Rail Mastic	7-8-14			Mastic	Grey		
M43-3	Rail Concrete				Concrete	Grey		
M43-4	Joint Compound				Compound	Black		
M43-5	Wing Wall Concrete				Concrete	Grey		
M43-6	Concrete Span				Concrete	Grey		
M43-7	Concrete Abutment				Concrete	Grey		
M43-8	Concrete Sealant				compound	Brown		

Relinquished By:	Date/Time:
Received By: Kimberly Menard	Date/Time: 7/10/14
Relinquished By:	Date/Time:
Received at Lab By:	Date/Time:

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 2107191A
Client Name: KYTC
Sampled By: O'Dail Lawson
Address: Magoffin Co.,/ Item # 10-126.50
Bridge # 077 B00043N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
M43-1	Yellow	Yes	No				None				100%
M43-2	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M43-3	Gray	Yes	No				None				100%
M43-4	Black	Yes	No	3%	(To Be	Point Counted)		2%			95%
M43-5	Gray	Yes	No				None				100%
M43-6	Gray	Yes	No				None				100%
M43-7	Gray	Yes	No				None				100%
M43-8	Brown	Yes	No	3%	(To Be	Point Counted)		2%			95%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 19-Jul-14
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459
AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2107191 B**
Address:	**200 Mero Street**	**Sample ID:**	**M43-2**
	Frankfort, KY	**Sampled:**	**8-Jul-14**
	40601	**Received:**	**10-Jul-14**
		Analyzed:	**19-Jul-14 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Magoffin County / Item # 126.50 B00043N
Field Description: Guard Rail Mastic
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2107191B**
Address:	**200 Mero Street**	**Sample ID:**	**M43-4**
	Frankfort, KY	**Sampled:**	**8-Jul-14**
	40601	**Received:**	**10-Jul-14**
		Analyzed:	**19-Jul-14 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Magoffin County / Item # 126.50 B00043N
Field Description: Joint Compound
Laboratory Description: Thick Black Material

Asbestos Materials:

Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: **The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.**

Analyst: Winterford Mensah Reviewed By: Winterford Mensah
Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2107191B**
Address:	**200 Mero Street**	**Sample ID:**	**M43 - 8**
	Frankfort, KY	**Sampled:**	**8-Jul-14**
	40601	**Received:**	**10-Jul-14**
		Analyzed:	**19-Jul-14 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Magoffin County / Item # 126.50 B00043N
Field Description: Concrete Sealant
Laboratory Description:
Brown Material With Gray & White Interior

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: **The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.**

Analyst: Winterford Mensah Reviewed By: Winterford Mensah
Signature

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 41 of 617

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 7/25/2014

Re: Asbestos Inspection Report for Morgan 10-126.50

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 10-126.50

Bridge # 088B00043N

Description: The concrete samples collected were negative for asbestos. Samples of Joint Compound, Reflector Glue and Guard Rail Mastic required a point count. None of these samples were positive for asbestos. No abatement necessary.

Inspection Date: July 15th, 2014

Results

The results show no ACM abatement is required.

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

088 B000431N

O'Dail Lawson o'dail.lawson@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable Samplers (signature):
Project or Subject Reference Morgan 10-125.B50 B000431N	

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
M43-1	Concrete Abutment	7/19/14	2:00	Asbestos South East side	Concrete	Grey		N/A
M43-2	Paint Chip	↓	↓	↓	Paint	Black/ Yellow		
M43-3	Joint Compound				Compound	Black		
M43-4	Reflector Glue				Glue	Grey		
M43-5	Guard Rail Mastic				Mastic	Grey		
M43-6	Concrete Rail	↓	↓	↓	Concrete	Grey		

Relinquished By:	Date/Time:
Received By: Kristopher Meade	Date/Time: 7/19/14
Relinquished By:	Date/Time:
Received at Lab By:	Date/Time:

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 2107255A
Client Name: KYTC
Sampled By: O'Dail Lawson

Address: Morgan Co. Item # 10-126.50
Bridge # 088 B00043N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
M43-1	Gray	Yes	No				None				100%
M43-2	Yellow	Yes	No				None				100%
M43-3	Black	Yes	No	3%	(To Be	Point Counted)		2%			95%
M43-4	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M43-5	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M43-6	Gray	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 25-Jul-14
Analyst : Winterford Mensah

Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459

AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2107255B**
Address:	**200 Mero Street**	**Sample ID:**	**M43 - 5**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Morgan County/ Item # 10-126.50 088 B00043N
Field Description: Guard Rail Mastic
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: **The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.**

Analyst: Winterford Mensah Reviewed By: Winterford Mensah
Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2107255B**
Address:	**200 Mero Street**	**Sample ID:**	**M43-4**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Morgan County/ Item # 10-126.50 088 B00043N
Field Description: Reflector Glue
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: **The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.**

Analyst: Winterford Mensah Reviewed By: Winterford Mensah
Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2107255B**
Address:	**200 Mero Street**	**Sample ID:**	**M43-3**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Morgan County/ Item # 10-126.50 088 B00043N
Field Description: Joint Compound
Laboratory Description:
Black Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: **The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.**

Analyst: Winterford Mensah Reviewed By: Signature

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 48 of 617

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 7/28/2014

Re: Asbestos Inspection Report for Morgan 10-126.60

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 10-126.60

Bridge # 088B00041N

Description: The concrete samples collected were negative for asbestos. Samples of Concrete Sealant, Reflector Glue and Guard Rail Mastic required a point count. None of these samples were positive for asbestos. No abatement necessary.

Inspection Date: July 15th, 2014

Results

The results show no ACM abatement is required.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N# 2107253A
Client Name: KYTC
Sampled By: O'Dail Lawson
Address: Morgan Co. Item # 10-126.60
Bridge # 088 B00041N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
M41-1	Yellow	Yes	No				None				100%
M41-2	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M41-3	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M41-4	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M41-5	Gray	Yes	No				None				100%
M41-6	Gray	Yes	No				None				100%
M41-7	Gray	Yes	No				None				100%
M41-8	Gray	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 25-Jul-14
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459
AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107253B**
Address:	**200 Mero Street**	**Sample ID:**	**M41-2**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 88 B00041N**
Field Description: **Guard Rail Mastic**
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107253B**
Address:	**200 Mero Street**	**Sample ID:**	**M41-3**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 88 B00041N**
Field Description: **Concrete Sealant**
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107253B**
Address:	**200 Mero Street**	**Sample ID:**	**M41 - 4**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 88 B00041N**
Field Description: **Reflector Glue**
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

088 B00041N

O'Dail Lawson o'dail.lawson@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable Samplers (Signature)
Project or Subject Reference Morgan 10-126,50 B00041N	

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
M41-1	Paint Chip	7/15/14	2:25	Asbestos	Paint	Black Yellow		N/A
M41-2	Guard Rail Mastic				Mastic	Grey		
M41-3	Concrete Sealant				Compound	Grey		
M41-4	Reflector Glue				Glue	Grey		
M41-5	Concrete Rail				Concrete	Grey		
M41-6	Concrete Wing Wall				Concrete	Grey		
M41-7	Concrete Span				Concrete	Grey		
M41-8	Concrete Abutment				Concrete	Grey		

Relinquished By:	Date/Time:
Received By: Kristopher Reed	Date/Time: 07/17/14
Relinquished By:	Date/Time:
Received at Lab By:	Date/Time:

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 55 of 617

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 7/28/2014

Re: Asbestos Inspection Report for Morgan 10-126.60

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # 10-126.60

Bridge # 088B00042N

Description: The concrete samples collected were negative for asbestos. Samples of Joint Compound, Concrete Sealant, Reflector Glue and Guard Rail Mastic required a point count. None of these samples were positive for asbestos. No abatement necessary.

Inspection Date: July 15th, 2014

Results

The results show no ACM abatement is required.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N# 2107254A
Client Name: KYTC
Sampled By: O'Dail Lawson
Address: Morgan Co. Item # 10-126.60
Bridge # 088 B00042N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
M42-1	Yellow	Yes	No				None				100%
M42-2	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M42-3	Gray	Yes	No				None				100%
M42-4	Black	Yes	No	3%	(To Be	Point Counted)		2%			95%
M42-5	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M42-6	Gray	Yes	No	3%	(To Be	Point Counted)		2%			95%
M42-7	Gray	Yes	No				None				100%
M42-8	Gray	Yes	No				None				100%
M42-9	Gray	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 25-Jul-14
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459
AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107254B**
Address:	**200 Mero Street**	**Sample ID:**	**M42 - 2**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 088 B00042N**
Field Description: **Guard Rail Mastic**
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107254B**
Address:	**200 Mero Street**	**Sample ID:**	**M42-4**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 088 B00042N**
Field Description: **Joint Compound**
Laboratory Description:
Thick Black Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107254B**
Address:	**200 Mero Street**	**Sample ID:**	**M42-5**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 088 B00042N**
Field Description: **Reflector Glue**
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613 *(502) 495-1212*
Louisville, Kentucky 40202 *Fax: (502) 491-7111*

Client:	**KY Transportation Cabinet**	**Project No:**	**2107254B**
Address:	**200 Mero Street**	**Sample ID:**	**M42-6**
	Frankfort, KY	**Sampled:**	**15-Jul-14**
	40601	**Received:**	**19-Jul-14**
		Analyzed:	**July 25, 2014 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: **O'Dail Lawson**
Facility/Location: **Morgan County/ Item # 126.60 088 B00042N**
Field Description: **Concrete Sealant**
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 2/400 = 0.50 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.25 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@ky.gov
KYTC
Address: 200 Mero Street
Frankfort KY
Phone: 502-782-5020 Fax: 502-564-5655
PO#:

Client Information KY TRANSPORTATION CABINET

Results Code:
ND = None Detected
FTD = Filter Tampering or Damaged
N/A = Not Applicable

088 B00042N

Samplers (signature):

Project or Subject Reference
Morgan 10-126.50 B00042N

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
M42-1	Paint Chip	7/15/14	2:15	Asbestos NorthWest Side	Paint	Yellow		N/A
M42-2	Guard Rail Mastic				Mastic	Grey		
M42-3	Concrete Rail				Concrete	Grey		
M42-4	Joint Compound				Compound	Black		
M42-5	Reflector Glue				Glue	Grey		
M42-6	Concrete Sealant				~~Concrete~~ compound	Grey		
M42-7	Concrete Wing Wall				Concrete	Grey		
M42-8	Concrete Span				Concrete	Grey		
M42-9	Concrete Abutment				Concrete	Grey		

Relinquished By: Date/Time:

Received By: Kimberly Meek Date/Time: 7/29/14

Relinquished By: Date/Time:

Received at Lab By: Date/Time:

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 63 of 617

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 8/11/2014

Re: Asbestos Inspection Report for Wolfe 10-126.70

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # Wolfe 10-126.70

Bridge # 119B00043N

Description: The concrete samples collected were negative for asbestos. The guard rail mastic was point counted below 1%. No abatement necessary.

Inspection Date: July 23rd, 2014

Results

The results revealed that there is no ACM abatement required at this time.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 2108036A
Client Name: KYTC
Sampled By: O'Dail Lawson
Address: Wolfe Co.
Bridge # 119 B00043N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
W43-1	Yellow	Yes	No				None				100%
W43-2	Gray	Yes	No	2%	(To Be	Point Counted)		2%			96%
W43-3	Gray	Yes	No				None				100%
W43-4	Gray	Yes	No				None				100%
W43-5	Gray	Yes	No				None				100%
W43-6	Gray	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 3-Aug-14
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459

AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2108036 B**
Address:	**200 Mero Street**	**Sample ID:**	**W 43 - 1**
	Frankfort, KY	**Sampled:**	**23-Jul-14**
	40601	**Received:**	**29-Jul-14**
		Analyzed:	**03-Aug-14 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Wolfe County / Bridge # B00043N
Field Description: Guard Rail Mastic - North Side Of The Structure
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 1/400 = 0.25 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.50 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah
Signature

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged 11 9 B000 43N N/A = Not Applicable Samplers (signature):
Project or Subject Reference Wolfe 10-126.70 B000 43N	

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
W43-1	Paint Chip	7/23/14	11:40	Asbestos North side of Structure	Paint	Yellow		N/A
W43-2	Guard Rail Mastic				Mastic	Grey		
W43-3	Concrete Abutment				Concrete	Grey		
W43-4	Span Concrete				Concrete	Grey		
W43-5	Curb Concrete				Concrete	Grey		
W43-6	Joint Compound				Compound	Black		

Relinquished By:	Date/Time:
Received By: Kristyn Renaud	Date/Time: 7/29/14
Relinquished By:	Date/Time:
Received at Lab By:	Date/Time:

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 68 of 617

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 8/11/2014

Re: Asbestos Inspection Report for Wolfe 10-126.70

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # Wolfe 10-126.70

Bridge # 119B00044N

Description: The concrete samples collected were negative for asbestos. The guard rail mastic was point counted below 1%. No abatement necessary.

Inspection Date: July 23rd, 2014

Results

The results revealed that there is no ACM abatement required at this time.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 2108037A
Client Name: KYTC
Sampled By: O'Dail Lawson
Address: Wolfe Co.
Bridge # 119 B00044N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
W44-1	Yellow	Yes	No				None				100%
W44-2	Gray	Yes	No								100%
W44-3	Gray	Yes	No				None				100%
W44-4	Gray	Yes	No				None				100%
W44-5	Gray	Yes	No	2%	(To Be	Point Counted)		2%			96%
W44-6	Gray	Yes	No				None				100%
W44-7	Gray	Yes	No								100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 3-Aug-14
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459
AJHA #1 02459

MRS, INC. *MRS, Inc. Analytical Laboratory Division*

332 West Broadway, Suite 613
Louisville, Kentucky 40202

(502) 495-1212
Fax: (502) 491-7111

Client:	**KY Transportation Cabinet**	**Project No:**	**2108037 B**
Address:	**200 Mero Street**	**Sample ID:**	**W 44 - 5**
	Frankfort, KY	**Sampled:**	**23-Jul-14**
	40601	**Received:**	**29-Jul-14**
		Analyzed:	**03-Aug-14 - Point Count -**
	Attention O'Dail Lawson		

Bulk Sample Analysis

Sampled by: O'Dail Lawson
Facility/Location: Wolfe County / Bridge # 119 B00044N
Field Description: Guard Rail Mastic Under Side Of The Structure
Laboratory Description:
Gray Material

Asbestos Materials:
Chrysotile = 1/400 = 0.25 % (< 1 %) Sample Is Negative

Non-asbestos Fibrous Materials & Matrix Materials:

Cellulose	0.25 %
Binders	99.50 %

Remarks: The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

Analyst: Winterford Mensah Reviewed By: Winterford Mensah Signature

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable 11 9 B00044N Samplers (signature):
Project or Subject Reference Wolfe 10-126.70 B00044N	

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
W44-1	Concrete Abutment	7/23/14	11:55	Asbestos under Side of Structure	Concrete	Grey		N/A
W44-2	Concrete Span				Concrete	Grey		
W44-3	Paint Chip				Paint	Yellow		
W44-4	Concrete Sealant				Compound	Grey		
W44-5	Guard Rail Mastic				Mastic	Grey		
W44-6	Joint Compound				Compound	Black		
W44-7	Curb Concrete				Concrete	Grey		

Relinquished By:	Date/Time:
Received By: Kristopher Records	Date/Time: 7/29/14
Relinquished By:	Date/Time:
Received at Lab By:	Date/Time:

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 73 of 617

TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Secretary

Memorandum

To: Brandon Baker

CC: Tony Vinegar

From: O'Dail Lawson
Environmental Scientist II
Division of Environmental Analysis

Date: 8/11/2014

Re: Asbestos Inspection Report for Wolfe 10-126.70

This report is prepared to accompany the 10-Day NOI for Demolition to the Division of Air Quality. Please include all pages with submittal.

Project and Structure Information

Project # Wolfe 10-126.70

Bridge # 119B00045N

Description: The concrete sample collected were negative for asbestos. No abatement necessary.

Inspection Date: July 23rd, 2014

Results

The results revealed that there is no ACM abatement required at this time.

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 2108038
Client Name: KYTC
Sampled By: O'Dail Lawson
Address: Wolfe Co.
Bridge # 119 B00045N

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
W45-1	Gray	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 3-Aug-14
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459
AJHA #1 02459

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

	O'Dail Lawson o'dail.lawson@ky.gov	**Client Information**	KY TRANSPORTATION CABINET
	KYTC	Results Code:	
Address:	200 Mero Street	ND = None Detected	
	Frankfort KY	FTD = Filter Tampering or Damaged	
Phone:	502-782-5020 Fax: 502-564-5655	N/A = Not Applicable	
PO#:		Samplers (signature):	

Project or Subject Reference: Wolfe 10-126.70 B00045N

11 & B00045N

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
W45-1	Wing Wall/ Box Concrete	7/23/14	12:10	Asbestos Growth Side of Structure	Concrete	Grey		N/A
~~W45-2~~								
~~W45-3~~								

Relinquished By:	Date/Time:	
Received By: Kristopher Record	Date/Time: 7/29/14	
Relinquished By:	Date/Time:	
Received at Lab By:	Date/Time:	

The EI Group, Inc.

This certifies that

Tilmon O'Dail Lawson

Student Address: 132 Old Fort Drive, Georgetown, KY 40324

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213080011
Certificate Number

7910
Social Security Number

August 23, 2013
Course Dates

August 23, 2013
Exam Date

August 23, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)
Contract ID: 161268
Page 77 of 617

COMMONWEALTH OF KENTUCKY
TRANSPORTATION CABINET
Frankfort, Kentucky 40622
www.transportation.ky.gov/

Matthew G. Bevin
Governor

Greg Thomas
Secretary

Asbestos Inspection Report

To: Tom Springer

District: Consultant; QK4

Date: June 13, 2016

Conducted By: O'Dail Lawson

Report Prepared By: O'Dail Lawson

Project and Structure Identification

Project Number: Wolfe 10-0126.70

Structure ID: 119B00066N

Structure Location: KY 205 over the State Road Fork

Sample Description: The samples collected were negative for asbestos.

Inspection Date: May 25, 2016

Results and Recommendations

The results of the samples collected were negative for the presence of asbestos above 1%. No abatement is required at this time.

It is recommended that this report accompany the 10-Day Notice of Intent for Demolition (DEP7036 Form) which is to be submitted to the Kentucky Division of Air Quality prior to abatement, demolition, or renovation of any building or structure in the Commonwealth of Kentucky.

Kentucky UNBRIDLED SPIRIT
An Equal Opportunity Employer M/F/D

MRS, INC. *MRS, Inc. Analytical Laboratory Division*
332 West Broadway, Suite 613
Louisville, Kentucky 40202
(502) 495-1212
Fax: (502) 491-7111

BULK SAMPLE ASBESTOS ANALYSIS

Analysis N # 26065 Address: Wolfe 126.70 119B00066N
Client Name: KYTC
Sampled By: O'Dail Lawson

				% FIBROUS ASBESTOS				% NON-ASBESTOS FIBERS			
Number	Color	Layered	Fibrous	Chrysotile	Amosite	crocidolite	Others	Cellulose	Fiberglass	Syn. Fiber	Other/Mat.
# W 1	Black	Yes	No				None				100%

Methodology : EPA Method 600/R-93-116
Date Analyzed : 6-Jun-16
Analyst : Winterford Mensah
Reviewed By: Winterford Mensah
Signature

The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S Government. Partial Reproduction of any part of this report is strictly prohibited. Samples shall be retained for (30) days.

AIHA # 102459 AJHA #1 02459

Chain of Custody Record

Kentucky Transportation Cabinet

200 Mero Street, 5th Floor West
Frankfort, Kentucky 40622
(502) 564-7250 fax (502) 564-5655

O'Dail Lawson o'dail.lawson@ky.gov KYTC Address: 200 Mero Street Frankfort KY Phone: 502-782-5020 Fax: 502-564-5655 PO#:	**Client Information** KY TRANSPORTATION CABINET Results Code: ND = None Detected FTD = Filter Tampering or Damaged N/A = Not Applicable 119B000 66N Samplers (signature):
Project or Subject Reference Wolfe 10-126.70	

Sample ID	Sample Description	Collected Date	Collected Time	Analysis Requested	Matrix	Color	Cont. Type	Preservative
W1	Joint Components (Rubber)	5/25/16	14:10	Asbestos bulk	Rubber	black		N/A

Relinquished By:	Date/Time:
Received By: Kristopher Morgan	Date/Time: 06/03/16
Relinquished By:	Date/Time:
Received at Lab By:	Date/Time:

MAGOFFIN - MORGAN - WOLFE COUNTIES
NHPP 0061 (072)

ENVIRONMENTAL TRAINING CONCEPTS, INC

P.O Box 99603 Louisville, KY 40269
(502)640-2951

Certification Number: ETC-AIR-071415-00276

O'Dail Lawson

has on 07-14-2015, attended and successfully completed the requirements and passed the examination with a score of 70% of better on the entitled course.

ASBESTOS INSPECTOR REFRESHER

Training was in accordance with 40 CFR Part 763 (AHERA) approved by the Commonwealth of Kentucky, the Indiana Department of Environmental Management and Tennessee Department of Environment & Conservation The above student received requisite training for Asbestos Accreditation under Title II of the Toxic Substance Act (TSCA).

Conducted at: 1220 Kentucky Mills Drive, Louisville, KY

Expiration Date: 07-14-2016

Name – Training Manager

Name - Instructor

Contract ID: 161268
Page 81 of 617

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)
10-126.60	Morgan	12FO FD 52 121 6170860R	STP 0061 (057)

PROJECT DESCRIPTION

Mountain Parkway Widening, Campton to Salyersville, Morgan County

☐ **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	9	EXCEPTION (5) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired			
Signed Deed	8		
Condemnation			
Signed ROE	1		

Notes/ Comments (Use Additional Sheet if necessary)

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Mark C. Askin, P.E.
Signature		Signature	
Date		Date	10/28/16
Right of Way Director		**FHWA**	
Printed Name	Dean M. Loy	Printed Name	David Whitworth
Signature	Dean M. Loy	Signature	
Date	28 OCT 2016	Date	11/7/16

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)
10-126.50	Morgan/Magoffin	12FO FD 52 121 6170850R	STP 0061 (057)

PROJECT DESCRIPTION

Mountain Parkway Widening, Morgan/Magoffin County

☐ **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	15	EXCEPTION (S) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired			
Signed Deed	12		
Condemnation	0		
Signed ROE	3		

Notes/ Comments (Use Additional Sheet if necessary)

Parcels 504 & 506 will have structures demolished with the roadway contract.

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Mark C. Askin, P.E.
Signature		Signature	
Date		Date	10/28/16
Right of Way Director		**FHWA**	
Printed Name	Dean M. Loy	Printed Name	
Signature		Signature	
Date	28 OCT 2016	Date	11/7/16

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)
10-126.70	Wolfe/Morgan	12FO FD 52 121 6170870R	STP 0061 (057)

PROJECT DESCRIPTION

Mountain Parkway Widening, From KY 205 Interchange to Mile Point 59.2, Wolfe and Morgan Counties

☐ **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	21	EXCEPTION (S) Parcel #	ANTICIPATED DATE OF POSSESSION WITH EXPLANATION
Number of Parcels That Have Been Acquired			
Signed Deed	20		
Condemnation			
Signed ROE	1		

Notes/ Comments (Use Additional Sheet if necessary)
Parcels 9, 23, & 26 will have structures demolished with the roadway contract.

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Mark C. Askin, P.E.
Signature		Signature	
Date		Date	11/09/16
Right of Way Director		**FHWA**	
Printed Name	Dean M. Loy	Printed Name	DAVID WHITWORTH
Signature	Dean M. Loy	Signature	David Whitworth
Date	09 NOV 2016	Date	11-10-16

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan and Magoffin Counties
Widen the Mountain Parkway to 4 Lanes from 0.4 miles east of KY 134 Johnson Creek Bridge to 0.3 miles west of KY 3047
Item No. 10-126.50

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Aerial utility relocations have not begun on this project. It is anticipated that the highway contractor will have productive work available through the project; however, that is for the highway contractor to determine. The highway contractor should not anticipate that any utility relocation work will be completed prior to the letting or by the award of the contract; consequently, the highway contractor should prepare the construction schedule accordingly.

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

AT&T currently exists along the Mountain Parkway. They have fiber optics that run along the entire project length primarily on the south side of the existing roadway.

Foothills Rural Telephone currently exists along the Mountain Parkway from Station 3345+00 to 3355+00.

Licking Valley RECC currently exists along the Mountain Parkway from Station 3265+00 to 3280+00 and Station 3345+00 to 3355+00.

Mountain Rural Telephone currently exists along the Mountain Parkway from Stations 3265+00 to 3280+00.

This may not be a complete list of the utility companies/facilities in the project area; however, it is all that have been identified at this time.

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

N/A

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

AT&T has provided a set of relocation plans. Relocation construction activities are anticipated to begin on June 19, 2017. The Company's relocation submittal has estimated approximately one hundred eighty (180) working days to complete the relocation of their facilities. The Company's estimated completion date is March 23, 2018.

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan and Magoffin Counties
Widen the Mountain Parkway to 4 Lanes from 0.4 miles east of KY 134 Johnson Creek Bridge to 0.3 miles west of KY 3047
Item No. 10-126.50

Foothills Rural Telephone has provided a set of relocation plans. The company will follow Licking Valley RECC's pole route for a portion of the project, consequently they must coordinate their relocation activities with Licking Valley RECC. Relocation construction activities are anticipated to begin on August 21, 2017. The Company's relocation submittal has estimated approximately ninety (90) working days to complete the relocation of their facilities. The Company's estimated completion date is January 5, 2018.

Licking Valley RECC has provided a set of relocation plans. Relocation construction activities are anticipated to begin on June 12, 2017. The Company's relocation submittal estimated approximately one hundred twenty (120) working days to complete the relocation of their facilities. The Company's estimated completion date is December 22, 2017.

Mountain Rural Telephone has provided a set of relocation plans. The company will follow Licking Valley RECC's pole route for a portion of the project, consequently they must coordinate their relocation activities with Licking Valley RECC. Relocation construction activities are anticipated to begin on January 8, 2018. The Company's relocation submittal estimated approximately twenty (20) working days to complete the relocation of their facilities. The Company's estimated completion date is February 2, 2018.

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 AT&T, Foothills Rural Telephone, Licking Valley RECC, and Mountain Rural Telephone. Working days will not be charged for those days on which work on AT&T, Foothills Rural Telephone, Licking Valley RECC, and Mountain Rural Telephone 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 the Contractor and others working within the limits of, or adjacent to the project, the KYTC Resident 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

Magoffin County Water District's relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan and Magoffin Counties
Widen the Mountain Parkway to 4 Lanes from 0.4 miles east of KY 134 Johnson Creek Bridge to 0.3 miles west of KY 3047
Item No. 10-126.50

Morgan County Water District's relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

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 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.

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan and Magoffin Counties
Widen the Mountain Parkway to 4 Lanes from 0.4 miles east of KY 134 Johnson Creek Bridge to 0.3 miles west of KY 3047
Item No. 10-126.50

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
AT&T	Jack Salyer	(606) 424-9328
Foothills Rural Telephone	John Blair	(606) 794-8965
Licking Valley RECC	Wes McKinney	(606) 791-0082
Mountain Rural Telephone	Steven Gullett	(606) 743-3121
Magoffin County Water District	Alan McCarty	(606) 367-9816
Morgan County Water District	Kyle Risner	(606) 743-1204

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan County
Widen the Mountain Parkway to 4 Lanes from CR 1226 Parkway Road Tunnel to 0.4 Miles East of the KY 134-Johnson Creek Bridge
Item No. 10-126.60

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Aerial utility relocations have begun on this project. It is anticipated that the highway contractor will have productive work available through the project; however, that is for the highway contractor to determine. The highway contractor should not anticipate that any utility relocation work will be completed prior to the letting or by the award of the contract; consequently, the highway contractor should prepare the construction schedule accordingly.

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

AT&T currently exists along the Mountain Parkway. They have fiber optics that run along the entire project length primarily on the south side of the existing roadway.

Basin Energy currently exists along the Mountain Parkway.

Licking Valley RECC currently exists along the Mountain Parkway.

Mountain Rural Telephone currently exists along the Mountain Parkway.

This may not be a complete list of the utility companies/facilities in the project area; however, it is all that have been identified at this time.

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

N/A

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

AT&T has provided a set of relocation plans. Relocation construction activities are anticipated to begin on February 20, 2017. The Company's relocation submittal has estimated approximately one hundred eighty (180) working days to complete the relocation of their facilities. The Company's estimated completion date is November 20, 2017.

Basin Energy will cut and cap their gas line facilities outside of the construction limits prior to the commencement of construction activities.

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan County
Widen the Mountain Parkway to 4 Lanes from CR 1226 Parkway Road Tunnel to 0.4 Miles East of the KY 134-Johnson Creek Bridge
Item No. 10-126.60

Licking Valley RECC has provided a set of relocation plans. Relocation construction activities are anticipated to begin on March 6, 2017. The Company's relocation submittal estimated approximately one hundred twenty (120) working days to complete the relocation of their facilities. The Company's estimated completion date is September 25, 2017.

Mountain Rural Telephone has provided a set of relocation plans. The company will follow Licking Valley RECC's pole route for a portion of the project, consequently they must coordinate their relocation activities with Licking Valley RECC. Relocation construction activities are anticipated to begin on September 25, 2017. The Company's relocation submittal estimated approximately forty five (45) calendar days to complete the relocation of their facilities. The Company's estimated completion date is November 10, 2017.

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 AT&T, Basin Energy, Licking Valley RECC, and Mountain Rural Telephone. Working days will not be charged for those days on which work on AT&T, Basin Energy, Licking Valley RECC, and Mountain Rural Telephone 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 the Contractor and others working within the limits of, or adjacent to the project, the KYTC Resident 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

Morgan County Water District's relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

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)**

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan County
Widen the Mountain Parkway to 4 Lanes from CR 1226 Parkway Road Tunnel to 0.4 Miles East of the KY 134-Johnson Creek Bridge
Item No. 10-126.60

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 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.

UTILITIES AND RAIL CERTIFICATION NOTE

Morgan County
Widen the Mountain Parkway to 4 Lanes from CR 1226 Parkway Road Tunnel to 0.4 Miles East of the KY 134-Johnson Creek Bridge
Item No. 10-126.60

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information
AT&T	Jack Salyer	(606) 424-9328
Basin Energy	Don Goble	(606) 791-2355
Licking Valley RECC	Wes McKinney	(606) 791-0082
Mountain Rural Telephone	Steven Gullett	(606) 743-3121
Morgan County Water District	Kyle Risner	(606) 743-1204

UTILITIES AND RAIL CERTIFICATION NOTE

Wolfe & Morgan Counties
Widen the Mountain Parkway to 4 Lanes from 0.45 Miles West of KY 205 (MP 56.8) to CR 1226 Parkway Road Tunnel (MP 59.30)
Item No. 10-126.70

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Aerial utility relocations have begun on this project. It is anticipated that the highway contractor will have productive work available through the project; however, that is for the highway contractor to determine. The highway contractor should not anticipate that any utility relocation work will be completed prior to the letting or by the award of the contract; consequently, the highway contractor should prepare the construction schedule accordingly.

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

AEP Transmission currently exists at the KY 205 Interchange.

AT&T currently exists along the Mountain Parkway. They have fiber optics that run along the entire project length primarily on the south side of the existing roadway.

Licking Valley RECC currently exists along the Mountain Parkway.

Mountain Rural Telephone currently exists along the Mountain Parkway.

This may not be a complete list of the utility companies/facilities in the project area; however, it is all that have been identified at this time.

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

N/A

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

AEP Transmission has provided a set of relocation plans and scheduled an electric outage with PJM, the regional electrical authority. Relocation construction activities are anticipated to begin on March 15, 2017. The Company's relocation submittal has estimated approximately seventy-seven (77) calendar days to complete the relocation of their facilities. The Company's estimated completion date is May 31, 2017.

AT&T has provided a set of relocation plans. Relocation construction activities are anticipated to begin on November 14, 2016. The Company's relocation submittal has estimated approximately one hundred

UTILITIES AND RAIL CERTIFICATION NOTE

Wolfe & Morgan Counties
Widen the Mountain Parkway to 4 Lanes from 0.45 Miles West of KY 205 (MP 56.8) to CR 1226 Parkway Road Tunnel (MP 59.30)
Item No. 10-126.70

eighty (180) working days to complete the relocation of their facilities. The Company's estimated completion date is September 18, 2017.

Licking Valley RECC has provided a set of relocation plans. Relocation construction activities are anticipated to begin on November 28, 2016. The Company's relocation submittal estimated approximately one hundred twenty (120) working days to complete the relocation of their facilities. The Company's estimated completion date is June 26, 2017.

Mountain Rural Telephone has provided a set of relocation plans. The company will follow Licking Valley RECC's pole route for a portion of the project, consequently they must coordinate their relocation activities with Licking Valley RECC. Relocation construction activities are anticipated to begin on June 26, 2017. The Company's relocation submittal estimated approximately forty-five (45) calendar days to complete the relocation of their facilities. The Company's estimated completion date is August 9, 2017.

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 (AEP Transmission, AT&T, Licking Valley RECC, and Mountain Rural Telephone). Working days will not be charged for those days on which work on (AEP Transmission, AT&T, Licking Valley RECC, and Mountain Rural Telephone) 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 the Contractor and others working within the limits of, or adjacent to the project, the KYTC Resident 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

The City of Campton's relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

Morgan County Water District's relocation/adjustment of their facilities is included as a part of the Cabinet's highway construction contract.

UTILITIES AND RAIL CERTIFICATION NOTE

Wolfe & Morgan Counties
Widen the Mountain Parkway to 4 Lanes from 0.45 Miles West of KY 205 (MP 56.8) to CR 1226 Parkway Road Tunnel (MP 59.30)
Item No. 10-126.70

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 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.

UTILITIES AND RAIL CERTIFICATION NOTE

Wolfe & Morgan Counties
Widen the Mountain Parkway to 4 Lanes from 0.45 Miles West of KY 205 (MP 56.8) to CR 1226 Parkway Road Tunnel (MP 59.30)
Item No. 10-126.70

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information
AEP Transmission	Scott Woody	(540)493-0509
AT&T	Jack Salyer	(606) 424-9328
Licking Valley RECC	Wes McKinney	(606) 791-0082
Mountain Rural Telephone	Steven Gullett	(606) 743-3121
City of Campton	Mark Wireman	(606) 359-2392
Morgan County Water District	Kyle Risner	(606) 743-1204

GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT

10-126.50 Magoffin-Morgan

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:

Magoffin County Water
District P.O Box 490
Salyersville, KY 41465
(606)349-6812

The bidding contractor needs to review the above list and choose from the list of approved subcontractors at the end of these general notes as identified above before bidding. When the list of approved subcontractors is provided, only subcontractors shown on the following list(s) will be allowed to work on that utility as a part of this contract.

When the list of approved subcontractors for the utility work is not provided in these general notes, the utility work can be completed by the prime contractor. If the prime contractor chooses to subcontract the work, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the work type of "Utilities" (I33). Those who would like to become prequalified may contact the Division of Construction Procurement at (502) 564-3500. Please note: it could take up to 30 calendar days for prequalification to be approved. The prequalification does not have to be approved prior to the bid, but must be approved before the subcontract will be approved by KYTC and the work can be performed.

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word "Inspector" or "Resident Project Representative" appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Inspector" or "Resident Project Representative" is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns . If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact, or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

CUSTOMER SERVICE AND LATERAL ABANDONMENTS When temporary or permanent abandonment of customer water, gas, or sewer services or laterals are necessary during relocation of utilities included in the contract, the utility contractor shall perform these abandonments as part of the contract as incidental work. No separate payment will be made for service line and lateral abandonments. The contractor shall provide all labor, equipment and materials to accomplish the temporary or permanent abandonment in accordance with the plans, specifications and/or as directed by the engineer. Abandonment may include, but is not limited to, digging down on a water or gas main at the tap to turn off the tap valve or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be "in-kind" as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

BELOW ARE NOTES FOR WHEN "INST" ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text **"Inst"** at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor's bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

No materials are being supplied by the utility owner(s). All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor's expense.

LIST OF APPROVED SUBCONTRACTORS

Magoffin County Water District

Martin Contracting, Inc.
2371 Irvine Rd.
Richmond, KY 40475
ATN: Shawn Martin
Cell: 606-305-6434 Email:
shmartin1@bellsouth.net<mailto: shmartin1@bellsouth.net>

H2O Construction Company, Inc.
470 Ziegler Drive
Pikeville, KY 41501
ATN: Steve Lockhart
Cell: 606-477-4392
Email: stevel_h2o@hotmail.com

DS Underground Utilities
PO Box 820
Salyersville, KY 41465
ATN: Danny Smith
Cell: 606-205-8315
Email: smtdann@aol.com

G & W Construction
6730 Flemingsburg Road
Morehead, KY 40351
ATN: Darrell Alderman
Phone: 606-784-2396
Email: Gandwconst@gandwconstructioncompany.com

L & L (Lyons and Lovely)
436 Brad Drive
Salyersville, KY 41465
ATN: Kenney Lovely
Phone: 606-496-5305

GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT

10-126.60 Morgan

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:

No contractors are required to be prequalified or preapproved by the utility owner(s) to perform utility relocation work under this contract.

The bidding contractor needs to review the above list and choose from the list of approved subcontractors at the end of these general notes as identified above before bidding. When the list of approved subcontractors is provided, only subcontractors shown on the following list(s) will be allowed to work on that utility as a part of this contract.

When the list of approved subcontractors for the utility work is not provided in these general notes, the utility work can be completed by the prime contractor. If the prime contractor chooses to subcontract the

work, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the work type of "Utilities" (I33). Those who would like to become prequalified may contact the Division of Construction Procurement at (502) 564-3500. Please note: it could take up to 30 calendar days for prequalification to be approved. The prequalification does not have to be approved prior to the bid, but must be approved before the subcontract will be approved by KYTC and the work can be performed.

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word "Inspector" or "Resident Project Representative" appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Inspector" or "Resident Project Representative" is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns . If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact, or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

CUSTOMER SERVICE AND LATERAL ABANDONMENTS When temporary or permanent abandonment of customer water, gas, or sewer services or laterals are necessary during relocation of utilities included in the contract, the utility contractor shall perform these abandonments as part of the contract as incidental work. No separate payment will be made for service line and lateral abandonments. The contractor shall provide all labor, equipment and materials to accomplish the temporary or permanent abandonment in accordance with the plans, specifications and/or as directed by the engineer. Abandonment may include, but is not limited to, digging down on a water or gas main at the tap to turn off the tap valve or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be "in-kind" as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

BELOW ARE NOTES FOR WHEN "INST" ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text **"Inst"** at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor's bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

No materials are being supplied by the utility owner(s). All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor's expense.

GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO ALL UTILITY WORK MADE A PART OF THE ROAD CONSTRUCTION CONTRACT

10-126.70 Wolf-Morgan

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:

No contractors are required to be prequalified or preapproved by the utility owner(s) to perform utility relocation work under this contract.

The bidding contractor needs to review the above list and choose from the list of approved subcontractors at the end of these general notes as identified above before bidding. When the list of approved subcontractors is provided, only subcontractors shown on the following list(s) will be allowed to work on that utility as a part of this contract.

When the list of approved subcontractors for the utility work is not provided in these general notes, the utility work can be completed by the prime contractor. If the prime contractor chooses to subcontract the

work, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the work type of "Utilities" (I33). Those who would like to become prequalified may contact the Division of Construction Procurement at (502) 564-3500. Please note: it could take up to 30 calendar days for prequalification to be approved. The prequalification does not have to be approved prior to the bid, but must be approved before the subcontract will be approved by KYTC and the work can be performed.

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

All utility work is being performed as a part of a contract administered by KYTC; there is not a direct contract between the utility contractor and utility owner. The KYTC Section Engineer is ultimately responsible for the administration of the road contract and any utility work included in the contract.

SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

ENGINEER

Where the word "Engineer" appears in any utility owner specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet (KYTC) Section Engineer or designated representative and the utility owner engineer or designated representative jointly. Both engineers must mutually agree upon all decisions made with regard to the utility construction. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

Where the word "Inspector" or "Resident Project Representative" appears in the utility specifications included in this proposal, utility owner specifications included as a part of this contract by reference or on the utility relocation plans, it shall be understood the "Inspector" or "Resident Project Representative" is the utility owner inspector and KYTC inspector jointly. The Transportation Cabinet, Section Engineer shall make all final decisions in all disputes.

NOTICE TO UTILITY OWNERS OF THE START OF WORK

One month before construction is to start on a utility, the utility contractor shall make notice to the KYTC Section Engineer and the utility owner of when work on a utility is anticipated to start. The utility contractor shall again make confirmation notice to the KYTC Section Engineer and the utility owner one week before utility work is to actually start.

UTILITY SHUTDOWNS

The Contractor shall not shut down any active and in-service mains, utility lines or services for any reason unless specifically given permission to do so by the utility owner. The opening and closing of valves and operating of other active utility facilities for main, utility line or utility service shut downs are to be performed by the utility owner unless specific permission is given to the contractor by the owner to make shutdowns . If and when the utility owner gives the contractor permission to shutdown mains, utility lines or utility services, the contractor shall do so following the rules, procedures and regulations of the utility owner. Any permission given by the utility owner to the contractor to shutdown active and in-service mains, utility lines or services shall be communicated to the KYTC Section Engineer by the utility owner that such permission has been given.

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain minimum amount of time in advance of the shut down and by whatever means of communication specified by the utility owner. The means of communication to the customer may be; but is not limited to, a door hanger, notice by newspaper ad, telephone contact, or any combination of communication methods deemed necessary, customary and appropriate by the utility owner. The contractor should refer to the utility owner specifications for requirements on customer notice.

Any procedure the utility owner may require the contractor to perform by specification or plan note and any expense the contractor may incur to comply with the utility owner's shut down procedure and notice to customers shall be considered an incidental expense to the utility construction.

CUSTOMER SERVICE AND LATERAL ABANDONMENTS When temporary or permanent abandonment of customer water, gas, or sewer services or laterals are necessary during relocation of utilities included in the contract, the utility contractor shall perform these abandonments as part of the contract as incidental work. No separate payment will be made for service line and lateral abandonments. The contractor shall provide all labor, equipment and materials to accomplish the temporary or permanent abandonment in accordance with the plans, specifications and/or as directed by the engineer. Abandonment may include, but is not limited to, digging down on a water or gas main at the tap to turn off the tap valve or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

STATIONS AND DISTANCES

All stations and distances, when indicated for utility placement in utility relocation plans or specifications, are approximate; therefore, some minor adjustment may have to be made during construction to fit actual field conditions. Any changes in excess of 6 inches of plan location shall be reviewed and approved jointly by the KYTC Section Engineer or designated representative and utility owner engineer or designated representative. Changes in location without prior approval shall be remedied by the contractor at his own expense if the unauthorized change creates an unacceptable conflict or condition.

RESTORATION

Temporary and permanent restoration of paved or stone areas due to utility construction shall be considered incidental to the utility work. No separate payment will be made for this work. Temporary restoration shall be as directed by the KYTC Section Engineer. Permanent restoration shall be "in-kind" as existing.

Restoration of seed and sod areas will be measured and paid under the appropriate seeding and sodding bid items established in the contract for roadway work.

BELOW ARE NOTES FOR WHEN "INST" ITEMS ARE IN THE CONTRACT MEANING THE UTILITY COMPANY IS PROVIDING CERTAIN MATERIALS FOR UTILITY RELOCATION

MATERIAL

Contrary to Utility Bid Item Descriptions, those bid items that have the text **"Inst"** at the end of the bid item will have the major components of the bid item provided by the utility owner. No direct payment will be made for the major material component(s) supplied by the utility company. All remaining materials required to construct the bid item as detailed in utility bid item descriptions, in utility specifications and utility plans that are made a part of this contract will be supplied by the contractor. The contractor's bid price should reflect the difference in cost due to the provided materials.

The following utility owners have elected to provide the following materials for work under this contract:

No materials are being supplied by the utility owner(s). All materials are to be supplied by the contractor per bid item descriptions, utility specifications and utility plans.

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility contractor shall coordinate directly with the utility owner and their suppliers for delivery and security of the supplied materials. Any materials supplied by the utility owner and delivered to the construction site that are subsequently stolen, damaged or vandalized and deemed unusable shall be replaced with like materials at the contractor's expense.

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.

MORGAN COUNTY WATER SPECIFICATIONS

TABLE OF CONTENTS

WATER LINES

GENERAL INFORMATION ..... TS-A-1 TO TS-A-3
RELATED PIPING MATERIALS AND EQUIPMENT ..... TS-B-1 TO TS-B-2
PIPE MATERIALS ..... TS-C-1 TO TS-C-4
PIPE APPURTENANCES ..... TS-D-1 TO TS-D-3
PIPING WORKMANSHIP AND CONSTRUCTION METHODS ..... TS-E-1 TO TS-E-6
PIPE WORK ..... TS-F-1 TO TS-F-6

TECHNICAL SPECIFICATIONS

SECTION A

GENERAL INFORMATION AND REQUIREMENTS

1. GENERAL

1.1 These technical specification include descriptions of materials which may or may not be used on this project.

1.1.1 The Contractor shall carefully read the Special Provisions for statements concerning other specifications which may be applicable to the Project.

1.2 Materials shall be of the types and constructed on the materials specified herein when identified on Plans, Bid Form or Measurement for Payment. Materials and accessories shall be of new and unused material and shall be installed in accordance with manufacturer's specification and/or as shown on the plans.

1.3 The Contractor shall be responsible for the safe storage and handling of all material furnished to or by him, and accepted by him, until it has been incorporated into the completed project and the project has been accepted by the Owner.

1.3.1 The Contractor shall handle all materials and equipment in such manner to avoid damage. All material and equipment whether moved by hand, skidways, hoists or other means shall be handled in such a manner to avoid dropping or bumping against other material or equipment.

1.3.2 In distributing material at the site of work, each piece shall be unloaded as near as possible to final installation point to minimize the number of times it must be handled.

2. PROTECTION OF UNDERGROUND AND SURFACE STRUCTURES AND OTHER PROPERTY

2.1 GENERAL

Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstruction encountered in the progress of the work shall be furnished at the Contractor's expense incidental to the project.

2.2 Obstruction by Other Utilities

2.2.1 Existing underground utilities shown on the plans are shown in approximate locations based on information furnished by others. Prior to beginning construction of proposed facilities the Contractor shall accurately locate existing underground utilities

by whatever means necessary including excavation where required. The Contractor shall notify the Engineer where utilities, so located will interfere with proposed construction.

2.2.2 Where the limits of construction of the proposed work enhances work encroaches upon existing utilities, the Contractor, where possible, shall provide temporary support or protection satisfactory to the owner of the utility

to permit continuation of proposed construction and no additional payment authorized.

2.2.3 Where existing utilities are encountered which prohibit construction of proposed facilities unless relocated the Contractor shall so notify the Engineer unless the plans provide for their relocation. Relocation shall be accomplished in a manner acceptable to the owner of the utility, and shall be furnished at the Contractor's expense incidental to the project.

2.3 Property Protection

2.3.1 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.

2.3.2 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.

2.3.3 Beyond the limits of the easement the contractor shall be responsible for any damage caused by his operation and/or his personnel.

3. INCIDENTAL ITEMS OF CONSTRUCTION

3.1 Barricades, Guards, and Safety Provisions

3.1.1 To protect the public from injury and to avoid property damage, adequate barricades, construction signs, warning lights and guards shall be placed and maintained by the Contractor during the progress of construction work until it is safe for the public to use the construction site.

3.1.2 The Contractor shall provide and maintain all safety facilities and devices required by the Occupational Safety and Health Act (OSHA). The Engineer is not responsible for safety provisions furnished or used by the Contractor nor will the Engineer advise or direct safety operation of the Contractor.

3.2 Traffic and Utility Control

3.2.1 All excavations shall be conducted in a manner to cause the least interruption to traffic. The Contractor shall provide suitable bridges at streets and driveways where traffic must cross excavated areas.

3.2.2 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.

3.2.3 Existing fire hydrants, valve pit covers, valve boxes, meter boxes, curb-stop boxes, fire or police call boxes or other utility controls shall be kept unobstructed and accessible during the construction period.

3.3 Maintenance of Utility Service and Flow of Drains

3.3.1 Adequate provisions shall be made for the maintenance of flow in sewers (storm of sanitary), drains, water lines and gas lines and electrical lines encountered during construction.

3.3.2 No valve, switch or other control device of any utility system within the construction, area shall be operated by the Contractor without approval of the utility except in cases of an emergency. All utility customers which will be affected by the operation of any utility valve or control device shall be notified by the Contractor in sufficient time for each customer to make arrangements for the period of no service. Each customer shall be advised as to the time service will be off and probable time when it will be resumed.

3.4 Fencing

3.4.1 When the pipe line is being constructed through fields where livestock is being held the contractor shall provide, either temporary fencing or stationing of personnel, adequate protection to livestock from machinery and open trenches. The Contractor shall take all precautions necessary to insure that all animals are not isolated.

3.4.2 Where pipe line crosses fences in good condition and the work area is easily accessible through gates, the Contractor shall excavate or tunnel beneath the fences.

3.4.3 When it is necessary to cut existing fences, new end posts shall be installed one each side of the construction easement and old fence thoroughly stapled to these new posts before cutting fence.

After pipe is installed at this point and backfill is completed, a new fence of galvanized wire (No. 9 guage) shall be stretched between the new posts and thoroughly stapled to existing post

and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on an in kind basis and shall be considered incidental to installation of the pipe line.

4. SUMMARY

4.1 The Contractor shall furnish at the site of Work, all materials, labor and equipment necessary to complete the Work in accordance with the terms of the Contract and as required hereunder. He shall make the required excavation for installing the water lines and all other appurtenant structures: do all ditching, diking, pumping, bailing and draining or otherwise lowering and disposing of water encountered in the excavation necessary for rendering the foundation firm, dry and adequate for installing the water lines and appurtenances; do, as required, all sheeting, shoring, bracing, coffer damming and supporting; provide all lighting, barricades, signs, flagmen and watchmen: make all provisions necessary to maintain and protect, buildings, paved surfaces, fences, trees, shrubs, piles, water pipes, gas pipes, sewers, water courses, surface drains, railroads, railways and other structures in, on, across or adjacent to the Work and repair all damage done to them where and as required; provide all temporary bridges, detours or other means of maintaining travel, both vehicular and pedestrian; construct all concrete, brick and like work; lay all water connections; set in place all iron and other metal work; backfill all trenches; restore walks, grass pots, shrubs, trees, flowers, fences, paved surface, etc. damaged or disturbed; clear away all rubbish and surplus materials; furnish all materials,

tools, implements, machines, tracks, pumps, forms, supplies and labor required to build and put in complete and acceptable working order the water lines and appurtenances covered by the Contract Documents and described by the plans and specifications.

TECHNICAL SPECIFICATIONS

SECTION B

RELATED PIPING MATERIALS AND EQUIPMENT

1. GENERAL DESCRIPTION

1.1 All materials necessary for the completion of the work shall be furnished by the Contractor , as approved by the engineer to meet the requirements of the Plans and Specifications. Any materials found to be defective or not meeting the Specifications shall be rejected and replaced by approved materials at no additional cost to the Owner.

1.2 Concrete Materials

Materials used in all concrete construction shall be governed by the Concrete Section of these Technical Specifications.

2. BACKFILL MATERIALS

2.1 General

The following materials shall be used to backfill any trenches so designated and in any situation shown on the Plans where such materials are specified.

2.2 Sand or Sandy Materials

Sandy backfill in trenches for water lines, property service connection, and structures within the limits of existing or proposed paved surfaces and sand or sandy materials for other miscellaneous construction purposes not specified herein shall consist of natural, crushed, or conglomerate sand containing not more than twenty (20) percent clay.

2.3 Coarse Aggregates

Coarse aggregates shall conform to Kentucky Bureau of highways Standard Specifications (Latest Edition) Section 806, and shall be of the size and type as indicated on the Plans or Specifications.

2.4 Selected Excavated Materials

Backfill in trenches for water lines, property service connections, and structures outside the limits of existing or proposed paved surfaces, and in other specified locations shall be made with selected excavated materials taken from the trench excavation. The specified makeup of this material shall be governed by the Plans or Section e-1.17 of these Technical Specifications.

3. PAVING MATERIALS

3.1 General

All materials used for pavement replacement shall conform to requirements and regulations of the local governments and to Sections 401 and 806 of the Kentucky Bureau of Highways Standard Specification (Latest Edition) except for basis of payment.

3.2 Concrete Surface

Materials used in the construction of the concrete surface shall conform to Section 501.02 of the Kentucky Bureau of highways Standard Specifications (Latest Edition).

3.3 Bituminous Concrete Surface

Materials used in construction of the bituminous concrete surface shall conform to Section 402.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.4 Bituminous Concrete Base

Materials used in construction of the bituminous concrete base shall conform to Section 403.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.5 Bituminous Tack Coat

The material for the bituminous tack coat shall be type SS-1h and shall conform to Section 806 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.6 DGA Base

Materials used for the compacted dense graded aggregate base shall conform to Section 303.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

TECHNICAL SPECIFICATIONS

SECTION C

PIPE MATERIALS

1. GENERAL

1.1 These Specifications describe several types of pipe which may or may not apply to the current project. All types listed herein will be acceptable alternates if no indication is other wise given either on the Plans or in other sections of these Specifications.

1.2 Selected pipe materials will be identified either on the Plans, or Bid Form, in Special provision, or in Measurement for Payment. The Contractor shall thoroughly familiarize himself with each of the items identified above and base his bid on the pipe material given therein.

1.3 Handling of Pipe and Accessories

1.3.1 Pipe and accessories shall be unloaded at the point of delivery, hauled to, and distributed at the site of the Project by Contractor in such a manner to avoid damage to the materials. Whether moved by hand, skidways, or hoists, materials shall not be dropped or bumped against pipe or accessories already on the ground or against any other object.

1.3.2 In distributing material at the construction site, each piece shall be unloaded as near the installation point as possible.

1.3.3 Pipe shall be handled in such a manner as to avoid damage to the ends. When such damaged pipe cannot be repaired to the Engineer' satisfaction, it shall be replaced at the Contractor's expense. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times. The interior of all pipe and accessories shall checked for dirt and debris and, if necessary, thoroughly cleaned before use in the Project.

2. ASBESTOS CEMENT PRESSURE PIPE

2.1 Scope

This article covers the design, manufacturer, and testing of asbestos cement pressure pipe for sizes four (4") inch through forty-two (42") inch, nominal inside diameter.

2.1.1 The Contractor shall review the Plans and Bid Forms for information describing the Type, Class, and size of asbestos cement pressure pipe require on the Project.

2.2 Specific Requirements

2.2.1 Scope

The design, manufacturer, and inspection of asbestos cement pressure pipe shall conform to all requirements of AWWA Standard Specification designation AWWA C400 latest revision for sizes four (4") inch through sixteen (16") inch and designation AWWA C402 latest revision for sizes eighteen (18") inch through forty-two (42") inch.

3. CAST IRON PIPE AND FITTINGS

3.1 Scope

This article covers the design, manufacture and testing of cast iron pipe centrifugally cast in metal molds and cast iron fittings for pipe sizes three (3”) inch through forty-eight (48”) inch.

3.2 Specific Requirements

Cast iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of the Specification. Cast iron pipe shall be furnished with rubber-gasket push-on joints except as may other wise be noted on the Plans or in difficult working areas and approval of the Engineer.

3.2.1 Thickness design of cast iron shall conform in all aspects to the requirements of ANSI-AWWA C101 latest revision.

3.2.2 Manufacture and testing of cast iron pipe centrifugally cast in metal molds shall comply with the requirements of the National Standard Institute and American Water Works Association designation A 21.6/AWWA C106 latest revisions.

3.2.3 Cement mortar lining shall conform to the requirements of ANSI/AWWA C104/A 21.4, latest revision for Cement-Mortar Lining for Ductile Iron Pipe and Gray Iron Pipe and Fittings for Water.

3.2.4 Fittings and joints for cast iron pipe shall conform to the latest revisions of ANSI/AWWA C110 “Cast Iron and Ductile Iron Fittings, Three (3’’) Inches through Forty-Eight (48’’) Inches, for Water and Other Liquids”, ANSI/AWWA C111/A 21.11 “Rubber-Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings”, and ANSI/AWWA C115 21.15 “Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges”.

4. DUCTILE IRON PIPE AND FITTINGS

4.1 Scope

This article covers the design manufacture, and testing of ductile iron centrifugally cast in metal molds and ductile iron fittings.

4.2 Specific Requirements

Ductile iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of these Specifications. Ductile iron pipe shall be furnished with rubber gasket push-on joints except as may otherwise be noted on the Plans or in difficult working areas with approval of the Engineer.

4.2.1 Thickness design of ductile iron shall conform in all aspects to the requirements of ANSI/AWWA C150/A 21/50 latest revision.

4.2.2 Manufacture and testing of ductile iron pipe shall conform in all respects to the requirements of the latest revisions of ANSI/AWWA C151/A 21.51.

4.2.3 Cement Mortar Lining – See ART. 3.2.3 above.
4.2.4 Fittings and Joints – See ART. 3.2.4 above.

5. PVC (POLYVINYL CHLORIDE) PRESSURE PIPE

5.1 Scope

This article covers the design, manufacture and testing of PVC 1120 manufactured of Class 12454-A or Class 12454-B resin material with a hydrostatic-design-basis (HDB) rating of 4,000 psi at 73.4 degree F (23 degree

5.2 Specific Requirements

PVC pressure pipe shall be furnished, constructed of materials and to the specifications of this section. The types of PVC pipe permitted for use on the Project will be as noted on the Plans, Bid Documents or other sections of these Specifications. The selected pipe will be designated either as PVC (ASTM) or PVC (AWWA) followed by an appropriate pressure rating. The Contractor shall thoroughly review the Plans and other sections of these Specifications for the type of PVC pipe selected for the Project. All PVC pipe shall be NSF approved.

5.2.1 PVC (ASTM) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project PVC (ASTM) pipe shall be designated, manufactured and tested to conform with the latest revision of the American Society for Testing and Materials designated ANSI/ASTM D-2241.

5.2.2 PVC (AWWA) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project, PVC (AWWA) pipe shall be designated, manufactured, and tested in conformance to the latest revision of the American Waterworks Association designation AWWA C900

5.2.3 PVC pipe joints shall be rubber gasket push-on joints either constructed integrally with the pipe or as a separate coupling constructed on the same material and to the same pressure Specifications as the pipe.

5.2.4 PVC (ASTM) pipe shall be furnished as SDR 26, 21, and 17 for Class 160 psi, 200 psi and 250 psi respectively.

5.2.5 PVC (AWWA) pipe shall be furnished as SDR 25, 18, and 14 for Class 100 psi, 150 psi and 200 psi respectively.

5.2.6 PVC (AWWA) pipe shall be furnished with outside dimensions (O.D.) equal to that for ductile iron and cast iron pipe.

5.2.7 Fittings for PVC (ASTM) pipe may be either PVC, cast or ductile iron. Those for PVC (AWWA) pipe shall be ductile iron.

6. POLYETHYLENE PIPE AND FITTINGS

6.1 Scope

This section covers the design, manufacture and testing of polyethylene high density pressure pipe manufactured of grade P34 resin material with a hydrostatic – design basis (HDB) rating of 1,600 psi at 73.4 degree F (23 degrees C)

6.2 Specific Requirements

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.

6.2.1 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 Pie and Fittings Materials”.

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

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

6.2.4 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.

7. BALL AND SOCKET RIVER CROSSING PIPE

7.1 Scope

This article covers the design, manufacture, and testing of Ductile Iron Ball and Socket River Crossing pipe.

7.2 Specific Requirements

Joints for ductile iron river crossing pipe shall be flexible, ball and socket type, boltless joints with rubber gaskets conforming to the ANSI Specification for “Rubber-Gasket joints for Ductile Iron Pressure Pipe and Fittings”, A 21.11 (AWWAC11), Latest Revision.

TECHNICAL SPECIFICATIONS

SECTION D

PIPING APPURTENANCES

1. CRADLES AND ENCASEMENT

1.1 General

The cradle or encasement, as required to support the pipe, shall be of crushed stone or concrete and shall be installed as specified in the Pipe Work Section of these Specifications, and as shown on the Plans.

1.2 Crushed Stone Cradle

In all cases where the bedding is not specified the pipe is to be laid in crushed stone cradle. The crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 Crushed Stone, as specified by the Kentucky Bureau of Highways Standard Specifications (Latest Revision).

1.3 Concrete Cradle, Encasement, or Cap

Where a concrete cradle, encasement, or cap is required, concrete shall conform to the Concrete Section of these Technical Specifications. Dimensions shall be as shown on the plans.

1.4 Concrete Thrust Blocks and Anchor Blocks

Where concrete thrust blocks and anchor blocks are required (i.e. at all pipe bends and fittings), concrete as specified in the Concrete Section of these Technical Specifications shall be used.

1.5 Special Concrete Structures and Vaults

Cast in place concrete structures shall be constructed of concrete conforming to the Concrete Section of these Technical Specifications to the dimensions and grades as shown on the Plans.

1.6 Valves and Related Appurtenances

1.6.1 General

All valves and related appurtenances shall be installed as shown on the Plans and specified in these Technical Specifications. Material Specifications shall be as described below. Any materials found defective, not meeting the specifications, or improperly installed, shall be rejected and so marked and shall be replaced by materials approved by the Engineer, at no additional cost to the Owner.

1.7 Gate Valves

Gate valves shall be non-rising stem, iron body, bronze mounted, double disc, parallel seat type with o-ring stem seals. Unless otherwise specified the valves shall be suitable for 0-150 PSI operating pressures. Valves which are to be buried for outside use shall be furnished with a 2 inch operating nut and shall have mechanical joint ends. Other valves shall have either flanged or mechanical joint ends and shall be operated by handwheel or chain-wheel operator as shown on the Plans. All valves shall conform to the AWWA Standard C 500, Latest Revision, relative to materials, manufacture, dimensions, inspections, testing, and markings.

1.8 Gate Valves Boxes

Each buried gate valve shall be provided with a 5 ¼" shaft, slide-type, two-piece cast iron valve box. The box shall be of the length as necessary to conform to the depth of the valve. Any extension sections necessary shall be provided with the valve box. Unless shown otherwise on the Plans, the valve box cover shall be marked "Water".

1.9 Check Valves

Check valves shall be iron body, bronze mounted. They shall be outside weight and lever type (unless specified otherwise by the Engineer or indicated as such on the Plans) with bronze seat, hinge and guide busting. Unless otherwise indicated, check valves for interior use shall be flanged and those for exterior use shall be mechanical joint.

1.10 Automatic Air Release Valves

Air release valves shall be of the type, which will automatically release air which accumulates in the pipe system. The body and cover shall be case iron and the float shall be stainless steel. Unless otherwise indicated the valves shall be suitable for use in lines having an average working pressure of 150 psi. **ALL AIR RELEASE VALVE ASSEMBLIES TO HAVE PRESSURE GAUGES.**

1.11 Manual Air Release Valves

See "Detail Sheet" Plan Sheet for description of the manual air release valves.

1.12 Air Valve Pit

Air valves shall be installed in a pit as shown on the Plan Details.

1.13 Blowoff Assemblies

Blowoff assemblies shall be installed in accordance with the details and Specifications at the locations shown on the Plans or as directed by the Engineer for the purpose of removing any obstacles or impurities from the main. The blowoff assembly shall be connected to the main with a typical tapping saddle and corporation stop. The piping shall be 2 inch VC installed as shown in the details with a 2 inch iron body bronze mounted gate valve and 2 piece case iron valve box and lid marked "Water". The lid shall be secured with a pentagon lock nut.

1.14 Fire Hydrants

New fire hydrants shall be of the dry barrel type and be installed where indicated on the Drawings or otherwise directed by the Engineer. Hydrants shall be installed in such a manner as to be completely accessible and in such a position as to minimize possibilities for damage from vehicles or to pedestrians. Hydrants shall be set plumb with nozzles at least 18" above grade. The barrel shall be turned so that the pumper nozzle will face the street. When placed behind curb, the hydrant shall be set so the nozzle will be at least 12 inches from the gutter face of the curb, or at least 5 feet from the edge of the street or road where no curb exists.

Hydrants shall be supported upon a poured-in-place block of concrete as detailed. Such block shall not interfere with joint maintenance nor with proper hydrant drainage, but shall insure zero movement between the hydrant and the main.

Fire hydrants shall conform in all respects to the current Standards of the AWWA. They shall have a 6" inlet and be equipped with two (2) 2-1/2" hose nozzles and one (1) pumper nozzle; nozzles shall be standard to local governmental agencies' requirements. Each hydrant shall be equipped with traffic damage repair kits and hydrant wrenches provided for every five (5) hydrants.

1.15 Service Piping

Unless otherwise noted on plans service piping shall be high density ¾" Polyethylene (PE 3408) tubing or approved equal.

The piping shall be Type III C 5 P 34 as designated in ASTM-D-1248 ("Polyethylene Plastics Molding and Extrusion Materials") and shall be classified as a PE 335433 according to ADTM D-3350 ("Polyethylene Plastics Pipe and Fittings Materials").

1.16 Connection to Main

Service pipe connections to the main shall be made with a tapping saddle and corporation stop as shown in the Plans.

1.17 Setters

Setters shall be brass with 90° brass angle meter valve and 90° coupling sized for 5/8" x ¾" and ¾" meter.

1.18 Meters

All water meters shall be 5/8" x ¾", plastic or bronzed bodied, of the magnetic oscillating piston or rotating piston type with a working pressure of 150 psi and shall conform to the AWWA specifications for Cold Water Meters.

The main case shall be frost-proof with a single, hinged lid cover with raised characters indicating the direction of flow and manufacturers serial number. Strainers with an effective area at least double that of the main case inlet shall be of a non-corrosive material and should fit tightly against the main case.

The measuring chamber shall be of a non-corrosive material and shall be securely positioned in the main casing. Discs shall be straight reading U.S. Gallons type with a measuring capacity of 999,999 gallons. All parts shall be as non-corrosive as possible and completely encased and hermetically sealed.

Measuring accuracy shall conform to AWWA Standard C 700, latest edition. Testing will be done at Engineers request and any meter found defective shall be returned to the manufacturer for replacement or repair at manufacturer's expense.

11.19 Meter Boxes and Covers

All meters shall be installed in new concrete boxes unless otherwise shown on the plans or approved by the Engineer.

The box shall be a precast concrete vault 18" I.D. and 24" in height. The cast iron lid shall have an 11 ½" minimum opening with "Water Meter" stamped on top.

1.20 Back Flow Preventers

Back Flow preventers shall be angle check valves installed on customer side of meter. Such valves shall be brass or ductile iron with stainless steel spring.

1.21 Connection to Customer Service Line

All connections to the customers existing service line shall be made at the meter Setter connection only unless otherwise directed by the Engineer.

TECHNICAL SPECIFICATIONS

SECTION E

PIPING WORKMANSHIP AND CONSTRUCTION METHODS

1. EXCAVATIONS AND GRADING

1.1 General

This section shall include all clearing and grubbing, site preparation, excavating of earth and other material, filling, site restoration and grading, and other allied work necessary for the construction required for the project.

Any construction methods not specifically outlined in these specifications will be governed by the Kentucky Bureau of Highway Standard Specifications (Latest Revision)

1.2 Site Preparation

Prior to commencing construction operations the contractor shall make all the provisions necessary to assure the protection of all existing improvements, both public and private. He shall protect trees, shrubs, plantings, and grassed areas and shall make provisions for maintaining public travel in an acceptable manner.

1.3 Protection of Existing Improvements

Before any excavation is started, adequate protection shall be provided for all lawns, trees, shrubs, landscape work, fences, sidewalks, hydrants, utility poles, streets, alley and driveway paving, curbs, storm sewers, ditches, headwalls, catch basins, surface inlets and all other improvements that are to remain in place. Such protection shall be provided as long as necessary to prevent damage from Contractor's operations. Shrubs, bushes, small trees and flowers, which have to be removed to permit excavation for the water lines, shall be protected and replanted or replaced when backfill is complete.

The Contractor shall exercise every precaution to prevent damage to property within the outside easements. He shall remove all debris and rock from the site and restore the ground surfaces, replace or repair all driveways, buildings, fences, retaining walls, etc., which are removed or damaged during construction.

Repairs, restoration or replacement of any improvements damaged or removed, whether shown on the plans or not, shall be the obligation of the Contractor at no additional cost to the owner.

1.4 Maintenance of Public Travel

Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Department of Transportation . It is the responsibility of the Contractor 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.

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.

Unless specifically directed otherwise by the Engineer, no 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 he expense of the contractor.

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.

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 considerations. All public or private drives shall be promptly backfield or bridges at the direction of the Engineer. Excavated materials shall be disposed of as to cause the least interference, and in every case the disposition of excavated materials shall be satisfactory to the Engineer.

1.5 Drainage

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 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.

1.6 Excavation

1.6.1 General

Materials of excavation shall be unclassified and shall include whatever materials are encountered to the depth of the plans, stated in the specifications, or directed by the Engineer.

1.7 Disposal of Unsuitable Materials

Excavated materials which are either surplus and not required or are unsuitable for backfilling shall be removed from the site of operations as soon as excavated.

All excavated materials so removed shall be disposed of, at no additional cost to the owner, on sites acquired by the Contractor and approved by the Engineer.

1.8 Storage of Suitable Materials

Excavated materials suitable and required for backfill shall be stored in neat piles adjacent to the excavation in a manner so as to interfere as little as possible with traffic, but shall not be placed at such heights above or closeness to the sidewalls of the excavation to endanger such operations due to slides or cave-ins.

1.9 Open Cut Excavation for Structures

In excavation for masonry and concrete structures, the required width shall be such as to permit forms to be constructed in the proper manner and to permit proper backfilling on completion of the structures.

Depth of excavation for footings shall be as shown on the drawings and/or as directed by the Engineer to obtain sufficient bearing.

1.10 Open Cut Excavation for Pipeline Trenches

Open Cut excavation, either in earth or rock, shall be safely supported and of sufficient width and depth to provide adequate room for the construction or installation of the work to the lines and dimensions called for by the plans.
Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may be necessitate changing the alignment of the pipeline.

1.11 Trench Dimension

Excavations for water pipe in both earth and rock shall have a minimum allowance trench width as shown on the details which will permit good workmanship in laying the pipe and fittings, boring and jacking and compaction of backfill at he sides of the pipe, and shall be subject to the approval of the Engineer.

The maximum allowance trench width shall be no greater than 2' – 0" + the outside pipe diameter except where such dimensions may prohibit any other construction such as the boring and jacking of service connections under paved surfaces.

Subgrade – the depth of excavation below the pipe – shall be 3" minimum in earth trench and 6" in rock trench unless other wise stated in the plans and Specifications or approved by the Engineer.

1.12 Shoring, Sheering and Bracing

The Contractor shall furnish, place, and maintain adequate sheeting and bracing as may be required to support the sides of the excavation and prevent any movements of earth which could, in any way, diminish the width of the excavation to less than that necessary for proper construction, cause damage to the waterline or structures, utilities, pavements, or walks, or cause injury to workmen or others through movement of the adjacent earth banks, or to otherwise damage or delay the work.

The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under existing conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor, however, the Engineer may require the submission of shoring plans (accompanied by supporting computations) for approval prior to the Contractor undertaking any portion of the work.

1.13 Blasting

When blasting is required for the removal of rock, every precaution shall be used for the protection of persons and private and public property. The method of blasting will be as determined by the Contractor, subject to the approval of the engineer, prior to construction.

The Contractor shall comply wit hall laws, regulations, and ordinances of the local governmental agencies and the Commonwealth of Kentucky relating to the transportation, storage and use of any and all explosives or blasting agents. Compliance with all of the above stated regulations and submittal of the method of blasting as stated above does not in any way relieve the contractor of responsibility for any damage caused by the blasting. Any damage thus caused shall be promptly and satisfactorily repaired by the Contractor at no additional cost to the owner.

1.14 Unauthorized Excavation

Whenever the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor at his own expense shall refill such excavated space with such material and in such a manner as will insure stability of the structure involved.

1.15 Removal of Water

The Contractor, at his own expense, shall provide adequate facilities for promptly removing water from all excavations. No water lines shall be laid in a trench which is holding water.

1.16 Backfill, Embankment, and Grading

1.16.1 General

This section includes the filling of the excavated trenches and spaces around the completed structures or pipelines to the original grades or to finished grades as indicated on the plans.

1.16.2 Trench Backfilling in Unpaved Areas

Backfilling of Trenches in open cut shall be commenced as soon as possible after the distribution main and service taps to the main have been completed, and all jointing and alignment has been approved by the Engineer.

Selected excavated material containing no rock shall be carefully and solidly tamped around the pipe from the tip of the cradle or encasement up to a plane at least one (1) foot above the exterior of the pipe or structure. The filling of the trench shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipe line, except as may be necessary in tamping or backfilling, shall not be permitted, until the trench has been backfield to that height.

The Contractor may use any type of earth moving equipment he has at his disposal, provided such equipment is in satisfactory condition, and of such type and capacity that the work may be accomplished properly, the grading schedule maintained, and the required density obtained. Any questionable suitability problems related to earth moving equipment shall be resolved by the Engineer.

The selected excavated backfill materials used between the plan one (1) foot above the ground surface may include rock fragments taken from the excavation.

In backfill containing rock, no rock fragment shall be larger than 1 cubic foot in size and all rock fragments shall be mixed with sufficient earth materials to completely eliminate all voids, subject to the approval of the Engineer. The amount of rock in the backfill shall not exceed 33% of the total backfill. Rock fragments and surplus earth materials not used in the back fill shall be removed from the site of the work.

In filling the remainder of the trench, from the plane one (1) foot above the pipe to the top of the trench, the backfill material may be shoveled into the trench without compacting, and heaped over whenever, in the opinion of the Engineer, this method of backfilling may be used without inconvenience to the public.

Before final acceptance, the Contractor will be required to level off all trenches where backfill material has been piled up, or to bring the trench up to the level of the surrounding street, roadway, or terrain where necessary, also, the removal from the streets, roadways, and private property of all excess earth or other materials.

1.16.3 Trench Backfilling in Paved Areas

In areas where street paving is to be replaced, trenches shall be backfilled up to one (1) foot above the top of pipe or structure using the methods described above for unpaved areas. Backfill above this level shall be placed in layers not exceeding eighteen (18) inches and firmly tamped into place by tampers or rammers to 95% of Standard Proctor Maximum Density. In lieu of tamping the trench may be backfilled with granular material and puddled and jetted under the direction of the Engineer.

1.16.3 Backfill Around Structures

Sandy backfill material or selected excavated materials containing no rock shall be placed in uniform layers around air valve pits or other structures and shall be thoroughly tamped and compacted.

1.16.4 Backfill Around Iron Pipe

Selected excavated materials composed of clay, sand, gravel or other materials non-injurious to iron pipe shall be used for backfilling within 24 inches of iron pipe. Cinders, rubbish and other materials which would be injurious to iron pipe shall not be used in such backfilling.

1.17 Restoration of Ground Surfaces and Cleanup

1.17.1 General

All ground surfaces in public rights-of-way, easements and on private property that have been damaged or destroyed by the Contractor's operations shall be restored to original contours and in accordance with the following specifications.

1.17.2 Restoration of Grassed Areas with Sod

Where so designated, all established grassed areas shall be restored with sod containing grasses of comparable quality. Sod shall be placed and rolled so that the final elevations of the area being restored are the same as existed prior to the beginning of construction. Sod shall be pegged where necessary, and shall be watered and cared for to assure its survival until final acceptance of the project.

1.17.3 Restoration of Grassed Areas with Seed and Mulch

The Contractor shall seed and mulch all disturbed areas, unless otherwise specified , in the following manner: Rye or Fescue Seeding – The ground shall be loosened approximately 3 inches deep with a disc or harrow: fertilized with 25 pounds of 10-10-10, or equivalent, and 100 pounds of agricultural lime per 1,000 square feet; sown at a rate of 75 pounds per acre with an approved grade of perennial rye or Kentucky No. 31 Fescue grass seed that will provide early

growth during the season in which it was planted. The seed shall be well raked or boarded into the soil.

The time of application of the seed and fertilizer shall be at the discretion of the Engineer.

Unless other wise permitted by the Engineer, vegetable materials for mulching shall be wheat, oat, barley or rye straw only. All material shall be reasonably free from weed seeds, foreign material, and other grasses and chaff, and shall contain no Johnson Grass. The straw shall be reasonable bright in color and shall not be musty, mouldy caked or of otherwise low quality. It shall be dry on delivery

Unless otherwise specified, the bituminous material to be used for "tying down" straw mulch shall be a slow setting emulsified asphalt. It shall be non-toxic to plants.

Mulch net shall be used, if directed by the Engineer, to hold mulch in place until turf is established. The net shall be made of a tightly twisted kraft paper yarn, leno woven with a warp count of one pair of yarns per two (2) inches and a filling count of two per inch. Salvage edges and center shall be reinforced with polyethylene filament. The material shall a minimum width of 45 inches.

1.18 Cleanup

Before final acceptance of the work, the Contractor shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All sewers, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.

Where the Contractor's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contract shall reditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc., so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

The Contractor's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.

TECHNICAL SPECIFICATIONS

SECTION F

PIPING WORK

1. PIPEWORK

1.1 General Description

After the trench is excavated to subgrade as specified, it shall be filled to the proper depth with crushed stone or concrete as specified to provide a firm and satisfactory bed, hereafter referred to as the cradle or encasement, for the entire length of the pipe barrel. Pipe of designated class and required size shall be laid to form a closed joint with the next adjoining pipe, bringing the inverts continuously to the required depth of cover shown on the plans, The pipe shall be laid in an upstream direction, with bells upstream, unless otherwise permitted or directed.

In no case shall water be allowed to rise in or above the pipe before the joint has become thoroughly set. No walking on or working over the pipes after they are laid , except as may be necessary in placing and compacting the backfill, will be permitted until they are covered with backfill to a depth of one (1) foot.

The trench backfill shall be placed in accordance with backfill requirements of these Technical Specifications.

1.2 Cradle and Encasement

The cradle or encasement, as required to support and protect the water pipe, shall be of crushed stone or concrete and shall be installed as specified herein or as directed by the Engineer to the dimensions as shown on the plans.

1.2.1 Crushed Stone Cradle

Where indicated on the plans water main shall be installed with a crushed stone cradle.

Where the water pipe is to be laid in a crushed stone cradle, the crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 crushed stone, as specified by the Kentucky Bureau of Highways. The crushed stone shall be deposited in the excavated trench to depth shown on plans, allowing for the pipe wall thickness and providing “bell holes” for making joints, where pipe is of the bell and spigot type. The pipe shall be laid to the depth as shown on the plans and crushed stone shall be carefully deposited around the pipe up to a plane through the centerline of the pipe as indicated on the plan details.

1.2.2 Concrete Cradle

Where a concrete cradle is required as additional support for the water pipe, concrete, as specified in the concrete section of these Technical Specifications and section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. First, the water pipe shall be laid accurately to the depth indicated on the plans, setting the pipe upon concrete blocks or saddles installed to provide both vertical and lateral supports for the pipe. The supporting of pipe on wooden blocks will not be permitted.

1.2.3 Concrete Encasement

Where a concrete encasement is specified, concrete, as specified in the Concrete Section of these Technical Specifications and Section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. The water pipe shall be laid and reported in accordance with the specifications for water pipe and concrete cradle, as heretofore specified, and the concrete deposited around the pipe at the required width and depth to a plane at least 6 inches over the top of the pipe, as indicated on the Plan Details. Proper bracing of the pipe shall be provided to prevent its being floated by the concrete encasement.

1.3 Metered Service Connections

Metered service connections shall be installed to the point where the line from the customers residence or business joins the meter setter. The service piping shall be ¾" polyethylene tubing as noted in the Piping Appurtenances Section of these Technical Specifications. They shall be installed as shown on the plans or as directed by the Engineer.

1.4 Meter Boxes and Other Structures

Meter boxes shall be constructed as shown on the Plan Details. The concrete vault shall be placed on concrete bricks, with 6" crushed stone placed in the bottom for drainage.

The cast iron lid shall be set flush with existing ground or ½" maximum above ground. Backfill shall be carefully tamped around both vault and lid. Vaults placed in sidewalks, driveways, or other paved surfaces shall have lids placed flush with existing paved surfaces.

Service line depth shall be the same as the main water line with the exception that the service line may be brought up to a sufficient depth to enter the vault within 5' of the side of the vault.

Air release valve vaults shall be Type III 24" diameter Reinforced Concrete Pipe barrels set on 8 concrete bricks with 6" crushed stone in bottom for drainage. The lid shall be cast iron stamped "water" with 24 I.D. opening. Backfill shall be carefully tamped around vault and lid. The lid shall be flush or ½" maximum above existing ground in unpaved areas and flush with paved surfaces.

1.5 Branches and Fittings

Branches and Fittings shall be provided and laid as where directed.

Tapping saddles or other fittings for property service connections shall be placed on the water main at such points as to result in the property service connection having the shortest length possible between the water main and the property line unless otherwise indicated on the plans or directed by the Engineer.

1.6 Pipe Cutting

Pipe may be cut in any manner specified by the pipe manufacturer, but only when authorized and approved by the Engineer. Where a pipe is cut the Contractor shall remove the old section of pipe satisfactorily to the Engineer.

1.7 Pipe Handling and Installation

All procedures for receiving, handling, storing, and installing pipe used in the project, unless specified in these Technical Specifications, shall be governed by the Standards listed below with the approval of the Engineer.

Ductile Iron Pipe - The manufactures printed instructions.

Polyvinyl Chloride Pipe - The manufactures printed instructions.

Polyethylene Pipe - The manufactures printed instructions.

1.8 Pressure Pipe Thrust Blocking

Concrete thrust blocks shall be provided to prevent movement of pipe or appurtenances in response to the forces developed by the pressure of the piping system. In general, thrust blocking shall be provided where the pipeline changes direction (e.g. tees, bends, elbows, crosses, etc.), changes size (e.g. reducers), stops at dead ends, and/or has an appurtenance (e.g. valve or hydrant) attached at which thrust develops when closed. Thrust blocks shall be sized according to the plans.

1.9 Highway and Railroad Crossings

Steel casing pipe for road and railroad crossings shall be bored and/or jacked in place to the depth shown on the plans. Casing pipe shall also be laid in open cut where indicated on the drawings. All joints between lengths shall be solidly butt-welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The water line pipe shall be installed after the casing pipe is in place, and shall be braced within the casing with structural steel members welded into place or other Engineer approved method to preclude possible floatation.

Railroad crossing material and installation shall be in strict accordance with American Railway Engineering Association Specifications.

At each end of the casing pipe, the water line pipe shall be wrapped with two layers of roofing felt. The wrapping shall extend a minimum of 12 inches in each direction from the end of the casing pipe. After the water line has been installed, inspected, tested and wrapped as specified, both ends of the casing pipe shall be closed with brick or concrete block masonry in a manner acceptable by the Engineer.

Weep holes shall be provided in the closure at the lower end of the casing pipe to facilitate drainage and shall be located within the granular pipe bedding material. Granular bedding is not required under the open cut casing pipe; however, the Contractor shall insure that casing pipe does not bear directly on rock.

1.10 Creek Crossings

River and creek crossings shall be accomplished in a method determined by the Contractor and approved by the Engineer to the lines and grades as shown on the plans. Piping shall be ductile iron or polyethylene pipe as per the pipe materials section of these Technical Specifications and as approved by the Engineer. There are two types of creek crossings which shall be as shown on the plans and where indicated on the plans.

1.11 Pipeline Testing

1.11.1 General

Testing at the Contractor's expense of any water line section may be requested at any time by the Engineer to determine that the section is watertight.

1.12 Visual Inspection

During the final inspection the Engineer may inspect any section of the water lines by various methods at his disposal to determine whether the completed lines are true to line and grade as laid out or as shown on the Plans.

1.13 Hydrostatic Tests

After the pipe is laid and the line flushed, it shall be filled with water with care being exercised to expel all air from the pipe. During the test period all pipe, valves, fittings, and joints shall be examined carefully for defects. Any observed leaks or defective pipe shall be satisfactorily repaired or replaced, at the expense of the Contractor and the test repeated until the section tested is within the limits prescribed hereinafter. The entire distribution system or parts thereof shall be tested under hydrostatic pressure of 150 psi, or pressure class of the pipe which ever is greater, for a period of 4 hours, if joints are exposed, or for an 8 hour period if joints are covered. Repairs shall be made using approved materials and new replacement fittings, specials, or gaskets where leakages occur.

Leakage shall be measured by an approved calibrated meter through which all the water required to maintain test pressure shall be pumped. All testing shall be performed in the presence of the Engineer. Allowable leakage shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe, at the specified test pressure.

Tests shall be completed in accordance with the latest edition of AWWA C-600 except a modified herein.

1.14 Flushing

Any foreign material left in piping during construction shall be removed by flushing system prior to testing. Flushing should be accomplished by partially opening and closing valves and hydrants several times under expected line pressure with flow velocities adequate to flush foreign material out of valves and hydrants.

1.15 Disinfection

1.15.1 General

Thoroughly disinfect all water pipe on potable water lines prior to being placed in service. Follow the applicable provisions of the procedure established for the disinfection of the cast iron pipe as set forth in the latest edition of AWWA C651 entitled "Disinfecting Water Mains".

1.15.2 During the Construction

Workmen shall be required to use utmost care to see that the surface of parts of the structures, the inside of pipes, fittings, jointing materials, valves, and specials which come in contact with the local water system's water, are maintained in a sanitary condition. Every effort shall be made to keep the inside

of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks. As each joint of pipe is being laid, it shall be swabbed so that all foreign matter is removed. All fittings and exposed open ends of pipe shall be blocked or capped until the line is completed.

When the entire pipe line or certain selected sections thereof have been completed, tested and made ready for turning over to the local water system, ready for use, the line or section of line shall be thoroughly sterilized according to the following procedure: The new pipe shall be disinfected by introducing HTH, perchloron , or a similar hypochlorite solution, through taps made by the Contractor as directed by the Engineer. The water shall be turned into the mains slowly to allow a thorough mixing of solution which shall be brought to a strength of 50 parts per million of available chlorine. All valves shall then be closed and the sterilizing solutions permitted to remain in the pipe line sections for not less than 24 hours. At the end of the 24 hour period the water in the line must have a minimum chlorine residual of 25 parts per million, or the process shall be repeated until the residual of 25 ppm is maintained. After the required chlorine residual has been maintained the mains shall be flushed thoroughly until a chlorine residual not to exceed one (1) part per million is obtained.

No water line shall be put in service either permanently or temporarily until it has been thoroughly disinfected to the satisfaction of the Engineer. The Contractor shall be responsible for all baterialogical testing should this be required by the Engineer.

1.16 Restoration of Paved Surfaces

1.16.1 General Description

After all excavations within the limits of paved surfaces have been properly backfilled and compacted in accordance with the Plans and Specifications, the paved surfaces shall be restored to a condition as good as or better than existed prior to the beginning of the work, in accordance with the following Specifications.

1.17 City, County, and State Paved Surfaces

Streets, alleys, sidewalks, curbs, and gutters originally constructed by ordinance or maintained by the City, and highways, roads, and walks constructed and/or maintained by the Kentucky Department for Transportation or County, which are wholly or partially removed, damaged or disturbed by the Contractor’s operations, shall be promptly restored to a condition as good as or better than existed prior to the beginning of the work. Such restoration shall be performed in accordance with the pertinent Specifications and standards of the City, the County, or the Kentucky Department of Transportation as applicable.

1.18 Other Paved Surfaces

Streets, alleys, driveways, sidewalks, curbs, and gutters, not constructed or maintained by the City, the Kentucky Department of Transportation, or the County, but paved with asphalt, concrete, cinders, crushed stone, waterbound macadam, oilbound macadam, or heterogeneous paving materials, which are wholly or partically removed, damaged or disturbed by the Contactors operations, shall be restored with like or better materials, acceptable to the Engineer, to a condition as good or as better than existed prior to the beginning of the work, so that the movement of traffic, both vehicular and pedestrian, through the restored way shall be as free, safe and unimpeded as before.

1.19 Asphalt Roadway Paving

Existing asphalt paving in roadways shall be restored with base, binder and surfacing of the dimensions as shown in the plans. All material shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Sections 300 and 400 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.20 Concrete Roadway Paving

Existing concrete paving in roadways shall be restored with the dimensions shown in the plan details. All materials shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Section 500 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.21 Driveway Replacement

For the restoration of all paved driveways disturbed by the installation of the water lines, the materials and dimensions shall be equivalent to the original paving. However, in no case shall the dimensions be less than (a) 6” DGA base and 6” Class “A” Concrete for concrete driveways and (b) 6” DGA base and 2” Bituminous Surface for asphalt driveways.

TECHNICAL SPECIFICATIONS

MAGOFFIN COUNTY WATER DISTRICT

MOUNTAIN PARKWAY (KY 9009) WIDENING
RELOCATION ITEM NO. 10-126.50

Prepared By:

Kenvirons, Inc.
452 VERSAILLES ROAD
FRANKFORT, KENTUCKY 40601

PROJECT NO. 2015106

AUGUST, 2015

Magoffin County Water District

TABLE OF CONTENTS

		Page No.
15100	Water Lines	1 to 24
15101	Waterline Accessories	1 to 5
15102	Special Items of Construction	1 to 13
15103	Pressure Testing and Sterilization	1 to 9
15104	Meters and Services	1 to 3

SECTION 15100

WATERLINES

1.0 GENERAL

The Contractor shall furnish all labor, materials and equipment to install the water lines as shown on the plans and as specified herein.

The water lines may either be pressure-rated plastic pipe (PVC), municipal plastic pipe (MPVC) or ductile iron (DI), all as specified hereinafter. The bid documents and plans shall show the amounts of each type and class of pipe to be provided by the Contractor.

The Owner will obtain all rights-of-way for operations through private property. It will also secure building permits and the permits for all pipe laid in highway rights- of-way. Any charges for inspections or other fees required will be the responsibility of the Contractor since the amounts of these are dependent upon the operation of the Contractor.

1.1 TRANSPORTATION CABINET BONDING - NOT APPLICABLE

The Kentucky Transportation Cabinet will require that the Owner post a bond for all work accomplished on their right-of-way. Each contract on which work is to be performed will be a separate application and will require a separate bond. Each permit will have conditions attached and these conditions will vary depending on the area where work is to be performed. In areas where traffic control may pose a problem, working hours may be limited. A copy of the encroachment permit will be provided to the Contractor. The Contractor will be responsible for knowledge of the permit's content and conditions in order that the construction may be accomplished in accordance with the specified requirements.

Should any additional bonds or requirements be imposed by the Kentucky Transportation Cabinet, the Owner shall also be responsible for the bonding of the additional requirements.

2.0 PIPE AND FITTINGS

2.1 POLYVINYL CHLORIDE RIGID PIPE AND FITTINGS

This specification covers rigid, pressure-rated, polyvinyl chloride pipe and fittings, hereinafter called PVC pipe and PVC fittings, for sizes 1/2 inch through 12-inch.

Pipe shall be as manufactured by North American, Diamond, J-M or approved equal.

2.1.1 PVC Pipe. PVC pipe shall be extruded from Type 1, Grade 1, polyvinyl chloride material with a hydrostatic design stress of 2,000 psi for water at 73.4^{O}F, designated as PVC 1120, meeting ASTM Specifications D-1784 for material and D- 2241 for pipe, latest revisions. Pipe shall also meet all applicable provisions of the Product Standards and shall bear the National Sanitation Foundation (NSF) seal of approval in compliance with NSF Standard No. 14. PVC pipe having a maximum hydrostatic working pressure of 160 psi (SDR26), 200 psi (SDR21), 250 psi (SDR17), or 315 psi (SDR13.5) shall be used as shown in the Bid Documents and Plans.

Samples of pipe and physical and chemical data sheets shall be submitted to the Engineer for review and determination of compliance with these specifications before pipe is delivered to job. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects.

The workmanship, pipe dimensions and tolerances, outside diameters, wall thickness, eccentricity, sustained pressures (ASTM D-1598), burst pressures (ASTM D-1599), flattening, extrusion quality (ASTM D-2152), marking and all other requirements of the Product Standard PS 22-70 shall be with in all respects. No pipe, 2 inches in diameter or larger, with a wall thickness less than 0.090 inches may be used.

Pipe shall be furnished in 20 feet or 40 feet lengths. The pipe shall be bell on one end. Male ends of pipe must be beveled on the outside. Pipe shall have a ring painted around the male end or ends in such a manner as to allow field checking of setting depth of pipe in the socket. This requirement is made to assist construction superintendents and inspectors in visual inspection of pipe installation.

Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical. Pipe must not be exposed to the direct rays of the sun for an extended period of time. If pipe is not to be installed shortly after delivery to the job site, it must be stored in a shaded location and strung as needed.

2.1.2 PVC Pipe Jointing. Pipe shall be joined with slip-type joints with rubber gaskets. Pipes with bells shall have all parts of the bell, including the gasket groove, made from the same extruded piece, integral with the pipe, and shall be thickened to meet standard dimension ratios of wall thickness to outside diameter. This manufacturing procedure shall be the normal practice of the pipe manufacturer and proven by past performance of pipe in service. The gasket

groove shall be constructed such that gasket rollout will not occur. Rubber gasketing shall conform to ASTM 3139.

Joint lubricant shall be of a type recommended by the manufacturer for their pipe subject to the Engineer's approval. Lubricant shall be water soluble, non-toxic and have no objectionable properties.

2.1.3 PVC Couplings. Where PVC couplings are used, they shall be of the same material as the pipe and may be of the molded, or extruded type. PVC couplings shall have a minimum rating of 200 psi for continuous operation at 73.4 degrees F.

2.1.4 Fittings. Ductile iron mechanical joint type fittings with appropriate adaptors as manufactured by Romac, Ebaa Iron, or approved equal, shall be used with PVC pipe. All such fittings shall be approved by the pipe manufacturer, and complete data sent to the Engineer, including the manufacturer's approval, for review. Fittings shall comply with AWWA C-110 or C-153 and shall be manufactured for the size and pressure class of the line on which they are used. Use of transition gaskets will not be allowed unless specifically approved by the pipe manufacturer. Coatings and lining shall be in accordance with 2.3.7.F of this section of the Specifications.

2.1.5 Underground Marking for PVC Pipe. Underground marking for PVC pipe shall be both of the following types. The type required for this project is specified in the notes on the Drawings.

2.1.5.1 Underground Marking Wire. At all locations where PVC pipe is utilized, a detectable underground marking wire shall be placed in the trench as shown on the miscellaneous drawings. The wire used shall be No. 12 insulated copper wire. Copper split bolt screw connectors shall be used for splice connections, see miscellaneous drawings. Extreme care shall be exercised in connecting and taping splices and joints to assure continuity. At each valve box the wire shall be looped to the surface extending 12-inches above the concrete valve box pad (see Std. Dwg. for valve). When the entire project or pipeline segment is complete, including meter installation and leak repairs, the locating wire system shall be checked for continuity.

2.1.5.2 Underground Marking Tape. At all locations where PVC pipe is utilized, a detectable underground marking tape shall be placed in the trench approximately twelve inches below the finished grade. The tape used shall be mylar encased aluminum foil with the printing “CAUTION - Buried Water Line Below”. Printing shall be readable through the clear mylar and surface printing is not acceptable. Tape size shall be 2 inch width as provided by Lifeguard, Inc., Brady, or approved equal. Color of the tape shall be blue.

2.2 MUNICIPAL POLYVINYL CHLORIDE (MPVC) PRESSURE PIPE

This specification covers the requirements for AWWA approved Polyvinyl Chloride Pressure Pipe for water supply and distribution systems.

2.2.1 MPVC Pipe. MPVC pipe shall meet the requirements of AWWA C900, latest revision, "Standard for Polyvinyl Chloride (PVC) Pressure Pipe, 4" through 12" for water" and shall be furnished in cast-iron pipe equivalent outside diameters with rubber-gasketed separate couplings. Pipe shall be as manufactured by Certainteed, JM Eaagle, or approved equal.

MPVC pipe and couplings shall be made from Class 12454-A or Class 12454-B virgin compounds as defined in ASTM D-1784. The standard code designation shall be PVC 1120. The PVC compounds shall be tested and certified as suitable for potable water products by the NSF Testing Laboratory and shall carry the NSF approval marking.

Solvent-cement couplings or joints shall not be used. PVC joints using elastomeric gaskets shall be tested as assembled joints and shall meet the laboratory performance requirements specified in ASTM D-3139.

Pipe and couplings shall be pressure Class 100, DR 25 (Dimension Ratio), pressure Class 150, DR 18, or pressure Class 200, DR 14 as shown on the plans or the bid form.

Pipe and couplings shall be marked as follows:

a. Nominal size and OD base.
b. Material code designation (PVC 1120).
c. Dimension ratio number.
d. AWWA pressure class.
e. AWWA designation number (AWWA C900).
f. Manufacturers name or trade-mark and production record code.
g. Seal of the NSF Laboratory.

Pipe and couplings shall meet or exceed the following test requirements:

Sustained Pressure - DR	ASTM D-1598 (1000 Hrs.) Sustained Pressure
14	650 psi
18	500
25	350

Burst Pressure - DR	ASTM D-1599 (60-70 seconds) Minimum Burst Pressure
14	985
18	755
25	535

Hydrostatic Integrity - Each standard and random length of pipe shall be proof-tested at four times its rated class pressure for a minimum of 5 seconds. Bells or couplings shall be tested with pipe.

Flattening - The pipe shall not split, crack, or break when tested by the parallel-plato method as specified by ASTM D- 2241.

Extrusion quality - The pipe shall not flake or disintegrate when tested by the acetone-immersion method as specified in ASTM D-2241.

Standard length - Pipe shall be furnished in standard laying lengths of 20 ft. ± 1 in. A maximum of 15 percent of each pipe size may be furnished in random lengths of not less than 10 ft. each.

2.2.2 MPVC Pipe Jointing. Pipe shall be joined with slip-type joints with rubber gaskets. Manufacturing and installation procedures shall be as recommended by the manufacturer and as described for PVC pipe in Section 2.1.2 of this specification.

2.2.3 Fittings. Fittings for municipal PVC shall be ductile iron only. Fittings shall be mechanical joint. Fittings shall be manufactured for the size and pressure class of the line on which they are used and shall comply with AWWA C-110 or C-153. Coatings and lining shall be in accordance with subsection 2.3.7.F of this section of the Specifications. Fittings shall be as manufactured by Tyler, Clow, U.S. Pipe, Union Foundry or approved equal.

2.2.4 Underground Marking for MPVC Pipe. Underground marking for MPVC pipe shall be both of the following types. The type required for this project is specified in the notes on the Drawings.

2.2.4.1 Underground Marking Wire. At all locations where MPVC pipe is utilized, a detectable underground marking wire shall be placed in the trench as shown on the miscellaneous drawings. The wire used shall be No. 12 insulated copper wire. Copper split bolt screw connectors shall be used for splice connections, see miscellaneous drawings. Extreme care shall be exercised in connecting and taping splices and joints to assure continuity. At each valve box the wire shall be looped to the surface extending 12-inches above the concrete valve box pad (see Std. Dwg. for valve). When the entire project or pipeline segment is complete, including meter installation and leak repairs, the locating wire system shall be checked for continuity.

2.2.4.2 Underground Marking Tape. At all locations where PVC pipe is utilized, a detectable underground marking tape shall be placed in the trench approximately twelve inches below the finished grade. The tape used shall be mylar encased aluminum foil with the printing “CAUTION - Buried Water Line Below”. Printing shall be readable through the clear mylar and surface printing is not acceptable. Tape size shall be 2 inch width as provided by Lifeguard, Inc., Brady, or approved equal. Color of the tape shall be blue.

2.3 DUCTILE IRON PIPE

These specifications cover ductile iron pipe (3-inch diameter and greater) to be used in water transmission systems with mechanical joints, rubber ring slip type joints or flanged joints.

2.3.1 General. Ductile iron pipe shall be designed in accordance with AWWA H3 (ASA A21.50) and for pressures and conditions as stated in these specifications or called for on the plans. Ductile iron pipe shall conform to AWWA C-151 (ASA A21.51.).

2.3.2 Minimum Nominal Thickness. The specified thickness will be determined for the given internal and external loading requirements in accordance with ASA A21.50. The class of pipe, wall thickness, and coatings required will be shown on the plans or the bid form for all ductile iron pipe installation.

2.3.3 River Crossing Pipe. River crossing pipe shall be ductile iron, “Flex-Lok” as manufactured by the American Cast Iron Pipe, “Flex-tend” as manufactured by Ebaa Iron, or equal conforming to the appropriate requirements of ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.5 with a thickness class of 54.

2.3.4 Lengths. Pipe may be furnished in 12, 16, 16 1/2, 18 or 20 feet nominal laying lengths.

2.3.5 Tests. Hydrostatic and acceptance tests shall be in accordance with AWWA Specification C-106 for "Cast Iron Pipe Centrifugally Cast In Metal Molds" or C-108 for sand molds. The Engineer shall be provided with five (5) copies of each of the following tests for each contract involved:

a. Talbot strip test.
b. Ring and full length bursting tests.
c. Chemical analysis of pipe.
d. Certification that pipe was hydrostatically tested.

Any pipe not meeting the AWWA Specifications quoted above shall be rejected in accordance with the procedure outlined in the particular specifications.

2.3.6 Marking. The net weight, class or nominal thickness and sampling period shall be marked on each pipe.

2.3.7 Pipe Joints for Ductile Iron Pipe. Pipe joints shall be mechanical joint, rubber ring slip joint, flanged, or locked mechanical joint as shown on the plans.

A. Mechanical Joint

Mechanical joints are to be furnished according to AWWA Specifications C-111. All pipe joints must be furnished complete with all accessories. Mechanical joint bolts and nuts shall be of alloy cast iron or alloy steel (Corten type) or approved equal. Rubber gaskets shall be made of plain first grade rubber, free of imperfections and porosity. Hardness shall be 70 to 75 durometer.

B. Rubber Ring Slip Joint

Rubber ring slip joint shall be equal to AWWA C-111 or latest revision. The joints shall be of the following materials:

a. Rubber ring gasket compressed in groove in bell of pipe.

b. Beveled spigot end of pipe for initial centering into rubber gasket in bell.

C. Locked Mechanical Joint

Locked mechanical joints shall be equal to Clow Corporation's "Locked Mechanical Joint" or “Lok-ring” as manufactured by American-USA.

D. Ductile Iron Flanged Pipe and Special Coupling

a. Flanged Pipe. All ductile iron flanged pipe shall have flanges faced and drilled, 125 pound in accordance with ASA A21.10 (AWWA C-110) unless otherwise specified on the Drawings. Flanges may be cast integrally with the pipe or they may be screwed on specially designed long hub flanges, refaced across both face of flange and end of pipe. Flanged pipe shall be in accordance with ASA A21.6 (AWWA C-106) Specifications, latest revision, and be the class called for on the plans or bid forms. Where plain ends of flanged and plain end pipe fit into mechanical joint bells, centrifugally cast pipe shall be used. Flanged pipe for water service shall be cement lined and bituminous coated the same as written herein for bell-joint pipe.

b. Special Coupling. Flexible couplings for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene O-ring in place of the usual 1/16 inch rubber ring gasket. The mechanical bell and special flanged joint piece shall be of high grade gray cast iron

(ASTM A48-56, AWWA C-100) with bolt circle, bolt size and spacing according to ASA Specifications. Mechanical joint follower flange shall be of ductile iron ASTM A399 or malleable iron ASTM A47, Grade 35018 or 32510, latest revision with high strength/weight ratio design.

Bolts shall be fine grained high tensile malleable iron with malleable iron hexagon nut. Stainless steel nuts shall be used in vaults and wet wells. Where pressures may exceed 20 pounds, anchor studs shall be included with spigots of pipes connected drilled to receive ends of studs.

E. All items used for jointing pipe shall be furnished with the pipe and tested before shipment. The joints shall be made with tools and lubricant in strict conformity with the manufacturer's instructions. Three (3) copies of such instruction shall be delivered to the Engineer at start of construction.

F. Coatings and Lining. All buried ductile iron pipe shall have manufacturers outside coal tar or asphaltic base coating and a cement lining and bituminous seal coat on the inside. Cement mortar lining and a bituminous seal coat inside shall conform to ANSI A21.4 (AWWA C-104) latest revision.

All pipe and fittings housed and in vaults shall be lined and coated on the inside as specified herein for buried ductile iron pipe and fittings, but shall be left uncoated on the outside so that it may be painted without the use of tar stop.

G. Fittings for Ductile Iron Pipe. Ductile iron mechanical, rubber ring slip and flanged joints shall conform to ASA Specifications A21.10 (AWWA C-110) for centrifugally cast iron water pipe. Mechanical joints shall also conform in all respects to ASA 21.11 (AWWA C-111). All fittings shall be manufactured for the size and pressure class of the pipeline in which they are to be used. Mechanical joint type fittings with appropriate adaptors as manufactured by Ebaa Iron, Inc., American-USA, or approved equal, shall be used. All fittings shall be furnished complete with all joint accessories. All ductile iron pipe fittings for water, sewer, air, gas and force main service shall be bituminous coated outside and lined on the inside same as the line on which they are installed.

H. Underground Marking Tape. At all locations where Ductile Iron pipe is utilized, a detectable underground marking tape shall be placed in the trench approximately twelve inches below the finished grade. The tape used shall be mylar encased aluminum foil with the printing “CAUTION - Buried Water Line Below”. Printing shall be readable through the clear mylar and surface printing is not acceptable. Tape

size shall be 2 inch width as provided by Lifeguard, Inc., Brady, or approved equal. Color of the tape shall be blue.

2.4 POLYETHYLENE PIPE

This pipe is used primarily for stream crossings and other special applications in locations indicated on the Drawings. The required pressure class shall be as shown on the Drawings.

The pipe shall be PE 3408 high density, high molecular weight polyethylene pipe as manufactured by Phillips Driscopipe, Inc., JM Eagle, or approved equal. The pipe shall meet or exceed the following specifications:

a. ASTM 3350 having a cell classification of PE34534C
b. ASTM F714 - Dimensions and Workmanship
c. AWWA C901 - Potable Water Pipe
d. ASTM D1248 - Type III, Class C, Category 5, Grade P34
e. ASTM D3261 - Fittings Standard
f. NSF - Listed, Standard #14

The pipe shall be joined by the butt fusion technique utilizing controlled temperatures and pressures to produce a fused, leak-free joint that has equal or greater strength than the pipe itself in both tension and hydrostatic loading. The joining system shall be equal to Phillips butt fusion joint system.

Transitions to the continuing pipeline shall be made with the appropriate fittings to maintain the integrity of the piping system as recommended by the pipe manufacturer.

Drawings showing details of the installation shall be submitted to the Engineer for approval prior to installation.

3.0 HAULING AND STORAGE

The Contractor shall notify the Engineer when pipe will be received on the job so that proper arrangements may be made for inspecting the unloading and stringing, as well as inspecting and examining the pipe materials.

All pipes shall be covered with tarpaulin during hauling from the manufacturer to the job site. It is acceptable for the front end only to covered. The intent is to prevent diesel exhaust residue from coating the pipe and/or contaminating the gaskets.

The Contractor will be required to deliver all equipment and other materials and place same as and where required for installation. Care must be exercised in the handling of all materials and equipment and the Contractor will be held responsible for all breakage or damage to same caused by his workmen, agents,

or appliances for handling or moving. Pipes and other castings shall in no case be thrown or dropped from cars, trucks, or wagons to the ground, but same shall be lowered gently and not allowed to roll against or strike other castings and unyielding objects violently. Pipe and other castings may be distributed at places that will not interfere with other building operations and unloaded, or yarded and distributed as required, as the Contractor may elect.

Valves, castings, fabricated metal, reinforcing steel, etc. shall be yarded or housed in some convenient location by the Contractor and delivered on the ground as required. All equipment and materials subject to damage from the weather, dampness, changes in temperature, or exposure shall be protected by a dry, weatherproof enclosure until ready for installation or use. The cost of all hauling, handling, and storage shall be included in the prices bid for equipment and materials in place. The Owner takes no risk or responsibility for fire, flood, theft, or damage until after the final acceptance of the work.

4.0 LINES AND GRADES

The Contractor will be required to accomplish any detailed layout, including that required for establishing the grade of the pipe line.

5.0 TRENCH EXCAVATION

5.1 GENERAL

This section describes the acceptable methods of trenching for the installation of pressure pipe and casing pipe in an open trench.

Trenching may be accomplished by means of a backhoe, trenching machine or by hand depending on the construction area.

At the Contractor’s option, trenching, by a trenching machine or by backhoe is acceptable except as noted below:

Where the pipe line is being constructed close to other utilities, structures, building, or large trees, and it is reasonable to anticipate possible damage from the use of a backhoe, then trenching shall be made by hand methods.

The Contractor shall include in his unit price bid, all trenching necessary for installation of all pipelines as planned and specified. Trenching shall include all clearing and grubbing, including all weeds, briars, small trees, stumps, etc. encountered in the trenching. The Contractor shall dispose of any such material by burning, burial, or hauling away (or as noted on the drawings), at no extra cost to the Owner. It shall be the Contractor’s responsibility to notify the appropriate State and local Air Pollution Control agencies when he conducts open burning of refuse. Ornamental shrubs shall be removed, protected, and replanted.

Trenching also includes such items as minor street, road, sidewalk, pipe and small creek crossings; cutting, moving or repairing damage to fences, poles, or gates and other surface structures regardless of whether shown on the plans.
The Contractor shall protect existing facilities against danger or damage while pipeline is being constructed and backfilled, or from damage due to settlement of this backfill. In case of damage to any existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structures will be in as good condition and serve its purpose as completely as before and such restoration and repair shall be done without extra cost to the Owner. The use of trench- digging machinery will be permitted except where its operations will cause damage to trees, buildings or existing structures above or below the ground. At such locations hand methods shall be employed to avoid such damage. All excavated material shall be piled in a manner that will not endanger the work and will avoid obstructing sidewalks and driveways. Gutters shall be kept clear or other satisfactory provisions made for street drainage.
All excavation shall be open trenches, except where the drawings call for tunneling, boring, or jacking under structures, railroads, sidewalks and roads. The construction procedure for these types of excavation is described elsewhere in these specifications.

All trench excavation shall be termed unclassified and costs shall be included in the unit price bid for the pipe.

5.2 CLEARING

The Contractor shall accomplish all clearing and/or grubbing as required for the construction under this contract. Clearing and grubbing shall include the cutting and removal of threes, stumps, brush, roots, logs, fences and other loose or projecting material and natural obstructions which, in the opinion of the Engineer, must be removed to properly prosecute the construction and operate the facilities upon completion of construction. Trees, unless designated otherwise on the plans, shall remain and be properly protected. Ornamental shrubs, plantings, fences, walls, etc. shall be removed and replanted or replaced or protected from the construction activity. Clearing and/or grubbing shall be incidental to the various bid items and no additional compensation will be paid for same.

5.3 TRENCH DEPTH

Trenches shall be excavated to the line and grade required for the installation of pipe at the elevations indicated on the plans. The minimum depth of cover shall be 30 inches above the top of the pipe, unless shown otherwise on the plans or on the Standard Details. When the pipe is laying in or on solid rock, the minimum depth of cover shall also be 30 inches above the top of the pipe. No additional compensation will be made for extra depth where required by the plans or due to Contractor error. Excavation, except as required for exploration,

shall not begin until the proposed work has been staked out. Materials which are not required for backfill and site grading shall be removed and disposed of as directed by the Engineer. Hauling, bedding, and backfilling shall be considered incidental to the various bid items and will not be paid for directly. Excavation shall be of sufficient depth to allow the piping to be laid on the standard pipe bedding in accordance with the Section 6 of this section. The trenches shall be excavated to a minimum of six inches (6'') below the bottom of the pipe barrel in rock. In all cases where lines are under traffic a minimum cover of forty-two (42'') inches shall be provided. Should it be necessary to avoid existing utilities, culverts, outlets, or other structures, the water line shall be carried deeper at no additional expense to the Owner.

Where the plans call for extra trench depth, this extra depth shall be provided at no extra cost.

5.4 TRENCH WIDTH

Trench widths shall exceed the minimum width that will provide free working space on each side of the pipe and to permit proper backfilling around the pipe as shown in the accompanying table and unless specifically authorized by the Engineer, shall not be excavated to wider than two feet (2') plus the nominal diameter of the pipe at the top of the trench. Before laying the pipe, the trench shall be opened far enough ahead to reveal any obstruction that may necessitate changing the line and grade of the pipe. Should the Contractor fail to accomplish this, and changes are required, they shall be at his sole expense. In rock, all ledge rocks, boulders and large stones shall be removed to provide six inches (6'') of clearance on each side and below all pipe and fittings.

MINIMUM TRENCH WIDTH

Size	Width	Size	Width
Up to 4" Pipe	2'-0"	15" Pipe	2'-8"
6" Pipe	2'-0"	16" Pipe	2'-8"
8" Pipe	2'-0"	18" Pipe	3'-0"
10" Pipe	2'-4"	20" Pipe	3'-2"
12" Pipe	2'-6"	21" Pipe	3'-4"
14" Pipe	2'-6"	24" Pipe	3'-8"

5.5 SHORING, SHEETING AND BRACING OF EXCAVATION

Where unstable material is encountered, or where the depth of the excavation in earth exceeds five feet (5'), the sides of the trench or excavation shall be supported by substantial sheeting, bracing, or shoring. The design and installation of all sheeting, sheet piling, bracing or shoring shall be based on computations of pressure exerted by the materials to be retained under retaining conditions. Adequate and proper shoring of all excavations will be the entire

responsibility of the Contractor. The Standards of the Federal Occupational Safety and Health Act and the Kentucky Department of Labor shall be followed.

The Engineer will not be responsible for determining requirements for bracing or sheeting.

5.6 REMOVAL OF WATER

The Contractor shall provide for adequate removal of all water and the prevention of surface water from entering the excavation. The Contractor shall maintain dry conditions within the excavations until the backfill is placed. No additional compensation will be paid for replacement and/or stabilization of prepared excavations due to flooding and/or deterioration from extended exposure. All water pumped or drained from the excavation shall be disposed of in a suitable manner without damage to adjacent property or to other work under construction.

5.7 PAVEMENT REMOVAL

Pavement removal shall be as indicated on the plans or directed by the Engineer. When so required, or when directed by the Engineer, only one-half (1/2) of the street crossings or road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such a manner that they will offer no hazard to the passage of traffic. The convenience of 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 bridged at the direction of the Engineer. Pavement replacement shall be in accordance with Section 15102 of these specifications. Excavated materials shall be disposed of so as to cause the least interference and in every case the disposition of excavated materials shall be satisfactory to the Engineer.

5.8 TRAFFIC MAINTENANCE

The Contractor must "red light" and guard all open trenches or obstructions placed on the streets or sidewalks. The lights must be burning from sunset to sunrise in order to effectually warn and safeguard the public against dangers connected with open trenches, excavations and other obstructions. The Contractor shall be held responsible for any damage that may occur to persons or property by reason of the failure of the Contractor to properly "red light" and guard all open trenches or obstructions along the routes of the water lines. This Contractor at his own expense shall also maintain warning signs, barricades and a watchmen or flagmen to control traffic at such times as his work would interfere with the flow of traffic. No excavation shall begin that may present a safety hazard unless the signs, barricades, lights, etc. are available to protect the open excavation at the conclusion of the day. The Contractor will comply with all Federal and State Occupational Safety and Health requirements for this type of

construction. The Contractor shall also comply with all local and Kentucky Department of Highways requirements for signing and traffic control.

5.9 LINE LOCATION

The location of 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. In such cases, 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 can be excavated by machine.

6.0 BEDDING OF PIPELINE

In all cases the foundation for pipe shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. The bells of the pipe shall not carry any of the loads of the backfill. The Contractor should refer to the Standard Details for pipe bedding shown in the plans. The bedding specifications shall govern the backfill from the bottom of the trench up to the centerline or spring line of the pipe.

6.1 STABLE EARTH FOUNDATION

On all PVC pipelines, the trench bottoms shall be smooth and free of frozen material, clodded dirt and stones over 1/2" diameter. Bottom dirt left by trenching equipment will usually provide adequate material to level the trench bottom and provide bedding support for the pipe barrel. If the trench bottom is free of dirt, soft material may be shoveled off the side walls or shoveled under the pipe to insure proper pipe barrel bedding. In areas where the trench bottom is hard, a layer of soft backfill must be provided to insure the pipe barrel is properly cushioned. See the plans for proper bedding material depth.

If the foundation is good firm earth the pipe may be laid directly on the undisturbed earth provided the pipe barrel is supported for its full length.

Bedding of No. 9 stone, fine gravel, sand or compacted finely graded select earth shall be used to correct irregularities in the subgrade. Where bell and spigot is involved, bell holes shall be excavated to prevent the bells from being supported on undisturbed earth.

As an alternative to the above method, excavation in earth may be undercut to a depth below the required invert elevation that will permit laying the pipe on a bed of granular material or finely graded select earth to provide continuous support for the pipe barrel. Bedding depth shall be as shown on the plans.

The bedding is not a separate pay item and shall be included as incidental expense in the unit price for the pipe bid per foot of pipe.

6.2 TRENCHES IN ROCK

All installation in rock will utilize the undercutting method. Bedding will be with 6 inches crushed stone as shown in the Standard Details.

6.3 UNSTABLE TRENCHES

If unstable material is encountered which may not provide a suitable foundation for the pipe, the unstable material will be removed and an adequate layer of encasement concrete or other special bedding shall be placed for the pipe foundation in accordance with the Standard Details in the plans. Such "special pipe foundation" shall only be installed if directed by the Engineer in writing or on the plans.

All ductile iron pipes shall be installed in accordance with Standard ANSI/AWWA C150/A21.50 Laying Condition Type 3 unless otherwise noted.

7.0 PIPE LAYING

7.1 GENERAL

Proper instruments, tools and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient prosecution of the work. Each pipe manufacturer shall have an experienced representative on the job for at least one day at the commencement of jointing and laying operations.

Before any length of pipe is placed in the trench, a careful inspection shall be made of the interior of the pipe to see that no foreign material is in the pipe. In order to properly remove any foreign materials, a swab of necessary length is to be available at all times.

All pipes shall be lowered carefully into the trench, properly aligned and properly jointed by use of suitable tools and equipment, in such a manner as to prevent damage to water line materials and protective coatings and linings. Excessive scratching of the exterior surface of the pipe will be cause for rejection of the pipe.

Under no circumstances shall pipeline materials be dropped or dumped into the trench. The pipe and fittings shall also be inspected for the purpose of determining if they are sound and free from cracks. Laying of pipe shall be commenced immediately after excavation is started. Pipe shall be laid with bell ends facing in the direction of laying.

When pipe laying is not in progress, the open ends of pipe shall be closed by approved means to prevent entrance of trench water into the line. Whenever water is excluded from the interior of the pipe, adequate backfill shall be deposited on the pipe to prevent floating. Any pipe which has floated shall be removed from the trench and relaid as directed by the Engineer. No pipe shall be laid in water or on frozen trench bottom, or whenever the trench conditions or the weather are unsuitable for such work.

If any defective pipe and fittings shall be discovered after the pipeline is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge to the Owner. Open ends of unfinished pipe lines shall be securely plugged or closed at the end of each day's work or when the line is left temporarily at any other time.

7.2 LAYING DUCTILE IRON PIPE

Ductile iron bolted joint, rubber ring slip joint, and ball and socket river crossing pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer. Three (3) copies of instructions shall be furnished the Engineer and one (1) copy shall be available at all times at the site of the work. The lining inside ductile iron pipe must not be damaged by handling.

All pipes must be forced and held together, or "homed" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so as to present as nearly true, straight lines and grades as is practical, and all curves and changes in grades must be laid in such a manner that the manufacturer's recommended maximum deflection is not exceeded at any joint.

Cutting of pipe may be done by wheeled pipe cutters or saws, or by hammer and chisel, as the Contractor may elect, but the Contractor will be held responsible for breakage or damage caused by careless cutting or handling.

All ductile iron pipes shall be installed with Standard ANSI/AWWA C150/A21.50 Laying Condition Type 3 unless otherwise noted, six inches (6’’) crushed stone bedding shall be used in rock. Sufficient space (limited to 2 feet longitudinally) shall be left out of 4 or 6 inch cushion for tightening of bolts where bolted joints are used. No pipe shall be laid resting on rock, blocking, or other unyielding objects. Jointing before placing in trench, and subsequent lowering of more than one section jointed together may be allowed, subject to the Engineer’s approval and direction.

When using pipe with push-on joints care must be exercised to make certain that the correct gasket is being used for the type of joint installed and that the gasket faces the proper direction. Before inserting the gasket, the groove and bell socket should be carefully cleaned of all dirt. If sand or dirt is permitted to remain in the groove, leaks may occur. Lubricant must be applied to bell socket,

gasket and plain- end of pipe as required by manufacturer. Plain-end must be beveled before joint is made. Deflection required at the joint shall be obtained after the joint is made.

Cut pieces of ductile iron pipe 18 inches or more in length, shall be used in fitting to special conditions, and valves and fitting changes in grade and alignment, provided cutting is even enough to make first class joints and no cracks are evident.

7.3 LAYING PLASTIC PIPE

The trench bottom must be smooth and uniform and the alignment must conform to the plans. Bedding and cover as specified herein and shown in the Standard Details is required.
To make a clean and unobstructed joint, it is necessary to wipe the ring, groove and pipe spigot free from all foreign materials at the time of assembly (welded joints will be allowed only in special cases and will be required as shown on the plans). The ring must be positioned properly in the fitting to receive the pipe by a worker who is not in contact with the lubricant. In general, the lubricant is applied to the spigot (not the ring or groove). However, the manufacturer's instructions are to be followed in all cases. Only an approved lubricant may be used in accordance with the manufacturer's recommendations. All plastic pipes shall be joined by hand.

Where good bedding conditions are attained PVC pipe smaller than 4 inches may be assembled outside the trench in longer sections (as conditions allow) and then lowered into the trench. At any time when improper bedding is discovered or the pipe is severely deflected the pipe will be removed from the trench and the condition corrected. Pipe in sizes 4 inch and above may be assembled outside the trench but must be lowered into the trench as each joint is assembled. Regardless of installation methods all couplings must be inspected after laying in trench for proper insertion and alignment. Field cuts and bevels will be allowed in accordance with the manufacturer's recommendations for these operations. A new reference mark shall be installed before joining any field cut pipe. The same requirements for clearance from rock or other objects, thrust blocking and deflections shall apply to PVC pipe as for other pipe materials.

Municipal PVC pipe of all sizes must be assembled in the trench in strict accordance with the manufacturer's requirements.

7.4 INSTALLATION OF RIVER CROSSING PIPE

The ball joint pipe shall be assembled and installed in accordance with manufacturer's recommendations. Installation shall be made at time of low flow, using cofferdams as necessary to divert stream flow. The ball joint pipe shall be laid and allowed to settle before joining to the pipe on each side of the stream.

The ball and joint pipes shall be tested separately once in place to detect any leaks or bad joints. After connecting to the land pipe, it shall be tested the same as specified for the other water mains. See the Drawings for additional installation requirements.

8.0 BACKFILLING

Backfilling must be started as soon as practicable after pipe has been laid and joints hardened sufficiently, and jointing and alignment approved. Spading of crushed rock, sand, or mechanical tamping of earth, around pipe (as specifically required) between joints shall be the usual procedure as the laying progresses. This is in order to avoid danger or misalignment from slides, flooding or other causes. The Engineer shall be given a minimum of 24 hours for inspection before backfilling. The backfill shall be crushed rock, sand, or finely divided earth free from debris, organic material and stones, places simultaneously on both sides of pipe to the same level by hand.

In backfilling of the lower part of the trench beginning at the top of the bedding, the backfill material shall be carefully and solidly tamped by hand or approved mechanical methods in 6" layers around the pipe and up to a point 8 inches higher than the top of the pipe. For PVC only the backfill shall be select material and may be walked-in. Walking or working on the completed pipe line, except as necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a point one diameter higher than the top of the pipe. The filling of the trench and the tamping of the backfill shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipe line will not be disturbed and injurious side pressures do not occur.

After the above specified backfill is hand placed, rock may be used in the backfill in pieces no larger than 18 inches in any dimension and to an extent not greater than one-half (1/2) the backfill materials used. If additional earth is required, it must be obtained and placed by the Contractor. Filling with rock and earth shall proceed simultaneously, in order that all voids between rocks may be filled with earth. Above the hand placed backfill, machine backfilling may be employed without tamping, (if not contrary to specified conditions for the location) provided caution is used in quantity per dump and uniformity of level of backfilling. Backfill material must be uniformly ridged over trench and excess hauled away, with no excavated rock over 1-1/2 inch in diameter or pockets of crushed rock or gravel in top 6 inches of backfill. Ridged backfill shall be confined to the width of the trench and not allowed to overlap onto firm original earth and its height shall not be in excess of needs for replacement of settlement of backfill. All rock, including crushed rock or gravel from construction, must be removed from yards and fields. Streets, roadways and walks shall be swept to remove all earth and loose rock immediately following backfilling.

In the case of street, highway, railroad, sidewalk and driveway crossings or within any roadway paving or about manholes, valve and meter boxes, the backfill must

be machine tamped in not over 4-inch layers, measured loose in accordance with the standard details. Where backfill is under paved driveways, streets, highways, railroads, sidewalks, paved parking areas and other areas where settlement is not allowed, crushed stone or coarse sand backfill only shall be used up to the paving surface. Crushed stone shall be Kentucky Department of Highways Standard Specification No. 78 or finer. Coarse sand backfill shall be spread in layers not over 4 inches thick and thoroughly compacted. Sand may be moistened to aide compaction. Tunnels shall be backfilled in not over 3-inch layers, measured loose, with selected material suitable for mechanically tamping. If material suitable for tamping cannot be obtained, sand, gravel or crushed rock (No. 78) shall be blown, packed or sluiced to complete fill all void spaces.

Where local conditions permit, pavement shall not be placed until 30 days have passed since placing backfill. Crushed stone is specified for roads and parking areas and sidewalks or their bases, shall be placed and compacted to the top of trench. Backfills shall be maintained easily passable to traffic at original ground level, until acceptance of project or replacement of paving or sidewalks.

Where the final surfacing is to be crushed stone, compacted earth backfill may be used in the trench to within 6 inches of the top as shown in the Standard Details.

Railroad Company and Highway Department requirements in regard to backfilling will take precedence over the above general specification where they are involved.

Excavated materials from trenches and tunnels in excess of quantity required for trench backfill shall be disposed as shown on the plans or as directed by the Engineer.

The Contractor shall protect all sewer, gas, electric, telephone, water and drain pipes or conduits, power and telephone poles and guy wires from danger of damage while pipelines are being constructed and backfilled, or from danger due to settlement of his backfill.

In case of damage to any such existing structures, repair and restoration shall be made at once and backfill shall not be replaced until this is done. In all cases, restoration and repair shall be such that the damaged structure will be in as good condition and serve its purpose as completely as before uncovering and such restoration and repair shall be done without extra charge.

No extra charge shall be made for backfilling of any kind, except as provided in the Bid. Backfilling shall be included as a part of the unit price bid for which it is subsidiary. No extra charge shall be made for supplying outside materials for backfill.

Before completion of contract, all backfills shall be reshaped, holes filled and surplus material hauled away, and all permanent walks, street, driveway and highway paving, and sod, replaced (if such surface replacement items are included in the contract) and reseeding performed.

The line Contractor shall be responsible for clean-up, grading, seeding, sodding or otherwise restoring all areas that he disturbs within the work limits of other Contractors on this project.

Any deficiency in the quantity of material for backfilling the trenches or for filling depressions caused by settlement, shall be supplied by the Contractor.

9.0 TIE-INS TO EXISTING PIPELINES

This work shall consist of connecting new water pipes to the existing system where shown on the plans and shall include the necessary fittings, tapping sleeves, valves and necessary equipment and material required to complete the connection.

Knowledge of pipe sizes in the existing system may not be accurate; therefore, it is recommended that the Contractor check outside diameters of existing pipe and types of pipe prior to ordering the required accessories. No additional payment will be allowed for matching pipe and/or accessories when the proper size is not ordered.

Neither the Owner nor the Engineer can guarantee the location of the existing lines. The Contractor shall verify the location of all existing water mains and valves pertaining to the proposed improvements before excavation is started.

The necessary regulation or operation of the valves on existing mains, to allow for the connections being made, shall be supervised by the Engineer. Before shutting down an existing water main or branch main for a proposed connection, prior approval for a specific time interval shall be obtained from a representative of the Owner. At no time shall an existing main be shut down without the Owner's knowledge and permission.

Excavation to existing water mains shall be carefully made, care being exercised not to damage the pipe. The excavation shall not be of excessive size or depth beneath the pipe. The sides of the excavation shall be as nearly vertical as possible.

The Contractor shall be responsible for any damage to the existing system and any such damage shall be repaired to the satisfaction of the Engineer at the Contractor's expense.

The Contractor shall verify, by field inspection, the necessary sizes, lengths and the types of fittings needed for each inter-connection. Typical connections are

shown on the plans and any modifications or changes shall be subject to the approval of the Engineer. The exact length of the proposed water main needed for this work shall also be determined by field measurement as required.

The probing required to locate existing mains is not a separate pay item.

10.0 PIPE ENTERING STRUCTURES

Ductile iron, steel or PVC pressure pipe, 4-inch diameter or larger, entering structure below original earth level, unsupported by original earth for a distance of more than six feet (6'), shall be supported by Class B concrete, where depth of such support does not exceed three feet (3'), and by Class B Concrete piers where depth exceeds three feet (3') in accordance with the Standard Details. All other pressure pipe entering buildings or basins below original earth level, which have more than 3 feet span between wall and original earth and having a cover of more than 24 inches of earth, or under roadway, shall be supported as shown on Standard Detail drawings, in order to prevent breakage from settlement of backfill about the structure. Concrete and reinforcing steel for such supports are to be included in the unit price of work to which it is subsidiary, and not as extra concrete, in order to discourage excessive excavation outside the limits of structures. Pipe entering structures shall have flexible joint within 16 inches of exterior of structure.

11.0 OWNERSHIP OF OLD MATERIALS

Pipe - Unless otherwise indicated, all existing pipe that is to be abandoned that interferes with construction or is easily removed shall become the property of the Contractor. All pipe that is not easily removed or not required to be removed as a result of the new construction, shall be abandoned in place by this Contractor.

Pipe Line Fittings and Appurtenances - All pipe line fittings, valves, hydrants and other like appurtenances that are removed as a result of new construction shall be removed by this Contractor but shall become the property of the Owner. All such fittings and appurtenances shall be delivered to a point by the Contractor. Said point shall be on the Owner’s property and shall be designated by the Engineer.

Other Materials - All other materials or items that are to be removed, demolished, or abandoned as a part of this contract shall become the property of the Contractor and shall be disposed of by him.

12.0 THRUST BLOCKS AND ANCHORAGE

Thrust blocks shall be installed whenever the pipe line changes direction, as at tees, bends, crosses, stops, as at a dead end; or at valves. The locations of thrust blocks depend on the direction of thrust and type of fitting. Their size and

type depends on pressure, pipe size, kind of soil, and the type of fitting. Where thrusts act upward (as at vertical curves) the weight of the pipe, the water in the pipe and the weight of the soil over the pipe should be determined to make certain that the total weight is sufficient to resist upward movement. If there is not enough soil or if it will not compact over the pipe or it is too soft and mushy to resist movement, then ballast or concrete may be placed around the pipe in sufficient weight and volume to counteract the thrust. Where a fitting is used to make a vertical bend, the fitting may be anchored to a concrete thrust block designed to key in to undisturbed soil and to have enough weight to resist upward and outward thrust, since the newplaced backfill may not have sufficient holding power.

Thrust blocks shall be constructed of not less than Class B concrete conforming to KTC Specification 601 and placed between the fitting and the trench wall. It is important to place the concrete so it extends to undisturbed (freshly cut) trench wall.

13.0 MAINTENANCE OF FLOW OF DRAINS AND SEWERS

Adequate provision shall be made for the flow of sewers, drains and water courses encountered during construction. Any structures which are disturbed shall be satisfactorily restored by the Contractor.

14.0 INTERRUPTION OF UTILITY SERVICES

No valve, switch or other control on any existing utility system shall be operated for any purpose by the Contractor without approval of the Engineer and the Utility. All consumers affected by such operations shall be notified by the Contractor as directed by the Engineer and utility before the operation and advised of the probable time when service will be restored.

15.0 FENCING

Where water supply line is being constructed in fields where stock is being grazed, Contractor shall provide temporary fence as approved by the Engineer around open trenches to prevent stock from falling in trenches. Where trenching operations should isolate grazing stock from their source of water, Contractor will either provide temporary bridging over trench or else provide water for such stock.

Where trench crosses near sound existing corner posts and existing fence is in good condition, fence may be taken loose, rolled back and stored until pipe line is completed at this point, then replaced by stretching tightly and thoroughly stapling. Additional posts will be provided and additional new fence shall be provided when it is necessary to place the fence crossed by the water line in a condition equal to existing fence before water line was constructed.

Where it is necessary to cut existing fence, new end posts shall be installed on each side of the water line and the old fence thoroughly stapled to these new posts before cutting. After pipe line is completed at this point, a new fence of galvanized wire (No. 9 gauge with No. 11 filler wires) shall be stretched between these new end posts and thoroughly stapled to existing posts and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on a replacement in-kind basis, and shall be considered incidental to laying of the lines and any additional cost shall be included in the unit price bid per lineal foot of pipe. Contractor shall notify property Owner prior to cutting fence.

16.0 PROTECTION OF ADJACENT LANDSCAPE

Reasonable care shall be taken during construction of the water lines to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

In the course of construction, the Contractor may deflect horizontal alignment of the water line to avoid trees and to keep from damaging their roots. The Contractor shall be fully responsible for settling all claims by private property Owners concerning damage to trees and shrubs.

17.0 COORDINATION WITH UTILITIES

The Plans show the general location of existing utilities, such information having been determined from the utilities. However, such information shall be considered general and is not guaranteed by Owner, Engineer or the Utility.

Prior to construction, the Contractor shall arrange to meet with representatives of all utilities, and provide them with his anticipated work schedule. The Contractor shall have the utilities make their best determination of utility locations in the areas in which he is working. Throughout the progress of the work, such field markings of utilities shall be kept current.

Repairs to any utilities damaged by the Contractor shall normally be performed by the utility at the Contractor’s expense, unless the Contractor and the utility negotiate other understandings and/or procedures.

18.0 BLASTING AND ROCK EXCAVATION

The Contractor shall make his own investigation as he deems necessary to ascertain the sub-surface conditions to be encountered in the work.

All blasting operations shall be conducted in accordance with municipal ordinances, state and federal laws and Section 9, Explosives, of the "Manual of Accident Prevention in Construction", published by the Associated General Contractors of America, Inc. Soil particle velocity shall not exceed limit set by Kentucky law. All explosives shall be stored in conformity with said ordinances, laws and safety regulations. No blasting shall be done within five feet of any water mains, sewer lines, natural or manufactured gas lines, liquid petroleum product lines or other utilities. Any damage done by blasting is the responsibility of the Contractor and shall be promptly and satisfactorily repaired by him.

The Contractor shall use delay caps or other approved methods to reduce earth vibrations and noise. Mud capping, as defined in the above manual, will not be permitted as a method of breaking boulders. No blasting shall be permitted on Sundays or after dark.

Prior to commencing with the work, the Contractor shall, during a preconstruction conference with the Owner and Engineer, state clearly his approach to performing the excavations on the project. He shall be familiar with the laws and ordinances covering blasting and shall also give consideration to the use of hydraulically operated rock breaking devices in lieu of blasting where considered necessary. If blasting is not handled in an expert manner at all times, the Engineer reserves the right to suspend blasting and require the work to proceed without it.

Prior to blasting, the Contractor shall make his own detailed preblast survey of adjacent walks, curbs, retaining walls, house foundations, etc. to determine conditions prior to the work. Such a file of information, including photographs, may be certified in such a manner as the Contractor believes necessary since this information that may stand in his defense.

19.0 MEASUREMENT AND PAYMENT

Payment for supplying, transporting and storing pipe, trenching, standard bedding, pipe installation, fittings, thrust- blocking, pipe locating wire and/or tape, testing, backfilling, disinfection, seeding, crop damage, regular stream crossings, tie-ins to other structures and other incidental items in this section shall be made on the basis of the unit price per lineal foot for the type and size of pipe installed. Payment will include all those items not specifically covered by another proposal. Pipe will be measured along the centerline of the pipe as installed with no deduction for valves and fittings.

SECTION 15101

WATERLINE ACCESSORIES

1.0 GENERAL

The Contractor is to supply and install all valves, hydrants, blow-offs and other equipment at the locations shown on the plans in complete accordance with these specifications.

1.1 BUY AMERICAN

All iron and steel products and their coatings that are to be permanently incorporated into the project must meet the Buy American requirements as specified in federal laws and regulations (23 U.S.C. 313 and 23 CFR 635.410).

2.0 GATE VALVES

All gate valves shall be the resilient seat-type, iron body, non-rising steam, fully bronze mounted, and suitable for working water pressures of not less than 200 psi for installations on PVC pipe and not less than 250 psi for installations on DI pipe. Valves shall be of standard manufacture and of the highest quality both of materials and workmanship and shall conform to the latest revision of AWWA C-509 Standard. Valves shall be furnished with flanged connections for exposed piping and push-on or mechanical joint connections for buried service. Gate valves shall have a clear water way equal to the nominal diameter, and shall be opened by turning counter-clockwise. The operating nut or wheel shall have an arrow cast in the middle, indicating the direction of opening. Each valve shall have the maker's initials, pressure rating and the year in which manufactured, cast on the body. Prior to shipment from the factory each valve shall be tested by hydraulic pressure of at least 300 pounds per square inch.

Underground valves shall be nut operated, unless otherwise shown on the plans. Valve supplier shall furnish two standard stem iron wrenches for turning nut operated valves. All underground valves which have nuts deeper than thirty inches (30'') below the top of valve box shall have extended stems with nuts located within two feet (2') of valve box cap. Buried service valves shall have either epoxy-coated or tar-coated exteriors.

The valve maker is to supply the Engineer, through the bidder, within one week after award is made, complete catalogs or other material giving complete details and dimensions of valves and accessories.

Gate valves installed in underground piping systems may be installed in the vertical position for sizes to 12-inch. Gate valves 14-inch and larger shall be

installed in the horizontal position with bevel gear operators unless otherwise noted on the drawings. Gear operators shall be the totally enclosed type, oil filled and designed for buried and submerged service. Gear housing shall be ductile iron. Gears shall be steel. Pinion shafts shall be stainless steel. Shaft bearings shall be Teflon with “O”-Ring bearings.

3.0 FIRE HYDRANTS

3.1 WORK INCLUDED

Under this Item, the Contractor shall provide all labor, tools, equipment and materials to furnish and install hydrants with gate valves as shown on the drawing and as directed by the Engineer.

3.2 MATERIALS

All fire hydrants shall have a six inch bell connection, shall have two hose outlets and one pumper connection, shall be designed for 250 pounds working pressure or 300 pounds hydrostatic pressure and shall conform to the latest specifications of the AWWA C502. All working parts shall be bronze. Both hose outlets shall be 2 1/2 inch with NST threads and the pumper outlet shall be 4 1/2 inch with NST thread. Hydrants shall be designed so that no water will be lost when they are broken off and so they can be repaired with a repair kit. Design, materials, and workmanship shall be similar and equal to the latest stock pattern ordinarily produced by the manufacturer. Length of barrel shall be such to provide a 3 1/2 foot bury depth. Working drawings and full description of hydrants shall be submitted to the Engineer before ordering. All hydrants shall have a 5 1/4 inch valve opening against pressure. The hydrants shall be Mueller or Kennedy brand or approved equal. All hydrant extensions will be the responsibility of the Contractor.

3.3 PAINT

Hydrants shall be painted one coat of red paint and two finish coats of approved paint of color directed by the Engineer. All hydrants are to receive the final coat of paint after field installation.

3.4 INSTALLATION

Hydrants shall be set at such elevations that the connecting pipe will have the same depth of cover as the distribution main. The back of the hydrant opposite the pipe connection shall be firmly wedged against one and one-half square feet or enough of the vertical face of the trench with concrete to prevent the hydrants from blowing off the line. In addition, all fittings, valves and hydrants shall be joined by the use of all-thread rods, nuts and "DUC-LUG" offsets as shown on the standard drawing to prevent movement of the hydrant. If the character of the

soil is such, in the opinion of the Engineer, that the hydrant cannot be securely wedged, bridle rod collars shall be used which shall be not less than three-fourths inch stock and shall be protected by a coat of acid resistant paint.

Not less than seven cubic feet of No. 9 stone shall be placed around the base of the hydrant to insure drainage. Before the No. 9 stone is placed and before it is backfilled the drain hole shall be inspected and thoroughly cleaned if necessary. The backfill around the hydrant shall be thoroughly compacted to the grade line in a manner satisfactory to the Engineer. Hydrants shall have the interior cleaned of all foreign matter before installation.

All hydrants will be installed with the pumper connection facing the main access road or as directed by the Engineer.

Stuffing boxes shall be tightened and the hydrants shall be inspected in open and closed position to see that all parts are in working condition.

4.0 AIR VALVES

4.1 AIR RELEASE VALVES

A valve designed to allow exhaust of small pockets of air from the water main while in use shall be installed where shown on the plans or where directed by the Engineer. The air release valve shall have a 3/4” iron pipe thread inlet, cast iron body construction, bronze trim, with all internal parts of stainless steel. The valve shall have a minimum orifice size of 3/32”. Valves shall be suitable for a working water pressure of 150 PSIG. The air release valve shall be mounted on 3/4” bronze riser pipe. The riser pipe shall be connected to the water main by use of a service clamp and a corporation stop. The riser shall also have a 3/4" bronze ball valve with stainless steel handle and be suitable for a 150 PSIG working water pressure. Air release valves shall be as manufactured by APCO Models 65 or 50, Cla-Val, or approved equal.

Air release valves will be installed in the same type of box used for meter installation. The box must allow for adequate cover over the pipe at the installation.

In locations where the air release valve can not be placed directly above the water main, such as roadway drainage ditches, then a section of service tubing shall be used to locate the valve as directed by the Engineer. The service tubing shall be installed with a continuous upward slope to eliminate air pockets. Additional payment for the tubing shall be made based on the linear foot bid for service tubing. Tubing shall also be rodded through the box to support the valve. No additional payment will be made for the tubing supports.

5.0 VALVE BOXES

All valves (gate, air release, check, etc.) installed underground shall be installed in an approved valve box. Each gate valve shall be installed in a vertical position with a valve box. Valve boxes shall be of a cast iron, two or three-piece, slip-type consisting of a base, a center section and a top section with a cover marked "water". Where valve box is constructed in a paved area the box shall be a screw type box. The entire assembly shall be adjustable for elevation and shall be set vertically and be properly adjusted so that the cover will be in the same plane as the finished street surface (no more than 1/2" above ground in yards or pastures or 2" in unsodded areas). The assembly must provide for the required cover over the pipe at the installation site and shall rest on concrete pads as shown in the Standard Details. The Contractor shall furnish two valve wrenches for the project.

6.0 BLOW-OFF ASSEMBLY

Blow-off assembly shall be installed in accordance with the details and the specifications at locations shown on the plans and in other locations as directed by the Engineer. The gate valve is included in the unit bid price for blow-off assembly. The Contractor should refer to the Standard Details for blow-off installation.

The blow-off pipe from the main to the flush valve shall be connected to the main by means of a tee. Do not use a corporation stop for this connection. The gate valve included in the blow-off connection shall be a resilient seat gate valves in conformance with AWWA C509.

7.0 TAPPING SLEEVE AND VALVE

Tapping sleeves shall be as manufactured by Mueller, American-USA, or approved equal, and shall be rated for a minimum working water pressure of 150 psi. Contractor shall ascertain the type and size of pipe to which the connection is to be made prior to selection. The valve shall be as specified under section 2.0 of this specification.

8.0 TIE IN CONNECTIONS

All tie in connections shall include any fittings suitable to make the required connection. The fittings shall be mechanical joint, ductile iron type as specified in other sections.

9.0 STUB-OUT

A stub-out shall consist of a gate valve restrained with all-thread to the main line. The valve shall be the same size as the main line and be as close to the main line as practical. The valve shall be as specified under section 2.0 of this

specification. A minimum of one joint of pipe shall be laid past the valve with the bell end away from the valve. A cap matching the material and size of the pipe shall be placed at the end of the line.

10.0 END CAPS

All end caps installed to deaden existing lines shall be installed in accordance with the details shown on the plans as appropriate.

11.0 MEASUREMENT AND PAYMENT

Payment for gate valves, check valves and other special valves installed underground shall include all work necessary for a complete installation and shall include all valve stem boxes or other valve boxes and box covers. Payment will be made at the unit price bid for the type and size of valve installation. The unit price bid for blow-off assemblies shall constitute full compensation for the furnishing and installation of the complete blow-off assembly which includes the gate valve. Tapping sleeve and valve tie-in connections shall be paid as indicated in the bid schedule. Stub-outs shall be paid as indicated in the bid schedule. End Caps shall be paid as indicated in the bid schedule.

SECTION 15102

SPECIAL ITEMS OF CONSTRUCTION

1.0 GENERAL

These specifications govern special crossings, installations and construction procedures required to deal with unusual construction items or special requirements of governing agencies.

1.1 BUY AMERICA

All iron and steel products and their coatings that are to be permanently incorporated into the project must meet the Buy America requirements as specified in federal laws and regulations (23 U.S.C. 313 and 23 CFR 635.410).

2.0 STATE HIGHWAY CROSSINGS

In all cases, these crossings will be made in compliance with the requirements of the State Highway Department. Such requirements will normally be described by the appropriate District Highway Office. In general, unless otherwise shown on the plans or directed otherwise by the ENGINEER, the crossing of all State Highways shall be accomplished by boring under the roadway. In addition, the crossing of service lines 1-1/2 inches and greater under rigid and flexible surfaced paved roads shall be accomplished by boring and jacking a casing pipe under said roadway. In certain cases, as shown on the plans, service lines of all sizes will require casing pipe installed with the crossing.

2.1 OPEN TRENCH CROSSINGS

The trench shall be excavated to a minimum width that will allow the pipe installation. The trench walls shall be kept as nearly vertical as possible. The minimum specified cover above the pipe shall be maintained. The Miscellaneous Detail Drawings show the requirements for open trench crossings.

The backfill in the trench under any roads, driveways, or parking areas where the open trench method is used shall be of the type shown in the Miscellaneous Details and shall be deposited and compacted in uniform layers not to exceed the depth shown in the Miscellaneous Details.

The surface of the road, driveway, or parking area shall be replaced with the same type of material as specified under pavement replacement.

2.2 BORING AND JACKING

The work is herein defined as the operations in which both the boring by auger and the jacking of the casing pipe are done mechanically and in which the diameter of the casing pipe is too small to permit hand working at the heading of the casing pipe. Two basic methods are; (1) pushing the casing pipe into the fill or earth simultaneously as the boring auger drills out the ground; and (2) drilling the hole through the fill or earth and pushing the casing or carrying pipe into the hole after the drill auger has completed the bore.

A suitable approach trench shall be opened adjacent to the slope of the embankment, or adjacent to point of bored and jacked section as shown on the plans. The approach trench shall be long enough to accommodate the selected working room. Guide timbers or rails for keeping the casing pipe on line and grade shall be accurately set and maintained in the bottom of the approach trench and with heavy timber back-stop supports installed at the rear of the approach trench to adequately take thrust of the jacks without any movement or distortion. It is paramount to the securing of acceptable tolerance limits of workmanship in the boring and jacking operation that extreme care be taken in the setting of all guides, rails and jacks to the end that the casing pipe in final position be within the limits of acceptability for the placing and laying of the carrier pipe. The minimum cover of forty-two inches (42”) under the roadway must be maintained. Additional depth may be required as shown on the plans.

In general, the diameter, thickness, style, joints and materials selected for casing pipe shall be as shown on the plans and shall be considered as "minimum" requirements, all subject to prior approval of the Engineer. In all cases, the approval for construction by agreement with the private company and/or construction permit issued by the State, County, or Municipal agency will be required before construction starts.

Steel casing pipe for road and railroad crossings using the boring and jacking method shall be steel, plain end, uncoated and unwrapped, and shall be furnished in at least 18-foot lengths. Steel pipe shall meet the requirements of ASTM Specification A-120 and AWWA C200. Pipes up to and including 4 inches in diameter shall be Schedule 40. Pipe larger than 4 inches shall have a wall thickness equal to or greater than 0.312 inches under railroads and 0.250 for all other uses. The inside diameter of all casing pipes shall be a minimum of four (4") inches greater than the largest outside diameter of the carrier pipe, joint or coupling.

The steel casing pipe shall be bored and/or jacked in place at the locations as shown on the plans or as directed by the Engineer. All joints between lengths shall be solidly welded with a smooth non-obstructing joint inside. Any field welding shall be performed by a certified welder and shall be in accordance with AWWA C206. The casing pipe may be extended beyond the boring limits by

open trenching as shown in the Standard Details. This would apply when the casing is required from right-of-way to right-of-way or ditch line to ditch line. Open trenching at jacked or bored locations will be allowed no closer than 3 feet from edge of pavement.

Positioning guides (insulators) shall be utilized on all carrier pipe which is within the casing pipe. Positioning shall be accomplished by the use of prebuilt spacers such as those manufactured by Calpico, Advanced Products and Systems, Inc. (APS), or an approved equal. The Contractor shall submit the type of position guide proposed for use for the approval of the Engineer. Spacing of the positioning guides shall be in accordance with the Standard Drawings.

The ends of the casing pipe shall be plugged and made watertight in a manner acceptable to the Engineer prior to backfilling. Casing seals as manufactured by Pipeline Seal & Insulator, Inc. (PSI), Advance Products & Systems, Inc. (APS) or equal shall be used.

Where road crossings are made using plastic pipe or copper, the location of joints under the roadway should be avoided by using lengths of adequate dimension for the crossing. This principle also applies to other types of pipe where sufficiently long lengths are available.

3.0 RAILROAD CROSSINGS

At all railroad crossings, cover pipe (casing) for water lines (carrier pipe) shall be jacked or pushed beneath tracks and the carrier pipe jointed and pushed through the cover pipe. Detailed drawings of railroad crossings including the length of casing and depth below track are shown in the plans. Contractor shall obtain and pay for services of a representative of the railroad to direct the Contractor's operations while on the railroad property when required by the railroad.

4.0 STREAM CROSSINGS

4.1 NO-FLOW CONDITION

Where required on the plans or instructed by the Engineer, the Contractor shall construct a special creek crossing as shown in the Miscellaneous Detail Drawings. Crossings shall be scheduled for construction in times of no flow or very low flow, if practicable, otherwise the stream shall be directional bored. Concrete shall not be placed under water and Contractor shall provide suitable pumps to keep water out of trench excavation during stream crossing construction. Special creek crossings shall be designated as Type A or Type B as contained in the Miscellaneous Detail Drawings.

4.2 NORMAL EARTHEN STREAM CROSSING

Where the stream crossing is made in earth or other beds which are stable (no casing or anchorage required), then the pipe will be laid in a narrow trench at the depth specified in the Miscellaneous Details to maintain the required cover between pipe and stream bed. Initial backfill will be mechanically compacted. Trench backfill in any stream crossing area from one foot (1') above the top of the pipe shall consist of trench excavated rock, if available. No extra payment will be made above normal construction for this type of creek crossing.

4.3 BLUE LINE STREAM CROSSINGS

All crossing of streams that appear as a blue line on a USGS 7.5 minute topographical map shall be accomplished in accordance with:

GENERAL CERTIFICATION
NATIONWIDE PERMIT #12
UTILITY LINE BACKFILL AND BEDDING

This document is bound in front of the specifications. The Contractor shall read, understand and comply with the requirements and procedures.

Stream size, for purposes of this specification, is differentiated as large or small. A stream is classified as small when the distance across the stream channel at top of banks is 15 L.F. or less. A stream is classified as large when this measurement is greater than 15 L.F.

It is the intent of the plans to identify a stream crossing at each blue line stream. Small stream crossings may frequently be accomplished by trenching when the stream is in a no-flow condition. If the stream is in a flow condition, irregardless of the size classification, the crossing shall be accomplished by directional boring or other method that complies with the General Certification and is approved by the Engineer. Specific details for stream crossings are contained in the Miscellaneous Detail Drawings.

See Section 15 for Basis of Payment.

4.4 BYPASS TEST METER

At locations as indicated on the plans, where a new creek crossing is installed, a bypass test meter shall be installed. The meter shall be installed as a normal water meter with taps on each side of a valve, as shown in the Miscellaneous Detail Drawings.

5.0 RIVER OR LAKE CROSSINGS

Crossings in rivers or lakes where the pipe cannot be laid in a trench shall normally be made with ductile iron pipe having ball and socket joints or polyethylene pipe or directional bored as indicated on the Drawings. Details for any required installations of this type including pipe required; number, size and location of anchors; and, installation technique are shown in the plans and Miscellaneous Detail Drawings. See Section 15100 for installation requirements.

6.0 BRIDGE CROSSINGS

Wherever possible bridges will not be utilized for stream crossings. However, where it is necessary for the water line to be attached to bridges, the pipe shall be securely fastened to bridge stringers or beams using supports as dimensioned and located in the plans. The carrier pipe shall be insulated with Vermiculite or other approved material to prevent freezing. Expansion joints to allow for movement of the bridge will be required as shown on the plans.

7.0 FREE BORE

7.1 WORK INCLUDED

Under this item, the Contractor shall provide all labor, tools, equipment and materials to install the free bore at all bituminous and concrete driveways and/or county road unless otherwise directed by the Engineer.

7.2 INSTALLATION

The Contractor shall provide a jacking pit and bore through the earth at the proper line and grade. The augured hole shall be as small as practical to allow the carrier pipe to pass through.

This bid item does not apply to service tubing.

7.3 MEASUREMENT AND PAYMENT

The unit price bid per linear foot for free boring, as measured from edge of pavement to edge of pavement, regardless of size of bore, shall constitute full compensation for the work specified.

8.0 WATER LINE AND SEWER LINE SEPARATION

8.1 GENERAL

Wherever sewer lines cross, or are adjacent to, each other, special precautions shall be taken.

8.2 PARALLEL WATER AND SEWER LINES

Water lines must, if possible, be located a minimum lateral distance of 10 feet from any existing or future sewer lines measured from outside diameters. Where water lines and sewer lines must be placed in the same trench, the water line must be located on a shelf, 2 feet above and 2 feet to the side of the sewer line. Whenever this condition cannot be met, and upon direction from the Engineer, the water line shall be uncovered and encased with concrete per the standard encasement detail.

8.3 CROSSING WATER AND SEWER LINES

Wherever sewer lines and water lines cross, it is desirable, if practical, that the sewer line be at least 24 inches below the water line.

Where it is not practical to provide such a separation, care shall be taken to ascertain that the existing water line or existing sewer line is in good sound condition and that no evidence of joint leakage is known in that vicinity. If any such evidence does exist, the existing line shall be exposed by the Contractor at least 10 feet each side of the new pipe crossing, carefully examined and any defects positively corrected. The Owner will arrange for examining and correcting any defects in the existing lines, but the Contractor shall cooperate in every way possible.

When the water line must be below or less than 2 feet above the sewer line, the Contractor shall encase the water line 5 feet in each direction from the crossing as directed by the Engineer. This encasement should only be accomplished when directed by the Engineer and shall be accomplished in accordance with the details shown on the drawings. The encasement is a separate pay item.

9.0 CLEANUP, SEEDING AND SODDING

9.1 GENERAL

Upon completion of the installation of the work, the Contractor shall remove all debris and surplus construction materials resulting from the work. The Contractor shall fine grade all the disturbed surfaces around the area of the work in a uniform and neat manner leaving the construction area in a condition as near as possible to the original ground line or to the lines as directed by the Engineer. The Contractor shall provide effective cleanup of the work as it progresses. Procrastination of cleanup will not be tolerated.

9.2 ROUGH GRADE WORK AND CLEANUP

Rough Grade Work and Cleanup (Rough Cleanup) shall be defined to include the final backfill and windrowing of the ditch line, disposal of excess excavated

material, level grading of the disturbed areas adjacent to the ditch line, filling and leveling street and driveway cuts, cleaning up and removal of rubbish, repair of fences and structures, and any other such work that may be required to result in a neat, orderly project area. Rough Cleanup shall be performed as other construction progresses and must be completed within **one week** of the adjacent pipeline construction.

Rough Cleanup is not a separate pay item. The cost for this work shall be included in the unit bid price for water lines. If Rough Cleanup is not performed as specified, the Owner, after notification to the Contractor, will refuse payment for additional pipeline installation until the Rough Cleanup is accomplished.

9.3 FINAL CLEANUP

Final cleanup, grade work and seeding shall be performed on each line when backfilled trenches have had adequate time to settle, but at least within **30 days** from the date each line is constructed. Final grade work and seeding on Kentucky Transportation Cabinet rights-of-way shall be done in accordance with said Cabinet's specifications and the permit granted to the Owner specifically for this project.

Where work was performed on private property in lawns, earth of good quality, free from rock shall be spread over the disturbed area and graded and compacted to match adjacent ground contours. The graded and seed bed area shall be prepared with a power landscape rake and further hand raked if necessary, until smooth and free from rock, potholes, and bumps. The disturbed area shall then be seeded with the seed variety used on the original lawn (e.g., a bluegrass lawn shall be reseeded with bluegrass seed). In the case of no preference by the Owner, the mixture of grasses shall consist of one-third (1/3) Rye grass, one-third (1/3) Kentucky Fescue and one-third (1/3) Kentucky Bluegrass by weight and shall be applied in accordance with the supplier's recommendations. The area shall be fertilized with 12-12-12 fertilizer applied at a rate of 6 pounds per 1,000 square feet of area. After the seed and fertilizer have been applied, the Contractor shall then lightly cover the seed by use of a drag or other approved device. The seeded area shall then be covered with clean straw to a depth of approximately one (1) inch.

Where work was performed on private property and not in lawns the trench line shall be graded and filled if necessary to match adjacent contours. All rock larger than 1-1/2" in diameter shall be removed from the disturbed area. In general, pasture and fallow land shall be fertilized and seeded with Kentucky 31 Fescue and plowed fields shall be left unseeded, however, the desire of each property owner shall govern regarding seeding. The entire pipeline length that is seeded shall be strawed.

In all cases on private property the rate of seed and fertilizer application shall be that recommended by the material supplier or the University of Kentucky Cooperative Extension Service for new plantings of the variety of grass seed used.

If the trench line settles following final grade work or if grass seed fails to germinate within a reasonable time, the Contractor shall regrade or reseed the area in question as specified above and as directed by the Engineer.

Final cleanup will not constitute a separate pay item and shall be included in the unit bid price for pipe.

10.0 PAVEMENT AND OTHER STRUCTURE REPLACEMENT

The Contractor shall replace all pavement cut or disturbed, with pavement similar in all respects to existing pavement in accordance with the Standard Details and at those locations approved by the Engineer. Every effort shall be made to avoid cutting the pavement. In restoring pavement, new pavement is required, except that granite paving blocks, sound brick or sound asphalt paving blocks may be reused. No permanent paving shall be placed within thirty (30) days after the backfilling has been completed. All concrete and asphalt paving materials shall be in conformance with the Miscellaneous Details shown in the plans. The pipeline trench through all paved areas (parking lots, driveways, roads, etc.) shall be fully backfilled with crushed stone.

10.1 CLASSIFICATIONS OF PAYMENTS

A. Concrete Pavement Replacement - This pavement replacement shall be Portland cement concrete construction in accordance with the requirements shown in the Standard Details. It shall include all pavement replacement on concrete surfaced roads, concrete driveways, concrete sidewalks and concrete parking areas, both public and private.

B. Heavy-Duty Bituminous Pavement Replacement - This type of asphalt pavement replacement shall be bituminous concrete surface over concrete base in accordance with the details. This type of pavement replacement shall be used on all heavily trafficked roads having an existing pavement greater than 2", whether public or private, or in other locations as directed by the Engineer.

C. Light-Duty Bituminous Pavement Replacement - This type of pavement replacement shall be bituminous concrete constructed in accordance with the details. This item shall include all light-duty bituminous concrete roadways, bituminous driveways and bituminous parking lots, both public and private.

D. Crushed Stone Surface Replacement - This type of surface replacement shall include all graveled roadways, driveways, parking areas, or other gravel surfaced areas, both private and public. This type of surfacing may also be required as a base course for other pavement replacement.

10.2 MATERIALS

The crushed stone backfill as noted on the drawings shall be dense graded aggregate per Kentucky Department of Highways Specifications or as noted on the Drawings. The Contractor shall continuously be responsible for the maintenance of the aggregate and the surface of the trenches until the pavement replacement is completed.

Portland cement concrete for pavement replacement shall contain a minimum of 6 sacks of cement per cubic yard, the maximum free water content shall be 6 gallons per sack of cement, the slump shall be between 2 and 4 inches, and the concrete shall have minimum 28-day compression strength of at least 3,500 PSI. Cement, aggregate and water shall be described in these specifications for Class "A" concrete. A set of cylinders shall be made and tested for each 25 cubic yards of concrete placed, or fraction thereof, to supply representative sampling and testing of the concrete, upon the direction of the Engineer. The Contractor shall produce a broomed, or burlaped uniformly smooth and nonskid surface, consistent with the existing pavement.

Bituminous materials and mixes shall be consistent with the recommended practice of the asphalt institute and it shall conform to the requirements of the Kentucky Department of Highways for prime coat and Class 1 bituminous concrete. The bituminous concrete shall consist of a binder or base course and a surface course.

10.3 INSTALLATION OF PAVEMENT REPLACEMENT

The Contractor shall cut back the surfacing adjacent to the trench for 12 inches on both sides of the trench and shall cut down the dense graded aggregate he has placed to a depth required for either type of pavement replacement. The resulting surface shall be rolled to yield a smooth, dense surface and a uniform depth.

The concrete shall be placed in accordance with standard practice, with the welded wire mesh if required in proper position and thoroughly vibrated into place. The Contractor shall produce a surface consistent with the existing pavement. The Contractor shall apply a liquid curing component, sprayed on the surface of the concrete, and shall provide adequate protection to the pavement until it has set.

For bituminous concrete, the Contractor shall clean and broom the prepared surface, then apply the prime coat at the rate of 0.20 to 0.25 gallons per square yard, with a pressure distributor or approved pressure spray method. When the prime coat has become tacky but not dry and hard, the bituminous binder course, or base course, whichever applies, shall be placed and compacted. The Contractor shall then apply the surface course. It is recommended, but not required, that the base course remain in place for approximately one week before placing the surface course. The finished course shall be compacted and the completed surface shall match the grades and slopes of the adjacent existing surfacing and be free of offsets, depressions, raised places and all other irregular surfaces.

10.4 SEASONAL AND WEATHER LIMITATIONS FOR PAVEMENT REPLACEMENT

In the event the progress and scheduling of the work is such that the bituminous pavement replacement would occur in the winter months, during adverse cold weather and/or during such times the asphalt plants are not in operation, then the final pavement replacement shall be postponed until favorable weather occurs in the spring and the asphalt plants resume normal operations. No bituminous concrete shall be laid when the temperature is below 40^{O}F. except by written permission of the Engineer.

Concrete pavement shall not be placed when the temperature is such that the pavement placed will freeze before it has had adequate time to set and shall be placed in conformance with the temperature conditions approved by the Engineer.

The Contractor shall be responsible for replacement of pavement which he has placed which has been damaged by cold weather or freezing without additional compensation.

In the meantime, the Contractor will be required to maintain the temporary surfacing until the permanent pavement is placed. Such labor, materials and equipment as is required for temporary maintenance of the streets, roadways and driveways shall be provided at the Contractor's expense and is not a pay item. The Contractor will be required to use a cold mix asphaltic concrete as a temporary surface for trenches under heavy traffic use.

10.5 GUARANTEE

The one year guarantee as specified in the contract documents is also applicable to trench settlement and pavement replacement.

11.0 SIDEWALK AND DRIVEWAY REPLACEMENT

Sidewalks and driveways will be replaced if damaged by the Contractor in any way. Payment will be made for those pavements necessarily damaged by the line installation in accordance with the Standard Details. No pavements are to be replaced over a backfilled trench for at least 30 days after filling. Pavements damaged otherwise are to be replaced immediately at the Contractor's expense.

Materials and dimensions are to be at least equal to existing pavement and are to conform with the Standard Details.

12.0 PAYMENT FOR WATER

All water used from the Utility shall be metered with meters supplied by the Contractor. The Contractor shall pay for such water monthly at the rates published by the water utility. Unmetered water lost through water line breakage shall also be paid at the rates published by the water utility. The quantity lost shall be computed on the basis of a discharge velocity of 7 feet/second, the diameter of the line, and the estimate duration of free uncontrolled discharge.

13.0 FINAL CLEAN-UP

The Contractor shall provide effective cleanup of the work as it progresses. Procrastination of cleanup will not be tolerated. At the time of final inspection, no trenches shall show any undue evidence of the previous construction. All areas shall be left free of ruts due to construction equipment and shall have a clean and neat appearance without rubble or debris. The areas shall not be mounded up and shall be completely restored, and all yards and fields shall be reseeded so land may be cultivated, mowed, etc. Straw and fertilizing shall accompany the seeding in accordance with Item 9 - Cleanup, Seeding and Sodding of this section. If necessary to hasten proper restoration of terraces, principally along ditch lines, the Contractor shall sod such areas at the Engineer's direction. For all line segments, final cleanup shall be performed within 30 days from day of installation.

14.0 PROTECTION OF ADJACENT LANDSCAPE

Reasonable care shall be taken during construction of the water lines to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

In the course of construction, the Contractor may deflect horizontal alignment of the water line to avoid trees and to keep from damaging their roots. The

Contractor shall be fully responsible for settling all claims by private property owners concerning damage to trees and shrubs.

15.0 MEASUREMENT AND PAYMENT

15.1 Payment for crushed stone, black top and concrete pavement replacement will not be based on the quantities purchased by the Contractor. Payment for surfacing will be paid on the basis of linear feet installed in accordance with the Standard Drawings with a maximum width of pipe diameter plus 24 inches. Crushed stone or concrete sub-grade under paving and crushed stone trench backfill shall be included in paving price and not paid for separately. Any additional cost estimated by the Contractor must be included in the cost of pipe in place.

15.2 STREAM CROSSINGS

15.2.1 No-Flow Crossings. Payment for no-flow stream crossings delineated on the plans (excluding directional bores) will be at the unit price bid per lineal foot for that item and shall include encasement pipe, crushed stone, concrete, solid rock excavation and all other work necessary for a satisfactory installation. The carrier pipe installed in the casing shall be paid separately under the unit price bid for pipe installed.

15.2.2 Directional Bores. Payment shall be “Lump Sum” for specific individual Bid Items for Directional Bores of large stream crossings and/or some streams classified as small where the physical crossing characteristics differ significantly from the other small streams in the project. Determination of the required length to accomplish the bore is the responsibility of the Contractor.

Payment shall be “Each” for directional bores of small stream crossings with the exception of individual small streams covered in a specific bid item. All small stream crossings in the project shall be considered the same for payment regardless of width (up to 15 L.F.) or depth. It is the responsibility of the Contractor to determine an average unit price that will be used for payment in each instance a blue line stream is crossed. Small stream crossings may be added, for extended lines beyond those shown on the plans, at the same unit price providing the crossings are reasonably similar to those in the initial project. Stream crossings may be deleted, without affecting the unit price, if a line is deleted or shortened.

Payment shall include the directional bore, encasement pipe if specified on the plans, the carrier pipe as specified on the plans and the transition fittings. Payment limits are shown on the Miscellaneous Drawing for Directional Bore for Stream Crossings.

Payment for Bypass Test Meter or Leak Detection Test Meter shall include a meter setting (5/8'' x ¾'') and taps on both sides of a gate valve. The gate valve, sized for the line, is a separate pay item, covered in Section 15101.

15.3 Additional costs for normal earth creek crossings shall be included in the unit price bid for pipe installation and no special payment will be made for these crossings.

15.4 Casing pipe unit price bids shall include the cost of boring or jacking under railroads and highways and shall include the cost of steel casing pipe. Carrier pipe will be paid for under the unit price bid for installing lines as described in Article 2.2 of this section.

15.5 Sidewalk /driveway crossings when included as a bid item shall include the extra cost of free-boring or the removal and disposal of existing pavement and replacement with new construction. Payment for pavement replacement will be on the basis of linear feet installed. Width for payment for a standard trench crossing is shown in the Standard Details. When sidewalk/driveway crossings or replacement are not included as a bid item, their costs shall be considered subsidiary to the bid for pipe installation.

SECTION 15103

PRESSURE TESTING AND STERILIZATION

1.0 TESTING

1.1 After the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure test of at least 1.5 times the working pressure at the point of testing, but in no case less than that required by other sections herein. In addition, a leakage test shall be conducted concurrently with the pressure test.

1.2 PRESSURE TEST

1.2.1 Test pressure shall:

1.2.1.1 Not be less than 1.25 times the working pressure at the highest point along the test section.

1.2.1.2 Not exceed pipe or thrust restraint design pressures at the lowest point along the test section.

1.2.1.3 Be of at least six (6) hour duration unless otherwise stipulated by owner.

1.2.1.4 Not vary by more than plus or minus 5 psi.

1.2.1.5 Not exceed twice the rated pressure of the valves or hydrants when the pressure of the test section includes closed gate valves or hydrants.

1.2.1.6 Not exceed the rated pressure of resilient seat butterfly valves when used.

1.2.2 Each valved section of pipe shall be filled with water slowly and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Engineer.

1.2.3 Before applying the specified test pressure, air shall be expelled completely from the pipe, valves, and hydrants. If permanent air vents are not located at all high points, the contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test

pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged, or left in place at the discretion of the Engineer.

1.2.4. All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damage or defective pipe, fittings, valves or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the Engineer.

1.3 LEAKAGE TESTING

1.3.1 Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.

1.3.2 No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

L = ND(P exp 1/2)/7400

in which L is the allowable leakage, in gallons per hour; N is the number of joints in the length of pipeline tested; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pounds per square inch gauge.

1.3.2.1 Allowable leakage at various pressures is shown in TABLE K-1.

1.3.2.2 When testing against closed metal-seated valves, an additional leakage per closed valve of 0.0078 gal/hr/in of nominal valve size shall be allowed.

1.3.2.3 When hydrants are in the test section, the test shall be made against the closed hydrant.

1.3.3 Acceptance shall be determined on the basis of allowable leakage. If any test of pipe laid discloses leakage greater than that specified in Section 2.3.2 the contractor shall, at his own expense, locate and repair the defective material until the leakage is within the specified allowance.

1.3.3.1 All visible leaks are to be repaired regardless of the amount of leakage.

TABLE K-1
ALLOWABLE LEAKAGE PER 1,000 FT. OF PIPELINE (gph)

Avg. Test Pressure psi	Nominal Pipe Diameter (Inches) 2	3	4	6	8	10	12	14	16
450	0.32	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55
400	0.30	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40
350	0.28	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25
300	0.26	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08
275	0.25	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99
250	0.24	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90
225	0.23	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80
200	0.21	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70
175	0.20	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59
150	0.19	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47
125	0.17	0.25	0.34	0.50	0.67	0.84	0.01	1.18	1.34
100	0.15	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20

Avg. Test Pres-sure psi	Nominal Pipe Diameter (Inches) 18	20	24	30	36	42	48	54
450	2.87	3.18	3.82	4.78	5.73	6.69	7.64	8.60
400	2.70	3.00	3.60	4.50	5.41	6.31	7.21	8.11
350	2.53	2.81	3.37	4.21	5.06	5.90	6.74	7.58
300	2.34	2.60	3.12	3.90	4.68	5.46	6.24	7.02
275	2.24	2.49	2.99	3.73	4.48	5.23	5.98	6.72
250	2.14	2.37	2.85	3.56	4.27	4.99	5.70	6.41
225	2.03	2.35	2.70	3.38	4.05	4.73	5.41	6.03
200	1.91	2.12	2.55	3.19	3.82	4.46	5.09	5.73
175	1.79	1.98	2.38	2.98	3.58	4.17	4.77	5.36
150	1.66	1.84	2.21	2.76	3.31	3.86	4.41	4.97
125	1.51	1.68	2.01	2.52	3.02	3.53	4.03	4.53
100	1.35	1.50	1.80	2.25	2.70	3.15	3.60	4.05

2.0 STERILIZATION

2.1 GENERAL

It is the intent of this section to present essential procedures for disinfecting new and repaired water mains. The section is patterned after AWWA C651. The basic procedure comprises:

2.1.1 Preventing contaminating materials from entering the water mains during construction or repair and removing by flushing materials that may have entered the water main.

2.1.2 Disinfecting any residual contamination that may remain.

2.1.3 Determining the bacteriologic quality by laboratory test after disinfection.

2.2 PREVENTIVE MEASURES DURING CONSTRUCTION

2.2.1 Precautions shall be taken to protect pipe interiors, fittings, and valves against contamination. Pipe delivered for construction shall be strung so as to minimize entrance of foreign material. When pipe laying is not in progress, as, for example, at the close of the day's work, all openings in the pipe line shall be closed by water tight plugs. Joints of all pipe in the trench shall be completed before work is stopped. If water accumulates in the trench, the plugs shall remain in place until the trench is dry.

If dirt, that, in the opinion of the Engineer, will not be removed by the flushing operation (Article 3.3) enters the pipe, the interior of the pipe shall be cleaned and swabbed as necessary, with a five (5%) percent hypochlorite disinfecting solution.

2.2.2 Gaskets and Joints - No contaminated material or any material capable of supporting prolific growth of micro-organisms shall be used for sealing joints. Gaskets shall be handled in such a manner as to avoid contamination. Gasket packing materials must conform to AWWA standards. The lubricant used in the installation of sealing gaskets shall be suitable for use in potable water. It shall be delivered to the job in enclosed containers and shall be kept clean.

2.3 PRELIMINARY FLUSHING

The main shall be flushed prior to disinfection. It is recommended that the flushing velocity be not less than 2.5 ft/sec. The rate of flow required to produce this velocity in various diameters is shown in Table K-2. No site for flushing should be chosen unless it has been determined that drainage is adequate at the site.

TABLE K-2
REQUIRED OPENINGS TO FLUSH PIPELINES
(40-psi Residual Pressure)

Pipe Size (in)	Flow Required to Produce 2.5 fps Velocity (gpm)	Orifice Size (in)	Hydrant Outlet Nozzles Number	Hydrant Outlet Nozzles Size (in)
4	100	15/16	1	2 1/2
6	220	1 3/8	1	2 1/2
8	390	1 7/8	1	2 1/2
10	610	2 5/16	1	2 1/2
12	880	2 13/16	1	2 1/2
14	1,200	3 1/4	2	2 1/2
16	1,565	3 5/8	2	2 1/2
18	1,980	4 3/16	2	2 1/2

2.4 FORM OF CHLORINE FOR DISINFECTION

The most common forms of chlorine used in the disinfecting solutions are liquid chlorine (gas at atmospheric pressure), calcium hypochlorite granules, sodium hypochlorite solutions.

2.4.1 Liquid Chlorine

2.4.1.1 Use: Liquid chlorine shall be used only when suitable equipment is available and only under the direct supervision of a person familiar with the physiological, chemical, and physical properties of this element and who is properly trained and equipped to handle any emergency that may arise. Introduction of chlorine-gas directly from the supply cylinder is unsafe and shall not be permitted.

NOTE: The preferred equipment consists of a solution fed chlorinator in combination with a booster pump for injecting the chlorine-gas water mixture into the main to be disinfected. Direct feed chlorinators are not recommended because their use is limited to situations where the water pressure is lower than the chlorine cylinder pressure.

2.4.2 Hypochlorites

2.4.2.1 Calcium Hypochlorite: Calcium hypochlorite contains seventy (70%) percent available chlorine by weight. It is either granular or tabular in form. The tablets, 6-8 to the ounce, are designed to dissolve slowly in water. Calcium

hypochlorite is packaged in containers of various types and sizes ranging from small plastic bottles to one hundred (100) pound drums.

A chlorine-water solution is prepared by dissolving the granules in water in the proportion requisite for the desired concentration.

2.4.2.2 Sodium Hypochlorite: Sodium hypochlorite is supplied in strengths from five and one-quarter (5.25%) to sixteen (16%) percent available chlorine. It is packaged in liquid form in glass, rubber, or plastic containers ranging in size from one (1) quart bottles to five (5) gallon carboys. It may also be purchased in bulk for delivery by tank truck.

The chlorine-water solution is prepared by adding hypochlorite to water. Product deterioration must be reckoned with in computing the quantity of sodium hypochlorite required for the desired concentration.

2.4.2.3 Application: The hypochlorite solutions shall be applied to the water main with a gasoline or electrically powered chemical feed pump designed for feeding chlorine solutions. For small applications, the solutions may be fed with a hand pump, for example, a hydraulic test pump. Feed lines shall be of such material and strength as to withstand safely the maximum pressures that may be created by the pumps. All connections shall be checked for tightness before the hypochlorite solution is applied to the main.

2.5 METHODS OF CHLORINE APPLICATION

2.5.1 Continuous Feed Method: This method is suitable for general application.

2.5.1.1 Water from the existing distribution system or other approved sources of supply shall be made to flow at a constant, measured rate into the newly-laid pipe line. The water shall receive a dose of chlorine, also fed at a constant, measured rate. The two rates shall be proportioned so that the chlorine concentration in the water in the pipe is maintained at a minimum of 50 mg/l available chlorine. To assure that this concentration is maintained, the chlorine residual should be measured at regular intervals in accordance with the procedures described in the current edition of Standard Methods and AWWA M12--Simplified Procedures for Water Examination.

NOTE: In the absence of a meter, the rate may be determined either by placing a pitot gauge at the discharge or by measuring the time to fill a container of known volume.

TABLE K-3 gives the amount of chlorine residual required for each one hundred (100) feet of pipe of various diameters. Solutions of one (1%) percent chlorine may be prepared with sodium hypochlorite or calcium hypochlorite. The latter

solution requires approximately one (1) pound of calcium hypochlorite in eight and five tenths (8.5) gallons of water.

TABLE K-3
CHLORINE REQUIRED TO PRODUCT 50 Mg/l CONCENTRATION
IN 100 FT. OF PIPE (BY DIAMETER)

Pipe Size (in)	100 Percent Chlorine (lb)	1 Percent Chlorine Solutions (gal)
4	0.027	0.33
6	0.061	0.73
8	0.108	1.30
10	0.170	2.04
12	0.240	2.88

2.5.1.2 During the application of the chlorine, valves shall be manipulated to prevent the treatment dosage from flowing back into the line supplying the water. Chlorine application shall not cease until the entire main is filled with the chlorine solution. The chlorinated water shall be retained in the main for at least twenty-four (24) hours during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the end of this twenty-four (24) hour period, the treated water shall contain no less than 25 mg/l chlorine throughout the length of the main.

2.5.2 Slug Method: This method is suitable for use with mains of large diameter for which, because of the volumes of water involved, the continuous feed method is not practical.

2.5.2.1 Water from the existing distribution system or other approved source of supply shall be made to flow at a constant, measured rate (see Article 2.5.1.1) into the newly laid pipe line. The water shall receive a dose of chlorine also fed at a constant, measured rate. The two rates shall be proportioned so that the concentration in the water entering the pipe line is maintained at no less than 300 mg/l. The chlorine shall be applied continuously and for a sufficient period to develop a solid column or "slug" of chlorinated water that will, as it passes along the line, expose all interior surfaces to a concentration of at least 300 mg/l for at least three (3) hours. The application shall be checked at a tap near the upstream end of the line by chlorine residual measurements.

2.5.2.2 As the chlorinated water flows past tees and crosses, related valves and hydrants shall be operated as to disinfect appurtenances.

2.6 FINAL FLUSHING

2.6.1 Clearing the Main of Heavily Chlorinated Water. After the applicable retention period, the heavily chlorinated water shall not remain in prolonged contact with the pipe. This water shall be flushed from the main until the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the system, or less than 1 mg/l. Chlorine residual determination shall be made to ascertain that the heavily chlorinated water has been removed from the pipe line.

2.6.2 Disposing of Heavily Chlorinated Water. The environment into which the chlorinated water is to be discharged shall be inspected. If there is any possibility that the chlorinated discharge will cause damage to the environment, then a neutralizing chemical shall be applied to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water. (See Appendix B of ANSI/AWWA C651 for neutralizing chemicals.) Federal, state, provincial, and local regulatory agencies should be contacted to determine special provisions for the disposal of heavily chlorinated water.

2.7 BACTERIOLOGIC TESTS

2.7.1 After final flushing, and before the water main is placed in service, a sample or samples shall be collected from the end of the line and tested for bacteriologic quality and shall show the absence of coliform organisms. If the number and frequency of samples is not prescribed by the public health authority having jurisdiction, at least one sample shall be collected from chlorinated supplies where a chlorine residual is maintained throughout the new main. From unchlorinated supplies at least two samples shall be collected at least twenty-four (24) hours apart.

2.7.2 Samples for bacteriologic analysis shall be collected in sterile bottles treated with sodium thiosulphate. No hose or fire hydrant shall be used in collection of samples. A suggested sampling tap consists of a standard corporation cock installed in the main with a copper tube gooseneck assembly. After samples have been collected, the gooseneck assembly may be removed, and retained for future use.

2.8 REPETITION OF PROCEDURE

If the initial disinfection fails to produce satisfactory samples, disinfection shall be repeated until satisfactory samples have been obtained. The tablet method cannot be used in these subsequent disinfections. When the sample tests indicate that disinfection has been effective, the main may be placed in service.

2.9 PROCEDURE AFTER CUTTING INTO OR REPAIRING EXISTING MAINS

The procedures outlined in this Article apply primarily when mains are wholly or partially dewatered. Leaks or breaks that are repaired with clamping devices while the mains remain full of water under pressure present little danger of contamination and require no disinfection.

2.9.1 Trench "Treatment": When an old line is opened, either by accident or by design, the excavation will likely be wet and may be badly contaminated from nearby sewers. Liberal quantities of hypochlorite applied to open trench areas will lessen the danger from such pollution. Tablets have the advantage in such a situation because they dissolve slowly and continue to release hypochlorite as water is pumped from the excavation.

2.9.2 Main Disinfection: The following procedure is considered as a minimum that may be used.

2.9.2.1 Swabbing With Hypochlorite Solution: The interior of all pipe and fittings used in making the repair (particularly couplings and tapping sleeves) shall be swabbed with a five (5%) percent hypochlorite solution before they are installed.

2.9.2.2 Flushing: Thorough flushing is the most practical means of removing contamination introduced during repairs. If valving and hydrant locations permit, flushing from both directions is recommended. Flushing shall be started as soon as the repairs are completed and continued until discolored water is eliminated.

2.9.2.3 Slug Method: Where practicable, in addition to the procedures of Article 3.9.2.1, a section of main in which the break is located shall be isolated, all service connections shut off, and the section flushed and chlorinated as described in Article 3.5.2, except that the dose may be increased to as much as 500 mg/l, and the contact time reduced to as little as one-half (1/2) hour. After chlorination, flushing shall be resumed and continued until discolored water is eliminated.

2.9.3 Sampling: Bacteriologic samples shall be taken after repairs to provide a record by which the effectiveness of the procedures used can be determined. If the direction of flow is unknown, samples shall be taken on each side of the main break.

3.0 PAYMENT

Payment for pressure testing and sterilization of pipelines shall be included in the unit price for pipeline installation unless otherwise itemized on the Bid Schedule.

SECTION 15104

METERS AND SERVICES

1.0 GENERAL

The CONTRACTOR shall furnish all labor, tools, equipment, and materials necessary for installing meter services as shown on the plans and as directed.

2.0 MATERIALS

2.1 METERS

The meters shall be AMR Hersey “Hot Rod” Series IIS magnetic drive positive displacement disc meters. This meter is a proprietary item for synchronization with the existing water system.

2.2 CORPORATION STOPS, SETTERS AND SADDLES

The corporation stops, setters and saddles shall be manufactured by The Ford Meter Box Company, Mueller Water Products or approved equal.

2.3 METER SETTINGS

The existing Meter settings (preferred) for 5/8" x 3/4" meters consist of the following: 18’’ x 24’’ white corrugated box, Vestal WM-18 18’’ cast iron flat lid, Ford VB HH142-7W resetter, Ford C38-2-8.5 meter coupling; Ford C14-33-G ¾’’ FPT x coupling; ½’’ sch. 40 cap and ½’’ x 2’ sch. 40 brace pipe. Alternate manufacturers include Mueller Water Products and J.R. Hoe and Sons.

2.4 INDIVIDUAL PRESSURE REGULATING VALVE

Individual pressure regulating valves will not be required on this project.

2.5 SERVICE LINES

Unless indicated otherwise on the plans, all Service Lines shall be 3/4" polyethylene plastic tubing using a corporation stop in accordance with the Standard Details. Service pipe shall meet all AWWA Specifications with a minimum pressure rating of 200 psi. Polyethylene service tubing shall be ultra high density type equal to DRISCOPIPE Series 5100, CTS, JM Eagle “Pure-core” series or approved equal. Stainless steel stiffeners will be used with the tubing at all corp. stops, meter tie-ins, etc. Tracer wire as specified in Section 15100 shall be laid with all service tubing.

3.0 EXECUTION

3.1 RECONNECT METER SERVICE

This item covers meter settings, which can remain in place, but need to be connected to a new water line. The Contractor shall supply all items to connect the meter to the new line. The Contractor shall locate and close the corporation stop at the existing line if the existing line is not abandoned.

3.2 RELOCATE METER SERVICE

Meter settings shall be made in a workmanlike manner with backfill neatly compacted in place. In yards, pastures and other grassed areas, top of meter box may be placed no higher than 1/2 inch above original ground and no lower than flush with original ground. Boxes in sidewalks or other concrete areas shall be flush with surface. In areas which have not been sodded top of box shall be two inches (2”) above grade. The service line must meet the same cover requirements as the main line as described in these specifications except that the service line may be brought up to a depth of approximately twenty-four inches (24”) within five feet (5’) of each side of the meter installation when a twenty-four inch (24”) deep meter box is used. In all other cases the service pipe will be brought up to a depth which accommodates installation at the bottom of the meter box in accordance with the Standard Details. As shown in the Details, after five feet (5’) from box, service pipe must return to thirty inch (30”) cover (forty-two inches (42”) in traffic). If meter box area is subject to traffic a deeper box will be required to maintain forty-two (42”) inches of cover over the service pipe.

3.2.1 Existing Line Connection. If the meter installation is a replacement for an existing meter, the Contractor shall locate and close the corporation stop at the existing line if the existing line is not abandoned.

3.3 SERVICE LINES

Service lines shall be installed from the water main to the reconnection with existing service line. Any service tubing installed on the customer’s side of the meter shall be performed by a licensed plumber with appropriate permit.

3.3.1 Service Lines Crossing a Road. Services on the opposite side of the road shall be provided as stated above. In general, all pipe shall be jacked beneath paved or blacktopped city streets or county roads, unless solid rock prevents using this method, in which case the open trench method may be used. The open trench method generally will be used on all unpaved city streets, county roads and private driveways. In general, blacktopped and concrete private driveways shall also be jacked under. In all cases where lines are under traffic, a

minimum cover of forty-two inches (42”) shall be provided. All backfill shall be compacted in layers no greater than six inches (6”) deep. In cases of open trench construction, crushed stone, blacktop and concrete paving shall be replaced according to the Standard Drawings. All service lines crossing a road shall be cased with PVC casing pipe. Open trench construction will not be permitted through state or federal highways.

4.0 PAYMENT

Service Tubing shall be paid at the Unit Price Bid for each foot of service tubing installed and shall include all labor, materials, tracer wire, equipment incidentals, etc. No extra shall be paid for service tubing bored, jacked and/or encased.

The Unit Price Bid for Reconnect Existing Meter Service shall constitute full compensation for all labor, materials, equipment, etc. required in reconnecting the existing meter setting, to the new water line including locating and shutting off corporation stops for any existing meter services when necessary.

The Unit Price Bid for Relocate Existing Meter Service shall constitute full compensation for furnishing and installing the saddle, corporation stop, meter pit, etc. as shown and specified. This shall include locating and shutting off corporation stops for any existing meter services when necessary and appropriate permitting.

All new materials will be used for all items under this specification.

MORGAN COUNTY WATER SPECIFICATIONS

TABLE OF CONTENTS

WATER LINES

GENERAL INFORMATION ..... TS-A-1 TO TS-A-3
RELATED PIPING MATERIALS AND EQUIPMENT ..... TS-B-1 TO TS-B-2
PIPE MATERIALS ..... TS-C-1 TO TS-C-4
PIPE APPURTENANCES ..... TS-D-1 TO TS-D-3
PIPING WORKMANSHIP AND CONSTRUCTION METHODS ..... TS-E-1 TO TS-E-6
PIPE WORK ..... TS-F-1 TO TS-F-6

TECHNICAL SPECIFICATIONS

SECTION A

GENERAL INFORMATION AND REQUIREMENTS

1. GENERAL

1.1 These technical specification include descriptions of materials which may or may not be used on this project.

1.1.1 The Contractor shall carefully read the Special Provisions for statements concerning other specifications which may be applicable to the Project.

1.2 Materials shall be of the types and constructed on the materials specified herein when identified on Plans, Bid Form or Measurement for Payment. Materials and accessories shall be of new and unused material and shall be installed in accordance with manufacturer's specification and/or as shown on the plans.

1.3 The Contractor shall be responsible for the safe storage and handling of all material furnished to or by him, and accepted by him, until it has been incorporated into the completed project and the project has been accepted by the Owner.

1.3.1 The Contractor shall handle all materials and equipment in such manner to avoid damage. All material and equipment whether moved by hand, skidways, hoists or other means shall be handled in such a manner to avoid dropping or bumping against other material or equipment.

1.3.2 In distributing material at the site of work, each piece shall be unloaded as near as possible to final installation point to minimize the number of times it must be handled.

2. PROTECTION OF UNDERGROUND AND SURFACE STRUCTURES AND OTHER PROPERTY

2.1 GENERAL

Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstruction encountered in the progress of the work shall be furnished at the Contractor's expense incidental to the project.

2.2 Obstruction by Other Utilities

2.2.1 Existing underground utilities shown on the plans are shown in approximate locations based on information furnished by others. Prior to beginning construction of proposed facilities the Contractor shall accurately locate existing underground utilities

by whatever means necessary including excavation where required. The Contractor shall notify the Engineer where utilities, so located will interfere with proposed construction.

2.2.2 Where the limits of construction of the proposed work enhances work encroaches upon existing utilities, the Contractor, where possible, shall provide temporary support or protection satisfactory to the owner of the utility

to permit continuation of proposed construction and no additional payment authorized.

2.2.3 Where existing utilities are encountered which prohibit construction of proposed facilities unless relocated the Contractor shall so notify the Engineer unless the plans provide for their relocation. Relocation shall be accomplished in a manner acceptable to the owner of the utility, and shall be furnished at the Contractor's expense incidental to the project.

2.3 Property Protection

2.3.1 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.

2.3.2 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.

2.3.3 Beyond the limits of the easement the contractor shall be responsible for any damage caused by his operation and/or his personnel.

3. INCIDENTAL ITEMS OF CONSTRUCTION

3.1 Barricades, Guards, and Safety Provisions

3.1.1 To protect the public from injury and to avoid property damage, adequate barricades, construction signs, warning lights and guards shall be placed and maintained by the Contractor during the progress of construction work until it is safe for the public to use the construction site.

3.1.2 The Contractor shall provide and maintain all safety facilities and devices required by the Occupational Safety and Health Act (OSHA). The Engineer is not responsible for safety provisions furnished or used by the Contractor nor will the Engineer advise or direct safety operation of the Contractor.

3.2 Traffic and Utility Control

3.2.1 All excavations shall be conducted in a manner to cause the least interruption to traffic. The Contractor shall provide suitable bridges at streets and driveways where traffic must cross excavated areas.

3.2.2 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.

3.2.3 Existing fire hydrants, valve pit covers, valve boxes, meter boxes, curb-stop boxes, fire or police call boxes or other utility controls shall be kept unobstructed and accessible during the construction period.

3.3 Maintenance of Utility Service and Flow of Drains

3.3.1 Adequate provisions shall be made for the maintenance of flow in sewers (storm of sanitary), drains, water lines and gas lines and electrical lines encountered during construction.

3.3.2 No valve, switch or other control device of any utility system within the construction, area shall be operated by the Contractor without approval of the utility except in cases of an emergency. All utility customers which will be affected by the operation of any utility valve or control device shall be notified by the Contractor in sufficient time for each customer to make arrangements for the period of no service. Each customer shall be advised as to the time service will be off and probable time when it will be resumed.

3.4 Fencing

3.4.1 When the pipe line is being constructed through fields where livestock is being held the contractor shall provide, either temporary fencing or stationing of personnel, adequate protection to livestock from machinery and open trenches. The Contractor shall take all precautions necessary to insure that all animals are not isolated.

3.4.2 Where pipe line crosses fences in good condition and the work area is easily accessible through gates, the Contractor shall excavate or tunnel beneath the fences.

3.4.3 When it is necessary to cut existing fences, new end posts shall be installed one each side of the construction easement and old fence thoroughly stapled to these new posts before cutting fence.

After pipe is installed at this point and backfill is completed, a new fence of galvanized wire (No. 9 guage) shall be stretched between the new posts and thoroughly stapled to existing post

and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on an in kind basis and shall be considered incidental to installation of the pipe line.

4. SUMMARY

4.1 The Contractor shall furnish at the site of Work, all materials, labor and equipment necessary to complete the Work in accordance with the terms of the Contract and as required hereunder. He shall make the required excavation for installing the water lines and all other appurtenant structures: do all ditching, diking, pumping, bailing and draining or otherwise lowering and disposing of water encountered in the excavation necessary for rendering the foundation firm, dry and adequate for installing the water lines and appurtenances; do, as required, all sheeting, shoring, bracing, coffer damming and supporting; provide all lighting, barricades, signs, flagmen and watchmen: make all provisions necessary to maintain and protect, buildings, paved surfaces, fences, trees, shrubs, piles, water pipes, gas pipes, sewers, water courses, surface drains, railroads, railways and other structures in, on, across or adjacent to the Work and repair all damage done to them where and as required; provide all temporary bridges, detours or other means of maintaining travel, both vehicular and pedestrian; construct all concrete, brick and like work; lay all water connections; set in place all iron and other metal work; backfill all trenches; restore walks, grass pots, shrubs, trees, flowers, fences, paved surface, etc. damaged or disturbed; clear away all rubbish and surplus materials; furnish all materials,

tools, implements, machines, tracks, pumps, forms, supplies and labor required to build and put in complete and acceptable working order the water lines and appurtenances covered by the Contract Documents and described by the plans and specifications.

TECHNICAL SPECIFICATIONS

SECTION B

RELATED PIPING MATERIALS AND EQUIPMENT

1. GENERAL DESCRIPTION

1.1 All materials necessary for the completion of the work shall be furnished by the Contractor , as approved by the engineer to meet the requirements of the Plans and Specifications. Any materials found to be defective or not meeting the Specifications shall be rejected and replaced by approved materials at no additional cost to the Owner.

1.2 Concrete Materials

Materials used in all concrete construction shall be governed by the Concrete Section of these Technical Specifications.

2. BACKFILL MATERIALS

2.1 General

The following materials shall be used to backfill any trenches so designated and in any situation shown on the Plans where such materials are specified.

2.2 Sand or Sandy Materials

Sandy backfill in trenches for water lines, property service connection, and structures within the limits of existing or proposed paved surfaces and sand or sandy materials for other miscellaneous construction purposes not specified herein shall consist of natural, crushed, or conglomerate sand containing not more than twenty (20) percent clay.

2.3 Coarse Aggregates

Coarse aggregates shall conform to Kentucky Bureau of highways Standard Specifications (Latest Edition) Section 806, and shall be of the size and type as indicated on the Plans or Specifications.

2.4 Selected Excavated Materials

Backfill in trenches for water lines, property service connections, and structures outside the limits of existing or proposed paved surfaces, and in other specified locations shall be made with selected excavated materials taken from the trench excavation. The specified makeup of this material shall be governed by the Plans or Section e-1.17 of these Technical Specifications.

3. PAVING MATERIALS

3.1 General

All materials used for pavement replacement shall conform to requirements and regulations of the local governments and to Sections 401 and 806 of the Kentucky Bureau of Highways Standard Specification (Latest Edition) except for basis of payment.

3.2 Concrete Surface

Materials used in the construction of the concrete surface shall conform to Section 501.02 of the Kentucky Bureau of highways Standard Specifications (Latest Edition).

3.3 Bituminous Concrete Surface

Materials used in construction of the bituminous concrete surface shall conform to Section 402.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.4 Bituminous Concrete Base

Materials used in construction of the bituminous concrete base shall conform to Section 403.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.5 Bituminous Tack Coat

The material for the bituminous tack coat shall be type SS-1h and shall conform to Section 806 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.6 DGA Base

Materials used for the compacted dense graded aggregate base shall conform to Section 303.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

TECHNICAL SPECIFICATIONS

SECTION C

PIPE MATERIALS

1. GENERAL

1.1 These Specifications describe several types of pipe which may or may not apply to the current project. All types listed herein will be acceptable alternates if no indication is other wise given either on the Plans or in other sections of these Specifications.

1.2 Selected pipe materials will be identified either on the Plans, or Bid Form, in Special provision, or in Measurement for Payment. The Contractor shall thoroughly familiarize himself with each of the items identified above and base his bid on the pipe material given therein.

1.3 Handling of Pipe and Accessories

1.3.1 Pipe and accessories shall be unloaded at the point of delivery, hauled to, and distributed at the site of the Project by Contractor in such a manner to avoid damage to the materials. Whether moved by hand, skidways, or hoists, materials shall not be dropped or bumped against pipe or accessories already on the ground or against any other object.

1.3.2 In distributing material at the construction site, each piece shall be unloaded as near the installation point as possible.

1.3.3 Pipe shall be handled in such a manner as to avoid damage to the ends. When such damaged pipe cannot be repaired to the Engineer' satisfaction, it shall be replaced at the Contractor's expense. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times. The interior of all pipe and accessories shall checked for dirt and debris and, if necessary, thoroughly cleaned before use in the Project.

2. ASBESTOS CEMENT PRESSURE PIPE

2.1 Scope

This article covers the design, manufacturer, and testing of asbestos cement pressure pipe for sizes four (4") inch through forty-two (42") inch, nominal inside diameter.

2.1.1 The Contractor shall review the Plans and Bid Forms for information describing the Type, Class, and size of asbestos cement pressure pipe require on the Project.

2.2 Specific Requirements

2.2.1 Scope

The design, manufacturer, and inspection of asbestos cement pressure pipe shall conform to all requirements of AWWA Standard Specification designation AWWA C400 latest revision for sizes four (4") inch through sixteen (16") inch and designation AWWA C402 latest revision for sizes eighteen (18") inch through forty-two (42") inch.

3. CAST IRON PIPE AND FITTINGS

3.1 Scope

This article covers the design, manufacture and testing of cast iron pipe centrifugally cast in metal molds and cast iron fittings for pipe sizes three (3”) inch through forty-eight (48”) inch.

3.2 Specific Requirements

Cast iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of the Specification. Cast iron pipe shall be furnished with rubber-gasket push-on joints except as may other wise be noted on the Plans or in difficult working areas and approval of the Engineer.

3.2.1 Thickness design of cast iron shall conform in all aspects to the requirements of ANSI-AWWA C101 latest revision.

3.2.2 Manufacture and testing of cast iron pipe centrifugally cast in metal molds shall comply with the requirements of the National Standard Institute and American Water Works Association designation A 21.6/AWWA C106 latest revisions.

3.2.3 Cement mortar lining shall conform to the requirements of ANSI/AWWA C104/A 21.4, latest revision for Cement-Mortar Lining for Ductile Iron Pipe and Gray Iron Pipe and Fittings for Water.

3.2.4 Fittings and joints for cast iron pipe shall conform to the latest revisions of ANSI/AWWA C110 “Cast Iron and Ductile Iron Fittings, Three (3’’) Inches through Forty-Eight (48’’) Inches, for Water and Other Liquids”, ANSI/AWWA C111/A 21.11 “Rubber-Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings”, and ANSI/AWWA C115 21.15 “Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges”.

4. DUCTILE IRON PIPE AND FITTINGS

4.1 Scope

This article covers the design manufacture, and testing of ductile iron centrifugally cast in metal molds and ductile iron fittings.

4.2 Specific Requirements

Ductile iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of these Specifications. Ductile iron pipe shall be furnished with rubber gasket push-on joints except as may otherwise be noted on the Plans or in difficult working areas with approval of the Engineer.

4.2.1 Thickness design of ductile iron shall conform in all aspects to the requirements of ANSI/AWWA C150/A 21/50 latest revision.

4.2.2 Manufacture and testing of ductile iron pipe shall conform in all respects to the requirements of the latest revisions of ANSI/AWWA C151/A 21.51.

4.2.3 Cement Mortar Lining – See ART. 3.2.3 above.
4.2.4 Fittings and Joints – See ART. 3.2.4 above.

5. PVC (POLYVINYL CHLORIDE) PRESSURE PIPE

5.1 Scope

This article covers the design, manufacture and testing of PVC 1120 manufactured of Class 12454-A or Class 12454-B resin material with a hydrostatic-design-basis (HDB) rating of 4,000 psi at 73.4 degree F (23 degree

5.2 Specific Requirements

PVC pressure pipe shall be furnished, constructed of materials and to the specifications of this section. The types of PVC pipe permitted for use on the Project will be as noted on the Plans, Bid Documents or other sections of these Specifications. The selected pipe will be designated either as PVC (ASTM) or PVC (AWWA) followed by an appropriate pressure rating. The Contractor shall thoroughly review the Plans and other sections of these Specifications for the type of PVC pipe selected for the Project. All PVC pipe shall be NSF approved.

5.2.1 PVC (ASTM) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project PVC (ASTM) pipe shall be designated, manufactured and tested to conform with the latest revision of the American Society for Testing and Materials designated ANSI/ASTM D-2241.

5.2.2 PVC (AWWA) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project, PVC (AWWA) pipe shall be designated, manufactured, and tested in conformance to the latest revision of the American Waterworks Association designation AWWA C900

5.2.3 PVC pipe joints shall be rubber gasket push-on joints either constructed integrally with the pipe or as a separate coupling constructed on the same material and to the same pressure Specifications as the pipe.

5.2.4 PVC (ASTM) pipe shall be furnished as SDR 26, 21, and 17 for Class 160 psi, 200 psi and 250 psi respectively.

5.2.5 PVC (AWWA) pipe shall be furnished as SDR 25, 18, and 14 for Class 100 psi, 150 psi and 200 psi respectively.

5.2.6 PVC (AWWA) pipe shall be furnished with outside dimensions (O.D.) equal to that for ductile iron and cast iron pipe.

5.2.7 Fittings for PVC (ASTM) pipe may be either PVC, cast or ductile iron. Those for PVC (AWWA) pipe shall be ductile iron.

6. POLYETHYLENE PIPE AND FITTINGS

6.1 Scope

This section covers the design, manufacture and testing of polyethylene high density pressure pipe manufactured of grade P34 resin material with a hydrostatic – design basis (HDB) rating of 1,600 psi at 73.4 degree F (23 degrees C)

6.2 Specific Requirements

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.

6.2.1 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 Pie and Fittings Materials”.

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

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

6.2.4 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.

7. BALL AND SOCKET RIVER CROSSING PIPE

7.1 Scope

This article covers the design, manufacture, and testing of Ductile Iron Ball and Socket River Crossing pipe.

7.2 Specific Requirements

Joints for ductile iron river crossing pipe shall be flexible, ball and socket type, boltless joints with rubber gaskets conforming to the ANSI Specification for “Rubber-Gasket joints for Ductile Iron Pressure Pipe and Fittings”, A 21.11 (AWWAC11), Latest Revision.

TECHNICAL SPECIFICATIONS

SECTION D

PIPING APPURTENANCES

1. CRADLES AND ENCASEMENT

1.1 General

The cradle or encasement, as required to support the pipe, shall be of crushed stone or concrete and shall be installed as specified in the Pipe Work Section of these Specifications, and as shown on the Plans.

1.2 Crushed Stone Cradle

In all cases where the bedding is not specified the pipe is to be laid in crushed stone cradle. The crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 Crushed Stone, as specified by the Kentucky Bureau of Highways Standard Specifications (Latest Revision).

1.3 Concrete Cradle, Encasement, or Cap

Where a concrete cradle, encasement, or cap is required, concrete shall conform to the Concrete Section of these Technical Specifications. Dimensions shall be as shown on the plans.

1.4 Concrete Thrust Blocks and Anchor Blocks

Where concrete thrust blocks and anchor blocks are required (i.e. at all pipe bends and fittings), concrete as specified in the Concrete Section of these Technical Specifications shall be used.

1.5 Special Concrete Structures and Vaults

Cast in place concrete structures shall be constructed of concrete conforming to the Concrete Section of these Technical Specifications to the dimensions and grades as shown on the Plans.

1.6 Valves and Related Appurtenances

1.6.1 General

All valves and related appurtenances shall be installed as shown on the Plans and specified in these Technical Specifications. Material Specifications shall be as described below. Any materials found defective, not meeting the specifications, or improperly installed, shall be rejected and so marked and shall be replaced by materials approved by the Engineer, at no additional cost to the Owner.

1.7 Gate Valves

Gate valves shall be non-rising stem, iron body, bronze mounted, double disc, parallel seat type with o-ring stem seals. Unless otherwise specified the valves shall be suitable for 0-150 PSI operating pressures. Valves which are to be buried for outside use shall be furnished with a 2 inch operating nut and shall have mechanical joint ends. Other valves shall have either flanged or mechanical joint ends and shall be operated by handwheel or chain-wheel operator as shown on the Plans. All valves shall conform to the AWWA Standard C 500, Latest Revision, relative to materials, manufacture, dimensions, inspections, testing, and markings.

1.8 Gate Valves Boxes

Each buried gate valve shall be provided with a 5 ¼" shaft, slide-type, two-piece cast iron valve box. The box shall be of the length as necessary to conform to the depth of the valve. Any extension sections necessary shall be provided with the valve box. Unless shown otherwise on the Plans, the valve box cover shall be marked "Water".

1.9 Check Valves

Check valves shall be iron body, bronze mounted. They shall be outside weight and lever type (unless specified otherwise by the Engineer or indicated as such on the Plans) with bronze seat, hinge and guide busting. Unless otherwise indicated, check valves for interior use shall be flanged and those for exterior use shall be mechanical joint.

1.10 Automatic Air Release Valves

Air release valves shall be of the type, which will automatically release air which accumulates in the pipe system. The body and cover shall be case iron and the float shall be stainless steel. Unless otherwise indicated the valves shall be suitable for use in lines having an average working pressure of 150 psi. **ALL AIR RELEASE VALVE ASSEMBLIES TO HAVE PRESSURE GAUGES.**

1.11 Manual Air Release Valves

See "Detail Sheet" Plan Sheet for description of the manual air release valves.

1.12 Air Valve Pit

Air valves shall be installed in a pit as shown on the Plan Details.

1.13 Blowoff Assemblies

Blowoff assemblies shall be installed in accordance with the details and Specifications at the locations shown on the Plans or as directed by the Engineer for the purpose of removing any obstacles or impurities from the main. The blowoff assembly shall be connected to the main with a typical tapping saddle and corporation stop. The piping shall be 2 inch VC installed as shown in the details with a 2 inch iron body bronze mounted gate valve and 2 piece case iron valve box and lid marked "Water". The lid shall be secured with a pentagon lock nut.

1.14 Fire Hydrants

New fire hydrants shall be of the dry barrel type and be installed where indicated on the Drawings or otherwise directed by the Engineer. Hydrants shall be installed in such a manner as to be completely accessible and in such a position as to minimize possibilities for damage from vehicles or to pedestrians. Hydrants shall be set plumb with nozzles at least 18" above grade. The barrel shall be turned so that the pumper nozzle will face the street. When placed behind curb, the hydrant shall be set so the nozzle will be at least 12 inches from the gutter face of the curb, or at least 5 feet from the edge of the street or road where no curb exists.

Hydrants shall be supported upon a poured-in-place block of concrete as detailed. Such block shall not interfere with joint maintenance nor with proper hydrant drainage, but shall insure zero movement between the hydrant and the main.

Fire hydrants shall conform in all respects to the current Standards of the AWWA. They shall have a 6" inlet and be equipped with two (2) 2-1/2" hose nozzles and one (1) pumper nozzle; nozzles shall be standard to local governmental agencies' requirements. Each hydrant shall be equipped with traffic damage repair kits and hydrant wrenches provided for every five (5) hydrants.

1.15 Service Piping

Unless otherwise noted on plans service piping shall be high density ¾" Polyethylene (PE 3408) tubing or approved equal.

The piping shall be Type III C 5 P 34 as designated in ASTM-D-1248 ("Polyethylene Plastics Molding and Extrusion Materials") and shall be classified as a PE 335433 according to ADTM D-3350 ("Polyethylene Plastics Pipe and Fittings Materials").

1.16 Connection to Main

Service pipe connections to the main shall be made with a tapping saddle and corporation stop as shown in the Plans.

1.17 Setters

Setters shall be brass with 90° brass angle meter valve and 90° coupling sized for 5/8" x ¾" and ¾" meter.

1.18 Meters

All water meters shall be 5/8" x ¾", plastic or bronzed bodied, of the magnetic oscillating piston or rotating piston type with a working pressure of 150 psi and shall conform to the AWWA specifications for Cold Water Meters.

The main case shall be frost-proof with a single, hinged lid cover with raised characters indicating the direction of flow and manufacturers serial number. Strainers with an effective area at least double that of the main case inlet shall be of a non-corrosive material and should fit tightly against the main case.

The measuring chamber shall be of a non-corrosive material and shall be securely positioned in the main casing. Discs shall be straight reading U.S. Gallons type with a measuring capacity of 999,999 gallons. All parts shall be as non-corrosive as possible and completely encased and hermetically sealed.

Measuring accuracy shall conform to AWWA Standard C 700, latest edition. Testing will be done at Engineers request and any meter found defective shall be returned to the manufacturer for replacement or repair at manufacturer's expense.

11.19 Meter Boxes and Covers

All meters shall be installed in new concrete boxes unless otherwise shown on the plans or approved by the Engineer.

The box shall be a precast concrete vault 18" I.D. and 24" in height. The cast iron lid shall have an 11 ½" minimum opening with "Water Meter" stamped on top.

1.20 Back Flow Preventers

Back Flow preventers shall be angle check valves installed on customer side of meter. Such valves shall be brass or ductile iron with stainless steel spring.

1.21 Connection to Customer Service Line

All connections to the customers existing service line shall be made at the meter Setter connection only unless otherwise directed by the Engineer.

TECHNICAL SPECIFICATIONS

SECTION E

PIPING WORKMANSHIP AND CONSTRUCTION METHODS

1. EXCAVATIONS AND GRADING

1.1 General

This section shall include all clearing and grubbing, site preparation, excavating of earth and other material, filling, site restoration and grading, and other allied work necessary for the construction required for the project.

Any construction methods not specifically outlined in these specifications will be governed by the Kentucky Bureau of Highway Standard Specifications (Latest Revision)

1.2 Site Preparation

Prior to commencing construction operations the contractor shall make all the provisions necessary to assure the protection of all existing improvements, both public and private. He shall protect trees, shrubs, plantings, and grassed areas and shall make provisions for maintaining public travel in an acceptable manner.

1.3 Protection of Existing Improvements

Before any excavation is started, adequate protection shall be provided for all lawns, trees, shrubs, landscape work, fences, sidewalks, hydrants, utility poles, streets, alley and driveway paving, curbs, storm sewers, ditches, headwalls, catch basins, surface inlets and all other improvements that are to remain in place. Such protection shall be provided as long as necessary to prevent damage from Contractor's operations. Shrubs, bushes, small trees and flowers, which have to be removed to permit excavation for the water lines, shall be protected and replanted or replaced when backfill is complete.

The Contractor shall exercise every precaution to prevent damage to property within the outside easements. He shall remove all debris and rock from the site and restore the ground surfaces, replace or repair all driveways, buildings, fences, retaining walls, etc., which are removed or damaged during construction.

Repairs, restoration or replacement of any improvements damaged or removed, whether shown on the plans or not, shall be the obligation of the Contractor at no additional cost to the owner.

1.4 Maintenance of Public Travel

Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Department of Transportation . It is the responsibility of the Contractor 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.

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.

Unless specifically directed otherwise by the Engineer, no 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 he expense of the contractor.

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.

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 considerations. All public or private drives shall be promptly backfield or bridges at the direction of the Engineer. Excavated materials shall be disposed of as to cause the least interference, and in every case the disposition of excavated materials shall be satisfactory to the Engineer.

1.5 Drainage

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 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.

1.6 Excavation

1.6.1 General

Materials of excavation shall be unclassified and shall include whatever materials are encountered to the depth of the plans, stated in the specifications, or directed by the Engineer.

1.7 Disposal of Unsuitable Materials

Excavated materials which are either surplus and not required or are unsuitable for backfilling shall be removed from the site of operations as soon as excavated.

All excavated materials so removed shall be disposed of, at no additional cost to the owner, on sites acquired by the Contractor and approved by the Engineer.

1.8 Storage of Suitable Materials

Excavated materials suitable and required for backfill shall be stored in neat piles adjacent to the excavation in a manner so as to interfere as little as possible with traffic, but shall not be placed at such heights above or closeness to the sidewalls of the excavation to endanger such operations due to slides or cave-ins.

1.9 Open Cut Excavation for Structures

In excavation for masonry and concrete structures, the required width shall be such as to permit forms to be constructed in the proper manner and to permit proper backfilling on completion of the structures.

Depth of excavation for footings shall be as shown on the drawings and/or as directed by the Engineer to obtain sufficient bearing.

1.10 Open Cut Excavation for Pipeline Trenches

Open Cut excavation, either in earth or rock, shall be safely supported and of sufficient width and depth to provide adequate room for the construction or installation of the work to the lines and dimensions called for by the plans.
Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may be necessitate changing the alignment of the pipeline.

1.11 Trench Dimension

Excavations for water pipe in both earth and rock shall have a minimum allowance trench width as shown on the details which will permit good workmanship in laying the pipe and fittings, boring and jacking and compaction of backfill at he sides of the pipe, and shall be subject to the approval of the Engineer.

The maximum allowance trench width shall be no greater than 2' – 0" + the outside pipe diameter except where such dimensions may prohibit any other construction such as the boring and jacking of service connections under paved surfaces.

Subgrade – the depth of excavation below the pipe – shall be 3" minimum in earth trench and 6" in rock trench unless other wise stated in the plans and Specifications or approved by the Engineer.

1.12 Shoring, Sheering and Bracing

The Contractor shall furnish, place, and maintain adequate sheeting and bracing as may be required to support the sides of the excavation and prevent any movements of earth which could, in any way, diminish the width of the excavation to less than that necessary for proper construction, cause damage to the waterline or structures, utilities, pavements, or walks, or cause injury to workmen or others through movement of the adjacent earth banks, or to otherwise damage or delay the work.

The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under existing conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor, however, the Engineer may require the submission of shoring plans (accompanied by supporting computations) for approval prior to the Contractor undertaking any portion of the work.

1.13 Blasting

When blasting is required for the removal of rock, every precaution shall be used for the protection of persons and private and public property. The method of blasting will be as determined by the Contractor, subject to the approval of the engineer, prior to construction.

The Contractor shall comply wit hall laws, regulations, and ordinances of the local governmental agencies and the Commonwealth of Kentucky relating to the transportation, storage and use of any and all explosives or blasting agents. Compliance with all of the above stated regulations and submittal of the method of blasting as stated above does not in any way relieve the contractor of responsibility for any damage caused by the blasting. Any damage thus caused shall be promptly and satisfactorily repaired by the Contractor at no additional cost to the owner.

1.14 Unauthorized Excavation

Whenever the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor at his own expense shall refill such excavated space with such material and in such a manner as will insure stability of the structure involved.

1.15 Removal of Water

The Contractor, at his own expense, shall provide adequate facilities for promptly removing water from all excavations. No water lines shall be laid in a trench which is holding water.

1.16 Backfill, Embankment, and Grading

1.16.1 General

This section includes the filling of the excavated trenches and spaces around the completed structures or pipelines to the original grades or to finished grades as indicated on the plans.

1.16.2 Trench Backfilling in Unpaved Areas

Backfilling of Trenches in open cut shall be commenced as soon as possible after the distribution main and service taps to the main have been completed, and all jointing and alignment has been approved by the Engineer.

Selected excavated material containing no rock shall be carefully and solidly tamped around the pipe from the tip of the cradle or encasement up to a plane at least one (1) foot above the exterior of the pipe or structure. The filling of the trench shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipe line, except as may be necessary in tamping or backfilling, shall not be permitted, until the trench has been backfield to that height.

The Contractor may use any type of earth moving equipment he has at his disposal, provided such equipment is in satisfactory condition, and of such type and capacity that the work may be accomplished properly, the grading schedule maintained, and the required density obtained. Any questionable suitability problems related to earth moving equipment shall be resolved by the Engineer.

The selected excavated backfill materials used between the plan one (1) foot above the ground surface may include rock fragments taken from the excavation.

In backfill containing rock, no rock fragment shall be larger than 1 cubic foot in size and all rock fragments shall be mixed with sufficient earth materials to completely eliminate all voids, subject to the approval of the Engineer. The amount of rock in the backfill shall not exceed 33% of the total backfill. Rock fragments and surplus earth materials not used in the back fill shall be removed from the site of the work.

In filling the remainder of the trench, from the plane one (1) foot above the pipe to the top of the trench, the backfill material may be shoveled into the trench without compacting, and heaped over whenever, in the opinion of the Engineer, this method of backfilling may be used without inconvenience to the public.

Before final acceptance, the Contractor will be required to level off all trenches where backfill material has been piled up, or to bring the trench up to the level of the surrounding street, roadway, or terrain where necessary, also, the removal from the streets, roadways, and private property of all excess earth or other materials.

1.16.3 Trench Backfilling in Paved Areas

In areas where street paving is to be replaced, trenches shall be backfilled up to one (1) foot above the top of pipe or structure using the methods described above for unpaved areas. Backfill above this level shall be placed in layers not exceeding eighteen (18) inches and firmly tamped into place by tampers or rammers to 95% of Standard Proctor Maximum Density. In lieu of tamping the trench may be backfilled with granular material and puddled and jetted under the direction of the Engineer.

1.16.3 Backfill Around Structures

Sandy backfill material or selected excavated materials containing no rock shall be placed in uniform layers around air valve pits or other structures and shall be thoroughly tamped and compacted.

1.16.4 Backfill Around Iron Pipe

Selected excavated materials composed of clay, sand, gravel or other materials non-injurious to iron pipe shall be used for backfilling within 24 inches of iron pipe. Cinders, rubbish and other materials which would be injurious to iron pipe shall not be used in such backfilling.

1.17 Restoration of Ground Surfaces and Cleanup

1.17.1 General

All ground surfaces in public rights-of-way, easements and on private property that have been damaged or destroyed by the Contractor's operations shall be restored to original contours and in accordance with the following specifications.

1.17.2 Restoration of Grassed Areas with Sod

Where so designated, all established grassed areas shall be restored with sod containing grasses of comparable quality. Sod shall be placed and rolled so that the final elevations of the area being restored are the same as existed prior to the beginning of construction. Sod shall be pegged where necessary, and shall be watered and cared for to assure its survival until final acceptance of the project.

1.17.3 Restoration of Grassed Areas with Seed and Mulch

The Contractor shall seed and mulch all disturbed areas, unless otherwise specified , in the following manner: Rye or Fescue Seeding – The ground shall be loosened approximately 3 inches deep with a disc or harrow: fertilized with 25 pounds of 10-10-10, or equivalent, and 100 pounds of agricultural lime per 1,000 square feet; sown at a rate of 75 pounds per acre with an approved grade of perennial rye or Kentucky No. 31 Fescue grass seed that will provide early

growth during the season in which it was planted. The seed shall be well raked or boarded into the soil.

The time of application of the seed and fertilizer shall be at the discretion of the Engineer.

Unless other wise permitted by the Engineer, vegetable materials for mulching shall be wheat, oat, barley or rye straw only. All material shall be reasonably free from weed seeds, foreign material, and other grasses and chaff, and shall contain no Johnson Grass. The straw shall be reasonable bright in color and shall not be musty, mouldy caked or of otherwise low quality. It shall be dry on delivery

Unless otherwise specified, the bituminous material to be used for "tying down" straw mulch shall be a slow setting emulsified asphalt. It shall be non-toxic to plants.

Mulch net shall be used, if directed by the Engineer, to hold mulch in place until turf is established. The net shall be made of a tightly twisted kraft paper yarn, leno woven with a warp count of one pair of yarns per two (2) inches and a filling count of two per inch. Salvage edges and center shall be reinforced with polyethylene filament. The material shall a minimum width of 45 inches.

1.18 Cleanup

Before final acceptance of the work, the Contractor shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All sewers, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.

Where the Contractor's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contract shall reditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc., so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

The Contractor's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.

TECHNICAL SPECIFICATIONS

SECTION F

PIPING WORK

1. PIPEWORK

1.1 General Description

After the trench is excavated to subgrade as specified, it shall be filled to the proper depth with crushed stone or concrete as specified to provide a firm and satisfactory bed, hereafter referred to as the cradle or encasement, for the entire length of the pipe barrel. Pipe of designated class and required size shall be laid to form a closed joint with the next adjoining pipe, bringing the inverts continuously to the required depth of cover shown on the plans, The pipe shall be laid in an upstream direction, with bells upstream, unless otherwise permitted or directed.

In no case shall water be allowed to rise in or above the pipe before the joint has become thoroughly set. No walking on or working over the pipes after they are laid , except as may be necessary in placing and compacting the backfill, will be permitted until they are covered with backfill to a depth of one (1) foot.

The trench backfill shall be placed in accordance with backfill requirements of these Technical Specifications.

1.2 Cradle and Encasement

The cradle or encasement, as required to support and protect the water pipe, shall be of crushed stone or concrete and shall be installed as specified herein or as directed by the Engineer to the dimensions as shown on the plans.

1.2.1 Crushed Stone Cradle

Where indicated on the plans water main shall be installed with a crushed stone cradle.

Where the water pipe is to be laid in a crushed stone cradle, the crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 crushed stone, as specified by the Kentucky Bureau of Highways. The crushed stone shall be deposited in the excavated trench to depth shown on plans, allowing for the pipe wall thickness and providing “bell holes” for making joints, where pipe is of the bell and spigot type. The pipe shall be laid to the depth as shown on the plans and crushed stone shall be carefully deposited around the pipe up to a plane through the centerline of the pipe as indicated on the plan details.

1.2.2 Concrete Cradle

Where a concrete cradle is required as additional support for the water pipe, concrete, as specified in the concrete section of these Technical Specifications and section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. First, the water pipe shall be laid accurately to the depth indicated on the plans, setting the pipe upon concrete blocks or saddles installed to provide both vertical and lateral supports for the pipe. The supporting of pipe on wooden blocks will not be permitted.

1.2.3 Concrete Encasement

Where a concrete encasement is specified, concrete, as specified in the Concrete Section of these Technical Specifications and Section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. The water pipe shall be laid and reported in accordance with the specifications for water pipe and concrete cradle, as heretofore specified, and the concrete deposited around the pipe at the required width and depth to a plane at least 6 inches over the top of the pipe, as indicated on the Plan Details. Proper bracing of the pipe shall be provided to prevent its being floated by the concrete encasement.

1.3 Metered Service Connections

Metered service connections shall be installed to the point where the line from the customers residence or business joins the meter setter. The service piping shall be ¾" polyethylene tubing as noted in the Piping Appurtenances Section of these Technical Specifications. They shall be installed as shown on the plans or as directed by the Engineer.

1.4 Meter Boxes and Other Structures

Meter boxes shall be constructed as shown on the Plan Details. The concrete vault shall be placed on concrete bricks, with 6" crushed stone placed in the bottom for drainage.

The cast iron lid shall be set flush with existing ground or ½" maximum above ground. Backfill shall be carefully tamped around both vault and lid. Vaults placed in sidewalks, driveways, or other paved surfaces shall have lids placed flush with existing paved surfaces.

Service line depth shall be the same as the main water line with the exception that the service line may be brought up to a sufficient depth to enter the vault within 5' of the side of the vault.

Air release valve vaults shall be Type III 24" diameter Reinforced Concrete Pipe barrels set on 8 concrete bricks with 6" crushed stone in bottom for drainage. The lid shall be cast iron stamped "water" with 24 I.D. opening. Backfill shall be carefully tamped around vault and lid. The lid shall be flush or ½" maximum above existing ground in unpaved areas and flush with paved surfaces.

1.5 Branches and Fittings

Branches and Fittings shall be provided and laid as where directed.

Tapping saddles or other fittings for property service connections shall be placed on the water main at such points as to result in the property service connection having the shortest length possible between the water main and the property line unless otherwise indicated on the plans or directed by the Engineer.

1.6 Pipe Cutting

Pipe may be cut in any manner specified by the pipe manufacturer, but only when authorized and approved by the Engineer. Where a pipe is cut the Contractor shall remove the old section of pipe satisfactorily to the Engineer.

1.7 Pipe Handling and Installation

All procedures for receiving, handling, storing, and installing pipe used in the project, unless specified in these Technical Specifications, shall be governed by the Standards listed below with the approval of the Engineer.

Ductile Iron Pipe - The manufactures printed instructions.

Polyvinyl Chloride Pipe - The manufactures printed instructions.

Polyethylene Pipe - The manufactures printed instructions.

1.8 Pressure Pipe Thrust Blocking

Concrete thrust blocks shall be provided to prevent movement of pipe or appurtenances in response to the forces developed by the pressure of the piping system. In general, thrust blocking shall be provided where the pipeline changes direction (e.g. tees, bends, elbows, crosses, etc.), changes size (e.g. reducers), stops at dead ends, and/or has an appurtenance (e.g. valve or hydrant) attached at which thrust develops when closed. Thrust blocks shall be sized according to the plans.

1.9 Highway and Railroad Crossings

Steel casing pipe for road and railroad crossings shall be bored and/or jacked in place to the depth shown on the plans. Casing pipe shall also be laid in open cut where indicated on the drawings. All joints between lengths shall be solidly butt-welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The water line pipe shall be installed after the casing pipe is in place, and shall be braced within the casing with structural steel members welded into place or other Engineer approved method to preclude possible floatation.

Railroad crossing material and installation shall be in strict accordance with American Railway Engineering Association Specifications.

At each end of the casing pipe, the water line pipe shall be wrapped with two layers of roofing felt. The wrapping shall extend a minimum of 12 inches in each direction from the end of the casing pipe. After the water line has been installed, inspected, tested and wrapped as specified, both ends of the casing pipe shall be closed with brick or concrete block masonry in a manner acceptable by the Engineer.

Weep holes shall be provided in the closure at the lower end of the casing pipe to facilitate drainage and shall be located within the granular pipe bedding material. Granular bedding is not required under the open cut casing pipe; however, the Contractor shall insure that casing pipe does not bear directly on rock.

1.10 Creek Crossings

River and creek crossings shall be accomplished in a method determined by the Contractor and approved by the Engineer to the lines and grades as shown on the plans. Piping shall be ductile iron or polyethylene pipe as per the pipe materials section of these Technical Specifications and as approved by the Engineer. There are two types of creek crossings which shall be as shown on the plans and where indicated on the plans.

1.11 Pipeline Testing

1.11.1 General

Testing at the Contractor's expense of any water line section may be requested at any time by the Engineer to determine that the section is watertight.

1.12 Visual Inspection

During the final inspection the Engineer may inspect any section of the water lines by various methods at his disposal to determine whether the completed lines are true to line and grade as laid out or as shown on the Plans.

1.13 Hydrostatic Tests

After the pipe is laid and the line flushed, it shall be filled with water with care being exercised to expel all air from the pipe. During the test period all pipe, valves, fittings, and joints shall be examined carefully for defects. Any observed leaks or defective pipe shall be satisfactorily repaired or replaced, at the expense of the Contractor and the test repeated until the section tested is within the limits prescribed hereinafter. The entire distribution system or parts thereof shall be tested under hydrostatic pressure of 150 psi, or pressure class of the pipe which ever is greater, for a period of 4 hours, if joints are exposed, or for an 8 hour period if joints are covered. Repairs shall be made using approved materials and new replacement fittings, specials, or gaskets where leakages occur.

Leakage shall be measured by an approved calibrated meter through which all the water required to maintain test pressure shall be pumped. All testing shall be performed in the presence of the Engineer. Allowable leakage shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe, at the specified test pressure.

Tests shall be completed in accordance with the latest edition of AWWA C-600 except a modified herein.

1.14 Flushing

Any foreign material left in piping during construction shall be removed by flushing system prior to testing. Flushing should be accomplished by partially opening and closing valves and hydrants several times under expected line pressure with flow velocities adequate to flush foreign material out of valves and hydrants.

1.15 Disinfection

1.15.1 General

Thoroughly disinfect all water pipe on potable water lines prior to being placed in service. Follow the applicable provisions of the procedure established for the disinfection of the cast iron pipe as set forth in the latest edition of AWWA C651 entitled "Disinfecting Water Mains".

1.15.2 During the Construction

Workmen shall be required to use utmost care to see that the surface of parts of the structures, the inside of pipes, fittings, jointing materials, valves, and specials which come in contact with the local water system's water, are maintained in a sanitary condition. Every effort shall be made to keep the inside

of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks. As each joint of pipe is being laid, it shall be swabbed so that all foreign matter is removed. All fittings and exposed open ends of pipe shall be blocked or capped until the line is completed.

When the entire pipe line or certain selected sections thereof have been completed, tested and made ready for turning over to the local water system, ready for use, the line or section of line shall be thoroughly sterilized according to the following procedure: The new pipe shall be disinfected by introducing HTH, perchloron , or a similar hypochlorite solution, through taps made by the Contractor as directed by the Engineer. The water shall be turned into the mains slowly to allow a thorough mixing of solution which shall be brought to a strength of 50 parts per million of available chlorine. All valves shall then be closed and the sterilizing solutions permitted to remain in the pipe line sections for not less than 24 hours. At the end of the 24 hour period the water in the line must have a minimum chlorine residual of 25 parts per million, or the process shall be repeated until the residual of 25 ppm is maintained. After the required chlorine residual has been maintained the mains shall be flushed thoroughly until a chlorine residual not to exceed one (1) part per million is obtained.

No water line shall be put in service either permanently or temporarily until it has been thoroughly disinfected to the satisfaction of the Engineer. The Contractor shall be responsible for all baterialogical testing should this be required by the Engineer.

1.16 Restoration of Paved Surfaces

1.16.1 General Description

After all excavations within the limits of paved surfaces have been properly backfilled and compacted in accordance with the Plans and Specifications, the paved surfaces shall be restored to a condition as good as or better than existed prior to the beginning of the work, in accordance with the following Specifications.

1.17 City, County, and State Paved Surfaces

Streets, alleys, sidewalks, curbs, and gutters originally constructed by ordinance or maintained by the City, and highways, roads, and walks constructed and/or maintained by the Kentucky Department for Transportation or County, which are wholly or partially removed, damaged or disturbed by the Contractor’s operations, shall be promptly restored to a condition as good as or better than existed prior to the beginning of the work. Such restoration shall be performed in accordance with the pertinent Specifications and standards of the City, the County, or the Kentucky Department of Transportation as applicable.

1.18 Other Paved Surfaces

Streets, alleys, driveways, sidewalks, curbs, and gutters, not constructed or maintained by the City, the Kentucky Department of Transportation, or the County, but paved with asphalt, concrete, cinders, crushed stone, waterbound macadam, oilbound macadam, or heterogeneous paving materials, which are wholly or partically removed, damaged or disturbed by the Contactors operations, shall be restored with like or better materials, acceptable to the Engineer, to a condition as good or as better than existed prior to the beginning of the work, so that the movement of traffic, both vehicular and pedestrian, through the restored way shall be as free, safe and unimpeded as before.

1.19 Asphalt Roadway Paving

Existing asphalt paving in roadways shall be restored with base, binder and surfacing of the dimensions as shown in the plans. All material shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Sections 300 and 400 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.20 Concrete Roadway Paving

Existing concrete paving in roadways shall be restored with the dimensions shown in the plan details. All materials shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Section 500 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.21 Driveway Replacement

For the restoration of all paved driveways disturbed by the installation of the water lines, the materials and dimensions shall be equivalent to the original paving. However, in no case shall the dimensions be less than (a) 6” DGA base and 6” Class “A” Concrete for concrete driveways and (b) 6” DGA base and 2” Bituminous Surface for asphalt driveways.

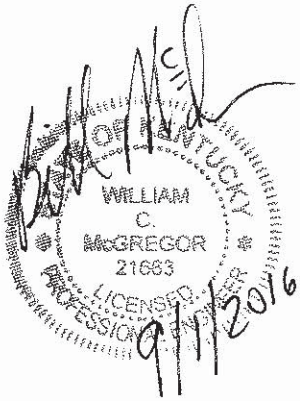
WOLFE COUNTY 10-126.70

nesbitt engineering, inc.
providing proven solutions since 1976

227 North Upper Street
Lexington, KY 40507-1016

Technical Specifications

Mountain Parkway Waterline Relocation
City of Campton
Campton, Kentucky



September, 2016

TABLE OF CONTENTS

TECHNICAL SPECIFICATIONS

DIVISION 1 - GENERAL REQUIREMENTS

Section No.	Title	Page No.
01025	Measurement and Payment	01025-1 thru 01025-17
01300	Submittals	01300-1 thru 01300-8
01310	Progress Schedules	01310-1 thru 01310-4

DIVISION 2 - SITE WORK

Section No.	Title	Page No.
02320	Horizontal Directional Drilling	02320-1 thru 02320-6
02326	Steel Casing Pipe	02326-1 thru 02326-4
02600	Water Distribution Pipe	02600-1 thru 02600-21
02640	Meters, Individual Pressure Reducing Valves, and Service Lines	02640-1 thru 02640-3

DIVISION 5 - METALS

Section No.	Title	Page No.
05540	Castings	05540-1 thru 05540-3

DIVISION 11 – EQUIPMENT

Section No.	Title	Page No.
11500	Remote Meter Reading System 5/8 x 3/4 Orion Radio Read Meter	11500-1

DIVISION 15 - MECHANICAL

Section No.	Title	Page No.
15100	Valves and Plumbing Specialties	15100-1 thru 15100-10
15101	Large Valves and Appurtenances	15101-1 thru 15101-15
15123	Couplings, Flanged Coupling Adapters, and Service Saddles	15123-1 thru 15123-4

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, service, other necessary supplies and perform all work including all excavation and backfilling (without additional compensation, except where specifically set out in these specifications) at the unit or lump sum bid price for the items or work described under PART 2 of this section.

1.02 PROGRESS AND PAYMENTS SCHEDULES

A. Within fifteen (15) days after the date of formal execution of the AGREEMENT, the Contractor shall prepare and submit to the Engineer, for approval, a construction schedule which depicts the Contractor's plan for completing the contract requirements and show work placement in dollars versus contract time. The Contractor's construction schedule must be approved by the Engineer before any payments will be made on this contract.

B. Within fifteen (15) days after the date of formal execution of the CONTRACT AGREEMENT, the Contractor shall prepare and submit to the Engineer, for approval, a periodic estimate which depicts the Contractor's cost for completing the contract requirements and show by major unit of the project work, the Contractor's dollar value for the material and the labor (two separate amounts) to be used as a basis for the periodic payments. The Contractor's periodic estimate must be approved by the Engineer before any payments will be made on this contract.

C. The Engineer's decision as to sufficiency and completeness of the Contractor's construction schedule and periodic estimate will be final.

D. The Contractor must make current, to the satisfaction of the Engineer, the construction schedule and periodic estimate each time he requests a payment on this contract.

E. The Contractor's construction schedule and periodic estimate must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.

F. When the Contractor requests a payment on this contract, it must be on the approved periodic estimate and be current. Further, the current periodic estimate and construction schedule (both updated and revised) shall be submitted for review and approval by the Engineer before

monthly payments will be made by the Owner. The Contractor shall submit six (6) current copies of each (periodic estimate and construction schedule) when requesting payment.

1.03 CONDITIONS FOR PAYMENT

A. The Owner will make payments for acceptable work in place and materials properly stored on-site. The value of payment shall be as established on the approved construction schedule and periodic estimate, EXCEPT the Owner will retain ten percent (10%) of the work in place and a percentage as hereinafter listed for items properly stored or untested.

B. No payment will be made for stored materials unless a proper invoice from the supplier is attached to the pay request. Further, no item whose value is less than $1,000.00 will be considered as stored materials for pay purposes.

C. Payment for pipeline items shall be limited to eighty percent (80%) of the bid price until the pipeline items have been tested and accepted by the Engineer.

D. Payment for equipment items shall be limited to eighty-five percent (85%) of their scheduled value (materials portion only) until they are set in place. Eighty-five percent (85%) payment for stored materials and equipment shall be contingent on proper on-site storage as recommended by the manufacturer or required by the Engineer.

E. Payment for equipment items set in-place shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation and have been certified by the manufacturer. Ninety percent (90%) payment for installed equipment shall be contingent on proper routine maintenance of the equipment in accordance with the manufacturer's recommendations.

F. Payment for equipment items set in place and ready for operation shall be limited to ninety-five percent (95%) of their scheduled value until all acceptance tests have been completed and the required manufacturer's pre-startup operator's training has been completed.

G. Payment for the labor portion of equipment items will be subject only to the degree of completeness and the appropriate retainage.

H. The Owner may reduce the percent of retainage once the project has achieved satisfactory progress and is at the fifty percent (50%) mark. If the percent of retainage is reduced, the dollar amount of retainage for work-in-place will not be reduced but will remain constant following the fifty percent (50%) constructed status. The retainage on the equipment items shall be determined as defined hereinbefore.

I. Additionally, the Owner may reinstate the retainage to a full ten percent

(10%) of the scheduled value of work-in-place and material items should the Owner, at its discretion, determine that the Contractor is not making satisfactory progress or there is other specific cause for such withholding.

1.04 CLAIMS FOR EXTRA WORK

A. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, he shall give the Engineer written notice of said claim within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

B. Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work than would reasonably be estimated from the Drawings and/or topographical maps issued.

C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and/or Drawings shall at once be reported to the Engineer, and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Engineer.

D. If, on the basis of the available evidence, the Engineer determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".

E. By execution of this Contract, the Contractor warrants that he has visited the site of the proposed work and fully acquainted himself with the existing site conditions relating to construction and labor, and that he fully understands the facilities, difficulties, and restrictions attending the execution of the work under this Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The Contractor further warrants that by execution of this Contract his failure when he was bidding on this Contract to receive or examine any form, instrument or document, or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract, and the Contractor agrees that the Owner shall be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

1.05 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK

A. The value of extra (additional) or omitted work shall be determined in one or more of the following ways:

1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials, and use of equipment, plus a maximum 15 percent for added work or a minimum 15 percent for deleted work which shall cover the Contractor's general supervision, overhead and profit. In case of subcontracts, the 15 percent (maximum for added work and minimum for deleted work) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional 5 percent (maximum for added work and minimum for deleted work) may then be added to such costs to cover the General Contractor's supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the work is being performed but, in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, Illinois.

2. By estimate and acceptance in a lump sum.

3. By unit prices named in the Contract or subsequently agreed upon.

B. Provided, however, that the cost or estimated cost of all extra (additional) work shall be determined in advance of authorization by the Engineer and approved by the Owner.

C. All extra (additional) work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the work unless negotiated on another basis.

D. Except for over-runs in contract unit price items, no extra (additional) work shall be done except upon a written Field Order Directive, or Change Order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) work shall be recognized unless so ordered in writing by the Engineer.

PART 2 – PRODUCTS

2.01 WATER - 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. Paid EACH (EA) when complete.

2.02 WATER - 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. Paid EACH (EA) when complete.

2.03 WATER - 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, 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. Paid LINEAR FEET (LF)

2.04 WATER - ENCASEMENT CONCRETE

Includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, 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. Paid LINEAR FEET (LF) when complete.

2.05 WATER - 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. Paid LINEAR FEET (LF)

2.06 WATER - 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. Paid LINEAR FEET (LF)

2.07 WATER - 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. Paid EACH (EA) when complete and ready for use.

2.08 WATER - 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. Paid EACH (EA) when complete.

2.09 WATER - 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. Paid EACH (EA) when complete.

2.10 WATER - 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. Paid EACH (EA) when complete.

2.11 WATER - 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. Paid EACH (EA) when complete.

2.12 WATER - FLUSH 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. Paid EACH (EA) when complete.

2.13 WATER – LINE MARKER

This item is for payment for furnishing and installing a ground level 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 paid EACH (EA) when complete.

2.14 WATER - 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.

2.15 WATER - 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 paid EACH (EA) when complete.

2.16 WATER – 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 paid EACH (EA) when complete.

2.17 WATER - METER ADJUST

This item includes all labor, equipment, excavation, materials, backfill, restoration, 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. Paid EACH (EA) when complete.

2.18 WATER - METER RELOCATE

This item includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, etc. to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, 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 required 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. Paid EACH (EA) when complete.

2.19 WATER - 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.

2.20 WATER - 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.

2.21 WATER - PIPE

This description shall apply to all PVC, ductile (dctl) 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, 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. 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 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. Paid LINEAR FEET (LF)

2.22 WATER - 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 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 to plug existing mains only. Plugs on new mains are incidental. Any and all plugs on all 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. Paid EACH (EA) when complete.

2.23 WATER – 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, 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. Paid EACH (EA) when complete.

2.24 WATER - 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.

2.25 WATER - REMOVAL 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. Paid LINEAR FEET (LF)

2.26 WATER - 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. Paid EACH (EA) when complete.

2.27 WATER - 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. Paid EACH (EA) when complete.

2.28 WATER - 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. Paid EACH (EA) when complete.

2.29 WATER - 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, 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. Paid EACH (EA) when complete.

2.30 WATER - 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, 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. Paid EACH (EA) when complete.

2.31 WATER - 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. Paid EACH (EA) when complete.

2.32 WATER - 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. Paid EACH (EA) when complete.

2.33 WATER - 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, 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. Paid EACH (EA) when complete.

2.34 WATER - 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. Paid EACH (EA) when complete.

2.35 WATER - 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. Paid EACH (EA) when complete.

2.36 WATER - 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.

2.37 WATER - 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.

PART 3 QUANTITIES OF ESTIMATE

A. Wherever the estimated quantities of work to be done and materials to be furnished under this contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this contract, and such increase or diminution shall not give cause for claims or liability for damages. The Engineer will not be financially responsible for any omissions from the Contract Documents and therefore not included by the Contractor in his proposal.

B. Aerial photographs utilized for plan sheets in the Contract Documents are indicated at an approximate scale and shall not be scaled for quantity take-offs. The quantities listed in the bid schedule are given for use in comparing bids and may not be the actual quantities to be installed. It is the Contractor's responsibility to field verify the bid item quantities to be installed prior to the ordering of materials. Payment on unit price contracts are based on actual quantities installed. The Owner or Engineer will not be financially responsible for any shortage of the bid items or overrun of bid items ordered for the quantities.

C. The actual quantities of all materials to be used for this project shall be field verified prior to the Contractor ordering the necessary materials. The quantity listed in the bid schedule is given for use in comparing bids and may increase or diminish as may be deemed necessary or as directed by the Owner. Any such increase or diminution shall not give cause for claims or liability for damages. The Engineer or Owner will not be financially responsible for any charges incurred for restocking of materials ordered.

Qualifications and Warranty

A. The utility contractor shall be qualified to perform the utility work in accordance with the utility plans and specifications. The contractor shall have a history of utility work with at least five (5) years utility installation experience. The utility contractor shall be knowledgeable of utility installation methods and requirements. The utility contractor shall be able to supply three (3) references of prior utility construction projects if requested by the owner.

B. The utility contractor shall provide a written warranty to the utility owner for a period of one (1) year from the date of the contractor's final payment.

- END OF SECTION -

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. This section specifies the general methods and requirements of submissions applicable to the following WORK-related submittals:

1. General Procedures for Submittals
2. Construction Schedule
3. Schedule of Values and Payments
4. Schedule of SHOP DRAWING Submittals
5. SHOP DRAWINGS, Product Data, Samples and O&M Instructions
6. Construction Photographs
7. Test Reports
8. Manufacturer's Certificates
9. Manufacturer's Instructions
10. Contractor's Responsibility
11. Submission Requirements
12. Resubmission Requirements

Additional general submissions requirements are contained in paragraphs 5.1 through 5.7 of the General Conditions. The CONTRACTOR is responsible for the submittal of all weekly payrolls, monthly utilization and other required forms and reports, including reports and forms from his SUBCONTRACTORS. The prompt submittal of all required reports and forms will help to insure the timely processing of pay request. Detailed submittal requirements will be specified in the technical SPECIFICATIONS sections.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

A. Coordination of Submittal Times:

The CONTRACTOR shall prepare and transmit each submittal sufficiently in advance of performing the related WORK or other applicable activities, or within the time specified in the individual WORK section of the SPECIFICATIONS, so that the installation will not be delayed by processing times including disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the WORK.

1.03 CONSTRUCTION SCHEDULE

A. In addition to the progress schedule requirements specified in Article 3 of the General Conditions, the CONTRACTOR shall, within ten (10) days after the NOTICE TO PROCEED provide and submit to the ENGINEER for review the schedule he plans to maintain in order to successfully construct the WORK within the time allotted. The schedule shall account for all WORK of the CONTRACTOR and his SUBCONTRACTORS.

B. The CONTRACTOR shall update the schedule information monthly and submit the update information to the ENGINEER at the same time the pay estimate is prepared. The schedule shall contain all of the items of the periodic estimate and pay schedule.

C. The CONTRACTOR bears full responsibility for scheduling all phases and stages of the WORK including his SUBCONTRACTOR WORK to insure its successful prosecution and completion within the time specified in accordance with all provisions of these SPECIFICATIONS.

D. Refer to Section 01310 for additional requirements.

1.04 SCHEDULE OF VALUES AND PAYMENTS

A. Within the (10) days after award of the Contract the CONTRACTOR shall submit to the OWNER in triplicate, a breakdown of the pay items, including a schedule of values and a schedule of payments. This breakdown shall be subject to approval by the OWNER, and when so approved shall become the basis for determining progress payments and for negotiation of CHANGE ORDERS, if required.

1.05 SCHEDULE OF SHOP DRAWING SUBMITTALS

A. The CONTRACTOR shall, within ten (10) days after the NOTICE TO PROCEED provide and submit to the ENGINEER for review a SCHEDULE OF SHOP DRAWING SUBMITTALS. The schedule shall account for all materials used by the CONTRACTOR and his SUBCONTRACTORS.

B. The schedule shall be organized to reflect the respective specification division under which it applies.

1.06 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Shop Drawings

1. SHOP DRAWINGS, as defined in the General Conditions, and as specified in the technical SPECIFICATIONS include, but are not necessarily limited to custom-prepared data such as fabrication and erection/installation DRAWINGS, scheduled information, setting diagrams, actual shop WORK manufacturing instructions, custom templates, special wiring diagrams, coordination DRAWINGS, individual system of equipment inspection and test reports including performance curves and certifications, as applicable to the WORK.

2. All details on SHOP DRAWINGS submitted for review shall show clearly the relation of the various parts to the main member and lines of the structure, and where correct fabrication of the WORK depends upon field measurements, such measurements shall be made and noted on the SHOP DRAWINGS before being submitted for review by the ENGINEER.

3. Unless otherwise specified, the CONTRACTOR is not required to resubmit SHOP DRAWINGS on existing equipment. The CONTRACTOR shall, however, be responsible for obtaining all SHOP DRAWINGS and/or other information from the manufacturer necessary to complete the installation and startup of existing equipment.

B. Product Data

1. Product data as specified in individual sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare parts listing, and printed product warranties, as applicable to the WORK.

C. Samples

1. Samples specified in individual sections, included, but are not necessarily limited to, physical examples of the WORK such as sections of manufactured or fabricated WORK, small cuts or

containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effects, graphic symbols, and units of WORK to be used by the ENGINEER or OWNER for independent inspection and testing, as applicable to the WORK.

1.07 CONSTRUCTION PHOTOGRAPHS

A. Miscellaneous photographs as directed by the ENGINEER or OWNER.

1. Photographs are required on this PROJECT and are the responsibility of the CONTRACTOR. Photographs shall be 3" x 5" color snapshots taken with a standard 35mm camera, or a digital camera with 8 MP minimum. CONTRACTOR shall be responsible for the taking, development, labeling and organizing of the photographs. All photographs shall be identified as to location, date and subject matter. Photographs shall be arranged in a photo album(s) by location, subject matter and date taken. Upon completion of the project, the CONTRACTOR shall supply the OWNER with the negatives or digital photo files. The later, if provided, shall be supplied on CD media in .jpg format.

2. No pay item has been set up for the photographs. The CONTRACTOR shall allow for a minimum of 200 - 3" x 5" color photographs (taken and arranged as outlined above) in his BID.

1.08 TEST REPORTS

A. Submit for the Architect/Engineer's knowledge as contract administrator or for the Owner.

B. Submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.09 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Architect/Engineer, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

1.10 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer for delivery to owner in quantities specified for Product Data.

1.11 CONTRACTOR'S RESPONSIBILITY

A. The CONTRACTOR shall review SHOP DRAWINGS, product data and samples prior to submission to determine and verify the following:

1. Field measurements
2. Field construction criteria
3. Catalog numbers and similar data
4. Conformance with the SPECIFICATIONS

B. All SHOP DRAWINGS submitted by SUBCONTRACTORS for review shall be sent directly to the CONTRACTOR for preliminary checking. The CONTRACTOR shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

C. The CONTRACTOR shall check all SUBCONTRACTOR'S SHOP DRAWINGS regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the DRAWINGS and SPECIFICATIONS. DRAWINGS found to be inaccurate or otherwise in error shall be returned to the SUBCONTRACTORS for correction before submission thereof.

D. Each shop drawing, WORKING drawing, sample and catalog data submitted by the CONTRACTOR shall have affixed to it a certification statement, signed by the CONTRACTOR. The certification shall state that the CONTRACTOR represents that he has determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and has checked and coordinated each item with other applicable review SHOP DRAWINGS and all Contract requirements.

E. The CONTRACTOR shall notify the OWNER in writing, at the time of submittal, of any deviations in the submittals from the requirements of the CONTRACT DOUCMENTS.

F. The CONTRACTOR should include the notation "Critical Path" on critical path submittals.

G. The review of SHOP DRAWINGS, samples or catalog data by the ENGINEER shall not relieve the CONTRACTOR from his responsibility with regard to the fulfillment of the terms of the Contract.

H. No portion of the WORK requiring a shop drawing, WORKING drawing, sample or catalog data shall be started nor shall any materials be fabricated or installed prior to the review or qualified review SHOP DRAWINGS and data shall be at the CONTRACTOR'S risk. The OWNER will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.

I. PROJECT WORK, materials, fabrication, and installation shall conform with reviewed SHOP DRAWINGS, WORKING DRAWINGS, applicable samples, and catalog data.

1.12 SUBMISSION REQUIREMENTS

A. The CONTRACTOR shall make submittals promptly in accordance with the accepted schedule, and in such sequence as to cause no delay in the WORK or in the WORK of any other CONTRACTOR.

B. Number of submittals required:

1. SHOP DRAWINGS: Submit six (6) copies.

2. Operation and Maintenance Instructions: Submit six (6) copies.

C. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.

2. The PROJECT title, contract number, and submittal number.

3. CONTRACTOR identification.

4. The names of:

a. CONTRACTOR

b. SUPPLIER

c. Manufacturer

5. Identification of the product, with the specification section number.

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. Identification of revisions on re-submittals.

10. An 8-inch x 3-inch blank space for CONTRACTOR'S and ENGINEER'S stamps.

D. Submittals shall be clear and legible. Submittals with facsimile copies will be automatically rejected.

1.13 RESUBMISSION REQUIREMENTS

A. The CONTRACTOR shall make any corrections or changes in the submittals required by the ENGINEER and resubmit until accepted, in accordance with the following:

1. SHOP DRAWINGS and Product Data:

a. Revise initial DRAWINGS or data, and resubmit as specified for the initial submittal.
b. Indicate any changes which have been made other than those requested by the ENGINEER.

2. Samples:

a. Submit new samples as required for initial submittal.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01310

PROGRESS SCHEDULES

PART 1 GENERAL

1.01 GENERAL

A. Scheduling Responsibilities

1. In order to provide a definitive basis for determining job progress, a construction schedule of a type approved by the OWNER will be used to monitor the PROJECT.

2. The CONTRACTOR shall be responsible for preparing the schedule and updating on a monthly basis. It shall at all times remain the CONTRACTOR'S responsibility to schedule and direct his forces in a manner that will allow for the completion of the WORK within the contractual period.

B. Construction Hours

1. No WORK shall be done between 8:00 p.m. and 7:00 a.m. nor on Sundays or legal holiday without the written permission of the OWNER. However, emergency work may be done without prior written permission.

2. If the CONTRACTOR, for his convenience and at no additional cost to the OWNER, should desire to carry on his WORK at night or outside the regular hours, he shall submit a written request to the ENGINEER and shall allow nine (9) days for satisfactory arrangements to be made for inspecting the WORK in progress. If permission is granted, the CONTRACTOR shall light the different parts of the PROJECT as required to comply with all applicable Federal, State and local regulations. The CONTRACTOR shall also revise his schedule as appropriate at the next monthly schedule update meeting to reflect the changes in working hours.

C. Progress of the WORK

1. The WORK shall be started within ten (10) days following the NOTICE TO PROCEED and shall be executed with such progress as may be required to prevent delay to other CONTRACTORS or to the general completion of the PROJECT. The WORK shall be executed at such times and in or on such parts of the PROJECT, and with such forces, material and equipment, to assure completion of the WORK in the time established by the Contract.

2. The CONTRACTOR agrees that whenever it becomes apparent from the current monthly Schedule update that delays have resulted and, hence, that the Contract completion date will not be met or when so directed by

the OWNER, he will take some or all of the following actions at no additional cost to the OWNER.

(a) Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of WORK.

(b) Increase the number of working hours per shift, shifts per working day or days per week, the amount of construction equipment, or any combination of the foregoing to substantially eliminate the backlog of WORK.

(c) Reschedule activities to achieve maximum practical concurrence of accomplishment of activities, and comply with the revised schedule.

(d) The CONTRACTOR shall submit to the OWNER or the OWNER'S representative for review a written statement of the steps he intends to take to remove or arrest the delay to the critical path in the accepted schedule. If the CONTRACTOR should fail to submit a written statement of the steps he intends to take or should fail to take such steps as required by the Contract, the OWNER may direct the level of effort in manpower (trades), equipment, and work schedule (overtime, weekend and holiday work, etc.), to be employed by the CONTRACTOR in order to remove or arrest the delay to the critical path in the accepted schedule, and the CONTRACTOR shall promptly provide such level of effort at no additional cost to the OWNER.

1.02 CONSTRUCTION SCHEDULE

A. Schedule Submissions

1. With ten (10) calendar days of the NOTICE TO PROCEED, the CONTRACTOR shall submit to the ENGINEER five (5) copies of his proposed schedule. The schedule will be the subject of a schedule review meeting with the CONTRACTOR, the ENGINEER and the OWNER or the OWNER'S representative within one (1) week of its submission. The CONTRACTOR will revise and resubmit schedule until it is acceptable and accepted by the OWNER or the OWNER'S representative.

1.03 SCHEDULE UPDATES

A. Monthly Meetings

1. A monthly Schedule Update Meeting will be held in conjunction with the applicable progress meeting at the construction site to review and update the Schedule. The Schedule Update Meetings will be chaired by the OWNER or the OWNER'S representative and attended by the CONTRACTOR and the ENGINEER. Actual progress of the previous month will be recorded and future

activities will be reviewed. The duration of activities and their logical connections may be revised as needed. Decisions made at these meetings and agreed to by all parties are binding with the exception that no contractual completion dates will be modified without formal written requests and acceptance as specified herein.

B. Conditions Requiring Revisions are as follows:

1. When a delay in completion of any WORK item or sequence of WORK items results in an extension of the PROJECT completion.

2. When delays in submittals or deliveries or work stoppages are encountered which make re-planning or rescheduling of the WORK necessary.

3. When the schedule does not represent the actual prosecution and progress of the PROJECT.

1.04 CONTRACT COMPLETION TIME

A. Causes for Extensions

1. The Contract completion time will be adjusted only for cause specified in this Contract. In the event the CONTRACTOR requests an extension of any Contract completion date, he shall furnish such justification and supporting evidence as the OWNER or the OWNER'S representative may deem necessary for a determination as to whether the CONTRACTOR is entitled to an extension of time under the provision of this Contract. The OWNER, with the assistance of ENGINEER and OWNER'S representative, will, after receipt of such justification and supporting evidence, make findings of fact and will advise the CONTRACTOR in writing thereof.

B. Request for Time Extension

1. Each request for change in any Contract completion date shall be initially submitted to the OWNER within the time frame stated in the General Conditions. All information known to the CONTRACTOR at that time concerning the nature and extent of the delay shall be transmitted to the OWNER at that time. Within the time frame stated in the General Conditions but before the date of final payment under this Contract, all information as required above concerning the delay must be submitted to the OWNER. No time extension will be granted for requests which are not submitted within the foregoing time limits.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 02320

HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SECTION DESCRIPTION

The work specified in this section consists of furnishing and installing underground utilities using the horizontal directional drilling (HDD) method of installation, also commonly referred to as directional boring or guided horizontal boring. This work shall include all services, equipment, materials, and labor for the complete and proper installation, testing, restoration of underground utilities and environmental protection and restoration.

1.02 REFERENCES

Specification 02600 – High Density Polyethylene (HDPE) Pipe and Fittings shall be used as a reference.

1.03 QUALITY ASSURANCE

The requirements set forth in this document specify a wide range of procedural precautions necessary to insure that the very basic, essential aspects of a proper directional bore installation are adequately controlled. Strict adherence shall be required under specifically covered conditions outlined in this specification. Adherence to the specifications contained herein, or the Engineer's approval of any aspect of any directional bore operation covered by this specification, shall in no way relieve the Contractor of their ultimate responsibility for the satisfactory completion of the work authorized under the Contract.

1.04 SUBMITTALS

A. WORK PLAN

Prior to beginning work, the Contractor must submit to the Engineer a general work plan outlining the procedure and schedule to be used to execute the project. Plan should document the thoughtful planning required to successfully complete the project.

B. EQUIPMENT

Contractor will submit specifications on directional drilling equipment to be used to ensure that the equipment will be adequate to complete the project.

C. MATERIALS

Specifications on material to be used shall be submitted to Engineer. Material shall include the pipe, fittings and any other item which is to be an installed component of the project.

PART 2 EQUIPMENT REQUIREMENTS

2.01 EQUIPMENT

The directional drilling equipment shall consist of a directional drilling rig of sufficient capacity to perform the bore and pullback the pipe, a drilling fluid mixing & delivery system of sufficient capacity to successfully complete the crossing, a guidance system to accurately guide boring operations and trained and competent personnel to operate the system. All equipment shall be in good, safe operating condition with sufficient supplies, materials and spare parts on hand to maintain the system in good working order for the duration of this project.

2.02 DRILLING SYSTEM

A. DRILLING RIG

The directional drilling machine shall consist of a hydraulically powered system to rotate, push and pull hollow drill pipe into the ground at a variable angle while delivering a pressurized fluid mixture to a guidable drill (bore) head. The machine shall be anchored to the ground to withstand the pulling, pushing and rotating pressure required to complete the crossing. The hydraulic power system shall be self-contained with sufficient pressure and volume to power drilling operations. Hydraulic system shall be free of leaks. Rig shall have a system to monitor and record maximum pull-back pressure during pull-back operations.

B. DRILL HEAD

The drill head shall be steerable by changing its rotation and shall provide the necessary cutting surfaces and drilling fluid jets.

C. MUD MOTORS (if required)

Mud motors shall be of adequate power to turn the required drilling tools.

D. DRILL PIPE

Shall be constructed of high quality 4130 seamless tubing, grade D or better, with threaded box and pins. Tool joints should be hardened to 32-36 RC.

2.03 GUIDANCE SYSTEM

The Guidance System shall be of a proven type and shall be setup and operated by personnel trained and experienced with this system. The Operator shall be aware of any magnetic anomalies and shall consider such influences in the operation of the guidance system if using a magnetic system.

2.04 DRILLING FLUID (MUD) SYSTEM

A. MIXING SYSTEM

A self-contained, closed, drilling fluid mixing system shall be of sufficient size to mix and deliver drilling fluid composed of bentonite clay, potable water and appropriate additives. Mixing system shall be able to molecularly shear individual bentonite particles from the dry powder to avoid clumping and ensure thorough mixing. The drilling fluid reservoir tank shall be sized for adequate storage of the mud. Mixing system shall continually agitate the drilling fluid during drilling operations.

B. DRILLING FLUIDS

Drilling fluid shall be composed of clean water and an appropriate additive. Water shall be from a clean source with a pH of 8.5 – 10 and/or as per mixing requirements of the Manufacturer. Water of a lower pH or with excessive calcium shall be treated with the appropriate amount of sodium carbonate or equal. The water and additives shall be mixed thoroughly and be absent of any clumps or clods. No hazardous additives may be used. Drilling fluid shall be maintained at a viscosity sufficient to suspend cuttings and maintain the integrity of bore wall.

C. DELIVERY SYSTEM

The mud pumping system shall have a minimum capacity to supply mud in accordance with the drilling equipment pull-back rating at a constant required pressure. The delivery system shall have filters in-line to prevent solids from being pumped into the drill pipe. Connections between the pump and drill pipe shall be relatively leak-free. Used drilling fluid and drilling fluid spilled during drilling operations shall be contained and properly disposed of. A berm, minimum of 12" high, shall be maintained around drill rigs, drilling fluid mixing system, entry and exit pits and drilling fluid recycling system (if used) to prevent spills into the surrounding environment. Pumps and or vacuum truck(s) of sufficient size shall be in place to convey excess drilling fluid from containment areas to storage facilities.

2.05 OTHER EQUIPMENT

A. PIPE ROLLERS

Pipe rollers, if required, shall be of sufficient size to fully support the weight of the pipe while being hydro-tested and during pull-back operations. Sufficient number of rollers shall used to prevent excess sagging of pipe.

B. PIPE RAMMERS

Hydraulic or pneumatic pipe rammers may only be used if necessary and with the authorization of Engineer.

C. RESTRICTIONS

Other devices or utility placement systems for providing horizontal thrust other than those previously defined in the preceding sections shall not be used unless approved by the Engineer prior to commencement of the work. Consideration for approval will be made on an individual basis for each specified location. The proposed device or system will be evaluated prior to approval or rejection on its potential ability to complete the utility placement satisfactorily without undue stoppage and to maintain line and grade within the tolerances prescribed by the particular conditions of the project.

PART 3 - EXECUTION

3.01 GENERAL

The Engineer must be notified 48 hours in advance of starting work. The Directional Bore shall not begin until the Engineer is present at the job site and agrees that proper preparations for the operation have been made. The Engineer approval for beginning the installation shall in no way relieve the Contractor of the ultimate responsibility for the satisfactory completion of the work as authorized under the Contract. It shall be the responsibility of Engineer to provide inspection personnel at such times as appropriate without causing undue hardship by reason of delay to the Contractor.

3.02 PERSONNEL REQUIREMENTS

All personnel shall be fully trained in their respective duties as part of the directional drilling crew and in safety.

3.03 DRILLING PROCEDURE

A. SITE PREPARATION

1. Prior to any alterations to work-site, contractor shall photograph or video tape entire work area, including entry and exit points. One copy of which shall be given to Engineer and one copy to remain with contractor for a period of one year following the completion of the project.

2. Work site as indicated on drawings, within right-of-way, shall be graded or filled to provide a level working area. No alterations beyond what is required for operations are to be made. Contractor shall confine all activities to designated work areas.

B. DRILL PATH SURVEY

Entire drill path shall be accurately surveyed with entry and exit stakes placed in the appropriate locations within the areas indicated on drawings. If contractor is using a magnetic guidance system, drill path will be surveyed for any surface geo-magnetic variations or anomalies.

C. ENVIRONMENTAL PROTECTION

Contractor shall place silt fence between all drilling operations and any drainage, wetland, waterway or other area designated for such protection by contract documents, state, federal and local regulations. Additional environmental protection necessary to contain any hydraulic or drilling fluid spills shall be put in place, including berms, liners, turbidity curtains and other measures. Contractor shall adhere to all applicable environmental regulations. Fuel or oil may not be stored in bulk containers within 200' of any water-body or wetland.

D. SAFETY

Contractor shall adhere to all applicable state, federal and local safety regulations and all operations shall be conducted in a safe manner.

E. PIPE

Pipe shall be welded/fused together in one length, if space permits. Pipe will be placed on pipe rollers before pulling into bore hole with rollers spaced close enough to prevent excessive sagging of pipe.

F. PILOT HOLE

1. Pilot hole shall be drilled on bore path with no deviations greater than 5%of depth over a length of 100'. In the event that pilot does deviate from bore path more than 5% of depth in 100', Contractor will notify Engineer and Engineer may require Contractor to pull-back and re-drill from the location along bore path before the deviation.

2. In the event that a drilling fluid fracture, inadvertent returns or returns loss occurs during pilot hole drilling operations, contractor shall cease drilling, wait at least 30 minutes, inject a quantity of drilling fluid with a viscosity exceeding 120 seconds as measured by a March funnel and then wait another 30 minutes. If mud fracture or returns loss continues,

contractor will cease operations and notify Engineer. Engineer and contractor will discuss additional options and work will then proceed accordingly.

G. REAMING

Upon successful completion of pilot hole, contractor will ream bore hole to a minimum of 25% greater than outside diameter of pipe using the appropriate tools. Contractor will not attempt to ream at one time more than the drilling equipment and mud system are designed to safely handle.

H. PULL-BACK

1. After successfully reaming bore hole to the required diameter, contractor will pull the pipe through the bore hole. In front of the pipe will be a swivel. Once pull-back operations have commenced, operations must continue without interruption until pipe is completely pulled into borehole. During pull-back operations contractor will not apply more than the maximum safe pipe pull pressure at any time.

2. In the event that pipe becomes stuck, contractor will cease pulling operations to allow any potential hydro-lock to subside and will commence pulling operations. If pipe remains stuck, contractor will notify Engineer. Engineer and contractor will discuss options and then work will proceed accordingly.

3.04 PIPE TESTING

A. Pipe testing sections shall be followed in its entirety following pull-back of the pipe.

1. All mains shall be swabbed.

2. All mains shall be chlorinated.

3.05 Basis For Payment

A. Piping shall be paid for at the unit price bid and shall include all work incidental to making a complete installation such as excavation, bedding, backfill, painting, testing, disinfection, cleanup, seeding, etc.

END OF SECTION

SECTION 02326

STEEL CASING PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Steel casing pipe shall be furnished and installed as shown on the DRAWINGS and specified herein.

1.02 RELATED WORK

A. Erosion and Water Pollution Control are address under KYTC Standard Specifications for Road and Bridge Construction, most current edition, Division 200

B. Piping is included in this Division, Section 02600.

PART 2 PRODUCTS

2.01 STEEL CASING PIPE

A. Steel casing or jack pipe shall be plain end steel pipe with a minimum yield strength of 35,000 psi and tensile strength of 60,000 psi per API-5L Grade B material. The steel pipe supplied shall be manufactured by the seamless, electric-weld, submerged are weld or gas metal-arc weld process as specified in API-5L. Certifications of 35,000 psi minimum yield strength shall be furnished by the CONTRACTOR.

B. The inside diameter shall be at least 2 inches greater than the largest outside diameter of the carrier pipe, joint or couplings for carrier pipe less than 6" in diameter. The inside diameter shall be at least 4" greater than the largest outside diameter of the carrier pipe, joint or couplings for carrier pipe 6" and over in diameter unless otherwise noted on the plan sheets. In all cases, the casing pipe shall be great enough to allow the carrier pipe to be removed subsequently without disturbing the casing pipe or roadbed.

C. Casing pipe shall have minimum wall thickness as shown in the following table:

Nominal Diameter (Inch)	Nominal Thickness (Inch)	Nominal Diameter (Inch)	Nominal Thickness (Inch)
Under 10	0.188	24	0.438
10 - 12	0.250	26	0.438
14 - 16	0.281	28 - 30	0.500

PART 3 EXECUTION

3.01 TUNNELING, BORING OR JACKING

A. Boring or jacking as specified herein shall be located as shown on DRAWINGS. All other casing pipe installations shall be open cut trench.

B. Tunneling under paving, railroads, buildings and underground structures is included as an alternate to boring or repaving required by open cut trenching at no extra cost to the OWNER. Bore and casing pipe is also included as an alternate to tunneling. Backfilling of tunnels shall be mechanically tamped in not more than 3-inch layers and with material rendered suitable for tamping before being placed in tunnel unless otherwise shown on the DRAWINGS. No payment will be made for tunnels less than 3 feet long.

C. In tunneling under buildings, the CONTRACTOR will be held responsible for all damage by his operations and methods of excavation and backfilling.

D. Should the CONTRACTOR elect and receive permission to tunnel and bore, other than locations designated on the DRAWINGS or required by the ENGINEER to be tunneled or bored, the entire compensation therefore shall be the same as the unit prices bid for installation in open trench, including paving replacement, but not including bore or unit prices.

E. At locations where tunneling or boring or jacking is called for on the DRAWINGS, in addition to the unit prices for permanent tunnel, tunnel liner, temporary tunnel, boring or jacking and/or casing pipe, payment will be made for furnishing and laying carrier pipe inside the tunnel or casing pipe. No payment will be made for separate trench and backfill unit price items where permanent tunnel, tunnel liner, temporary tunnel, boring or jacking and/or casing pipe unit prices is paid.

F. Boring or jacking under highways, railroads, sidewalks, pipelines, etc., shall be done at the locations shown on the DRAWINGS. It shall be performed by mechanical means and accurate vertical and horizontal alignment must be maintained. When shown on the DRAWINGS, casing pipe shall be used and shall be installed inside bored holes concurrently with boring, or jacking.

3.02 STEEL CASING PIPE INSTALLATION

A. Steel casing pipe shall be of the size and wall thickness as shown on the DRAWINGS or specifications.

B. When casing pipe is jacked, concurrent with boring, all joints shall be solidly welded. The weld shall be such that the joint shall be of such strength to withstand the forces exerted from the boring and jacking operation as well as the vertical loading imposed on the pipe after installation. The weld shall also be such that it provides a smooth, non-obstructing joint in the interior of the pipe, which will allow easy installation of the carrier pipe without hanging or abrasion to the carrier pipe upon installation.

C. When casing pipe is installed in open trench or permanent tunnel, it shall be bedded and backfilled as specified in Division 2. When casing pipe is installed in temporary tunnel, it shall be laid accurately to alignment of proposed pipeline and at an elevation below proposed pipeline necessary to support it at the planned elevation. Bedding and backfill for casing pipe in temporary tunnel shall be as specified in Division 2.

D. Casing pipe in open trench, permanent tunnel and temporary tunnel shall be joined by welding such that it will no be moved out of alignment or grade and will prevent backfill material from entering joint. Where casing pipes are shown on the DRAWINGS to be equipped with vent pipes, vents shall be installed as shown on the DRAWINGS with cost of the same included in the price bid for the casing pipe unless otherwise specified.

3.03 CARRIER PIPE IN CASING PIPE INSTALLATION

A. Pipeline Spacers

Carrier pipes shall be centered inside casing pipe throughout the length of the casing pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the casing pipe in such a manner as to prevent the dislodgment of the spacers as the carrier pipe is pulled or pushed through the casing pipe. Spacers shall be of such dimensions to provide (1) full supportive load capacity of the carrier pipe and contents; (2) of such thickness to allow installation and/or removal of the pipe; and (3) to allow no greater than 1/2 inch movement of the carrier pipe within the casing pipe after the carrier pipe is installed. Installation shall be in accordance with manufacturer's recommendations. Spacers shall be model CI Polyethylene casing spacers as manufactured by Advance Products & Systems, Inc., CCI Pipeline Systems, or approved equal.

B. Upon completion of installation of the carrier pipe, the annular space at the ends of the cover pipe shall be sealed to prevent the entrance of groundwater, silt, etc., into the casing pipe. The seal shall be a

manufactured product specially made for this purpose. The seal shall be the best seal type constructed of synthetic rubber with stainless steel banding straps. Seals may be of the "pull-on" or "wrap around" type as manufactured by Advance Products and Systems, Inc., CCI Pipeline Systems, or approved equal.

3.04 BASIS FOR PAYMENT

Steel Casing Pipe shall be paid for at the unit price bid and shall include all work incidental to making a complete installation such as excavation, bedding, backfill, painting, testing, disinfection, cleanup, seeding, etc. Carrier pipe shall be paid under separate bid item.

END OF SECTION

SECTION 02600

WATER DISTRIBUTION PIPE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, equipment and incidentals necessary to install and test pipe and fittings as shown on the Drawings and required by the Specifications.

B. Piping shall be located substantially as shown. The ENGINEER reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the CONTRACTOR'S convenience and does not relieve him from laying and jointing different or additional items where required without additional compensation.

C. Wherever the word pipe or piping is used it shall mean pipe and fittings unless otherwise noted.

D. All references to Standards/Specifications shall mean the latest revision.

1.02 RELATED WORK

A. Trenching, backfilling and compacting are included in KYTC Standard Specifications for Road and Bridge Construction, most current edition, Division 200 & 700.

B. Concrete is included in KYTC Standard Specifications for Road and Bridge Construction, most current edition, Division 600.

1.03 DESCRIPTION OF SYSTEM

A. Piping shall be installed substantially as shown on the DRAWINGS so as to form a complete smooth flow path and workable system.

B. The piping and materials specified herein are intended to be standard types of pipe for use in transporting potable water as indicated on the DRAWINGS. The pipe and fittings shall be designed, constructed, and installed in accordance with the best practices and methods and the manufacturer's recommendations.

1.04 QUALIFICATIONS

A. All pipe and fittings under this section shall be furnished by manufacturers who are fully experienced, qualified, and regularly engaged in the manufacture of the materials to be furnished.

1.05 SUBMITTALS

A. The CONTRACTOR shall submit to the ENGINEER for review in accordance with Division 1, Section 01300, complete sets of shop drawings showing layout and details of materials, joints and methods of construction and installation of the pipe, specials and fittings required.

B. Before fabrication and/or shipping of the pipe is begun, the CONTRACTOR shall submit for approval a schedule of pipe lengths for the entire job. All pipe furnished under the Contract shall be fabricated in full accordance with the approved Drawings.

1.06 INSPECTION

A. The manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness. The manufacturer shall furnish to the ENGINEER a notarized affidavit stating all pipe meets the requirements of applicable ASTM Specifications, these Specifications, and the joint design with respect to square ends and out-of-round joint surfaces.

PART 2 PRODUCTS

2.01 DUCTILE IRON PIPE

A. General

1. Ductile iron pipe shall be centrifugally cast of ductile iron conforming to ASTM Specifications A 746 latest revision. The pipe design conditions shall be as follows:

   a. Pressure: Minimum of 250 psi operating plus 100 psi surge allowance.

   b. Trench Loading: Laying condition Type 4 unless otherwise specified on Drawings. Trench depth not less than 2' nor more than that shown on the Drawings.

   c. Metal Design Strengths:

Bursting Tensile	40,000 psi
Modulus of Rupture	90,000 psi

2. The manufacturing tolerances included in the nominal thickness shall not be less than specified by ANSI/AWWA C150/A21.50, latest revision.

3. Minimum wall thickness shall be 0.33 inches (Class 52), or more if required for minimum operating pressure of 250 psi.

4. Pipe may be furnished in 18', or 20' nominal laying lengths; and the weight of any single pipe shall not be less than the tabulated weight by more than 5 percent for pipe 12" or smaller in diameter, nor by more than 4 percent for pipe larger than 12" in diameter.

5. The hydrostatic and acceptance tests for the physical characteristics of the pipe shall be as specified in ANSI/AWWA C151/A21.51, latest revision.

6. Any pipe not meeting the ANSI/AWWA specifications quotes above shall be rejected in accordance with the procedure outlined in the particular specification.

7. The ENGINEER shall be provided with 3 copies of a certification by the manufacturer that the pipe supplied for this Contract has been tested in accordance with the referenced specifications and is in compliance therewith.

8. The net weight, class or nominal thickness and sampling period shall be marked on each pipe. The pipe shall also be marked to show that it is ductile iron.

9. Unless otherwise noted, joints for ductile iron pipe will be "push-on" type consisting of a rubber gasket installed in a recess in the bell.

10. Ductile iron pipe must be used within 200 feet of underground petroleum storage tanks and shall have gaskets designed for this purpose such as Nitrile Butadiene (NBR), approved equal or better.

B. Lining and Coating Ductile Iron Pipe

1. All ductile iron pipe shall have a cement lining and bituminous seal coat on the inside. Cement mortar lining and bituminous seal coat inside shall conform to ANSI/AWWA C104/A21.4 latest revision.

2. All buried ductile iron pipe shall have manufacturer's outside coal tar or asphaltic base coating.

3. All above grade ductile iron pipe shall have the following coating system:

   A. System Type: MCU/Epoxy.

   B. Surface Preparation: Surface Preparation: NAPF 500-03-03 Power Tool Cleaning.

C. Primer: Series 1 Purpleprime. DFT 2.5 to 3.5 mils.

D. Finish Coat: Series N69 Hi-Build Epoxoline II. DFT 4.0 to 6.0 mils.*[May require two coats if brush or roller applied].*

E. Total DFT: 6.5 to 9.5 mils.

F. Finish Color: As indicated on the drawings, or color schedule.

G. Coatings shall be Tnemec Company Incorporated, Sherwin-Williams, or approved equal.

4. All surface preparation and coating application shall be per the manufacturer's recommendations.

C. Fittings for Ductile Iron Pipe-3" and larger

1. Ductile Iron fittings only shall be used with the ductile iron pipe.

2. Mechanical joint fittings shall be used with underground pipe.

3. Rubber-gasket joints shall conform to ANSI/AWWA C111/A21.11 latest revision for centrifugally cast ductile iron water pipe.

4. All Working Pressures - Fittings shall conform to ANSI/AWWA Specifications C110/A21.10 latest revision for 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast iron per ASTM Specifications A536, latest revision.

5. All fittings shall be cement lined and bituminous coated per Federal Specifications WW-P-421b.

D. Ductile Iron Pipe and Fittings - Smaller than 3"

1. Small size ductile iron pipe shall conform to ANSI Specifications A21.12 (AWWA C 112) latest revision. Fittings shall conform to ANSI Specifications A21.10 (AWWA C 110) latest revision.

2. Pipe may be furnished with either mechanical joints or slip-on joints. Buried fittings shall be furnished with mechanical joints.

E. Flanged Cast Iron Pipe and Flanged Coupling Adapters for Flexible Couplings

1. Non-buried ductile iron pipe and fittings shall be flanged unless otherwise specified.

2. Flanged cast iron pipe and fittings shall have dimensions facing and drilling for ANSI Class 125 flanges (125 psi steam working pressure; 250 psi water working pressure).

3. Where flanges are pit cast integrally with pipe in vertical position in dry sand molds, flanged pipe shall be AWWA Class "B" or latest revision of ANSI Specifications A21.2, Class 50 pipe for sewage, sludge, gas and air service and Class 150 pipe for all types of water service.

4. Where flanged pipe is made up by threading plain end, centrifugally cast pipe, screwing on specially designed long hub flanges, and re-facing across both the face of the flange and the end or pipe, flange shall be per ANSI Specification B16.1 latest revision and pipe shall be Class 150 per ANSI Specification A21.6 latest revision.

5. Either of the foregoing methods of manufacture of flanged pipe will be acceptable, but when plain ends of flanged pipe are to fit into mechanical joint bells, then the outside diameter of the pipe shall be such that the joint can be made.

6. CBS (rubber and cloth both sides) gaskets 1/16" in thickness shall be used in connecting flanged piping. Nuts and bolts for use in making flanged connections shall have hexagonal heads, be of proper lengths and with U.S. standard threads. The tensile strength of steel used in the bolts shall be not less than 55,000 psi.

7. Flanged Coupling Adapters for flanged pipe shall be a mechanical joint cast to a special flanged joint using a neoprene "O-ring", in place of the usual 1/16" rubber ring gasket. The mechanical bell and special flanged joint piece shall be of high grade gray cast iron with bolt circle, bolt size and spacing conforming to ASA B16.1 Specifications latest revision. Mechanical joint follower flange shall be of ductile or malleable iron with high strength/weight ratio design. Bolts shall be fine grained, high tensile, malleable iron with malleable iron hexagon nuts.

8. Flanged Coupling Adapters for 12" and smaller cast iron pipe shall be Smith-Blair #912; Dresser Style 127; or approved equal. For pipe larger than 12", flexible couplings shall be Smith-Blair #913; Dresser Style 128; or approved equal. All flexible couplings shall be furnished with anchor studs.

F. Mechanical Joint Restraints

1. Gland body, wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.

2. Ductile iron gripping wedges shall be heat treated within a range of 370 to 470 BHN.

3. Three (3) test bars shall be incrementally poured per production shift as per Underwriter's Laboratory (U.L.) specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.

4. Chemical and nodularity tests shall be performed as recommended by the Ductile Iron Society, on a per ladle basis.

2.02 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. PVC pipe shall comply with ASTM D01784 and shall be Type 1, Grade 1, with pressure and SDR rating as shown on the drawings or indicated in the proposal form. All PVC pipe shall conform to the latest revisions of the following specifications:

ASTM D2241 (PVC plastic pipe SDR-PR and Class T)
Commercial Standard CS 256 (pressure rated type)
National Sanitation Foundation Testing Laboratories (NSF)

B. The name of the manufacturer of the plastic pipe to be used must be found on the current listing of Plastic Materials for Potable Water Application, published by the NSF (National Sanitation Foundation), Ann Arbor, Michigan, and must meet the requirements of the Standard Specifications for Polyvinyl Chloride (PVC) Plastic Pipe, D1785, published by ASTM (American Society for Testing and Materials).

C. Pipe lengths shall not exceed 40 feet. Wall thickness shall be in accordance with CS-256 and ASTM D-2241. Pipe ends shall be beveled to accept the gasketed coupling. Rubber gasketing shall conform to ASTM 1869.

D. Samples of pipe, physical and chemical data sheets shall be submitted to the ENGINEER for approval and his approval shall be obtained before pipe is purchased. The pipe shall be homogenous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform as commercially practical in color. Pipe shall have a ring painted around spigot ends in such a manner as to allow field checking of setting depth of pipe in the socket.

E. Pipe must be delivered to the job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical.

F. The couplings and fittings shall be furnished by the pipe manufacturer and shall accommodate the pipe for which they are to be used. They shall have a minimum pressure rating of 200 psi. Insertion depth of the pipe in

the coupling shall be controlled by an internal PVC mechanical stop in the coupling which will allow for a thermal expansion and contraction. Couplings method shall allow for half of each end of the pipe. Couplings shall permit 5 degree deflection (2-1/2 degrees each side) of the pipe without any evidence of infiltration, cracking or breaking. Couplings shall have rubber seals factory installed.

G. Pipe markings shall include the following, marked continuously down the length:

Manufacturer's Name
Nominal Size
Class Pressure Rating
PVC 1120
NSF Logo, and
Identification Code

H. Lubricant shall be water soluble, nontoxic, be non-objectionable in taste and odor imparted to the fluid, be non-supporting of bacteria growth and have no deteriorating effect on the PVC or rubber gaskets.

2.03 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (SCHEDULE 80)

A. General

Schedule 80 PVC pipe shall be as manufactured by the Celanese Piping Systems, Inc., United States Plastic Corp., or approved equal. To ensure installation uniformity, all piping system components shall be the products of one manufacturer.

B. Materials

1. Pipe and fittings shall be manufactured from a PVC compound which meets the requirements of Type 1, Grade 1 polyvinyl chloride as outlined in ASTM D-1784. A Type 1, Grade 1 compound is characterized as having the highest requirements for mechanical properties and chemical resistance. Fittings shall be socket type and shall conform to the requirements of ASTM D-2467.

2. Compound from which pipe is produced shall have a design stress rating of 200 psi at 73° F., listed by the Plastics Pipe Institute (PPI).

3. Materials from which pipe and fittings are manufactured shall have been tested and approved for conveying potable water by the National Sanitation Foundation (NSF).

C. Solvent Cement

All socket type connections shall be joined with PVC solvent cement complying to ASTM D-2564. Cement shall have a minimum viscosity of 2000 cps.

D. Installation

Installation shall be in strict accordance with the manufacturer's printed instructions. Printed installation instructions shall be submitted and approved by the ENGINEER prior to shipment of the pipe.

E. Testing

1. Pressure Pipe - Refer to Paragraph 3.02 of this Division.

2. Vacuum Pipe - All pipe intended for use under partial vacuum shall be tested by subjection to 24 inches of mercury vacuum; allowing 15 minutes to stabilize and thereafter lose not more than 1% vacuum pressure per hour over a minimum 4 hour test period. This test must be met or exceed prior to final acceptance.

2.04 COPPER PIPE AND FITTINGS

A. Exterior copper pipe shall be Type K pipe (ASTM B88 latest revision), with compression fittings. Joints shall be drawn up firmly and shall be tested before backfilling and any leakage stopped.

B. Wherever copper pipes pass through walls or floors, they shall have wrought or cast iron sleeves, for easy removal. Pipes passing through structural beams shall be placed as near as possible to the top of the beam under the floor slab.

2.05 HIGH DENSITY POLYETHYLENE PIPE

A. General

1. High density polyethylene pipe shall be Adyl "D" polyethylene pipe manufactured by E.I. DuPont DeNemours and Co., Inc., or "Driscopipe" as manufactured by Phillips Product Co., Inc., or approved equal.

B. Materials for Polyethylene Pipe

1. The polyethylene pipe and fittings shall be made of polyethylene resins classified in ASTM D 1248 as Type III, Category 5, Grade P34 (pipe designation PE 3408 defined per ASTM D 3035 latest revision), having specific base resin densities of 0.942 g/cc minimum and 0.955 g/cc maximum, respectively; and having melt indexes of 0.4 g/10 min. maximum and 0.15 g/0.10 min. minimum, respectively.

2. Pipe made from these resins must have a long-term strength rating of 1,600 psi or more.

3. The polyethylene resin shall contain antioxidants and shall be stabilized with carbon black against ultra-violet degradation to provide protection during processing and subsequent weather exposure.

4. The polyethylene resin compound shall have a resistance to environmental stress cracking as determined by the procedure detailed in ASTM D 16930 latest revision, Condition B with sample preparation by procedure C of not less than 200 hours.

C. Polyethylene Pipe and Fittings

1. Polyethylene pipe furnished and installed under this Contract shall be of nominal outside diameter shown on the Drawings, and shall be designed for a normal internal working pressure and earth cover over top of the pipe to suit the conditions of proposed use.
2. Each length of pipe shall be marked, at no more than 10 foot intervals, with the following information:

   Nominal pipe size
   Type plastic material - PE3408
   Pipe pressure rating
   Manufacturer's name, trademark and code

3. All pipe shall be made from virgin material. No rework compound.

4. Pipe shall be homogenous throughout, and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

5. Fittings for the polyethylene pipe line shall be molded for fabricated from the same material as specified hereinbefore for the high density polyethylene pipe.

6. Fittings for bends 22-1/2 degrees or greater shall be provided as shown on the Drawings. For alignment changes of less than 20 degrees deflection, the pipe may be laid in curves with a radius of 80 feet or greater.

7. All run-of-the-pipe fittings shall be fusion welded into the pipe line. Tee branches shall be of the size shown on the Drawings and shall be furnished with flanged ends per ANSI B-16.1. All fittings shall be factory made.

8. Fittings shall be capable of withstanding the same pressure and loading conditions specified for the pipe.

9. Wye Branches shall be true wyes.

D. Pipe Jointing

1. Pipe to be joined by leak-proof, thermal, butt fusion joints. All fusion must be done by personnel trained by the pipe supplier using tools approved by the pipe supplier.

2. The fusion machine shall have hydraulic pressure control for fusing 2 pipe ends together; it shall include pressure fusion indicating gauges to correctly monitor fusion pressures. The machines shall be equipped with an electric or gasoline engine powered facing unit to trim irregularities from the pipe ends. The heating plate on the fusion machine shall be electrically heated and thermostatically controlled and shall contain a temperature gauge for monitoring temperature.

3. Joint strength must be equal to that of adjacent pipe as demonstrated by tensile test. In addition, results of tensile impact testing of joint should indicate a ductile rather than a brittle fracture. External appearance of fusion bead should be smooth without significant juncture groove.

4. Threaded or solvent cement joints and connections are not permitted.

E. Joining, Terminating or Adapting by Mechanical Means

1. The polyethylene pipe shall be connected to systems or fittings of other materials by means of an assembly consisting of a polyethylene flange adapter butt-fused to the pipe, a backup ring of either cast iron, steel, or high silica aluminum alloy made to ANSI B-16.1 dimensional standards (with modified pressure ratings), bolts of compatible material (insulated from the fittings where necessary) and a gasket of reinforced black rubber, asbestos-rubber compound or other material approved by the ENGINEER, cut to fit the joint. In all cases, the bolts shall be drawn up evenly and in line.

2. Termination of valves, or fittings such as tees, bonds, etc., made of other materials shall be by the flange assemblies specified hereinbefore. The pipe adjacent to these joints and to joints themselves must be rigidly supported for a distance of one pipe diameter or 1 foot, whichever is greater, beyond the flange assembly.

F. Tools and Procedures

1. Fusion jointing and other procedures necessary for correct assembly of the polyethylene pipe and fittings will be done only by personnel trained in those skills by the pipe supplier.

2. Only those tools designed for aforementioned procedures and approved by the pipe supplier shall be used for assembly of pipe and fittings to ensure proper installation.

2.06 UNDERGROUND UTILITY WARNING TAPES

A. Non-metallic underground utility warning tapes shall be installed directly above all buried pipe.

B. The tape shall a pigmented polyolefin film with a printed message on one side that is impervious to all known alkalis, acids, chemical reagents and solvents found in the soil.

C. The minimum overall thickness of the tape shall be 4.0 mils and the width shall not be less than 3" and a minimum unit length of 1000 ft/roll. The tape shall be color coded and imprinted with the message as follows:

Type of Utility	Color Code	Legends
Water	Safety Precaution Blue	Caution Buried Water Line Below
Sewer	Safety Green	Caution Buried Sewer Line Below

D. Underground marking tape shall be "Terra Tape" as manufactured by Reef Industries, or approved equal.

E. Installation of marking tapes shall be per manufacturer's recommendations and shall be as close to the grade as is practical for optimum protection and delectability. Allow a minimum of 18" between the tape and the line.

F. Payment for detectable tapes shall be included in the linear foot price BID of the piping BID item(s).

2.07 DETECTABLE TRACER WIRE AND FLEXIBLE PIPELINE MARKERS

A. 10 gauge, single strand TRACER WIRE shall be placed directly on top of all PIPE and shall be attached to the pipe at 5 ft intervals maximum. Tracer wire segments shall be 800 feet maximum and shall terminate at each air release valve manhole, or a structure the same as a clean-out box. Contractor shall leave three feet of coiled slack at each termination point.

A. A FLEXIBLE FIBER REINFORCED flat composite pipeline marker shall be installed above the force main approximately every 2000 feet at a location designated by the ENGINEER.

B. The marker shall be manufactured of a fiber reinforced composite material. The reinforcement material shall be comprised of both lineal strands and horizontal mesh mats. The marker post must be flat in shape with rails on both sides. Marker shall be at least 3 ¾" wide. A 2 $^{7}/_{8}$ " wide decal must fit on each side of the marker. The back side of the post shall have a rounded rib down the center and two small ribs on the sides to act as guides for the decals. Decals will be placed on both sides to ensure that a warning message can be seen from both directions.

C. The marker shall be capable of withstanding a minimum of 10 vehicle impacts at 55 M.P.H. with a car bumper.

D. The marker shall be coated with a coloring which matches the color of the post. The coating shall totally stop ultraviolet light from reaching the resin portion of the post. The coating shall not fade, peel, or blister after a minimum of 2,000 hours in a QUV Weatherometer.

E.

Red – Electric	Orange - Communication
Yellow – Gas	Blue – Potable Water
Green – Sewer	Purple – Reclaimed water

F. The marker post shall remain flexible from -40° F to +140° F.

G. Decals shall be fade resistant and remain legible after a minimum of 2,000 hours in a QUV Weatherometer. Decal graphics shall include the internation Do0Dig symbol. Decals shall be placed on both sides of the post.

H. Marker shall be Rhino, Grainger, or approved equal.

PART 3 EXECUTION

3.01 LAYING PIPE IN COMMON TRENCH

A. Pipelines, force mains and sewers laid in same trench shall, in all cases, be laid on original earth, regardless of divergence in their elevations. Pipe shall never be laid in backfill or one above the other. The CONTRACTOR shall include payment for all trenching and backfilling in his lump sum bid.

3.02 PRESSURE PIPE INSTALLATION - GENERAL

A. General

1. Pipe shall be handled with such care as necessary to prevent damage during installation. The interior of the pipe shall be kept clean and the

pipe shall be installed to the lines and grades shown on the Drawings. Pipe shall be installed according to instructions and with tools recommended by the manufacturer. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped.

2. Ductile Iron fittings only shall be used with the PVC pipe.

3. Mechanical joint fittings shall be used with underground pipe.

4. Fittings less than 4-inches in diameter shall be of the mechanical joint type and be firmly blocked to original earth or rock to prevent water pressure from springing pipe sideward or upward. Concrete or other blocking material approved by the ENGINEER shall be placed such that it does not cover the pipe joints, nuts, and bolts.

5. Fittings 4-inches in diameter and greater shall be of the mechanical joint type and firmly restrained to prevent water pressure from springing pipe sideward or upward. The mechanical restraint shall be the Series 2000PV produced by EBAA Iron, Inc. or approved equal.

6. Pipes shall be free of all structures other than those planned. Openings and joints to concrete walls shall be constructed as shown on the Drawings.

7. Ductile iron or steel pressure pipe, 4 inch diameter or larger, entering a structure below original earth level, unsupported by original earth for a distance of more than 6 feet shall be supported by Class "2500" concrete, where depth of such support does not exceed 3 feet, and by Class "4000" concrete piers each 6 feet, where depth exceeds 3 feet. All other pressure pipe entering buildings or basins below original earth and having a cover of more than 24 inches of earth, or under roadway, shall be supported as shown in detail on the Drawings. All piers required will be paid for in accordance with the appropriate specification hereinbefore. Class "2500" concrete required will be included in the payment for furnishing and laying the particular pipe, in order to discourage excessive excavation outside the limits of structures. Pipes entering structures shall have flexible joint within 18 inches of exterior of structure, and also from point of leaving concrete support to original earth or crushed stone bedding.

B. Pressure Pipe Laying

1. Pressure pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer. A copy of such instructions shall be available at all times at the site of the work.

2. All pipes must be forced and held together, or "homed" at the joints, before sealing ground level and unsupported by original earth for a distance of more than 6 feet shall be supported by concrete to original ground where depth of such support does not

exceed 3 feet. When depth exceeds 3 feet, beams with piers shall be used for support.

3. Trench excavation for pipe laying must be of sufficient width to allow the proper jointing and alignment of the pipe. Trenches in earth or rock shall be dug deep enough to ensure 30" minimum cover over top of the pipe, unless otherwise indicated on the Drawings.

4. Trench line stations shall be set ahead of the trenching at least each 100 feet of pipeline. Trenches shall be dug true to alignment of stakes. Alignment of trenches or pipes in trench must not be changed to pass around obstacles such as poles, fences and other evident obstructions without the approval of the ENGINEER. Lines will be laid out to avoid obstacles as far as possible, consistent with maintenance of alignment necessary to finding the pipeline in the future and avoiding obstruction of future utilities and structures.

4. Cut pieces of pressure pipe 18" or more in length may be used in fitting to the specials and valves and fitting changes in grade and alignment. Cut ends shall be even enough to make first class joints.

C. Testing Pressure Pipe

1. Pressure and leakage tests shall be conducted in accordance with ANSI/AWWA C600.

2. The CONTRACTOR shall furnish all necessary equipment for pressure testing.

3. Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for passing tests, stopping leakage, or correcting poor workmanship.

4. Underground pipelines will not be finally accepted until leakage is less than allowable by ANSI/AWWA C600. In case leakage exceeds this amount, the CONTRACTOR shall locate and repair leaks until the entire pipeline will pass the required test. All leakage shall be stopped in exposed piping. The pumping equipment shall be disconnected during test.

5. The CONTRACTOR shall furnish meter or suction tank, pipe test plugs and bypassing piping and make all connections for conducting the above tests. The pumping equipment used shall be compressed air, centrifugal pump or other pumping equipment which will not place shock pressures on the pipeline. Power plunger pumps will not be permitted or us on closed pipe system for any purpose.

3.03 DUCTILE IRON PIPE INSTALLATION

A. Pipe shall be handled with such care as necessary to prevent damage during installation. The interior of the pipe shall be kept clean and the pipe shall be laid to the lines and grades shown on the Drawings and/or as established by the ENGINEER.

B. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped. Care should be taken to prevent flotation of pipe in the event the trench should flood.

C. Fitting shall be firmly blocked to original earth or rock to prevent water pressure from springing pipe sideward or upward. Concrete or other blocking material shall be placed such that it does not cover the pipe joints, nuts and bolts.

D. Pipes shall be free of all structures other than those planned. Openings and joints to concrete walls shall be constructed as shown on the Drawings. Any cast iron pipe entering a structure below original ground level and unsupported by original earth for a distance of more than 6 feet shall be supported by concrete to original ground where depth of such support does not exceed 3 feet. When depth exceeds 3 feet, beams with piers shall be used for support.

E. All pipes entering buildings or basins below original earth level, which have less than 6 feet span between wall and original earth and having a cover of more than 24 inches of earth, or under roadway, must be adequately supported as approved by the ENGINEER or shown on the Drawings. All such supports are to be included in the contract price and no extra payment will be made for same.

F. Pipes entering structures shall have a flexible joint within 18" of exterior of structure, or from point of leaving concrete support to original earth or rock bedding.

G. Cast iron pipe shall be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer.

H. All pipes must be forced and held together, or "homed" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so as to obtain straight lines and grades. Curves and changes in grades shall be laid in such a manner that maximum allowable joint deflection is not exceeded.

I. Cut pieces of cast iron pipe 18" or more in length, may be used in connecting valves and fittings and for changes in grade and alignment. Cut ends shall be even enough to make first class joints.

J. Sufficient excavation for bell holes will be required for tightening of bolts. No pipe shall be laid resting on rock, blocking, or other unyielding objects except where laid above ground on piers or in permanent tunnels.

3.04 INSTALLING FLANGED OR THREADED PIPE AND FITTINGS

A. The CONTRACTOR shall clean off all rush and dirt and paint all threads with red lead, before assembling, and the pipe shall be installed with flanges and pipes plumb and level, showing no leakage. Unions shall be included in threaded pipe runs to allow for easy removal of pipes. All valve operating devices shall be in locations and of types shown on the Drawings. They shall be accurately plumbed, leveled, supported and braced for smooth operation. Flanged joints shall be assembled with appropriate flanges, gaskets, and bolting. The clearance between flange faces shall be such that the connections can be gasketed and bolted tight without imposing undue strain on the piping system. Flange faces shall be parallel and the bores concentric; gaskets shall be centered on the flange faces so as not to project into the bore. Bolting shall be lubricated before assembly to ensure uniform bolt stressing. The flange bolts shall be drawn up and tightened in staggered sequence in order to prevent unequal gasket flange spacing. When a raised face is joined to a companion flange with a flat face, the raised face shall be machined down to a smooth matching surface and a full face gasket shall be used.

3.05 PVC PIPE INSTALLATION

PVC pipe shall be installed in accordance with the manufacturer's instructions and the "General" provisions under 3.01 and 3.02 in this Section.

3.06 HIGH DENSITY POLYETHYLENE PIPE INSTALLATION

A. General

1. High density polyethylene pipe shall be installed in strict accordance with the manufacturer's recommendations and these Specifications.

2. The CONTRACTOR shall have the manufacturer furnish all necessary technical assistance, installation instruction and jointing supervision required to ensure that the pipe is properly installed. The CONTRACTOR shall furnish the services of a technical representative of the manufacturer to supervise the joining, bedding, laying and backfilling of at least the first 200 feet of pipe.

3. Upon satisfactory completion of the initial jointing, bedding, laying and backfilling of the first 300 feet of pipe, the CONTRACTOR shall furnish the ENGINEER a written statement from the manufacturer's technical representative certifying that he has witnessed the work in progress and approves the techniques being used and the results obtained by the CONTRACTOR.

4. The manufacturer's technical representative shall have had previous experience with similar work, and be fully qualified to supervise and demonstrate proper procedures for jointing and laying the high density polyethylene pipe.

B. Bedding

1. The laying condition for the high density polyethylene pipe will be on a 6" pad of loose soil with mechanically compacted earth (to a 90 percent of maximum density as determined by Standard Proctor density test) to the centerline of the pipe.

2. At the CONTRACTOR'S option, he may substitute a 6" pad of No. 8 crushed stone below the bottom of the pipe and backfill to the centerline of the pie with No. 8 crushed stone.

C. Grade and Alignment

1. Polyethylene pipe shall be laid to predetermined grades and lines as indicated by the Contract Drawings. Grade lines shall be established either by means of offset grade stakes or by direct levels.

3.07 STERILIZATION OF POTABLE WATER PIPE

A. Upon completion of the work and cleaning up, and prior to final acceptance, the CONTRACTOR shall sterilize all new distribution system improvements which will be in contact with drinking water; including potable water pipe and connections thereto (including pumps and pump piping).

B. Sterilization shall be accomplished by filling the facilities with water containing at least fifty (50) parts per million available chlorine utilizing a contact time of 24 hours. A residual of at least 25 parts per million, at the end of the 24 hour contact time, is required. No portion of the new work shall be placed in service prior to sterilization. At the end of the sterilization period, all sterilized surfaces and areas shall be thoroughly flushed with treated water and drained from the system, as directed by the OWNER.

C. CONTRACTOR shall make an allowance in his bid to cover cost of filling the new water mains. The CONTRACTOR shall be billed for all water used for the construction and testing at a rate equal to the rate that the OWNER must pay the supplier.

D. CONTRACTOR will be responsible for notifying the Health Department to observe sterilization test and shall be responsible for all sampling, including coordination, mailing and retesting, if required.

3.08 TESTING WATERLINE PIPE

1. Pressure and leakage tests shall be conducted in accordance with ANSI/AWWA C600.

2. The CONTRACTOR shall furnish all necessary equipment for pressure testing.

3. Inspection of pipe laying shall in no way relieve the CONTRACTOR of the responsibility for passing tests, stopping leakage, or correcting poor workmanship.

4. The piping shall be complete, and thrust blocks shall have been in place for no less than 10 days prior to be tested.

5. Piping shall be tested at a static pressure of 150 pounds per square inch over a period of not less than eight consecutive hours. The test will be considered successful when the pressure drop over the test period is 5 psi or less. If the pressure drop exceeds 5 psi, repair the leaks and repeat the test. After repairs have been made the test shall be conducted, again. Piping will be accepted once pressure loss does not exceed 5 psi.

6. Underground pipelines will not be finally accepted until leakage is less than allowable by ANSI/AWWA C600. In case leakage exceeds this amount, the CONTRACTOR shall locate and repair leaks until the entire pipeline will pass the required test. All leakage shall be stopped in exposed piping. The pumping equipment shall be disconnected during test. Allowable leakage is calculated by the following:

   L: Allowable leakage, gallons per hour
   S: Length of pipe, feet
   D: Nominal diameter, inches
   P: Average test pressure, psi

   $$L = \frac{(SD\sqrt{P})}{133{,}200}$$

7. The CONTRACTOR shall furnish meter or suction tank, pressure recorder, pressure gauges, pipe test plugs and bypassing piping and make all connections for conducting the above tests. The pumping equipment used shall be compressed air, centrifugal pump or other pumping equipment which will not place shock pressures on the pipeline. Power plunger pumps will not be permitted or us on closed pipe system for any purpose.

3.09 BASIS FOR PAYMENT

Piping shall be paid for at the unit price bid and shall include all work incidental to making a complete installation such as excavation, bedding, backfill, painting, testing, disinfection, cleanup, seeding, warning tape, tracer wire, warning signs, etc.

END OF SECTION

SECTION 02640

METERS, INDIVIDUAL PRESSURE REDUCING VALVES, AND SERVICE LINES

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This Section describes the service meters, individual pressure reducing valves, and service lines to be provided, their materials, construction, type, and installation.

B. All meters shown on the plan sheets shall be 5/8 inch by 3/4 inch, unless otherwise noted.

C. All meters and appurtenances shall be compatible with the OWNERS existing Radio Read System as shown in Section 11500 of these Specifications.

PART 2 PRODUCTS

2.01 INDIVIDUAL PRESSURE REDUCING VALVES

A. Individual pressure reducing valves shall be installed with service meters where shown on the plan sheets.

B. To allow for continuity of service, all individual pressure reducing valves shall be Wilkens Model # 600LU and shall include a bronze strainer. This is a proprietary item in the existing water system. Every regulator shall have an adjustable pressure range of 50 to 125 pounds per square inch. Upon installation, the outlet pressure shall be set at 65 pounds per square inch.

C. Individual pressure reducing valves shall be installed on the inlet/supply side of the service meter using a tandem coppersetter. The CONTRACTOR shall ensure the meter boxes proposed for installation will accommodate the tandem coppersetter, reducing valve and service meter.

D. The reducing valve shall not be buried or otherwise housed outside the meter box.

2.02 METERS

A. SERVICE METER ASSEMBLY

1. Service meters to be furnished under this Contract shall be cold water rotating disc type with hermetically sealed and magnetically

driven registers. Meters shall be first-line quality of the manufacturer and be in compliance with AWWA Standard C700, or latest revisions. Any type or make of meter supplied must have been manufactured and marketed in the U.S.A. for at least five (5) years. A bond may be submitted to waive this experience clause. The bond, if needed, shall be of an amount adequate for replacement of the meters and shall be held for five (5) years.

2. The main case shall be high grade waterworks bronze, with hinged, single lid cover and raised characters cast on them to indicate the direction of flow. Each meter must have the manufacturer's serial number stamped on the lid. Working pressure shall be not less than 150 pounds per square inch. Standard frost bottom meters with non-ferrous strainers snug against the main case shall be provided.

3. The measuring chamber shall be of corrosion-resistant thermoplastic material. The chamber shall be of the two piece design, equipped with a disc made of hard rubber and as near to the specific gravity of water as possible. Discs shall be of the three piece design of the thrust roller type.

4. The register shall be straight reading U.S. gallon type. The register unit shall be completely encased and hermetically sealed, and driven by permanent magnets. There shall be a test index circle, divided into 100 equal parts, and shall have a red center sweep test hand. Water meters shall be Badger low profile model with Orion radio read attachments. This meter is a proprietary item for synchronization with the existing water system (see Section 11500). Registers shall be guaranteed by the manufacturer for a period of at least fifteen (15) years.

5. New Service Meters shall include meter box and cover, meter, coppersetter, four feet (4') of pipe and corporation stop, plus six feet (6') of pipe and adapter on the customer's side of meter. (This latter item is to prevent the customer or his plumber from disarranging or loosening the meter after the CONTRACTOR has already set the meter in its proper position.) Where the main line is in the highway right-of-way, meter shall be set as close to the right-of-way fence as practicable (as shown in the plans).

6. Meters shall be installed at each service connection unless directed otherwise by the ENGINEER. To allow for continuity of service, the brand and type of meter boxes, meter box covers and the setters are proprietary items and will be specified below.

   Meter boxes shall be Carson brand PVC pipe non-corrugated smooth wall inside and out, twenty-four inches (24") deep x eighteen inches (18") diameter. The meter box cover shall be Sigma model LC218, 18" solid flat lid, non-locking, without cleats on the bottom. Meters shall be five-eighths inch by three-fourths

inch (5/8" x 3/4"), unless shown otherwise on the plans. Meter connections shall be made by means of Mueller coppersetters (with Mueller ends) having a cutoff and three-fourths inch (3/4") spud. Prefabricated coppersetters tub assemblies shall not be used. When shown on the plans (Standard Details) an angle check valve shall be furnished on the meter outlet side of the coppersetter. (The size of meter box stated is for five-eighths inch by three-fourths inch (5/8" x 3/4") meter.) For larger meters, meter box size shall be in accordance with standard practice.

7. Meters shall be set in a workmanlike manner with backfill neatly compacted in place. In yards, pastures and other grassed areas, top of meter box will be one-half inch (1/2") above grade, otherwise two inches (2") above grade. In all cases surface drainage shall be directed away from the meter box and not allowed to pool nearby. The grade around the boxes should not excessively humped to prevent mowing or other maintenance of the area surrounding the box.

2.03 SERVICE LINES

A. Unless indicated otherwise on the plans, all service lines shall be three quarter inch (¾-inch) 200 psi Polyethylene tubing. A generous loop of Polyethylene tubing shall be included with the length required for the meter setting. A corporation stop, Mueller H-15000, Ford, or approved equal, shall be used on each service line at the main line connection.

B. Service lines crossing a county road or city street will be jacked beneath paved or black topped city streets or county roads, unless rock prevents using this method. Open cut shall be used on all unpaved city streets, county roads and private driveways. Black topped private driveways shall also be jacked under. In all cases where lines are under traffic, a minimum cover of thirty inches (30") shall be provided. All backfill shall be puddled or compacted by air tampers in layers no greater than six inches (6") in depth.

C. Existing service meters shall be disconnected from existing water mains where indicated, and shall be reconnected to the new line. This work shall include up to thirty (30) lineal feet of matching type/diameter service line in the unit price bid for meter reconnection. Compression couplings with inserts shall be used to reconnect flexible (plastic) service line and sweat joints used for copper service line.

END OF SECTION

SECTION 05540

CASTINGS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, and equipment required to install castings as shown on the Drawings and specified herein. Included in this section are manhole covers, steps, valve boxes, and hatch covers.

1.02 RELATED WORK NOT INCLUDED

A. Concrete is included in KYTC Standard Specifications for Road and Bridge Construction, most current edition, Division 600.

1.03 SUBMITTALS

The CONTRACTOR shall submit to the ENGINEER, in accordance with Division 1, Section 01300, copies of construction details of castings proposed for use.

PART 2 MATERIALS

2.01 GENERAL

A. All castings shall be gray iron, conforming to the requirements of the ASTM Standards, Designation A48 - latest revision, Class 35B.

2.02 MANHOLE CASTINGS

A. Frames and Covers

1. Sanitary sewer manhole castings shall consist of cast iron frames and 22-3/4 inch diameter covers, having a combined weight of not less than 350 pounds for out of traffic locations and 460 pounds for traffic locations. The frame shall be at least 7 inches high overall. Manhole covers must set neatly in the frame, with contact surfaces machined smooth for even bearing. The top of the cover shall be flush with the frame edge. The top of the cover shall sufficient corrugations to prevent slipperiness and be marked in large letters "SANITARY SEWER." Covers shall have one pick hole only, about 1-1/2 inches wide and 3/4 inch deep with 3/8 inch square undercut at rear and 3/4 inch square undercut on sides. Covers on sanitary sewer manholes must not be perforated and shall be as manufactured by J.R. Hoe & Sons, Inc., Neenah Foundry Company, or approved equal.

2. Storm sewer manhole castings shall consist of cast iron frames and 22-3/4 inch diameter grate type covers, having a combined weight of no less than 460 pounds. The frames shall be at least 7 inches high overall. Manhole covers must set neatly in the frame with contact surfaces machined smooth for even bearing. The top of the cover shall be flush with the frame edge. The castings shall be Neenah Foundry Company with type "D" grate, J.R. Hoe & Sons, Inc., or approved equal.

B. Steps

1. Cast iron or polypropylene plastic encapsulated steel manhole steps shall be patterns shown on the detail Drawings, and have corrugated treads. In case of need for non-protruding steps, shop drawings of special inset cast iron steps shall be reviewed by and be acceptable to the ENGINEER.

2. If a step constructed of another material is going to be considered, shop drawings will need to be submitted far enough in advance to allow consideration.

3. It is intended that the cast iron step be Neenah Foundry Company's R-1980-E, or equal, and the polypropylene plastic encapsulated steel step be M.A. Industries PS-1, or equal.

2.03 VALVE BOXES

A. Slip Type for Iron Body Gate Valves

1. Valve boxes for 2 inch through 10 inch valves shall be the 2 piece slip type, screw type, of sufficient length to allow for 36 inches of cover over the top of the pipe. The inner section shall have a minimum inside diameter of 5-1/4 inches with a hood type base that will cover the packing gland on a 2 inch through 10 inch valve (minimum of 8 inches inside diameter). The base of the top section shall be flanged at least 1-1/4 inches. A concrete collar shall be poured with typical dimensions of 24" x 24" x 6" deep as shown in the detail drawing. The caps shall be circular with a corrugated surface and have pick holes in the periphery and be marked "Water", "Gas", "Sewer", or "Air" according to use.

PART 3 EXECUTION

3.01 INSTALLATION

A. The installation of castings is generally covered under specifications for pipe work and manholes. Castings shall be leveled, plumbed, secured, and installed in accordance with the Drawings.

END OF SECTION

SECTION 11500

REMOTE METER READING SYSTEM
5/8 X ¾ Orion Radio Read Meter

1.01 Location

The remote meter reading system shall consist of all hardware's necessary to equip new meters such as to provide a complete functioning system complimentary to the existing 5/8 X ¾ Orion Radio Read System. This meter is a proprietary item for synchronization with the existing water system.

A. Transmitter / registers for all meters which are to be straight reading, permanently sealed, magnetic drive and which measures in U.S. Gallons. This unit is to be factory wired to the end cap assembly for maximum reliability with the end cap to be bottom mounted thru a drilled hole in the meter pit lid. This unit is to communicate with the interrogation device.

The transmitter shall use two (2) 3.6 V 2.4 Ahr Lithium batteries as a power source and said batteries shall be guaranteed for a minimum of seven (7) years from initiation of operation.

This unit shall be capable of providing optional leak detection when a two hour window of no usage within a 24 hour period is detected. It shall also be capable of tampered detection such as a cut wire.

B. Meter Reading Hardware shall include all necessary equipment to perform remote meter readings. The Water District already owns a lap top computer with appropriate mounting hardware for an outside antenna and mounting for the computer in meter reading vehicles.

The District already owns appropriate software to communicate with the new meter transmitters and provide accurate meter readings. The unit must notify the reader when a particular meter is not read with provisions for a reread of that meter. The software is compatible with the billing system currently used by the District such that the meter reading can be directly downloaded to the billing computer.

It shall be the responsibility of the provider of this additional meter system to provide compatibility of the furnished system with the software to be compatible with the existing billing software.

C. Replacement Meters shall be Badger meters low profile model with radio read which complies with ANSIA./AWWA Standard C700.

END OF SECTION

SECTION 15100

VALVES AND PLUMBING SPECIALTIES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, equipment, and incidentals required, and install complete and ready for operation, all valves and appurtenances as show on the Drawings and as specified herein.

1.02 RELATED WORK

A. Excavation is included in KYTC Standard Specifications for Road and Bridge Construction, most current edition, Division 200.

1.03 SYSTEM DESCRIPTION

A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of potable water or drainage as shown on the drawings.

1.04 QUALITY ASSURANCE

A. All of the types of valves and appurtenances shall be products of well established firms who are fully experienced, reputable and qualified in the manufacture of the particular equipment to be furnished. All materials of construction shall be of an acceptable type and shall be designated for the pressure and temperature at which they are to be operated, for the materials they are to handle and for the use for which they are intended. The materials shall meet established technical standards of quality and strength necessary to assure safe installations and conform to applicable standards. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications as applicable.

1.05 REFERENCES

A. Kentucky Basic Building Code.

B. Kentucky State Plumbing Law, Regulations and Code

1.06 SUBMITTALS

A. Copies of all materials required to establish compliance with these Specifications shall be submitted in accordance with the provisions of Division 1, Section 01300. Submittals shall include at least the following:

1. Certified drawings showing all important details of construction and dimensions.

2. Descriptive literature, bulletins, and/or catalogs of the equipment.

3. The total weight of each item.

4. A complete total bill of materials.

5. A list of the manufacturer's recommended spare parts.

1.07 OPERATING INSTRUCTIONS

A. Operating and maintenance instructions shall be furnished to the ENGINEER as provided in Division 1. The instructions shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc., that are required to instruct operating and maintenance personnel unfamiliar with such equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General

1. All valves and appurtenances shall be of the size shown on the Drawings and as far as possible all equipment of the same type shall be from one manufacturer.

2. All valves and appurtenances shall have the name of the maker, flow directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.

3. All buried valves shall open left (counterclockwise). Insofar as possible, all valves shall open counterclockwise.

2.02 VALVES

A. Gate Valves

Gate valves shall be used in shut-off applications and where the valves are scheduled for infrequent use.

1. Gate Valves – 2-1/2 Inches and Smaller

a. Gate valves shall be for 125-pound water working pressure, 2-1/2 inches and 3 inches for air release. Valves

3 inches and smaller shall be standard brass construction, rising stem, double disc, parallel seat, with handwheel where exposed or key operated when in the ground. The valves shall be Crane No. 440, Jenkins 62U, or approved equal.

b. In copper-solder-joint piping, Chase Style 1334, Mueller brand or approved equal, gate valves are preferred with solder joint connections.

2. Gate Valves and Appurtenances for Yard Piping – 3 to 14 inches

a. Gate valves for water shall meet the requirements of AWWA C509 covering resilient seated gate valves. Valves shall be rated for 200-psi working pressure and a minimum of 400-psi test pressure. The wedge shall be of cast iron completely encapsulated with rubber. The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429. They shall have non-rising cast bronze stems (unless otherwise shown on the PLANS) and be fitted with "O-ring" seals. The operating nuts shall be 2-inch square. All valves shall open left, or counterclockwise. Stuffing boxes shall be the "O-ring" type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subjected to full rated working pressure. Gate valves shall be mechanical joint, ANSI Standard 21.11 except where shown otherwise. The body and bonnet shall be coated with a fusion coating both interior and exterior to meet C50. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Gate valves shall be as manufactured by Mueller Co., Crane Co., or approved equal.

b. Tapping sleeves shall be as manufactured by the Ford Meter Box Company, Inc., with cadmium-plated cast iron nuts and bolts. Sleeves shall be of cast iron, designated for working pressures not less than 200 psi. Lead gaskets shall be provided for the full area of the sleeve flanges.

b. Tapping valves shall conform to the requirements specified above for gate valves except that one end shall be flanged and one mechanical. Tapping valves shall be provided with an over-sized opening to permit the use of full sized cutters.

c. Four tee-handled gate wrenches of suitable length shall be furnished to operate all valves with valve boxes.

3. Gate Valves for Inside Service – 3 to 14 inches

Gate valves 3" and larger in size, unless otherwise specified shall be iron body, bronze mounted, solid wedge gate valves with flanged ends and conforming to the AWWA Standard Specification for Gate Valve for Water and Sewage Systems, Designation C509-latest revision, insofar as applicable and in addition to the following requirements:

a. Valve shall be outside screw and yoke type with rising stem (unless otherwise shown on the PLANS).

b. Flanges shall be faced and drilled to ANSI B16.1 125 pound template, unless otherwise shown on the PLANS.

c. Bronze gate rings shall be fitted into grooves of dovetail or similar shape in the gates. For grooves or other shapes, the rings shall be firmly attached to the gates with bronze rivets.

d. Handwheels shall turn counterclockwise to open the valves. Handwheels shall be of ample size and shall have an arrow and the word "OPEN" cast thereon to indicate the direction of opening.

e. Stuffing box follower bolts shall be of steel and the nuts shall be of bronze.

f. The design of the valves shall permit packing the valves without undue leakage while they are wide open and in service.

g. O-ring stuffing boxes may be used.

h. Gate valves for pipeline installation shall be housed in an adjustable two-piece cast iron valve box and have a cover with the word "Water" or "Sewer" stamped or cast.

i. Gate valves with spur gears shall be housed to accommodate the offset of the operating nut.

B. Ball Valves

Ball valves shall normally be used in quick shut-off and frequent use applications. Specified calves shall be as indicated on the drawings.

1. Ball Valves - bronze

a. Ball valves shall be for 125-pound water working pressure, 2 inches and smaller, standard bronze construction, with precision machined bronze ball, twin Buna-N seats, and handle operator with integral stop where exposed. Buried

ball valves shall be as above with key or nut operators. Valves shall be Lunkenheimer No. 700-SB, Ford, or approved equal.

2. Ball Valves - PVC

a. Ball valves shall be for 150 pound water working pressure, 140 degree Fahrenheit maximum temperature, 3 inches and smaller, standard PVC "True Union" construction, with PVC ball, Viton seats, and handle operator where exposed. Buried ball valves shall be as above with key, nut, pneumatic, or electric operators as shown on the DRAWINGS. Valves shall be Utilities Supply Corp., Plastic Piping Systems, or approved equal.

C. Individual Pressure Reducing Valves

1. Individual pressure reducing valves shall be installed where shown on the plan sheets.

2. Individual pressure reducing valves shall be Wilkens, Model No. 600LU, and shall include a bronze strainer. This item is a proprietary item for synchronization with the existing water system. Every regulator shall have an adjustable pressure range of 50 to 125 pounds per square inch. Upon installation, the outlet pressure shall be set at 65 pounds per square inch.

3. Individual pressure reducing valves shall be installed on the inlet/supply side of the service meter using a tandem coppersetter. The CONTRACTOR shall ensure the meter boxes proposed for installation will accommodate the tandem coppersetter, reducing valve and service meter.

4. The reducing valve shall not be buried or otherwise housed outside the meter box.

D. Large Pressure Reducing Valves

1. Pressure reducing valves shall be of the single seated balanced design type globe body with threaded inlet and outlet ports. It shall be diaphragm operated, spring loaded permitted adjustment over a range of no less than 30 psi.

2. The body shall be bronze construction with bronze or stainless steel stem and furnished with a replacement rubber seat.

3. The pressure reducing valves shall be Mermad, Singer, G-A Industries, APCO, or approved equal.

E. Pressure Relief Valves

The pressure relief valve shall relieve excessive system pressure when this pressure rises above pre-set value. It shall immediately, accurately, and with high repeatability respond to system pressure rise by fully opening as well as provide smooth drip-tight closing.

1. Main Valve: The main valve shall be a center guided, diaphragm actuated globe valve of angle pattern design. The body shall have a replaceable, raised, stainless steel seat ring. The valve shall have an unobstructed flow path, with no stem guides, bearings, or supporting ribs. The body and cover shall be ductile iron. All external bolts, nuts, and studs shall be Duplex® coated. All valve components shall be accessible and serviceable without removing the valve from the pipeline. End connections shall be ANSI-300 flange fittings. Valves shall receive a factory-applied epoxy coating.

2. Actuator: The actuator assembly shall be double chambered with an inherent separating partition between the lower surface of the diaphragm and the main valve. The entire actuator assembly (seal disk to top cover) shall be removable from the valve as an integral unit. The stainless steel valve shaft shall be center guided by a bearing in the separating partition. The replaceable radial seal disk shall include a resilient seal and shall be capable of accepting a V-Port Throttling Plug by bolting.

3. Control System: The control system shall consist of a 2-Way adjustable, direct acting, quick pressure relief pilot valve, a testing cock valve, and a filter. All fittings shall be forged brass or stainless steel. The assembled valve shall be hydraulically tested and factory adjusted to customer requirements.

4. Quality Assurance: The valve manufacturer shall be certified according to the ISO 9001 Quality Assurance Standard. The main valve shall be certified as a complete drinking water valve according to NSF, WRAS, and other recognized standards.

5. Valves shall be Bermad 73Q Quick Pressure Relief Valve, Singer brand or approved equal.

F. Check Valves - Drainage

Check valves for backflow prevention in drainage (non-pressure) pipes shall be EPDM "duckbill" style construction utilizing 316 SS mounting bands for piping connection. Valves shall be designed for a maximum cracking pressure of 2" water column. Valves shall be Tideflex TF-2, Onyx Valve or approved equal.

2.03 SPECIALTIES AND ACCESSORIES

A. Flushing Hydrants

1. To allow for continuity of service, flushing hydrants are proprietary items and the brand will be specified below.

   All flushing hydrants shall be dry barrel of the compression type, with cast iron body, fully bronze-mounted, suitable for a working pressure of 150 pounds per square inch and shall be in accordance with the latest specifications of AWWA. Hydrants shall open by the use of a pentagonal nut and have two (2), two and one-half inch (2-1/2") hose connection and a four and one-half inch (4-1/2") streamer connection with threads standard to the OWNER'S requirements.

2. The flushing hydrant shall be Type 1 as shown in the detail drawing sheet that will incorporate a Mueller hydrant with 2 of a 2-1/2 inch bib and 1 of a 4-1/2 inch bib.

B. Strainers, Filters, and Dryers

1. Strainers for Water Service

   a. Strainers shall be "Y" type with a cast iron body manufactured in accordance with ASTM A126-latest revision Class B steel, sizes 3/4 inch thru 12 inches. Strainer shall be rated at 200 psi pressure @ -20 to 150 deg F, and 125 @ 450 deg F., with a 304 stainless steel 0.125" perforated screen.

   b. Cover shall be carbon steel manufactured in accordance with ASTM A126-B latest revision. Cover shall contain a blow off outlet with an NPT outlet for connection of a drain valve.

   c. Contractor shall furnish and install on the blow off outlet, a stainless steel ball valve and cast iron piping directed to the floor drain.

   d. Strainers shall be Mueller, Model 758, Bermad or approved equal.

C. Dielectric Pipe Couplings

1. Dielectric pipe couplings shall be used wherever copper pipe connects to steel or cast iron pipe and appurtenances. Couplings shall have steel bodies with non-conducting bushings on both ends. Ends shall have standard pipe threads. Couplings shall be rated for at least 200 psi at 225°F. Couplings shall be as manufactured by Thermodynamics Corporation, Needham, MA; Water Vallett Company, Detroit, MI; or approved equal.

D. Valve Boxes

1. Screw Type for Iron Body Gate Valves

a. Valve boxes for 2 inch through 10 inch valves shall be the 2 piece screw adjustment, of sufficient length to allow for 36 inches of cover over the top of the pipe, Tyler 6855 series, model #562-A, Sigma brand or approved equal. The inner section shall have a minimum inside diameter of 5-1/4 inches with a hood type base that will cover the packing gland on a 2 inch through 10 inch valve (minimum of 8 inches inside diameter). The base of the top section shall be flanged at least 1-1/4 inches. The caps shall be circular with a corrugated surface and have pick holes in the periphery and be marked "Water", "Gas", "Sewer", or "Air" according to use

PART 3 EXECUTION

3.01 INSTALLATION

A. All valves and appurtenances shall be installed in the locations shown, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.

B. Control valves in all locations shall be so grouped and located that they may be easily operated, through access panels, doors, or adjacent to equipment.

C. After installation, all valves and appurtenances shall be tested at least one hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If any joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.

D. Install all brackets, extension rods, guides, the various types of operators and appurtenances as shown on the DRAWINGS in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the CONTRACTOR shall check all DRAWINGS and figures which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.

E. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment

which do not operate easily, or are otherwise defective, shall be repaired or replaced at no additional cost to the OWNER.

F. Fire hydrants, flushing hydrants and yard hydrants shall be set at the locations as shown on the DRAWINGS and bedded on a firm foundation. A drainage pit as detailed on the DRAWINGS shall be filled with screened gravel and satisfactorily compacted.

G. During backfilling, additional screened gravel shall be brought up around, and 6-inches over, the drain port. Each hydrant shall be set in true vertical alignment and properly braced. Concrete thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench. Minimum bearing area shall be as shown on the DRAWINGS. Felt roofing paper shall be placed around hydrant elbow before placing concrete. CARE SHALL BE TAKEN TO INSURE THAT CONCRETE DOES NOT PLUG THE DRAIN PORTS.

H. If directed, the hydrant shall be tied to the pipe with suitable rods or clamps, galvanized, painted, or otherwise rustproof treated. Concrete used for backing shall be no leaner than 1 part cement, 2-1/2 parts sand, and 5-1/2 parts stone. Hydrant paint shall be touched up as required after installation.

I. Buried flanged or mechanical joints shall be made with cadmium-plated bolts. All exposed bolts and nuts shall be cadmium-plated. All exposed bolts and nuts shall be heavily coated with two coats of bituminous paint.

J. Yard hydrants shall be installed in accordance with manufacturer's recommendation and applicable requirements of the fire hydrants above.

K. Buried valves and valve boxes shall be set with the valve stem vertically aligned in the center of the box. Valves shall be set on firm foundation and supported by tamping selected excavated material under the sides of the valve. The valve box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade.

3.02 SHOP PAINTING

A. Interior surfaces of all valves, the exterior surfaces of buried valves, and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.

B. The exterior surface of various parts of the valves, operators, floor stands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter one shop coat of an approved rust-inhibitive primer, such as Inertol Primer No. 621, shall be applied in accordance with the instructions of the paint manufacturer.

C. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.

D. Field painting is specified under Division 9, Section 09900.

3.03 INSPECTION AND TESTING

A. The various pipelines in which the valves and appurtenances are to be installed are specified to be field-tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable to the ENGINEER.

B. Various regulating valves, strainer, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

END OF SECTION

SECTION 15101

LARGE VALVES AND APPURTENANCES

PART 1 GENERAL

1.01 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required and install complete and ready for operation all valves and appurtenances where shown on the Drawings as specified herein.

B. The equipment specified herein includes the following:

1. Gate valves with boxes for yard piping
2. Gate valves for inside service
3. Butterfly valves for yard piping
4. Butterfly valves for inside service
5. Plug valves for yard piping
6. Plug valves for interior or above ground service
7. Ball valves
8. Check valves
9. Air and vacuum relief valves (piping application)
10. Automatic air release valves
11. Shock absorbers
12. Service clamps
13. Expansion joints
14. Pressure-reducing valves
15. Back Pressure Sustaining Valves

C. The work of this Section shall include the installation of valve tags furnished by the CONTRACTOR. All exposed valves provided under this Section shall be tagged.

1.02 RELATED WORK NOT INCLUDED

A. Excavation, backfill, fill and grading is included in KYTC Standard Specifications for Road and Bridge Construction, most current edition, Division 200.

B. Piping is included in the respective sections of Division 2 and 15.

C. Valves, hydrants, meters and service lines for distribution system application are included in Division 2.

D. Valves and service accessories on all plumbing systems are included in this Division, Section 15100.

1.03 DESCRIPTION OF SYSTEMS

A. All of the equipment and materials specified herein is intended to be standard for use in controlling the flow of wastewater, sludges, water, air or chemicals, depending on the applications.

1.04 QUALIFICATIONS

A. All of the types of valves and appurtenances shall be products of well-established firms who are fully experienced, reputable and qualified in the manufacture of the particular equipment to be furnished. The equipment shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these SPECIFICATIONS as applicable.

1.05 SUBMITTALS

A. Complete shop drawings of all valves and appurtenances shall be submitted to the ENGINEER in accordance with the requirements of Division 1.

B. Furnish all information required in Division 1.

1.06 OPERATING INSTRUCTIONS

A. Manufacturer's operating and maintenance instructions as set forth in Division 1 shall be furnished to the ENGINEER for equipment furnished under this Section.

1.07 TOOLS

A. Special tools, if required for normal operation and maintenance, shall be supplied with the equipment.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General

1. All valves and appurtenances shall be of the size shown on the PLANS and as far as possible all equipment of the same type shall be from one manufacturer.

2. All valves and appurtenances shall have the name of the maker, flow-directional arrows, and the working pressure for which they are designed cast in raised letters on some appropriate part of the body.

3. Handwheel operator shall be no less than 12-inch diameter.

4. Except as otherwise shown on the PLANS or specified herein, all valves with operators located 7 feet or more above the operating floor shall be provided with chain-wheel operators complete with chain guides and galvanized steel chain.

5. All buried valves shall open left (counterclockwise). Insofar as possible, all valves shall open counterclockwise.

6. All butterfly valves, gate valves and plug valves 8 inches or larger shall be furnished with gear operators and gear cases conforming to the requirements of AWWA C504 or as shown on the PLANS.

2.02 VALVES

A. Butterfly Valves for Buried Service

1. Butterfly valves and operators for buried service shall conform to AWWA C504, except as hereinafter provided. Butterfly valves shall be rated for Class 150B and both valve and operator shall be especially designed for service buried in the ground where the ground water may at times completely submerge the valve and operator, and shall be of the totally enclosed type.

2. The valve bodies shall be of cast iron conforming to ASTM A48-CL 40. Valve ends shall be mechanical joint meeting ANSI Specification A21.11.

3. Except as otherwise specified herein, valve shafts shall be of Type 304 stainless steel. Shaft seals shall be rubber O-ring seals. Shafts having a minimum torsional strength equivalent to shafts specified in Section 3.3 of AWWA C504 and completely isolated from the pipeline contents shall be furnished. Connections between shafts and discs shall be designed to transmit full shaft torque.

4. If the rubber seat is in the body, the disc shall be of an alloy cast iron conforming to ASTM A436 Type I with the periphery machined to a smooth spherical surface. If the rubber seat is mounted on the disc edge it shall be held in place by a one-piece Type 304 stainless steel retaining ring and stainless steel screws, the disc shall be of ASTM A48, Class 40 cast iron and a mating Type 304 stainless steel ring shall be installed in the valve body.

5. The unit shall be permanently lubricated with grease or oil. A standard AWWA 2 inch square operating nut shall be provided on the input shaft and it shall have a cap to center the valve box. Valves shall open to the left (counterclockwise).

6. Valve and operator assemblies shall be given two coats of asphalt varnish conforming to Section 4 of AWWA C504.

7. An Affidavit of Compliance in accordance with Section 1.5 of AWWA C504 shall be furnished to the ENGINEER prior to shipment of valves to the job site.

8. Valve boxes shall be provided for each buried valves. Valve boxes and appurtenances are specified in Division 5, Section 05540.

9. Four tee-handled gate wrenches of suitable length shall be furnished to operate all valves with valve boxes.

B. Butterfly Valves (for Interior Service)

1. Butterfly valves and operators shall conform to the AWWA Standard Specification for rubber seated butterfly valves Designation C504, except as hereinafter specified. Valves shall have a minimum 150-psi pressure rating and be equal to those manufactured by Allis-Chalmers, Henry Pratt Company, or equal.

2. Butterfly valves shall be flanged end with face-to-face dimensions in accordance with Table 3 of the above mentioned AWWA Specification for short-body valve, or wafer type.

3. Valve seats shall be full resilient seats retained in the body or the disc edge in accordance with Section 3.5 of the above mentioned AWWA Specification. If the resilient seat is in the body, the disc shall be of an alloy cast iron conforming to ASTM A436 Type 1 with the periphery machined to a smooth spherical surface. If the resilient seat is mounted on the disc edge, it shall be held in place by a one-piece Type 304 stainless steel retaining ring and stainless screws, the disc shall be of ASTM A48, Class 40 cast iron and a mating Type 304 stainless steel ring shall be installed in the valve body. Resilient seats shall be Hycar or equal for water service and Nordel or equal for air service.

4. The valve body shall be constructed of close grain cast iron per ASTM A126, Class B with integrally cast hubs for shaft bearing housings of the through boss-type. Permanently self-lubricating body bushings shall be provided and shall be sized to withstand bearing loads. Stuffing box of liberal dimensions shall be provided at the operator end of the vane shaft, arranged so that the packing can be replaced by removing the bronze follower without removing the operator. Packing shall be of the Chevron type as manufactured by Garlock Packing Company. A sealing element utilizing O-rings shall also be acceptable.

5. The valve shaft shall be of Type 304 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greater dynamic or seating torque.

6. In general, the butterfly valve operators shall conform to the requirements of Section 3.8 of the AWWA Standard Specifications for Rubber Seated Butterfly Valves, Designation C504, insofar as applicable and as herein specified.

7. Gearing for the operators where required shall be totally enclosed in a gear case in accordance with Section 3.8.3 of the above mentioned AWWA Standard Specification.

8. The manual operators shall conform to Section 3.8.2 of the above mentioned AWWA Standard Specifications, insofar as applicable. Valves shall have Handwheel or lever operators and open left, or counterclockwise. Operators shall have indicators to show position of the valve disc. Operators shall be rigidly attached to the valve body.

C. Gate Valves and Appurtenances for Yard Piping

1. Gate valves for water shall meet the requirements of AWWA C509 covering resilient seated gate valves. Valves shall be rated for 200-psi working pressure and a minimum of 400-psi test pressure. The wedge shall be of cast iron completely encapsulated with rubber. The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429. They shall have non-rising cast bronze stems (unless otherwise shown on the PLANS) and be fitted with "O-ring" seals. The operating nuts shall be 2-inch square. All valves shall open left, or counterclockwise. Stuffing boxes shall be the "O-ring" type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subjected to full rated working pressure. Gate valves shall be mechanical joint, ANSI Standard 21.11 except where shown otherwise. The body and bonnet shall be coated with a fusion coating both interior and exterior to meet C50. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Gate valves shall be as manufactured by Mueller Co., Clow Valve Co., or approved equal.

2. Tapping sleeves shall be as manufactured by the Ford Meter Box Company, Inc., with cadmium-plated cast iron nuts and bolts. Sleeves shall be of cast iron, designated for working pressures not less than 200 psi. Lead gaskets shall be provided for the full area of the sleeve flanges.

3. Tapping valves shall conform to the requirements specified above for gate valves except that one end shall be flanged and one mechanical. Tapping valves shall be provided with an over-sized opening to permit the use of full sized cutters.

4. Four tee-handled gate wrenches of suitable length shall be furnished to operate all valves with valve boxes.

D. Gate Valves for Inside Service

1. See Section 15100 of these SPECIFICATIONS for gate valves 2-1/2" in diameter and smaller.

2. Gate valves 3" and larger in size, unless otherwise specified shall be iron body, bronze mounted, solid wedge gate valves with flanged ends and conforming to the AWWA Standard Specification for Gate Valve for Water and Sewage Systems, Designation C509-latest revision, insofar as applicable and in addition to the following requirements:

   a. Valve shall be outside screw and yoke type with rising stem (unless otherwise shown on the PLANS).

   b. Flanges shall be faced and drilled to ANSI B16.1 125 pound template, unless otherwise shown on the PLANS.

   c. Bronze gate rings shall be fitted into grooves of dovetail or similar shape in the gates. For grooves or other shapes, the rings shall be firmly attached to the gates with bronze rivets.

   d. Handwheels shall turn counterclockwise to open the valves. Handwheels shall be of ample size and shall have an arrow and the word "OPEN" cast thereon to indicate the direction of opening.

   e. Stuffing box follower bolts shall be of steel and the nuts shall be of bronze.

   f. The design of the valves shall permit packing the valves without undue leakage while they are wide open and in service.

   g. O-ring stuffing boxes may be used.

   h. Gate valves for pipeline installation shall be housed in an adjustable two-piece cast iron valve box and have a cover with the word "Water" or "Sewer" stamped or cast.

   i. Gate valves with spur gears shall be housed to accommodate the offset of the operating nut.

E. Gate Valves For 16 and 24 Inch Distribution Mains

1. General

Valves to be installed on 16 and 24-inch high service and transmission lines shall conform to the latest revision of AWWA Standard C-509 covering resilient seated gate valves. These large diameter valves shall be as manufactured by Clow Valve Co., Mueller Co., or approved equal.

2. Design

The valves shall be either, **non-rising stem**, opening by turning stem left or right and provided with **2" square operating nut or handwheel** with the word Open and an Arrow cast in the metal to indicate direction to open.
The wedge shall be of cast iron completely encapsulated with rubber.

The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. OS & Y stems shall be on bronze bar stock. The NRS stem stuffing box shall be the o-ring seal type with two rings located above thrust collar; the two rings shall be replaceable with valve fully open and subjected to full rated working pressure.

There shall be two low torque thrust bearings located above and below the stem collar. The stem nut shall be independent of wedge and shall be made of solid bronze. There shall be a smooth unobstructed waterway free of all pockets, cavities and depressions in the seat area.

3. Materials

All cast iron shall conform to ASTM-A-126 Class C. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed.

Stems shall be manganese bronze having a minimum tensile strength of 60,000 psi, a minimum yield of 20,000 psi.

Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563, respectively.

4. Testing

Prior to shipment from factory, each valve shall be tested by hydrostatic pressure equal to twice the specified working pressure of 250 psi.

5. Coating AWWA

The body and bonnet shall be coated with a fusion coating both interior and exterior to meet C550.

6. Marking

Valves shall be marked with name of manufacturer, the year of manufacture, the maximum working pressure and size of valve.

F. Plug Valves for Interior or Above Ground Service

1. Plug valves shall be manufactured in accordance with AWWA C-504, shall be of the 1/4 turn, eccentric, non-lubricated type, serviceable under full line pressure, and capable of sealing in both directions at the rated pressure. Valves shall have a minimum port area of 80% of the nominal pipe size. The valve body shall be of cast iron, 30,000 psi tensile strength with added nickel and chromium, ASTM A-126, Class B, 175 psi rating. Valve ends shall be flanged. The valve plug shall be ductile iron conforming to ASTM A-536, Grade 65-45-12 with neoprene resilient facing. The valve seating design shall be resilient and of the continuous interface type having consistent opening/closing torques and shall be non-jamming in the closed position. Closure shall be accomplished by means of an off-set plug design with a resilient seating face that achieves full 360 degree seating contact. Valves shall be of the bolted bonnet design. The resilient faced plug shall be replaceable without removing the valve body from the line. The valve body seating area shall be corrosion resistant by a welded-in overlay of high nickel content. Sprayed or plated seating surfaces will not be acceptable. Valves shall have permanently lubricated Type 316 stainless steel bearings on the upper and lower plug stem journal. Bearings shall be replaceable. Packing shall be Buna N (Vee Type) rated for 150 psig working pressure. Packing shall be adjustable and valves shall be designed such that they can be repacked without removing the bonnet. All exposed nuts, bolts, springs, and washers shall be zinc plated, except exposed hardware for submerged valves that shall be of stainless steel.

2. All valves shall be equipped with gear actuators and handwheel operators (unless otherwise shown on the PLANS). All gearing shall be enclosed suitable for running in oil with seals provided on all shafts to prevent entry of dirt and water into the actuator. All shaft bearings shall be furnished with permanently lubricated bronze bearing bushings. Actuator shall clearly indicate valve position and an adjustable stop shall be provided. Construction of

actuator housing shall be semi-steel. Hardware on actuators shall be of the same materials as the valves.

3. All valves and actuators shall be as manufactured by DeZurik Corporation or equal.

4. All plug valves shall be installed so that the direction of flow through the valve is in accordance with the manufacturer's recommendations.

G. 3-Way Plug Valves

1. Valves shall be of the non-lubricated taper plug type and shall have resilient faced plugs for drip tight shutoff. End connections shall be flanged and shall be drilled to ANSI 125 pound standard. Valves shall be semi-steel and shall have stainless steel bearings in the upper and lower journal areas. The three-way valve shall be furnished as standard with a plug to shut off one port at a time.

2. The valve shall be furnished with a resilient facing bonded to the plug sealing surface and shall have double handwheel actuators. The actuator shall be of the worm and gear type and shall have one handwheel to lift and reseat the plug and one handwheel to rotate the plug. Handwheel actuators shall be totally enclosed and shall have seals and gaskets to prevent entry of dirt, water or corrosive atmosphere. Actuators shall have corrosion resistant bearings on the gear sector. Actuators shall provide plug rotation up to 360°.

3. The 3-way valves, actuators and accessories shall be as manufactured by DeZurik Corporation, or equal.

H. Plug Valves for Yard Piping

1. Plug valves for yard piping shall be as specified above for interior plug valves, except valves shall have mechanical joint ends and stainless steel hardware. Buried actuators shall be as specified above and shall be of buried, submerged service with seals on all covers and shafts and all exposed hardware of stainless steel. Provide valve box, stem extension, and operating nut as specified above for gate valves.

I. Ball Valves

1. See Section 15100 of these SPECIFICATIONS.

J. Check Valves

1. Check valves for cast iron and ductile iron pipelines shall be swing type and shall meet the material requirements of AWWA Specification C508-latest revision Swing-Check Valves for ordinary

water-works service. The valves shall be iron body, bronze mounted, single disc, 150 psi working water pressure, non-shock, and hydrostatically tested at 300 psi. Ends shall be 125 lb. ANSI B16.1 flanges.

a. When there is no flow through the line the disc shall hang lightly against its seat in practically a vertical position. When open, the disc shall swing clear of the water-way.

b. Check valves shall have bronze seat and body rings, extended bronze hinge pins and bronze nuts on the bolts of bolted covers.

c. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line. Valves shall be fitted with an extended hinge arm with outside lever and spring. Springs with various tensions shall be provided and springs approved by the ENGINEER shall be installed.

K. Automatic Air and Vacuum Relief Valves for Vertical Turbine Pumps

1. Combination air and vacuum valves for vertical turbine pumps shall be designed for use with such pumps.

2. Valves shall be the size shown on the drawings and shall be equipped with an automatic air release valve, such as APCO Valve No. 55, ARI D-040, or approved equal.

3. Air valves for vertical turbine pumps shall be designed to allow large quantities of air to escape out the orifice when the pump is started and close water tight when the liquid enters the valve. The air valve shall also permit large quantities of air to re-enter through the orifice when the pump is stopped to prevent a vacuum from forming in the pump column.

4. The valve shall consist of a body, cover, baffle, float and seat. The valve shall be designed to prevent prematurely shut-off. The seat shall be fastened into the valve cover, without distortion, and shall be easily removed, if necessary.

5. The entire float and baffle assembly must be shrouded with a perforated water diffuser to prevent the water column entering the valve, from slamming the float shut and eliminate water hammer in the system.

6 The float shall be stainless steel, designed to withstand a minimum of 1,000 psi, or approved equal. The float shall be center guided and not free floating for positive seating.

7. The discharge orifice shall be fitted with an automatic air release valve in order to vent small pockets of air. This valve shall consist of a body, cover, float and seat, and shall be rated at a working pressure of 150 psi.

8. The body, cover, and baffle of this valve assembly shall be constructed of cast iron, conforming to ASTM A48 Class 30, or approved equal. The float shall be stainless steel, conforming to ASTM A240, or approved equal. The seats shall be BUNA-N and the water diffuser shall be brass, or approved equal. All flanges shall be 125# ANSI.

L. Air Release Valves

1. Combination Air Valve Assemblies

a. Sizes 1-inch through 6-inch. Valve shall be single body, double orifice, allowing air to exit when filling a pipeline, and air to enter when draining. Orifices shall operate independently; the smaller release orifice shall be capable of opening when the larger is in the closed position.

b. The valve shall be designed to prevent premature closing. The closing mechanism shall be either needle and seat and be Buna-N, or of the rolling seal type made of Rubber E.P.DM., and attached to the valve cover to ensure drop-tight shut-off. The float shall be stainless steel, hermetically sealed, and designed to withstand pressures up to 1000 pounds per square inch, or approved equal. The float shall be of corrosion resistant materials in accordance with ASTM A240. The plug shall be bronze and in accordance with ASTM B124. The body, cover, and leverage frame shall be cast iron/Delrin and shall be in accordance with ASTM A126 GR, B and ASTM D2133, reinforced Nylon, or approved equal.

c. Valve exterior shall be painted with Red Oxide Phenolic Primer, or approved equal as accepted by the FDA for use in contact with potable water.

d. All Combination Air Release Valves to be Val-Matic model #15A.2. The air release valves are proprietary items for synchronization with the existing water system.

e. Air valves shall be installed as shown in the plans, housed in a valve box with cover. Valve boxes for air valves shall be carefully set to grade with covers at grade.

2. Air Release (Vent) Valve Assemblies

a. Valve shall operate under pressure, allowing entrapped air to escape from a pipeline. Orifices shall operate by means of a simple lever mechanism (stainless steel, ASTM A240), rolling seal mechanism, or approved equal to prevent water from escaping as or after air is expelled.

b. The closing mechanism shall be either needle and seat and be Buna-N, or of the rolling seal type made of Rubber E.P.DM., and attached to the valve cover to ensure drop-tight shut-off. The float shall be stainless steel, hermetically sealed, and designed to withstand pressures up to 1000 pounds per square inch. The float shall be of corrosion resistant materials in accordance with ASTM A240. The seat shall be of stainless steel. The seat shall have an orifice of 3/32 inches to operate up to 175 pounds per square inch (psi), or a 1/16 inch orifice when operation at pressures higher than 175 psi. The body shall be cast iron, ASTM A48, Class 30 and shall have a ½ inch NPT female threaded inlet and outlet, and be rated for 350 psi test pressure.

c. Valve exterior shall be painted with Red Oxide Phenolic Primer, or approved equal as accepted by the FDA for use in contact with potable water.

d. Valve to be Val-Matic model #15A.2. This valve is a proprietary item for synchronization with the existing water system.

M. Service Clamps

1. Service clamps shall have malleable or ductile iron bodies, which extend at least 160 degrees around the circumference of the pipe and shall have neoprene gaskets cemented to the saddle body. Bodies shall be tapped for either corporation stop threads of IPS as required. Clamps with tap sizes 1 inch and smaller shall be of the single strap design. Clamps with tap sizes larger than 1 inch shall be of the double strap design.

2. Service clamps shall be Style 91 or 291 as manufactured by Dresser Industries, Inc., Type 311 or 313 as manufactured by Smith-Blair, Inc. or equal.

N. Expansion Joints

1. Expansion joints shall be single arch type of butyl rubber construction with carcass of high grade woven cotton or suitable synthetic fiber and individual solid steel ring reinforcement. Soft rubber fillers shall be integrally cured into the arches to prevent settling of material into the arch. Joints shall be constructed to

pipeline size and to meet working pressure and corrosive conditions similar to the line where installed. Joints shall have full faced fabric reinforced butyl flanges integral with body. Split type steel backup rings shall be provided to ensure a good joint. Rings shall be designed for mating the ANSI Standard 150 lb. flanges. Joints shall have a working pressure rating of 140 psig (minimum). All joints shall be finish coated with Hypalon paint.

2. Expansion joints shall be furnished with control units. Control units shall consist of two (2) drilled plates, stretcher bolts, and rubber washers backed by metal washers. The stretcher bolts shall prevent over-elongation of the joint. Extra nuts shall be provided on the stretcher bolts on the inside of the plate to prevent over-compression. All nuts, bolts and plates shall be galvanized.

3. Expansion joints shall be Style 500B as manufactured by Mercer Rubber Company, Style 4140 by Uniroyal Company, or equal.

O. Pressure Reducing Valves

1. Pressure reducing valves shall be of the single seated balanced design type globe body with threaded inlet and outlet ports. It shall be diaphragm operated, spring loaded permitted adjustment over a range of no less than 30 psi.

2. The body shall be bronze construction with bronze or stainless steel stem and furnished with a replacement rubber seat.

3. The pressure reducing valves shall be G-A Industries, APCO, or equal.

P. Mud Valves

1. Mud valves shall be flanged end, rising stem type.

2. Bodies shall be cast iron. The stem, stem nut, disk ring, and seat ring shall be bronze. Bolts and nuts shall be rustproof steel.

3. Handwheel operator and floorstand shall be furnished where shown on the PLANS.

4. Provide stem guides for maximum unsupported stem length of 5 feet.

5. The valves shall be Clow F-3085, Turnbull brand or equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. All valves and appurtenances shall be installed in the locations shown on the PLANS, true to alignment and rigidly supported. Any damage to the above items shall be repaired to the satisfaction of the ENGINEER before they are installed.

B. After installation, all valves and appurtenances shall be tested at least 1 hour at the working pressure corresponding to the class of pipe, unless a different test pressure is specified. If a joint proves to be defective, it shall be repaired to the satisfaction of the ENGINEER.

C. Install all brackets, extension rods, guides, the various types of operators and appurtenances as shown on the PLANS that are in masonry floors or walls, and install concrete inserts for hangers and supports as soon as forms are erected and before concrete is poured. Before setting these items, the CONTRACTOR shall check all plans and figures, which have a direct bearing on their location and he shall be responsible for the proper location of these valves and appurtenances during the construction of the structures.

D. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. Valves and other equipment, which do not operate easily or are otherwise defective, shall be repaired or replaced at no additional cost the OWNER.

E. Buried flanged or mechanical joints shall be made with cadmium plated bolts. All exposed bolts and nuts shall be cadmium plated. All exposed bolts and nuts shall be heavily coated with two (2) coats of bituminous paint comparable to Inertol No. 66 Special Heavy.

F. Buried valves and valve boxes shall be set with the stem vertically aligned in the center of the gate box. Valves shall be set on a firm foundation and supported by tamping selected excavated material under the sides of the valve. The valve box shall be supported during backfilling and maintained in vertical alignment with the top flush with finish grade.

3.02 SHOP PAINTING

A. Interior surfaces of all valves, the exterior surfaces of buried valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V51e for Varnish Asphalt.

B. The exterior surface of various parts of valves, operators, floor stands and miscellaneous piping shall be thoroughly cleaned of all scale, dirt, grease or other foreign matter and thereafter on shop coat an approved rust-

inhibitive primer shall be applied in accordance with the instructions of the paint manufacturer.

C. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust-resistant coating.

D. Field painting is included under Division 9.

3.03 INSPECTION AND TESTING

A. The various pipe lines in which the valves and appurtenances are to be installed are specified to be field tested. During these tests any defective valve or appurtenance shall be adjusted, removed and replaced, or otherwise made acceptable or the ENGINEER.

B. Various regulating valves, strainer, or other appurtenances shall be tested to demonstrate their conformance with the specified operational capabilities and any deficiencies shall be corrected or the device replaced or otherwise made acceptable to the ENGINEER.

END OF SECTION

SECTION 15123

COUPLINGS, FLANGED COUPLING ADAPTERS, AND SERVICE SADDLES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Couplings, flanged coupling adapters, and service saddles required for piping connections. Some products specified in this Section may not be required for this Contract. Refer to piping system specification section(s) and Drawings to determine particular products to be provided under this Contract.

1.02 SUBMITTALS

A. Not required for products identical to those specified by name of manufacturer and model type.

B. For products other than those specified by name of manufacturer and model number, submit information in accordance with requests for substitutions or "Or Equal" items in Section 01300.

C. Submit information for products that vary from specified requirements regardless of manufacturer name.

PART 2 PRODUCTS

2.01 COUPLINGS

A. Couplings for connecting plain-end steel or ductile iron pipe of same outside diameter;

1. Dresser Style 38.

2. Smith-Blair Product No. 411.

3. or approved equal

B. Stainless steel couplings for stainless steel aeration piping:

1. Victaulic Depend-0-Lok Air Master Couplings or approved equal

a. Housing and closure plates: ASTM A-240-T-304L stainless steel.

b. Sealing plates: T-304 stainless steel.

c. Gaskets: ASTM D2000-EPDM for -20 deg. to 300 deg. F.

d. Hardware: ASTM A-276 T-304 stainless steel.

C. Transition couplings for connecting plain-end steel or ductile iron pipe of different outside diameter:

1. Dresser Style 162.

2. Smith-Blair Product No. 413.

3. or approved equal.

D. Insulating couplings for connecting plain-end steel or ductile iron pipe and stopping flow of electrical current:

1. Dresser Style 39.

2. Smith-Blair Product No. 416.

3. or approved equal.

E. Pressure rating shall be greater than test pressure of piping system.

F. Materials:

1. Middle Ring and Gaskets: As selected by manufacturer. Suitable for fluid service and maximum operating temperature of piping system,

2. Followers: Ductile iron or steel.

3. Bolts and Nuts: Manufacturer's standard.

2.02 FLANGED COUPLING ADAPTERS

A. Flanged coupling adapters for connecting plain-end steel or ductile iron pipe to flanged pipe, fitting, valve, instrument, or equipment item:

1. Dresser Style 128.

2. Smith-Blair Product No. 913.

3. or approved equal.

B. Pressure rating shall be greater than test pressure of piping system.

C. Materials:

1. Flange: Steel, faced and drilled to 150 lb. class in conformance with ANSI B16.5.

2. Body: Steel.

3. Follower: Ductile iron or steel.

4. Gasket: As selected by manufacturer. Suitable for fluid service and maximum operating temperature of piping system.

5. Bolts and Nuts: Manufacturer's standard.

2.03 SERVICE SADDLES with CORPORATION STOP

A. Service saddles for tapping pipe sizes 18 in. and smaller shall be double strap design.

1. Ford Saddles.

2. Mueller Saddles.

3. or approved equal.

B. Service saddles for tapping pipe sizes larger than 18 in. shall be triple strap design.

1. Smith-Blair Product No. 366., Ford brand or approved equal

C. Materials:

1. Body: Malleable iron or ductile iron.

2. Straps: Steel.

3. Nuts and Washers: Manufacturer's standard.

4. Gasket: As selected by manufacturer. Suitable for fluid service and maximum operating temperature of piping system.

D. A corporation stop, Mueller H-15000, Ford brand, or equal, shall be used on each service line at the main line connection.

2.04 ANCHORS

A. Provide anchors including, but not limited to, tie rods, lugs, harness assemblies, flanged spool pieces, friction collars and hardware for each

coupling, and flanged coupling adapter. Anchors shall restrain pipe to prevent movement out of each coupling and flanged coupling adapter.

B. Design each anchor to sustain force developed by test pressure of piping system.

C. Anchor studs placed perpendicular to longitudinal axis of pipe is unacceptable.

D. Anchorage with welded attachments to ductile iron piping is unacceptable.

2.05 COATINGS

A. Coatings for couplings, flanged coupling adapters, and service saddles shall be same material as coatings for connected pipe.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's written instructions.

END OF SECTION

MORGAN COUNTY WATER SPECIFICATIONS

TABLE OF CONTENTS

WATER LINES

GENERAL INFORMATION ..... TS-A-1 TO TS-A-3
RELATED PIPING MATERIALS AND EQUIPMENT ..... TS-B-1 TO TS-B-2
PIPE MATERIALS ..... TS-C-1 TO TS-C-4
PIPE APPURTENANCES ..... TS-D-1 TO TS-D-3
PIPING WORKMANSHIP AND CONSTRUCTION METHODS ..... TS-E-1 TO TS-E-6
PIPE WORK ..... TS-F-1 TO TS-F-6

TECHNICAL SPECIFICATIONS

SECTION A

GENERAL INFORMATION AND REQUIREMENTS

1. GENERAL

1.1 These technical specification include descriptions of materials which may or may not be used on this project.

1.1.1 The Contractor shall carefully read the Special Provisions for statements concerning other specifications which may be applicable to the Project.

1.2 Materials shall be of the types and constructed on the materials specified herein when identified on Plans, Bid Form or Measurement for Payment. Materials and accessories shall be of new and unused material and shall be installed in accordance with manufacturer's specification and/or as shown on the plans.

1.3 The Contractor shall be responsible for the safe storage and handling of all material furnished to or by him, and accepted by him, until it has been incorporated into the completed project and the project has been accepted by the Owner.

1.3.1 The Contractor shall handle all materials and equipment in such manner to avoid damage. All material and equipment whether moved by hand, skidways, hoists or other means shall be handled in such a manner to avoid dropping or bumping against other material or equipment.

1.3.2 In distributing material at the site of work, each piece shall be unloaded as near as possible to final installation point to minimize the number of times it must be handled.

2. PROTECTION OF UNDERGROUND AND SURFACE STRUCTURES AND OTHER PROPERTY

2.1 GENERAL

Temporary support, adequate protection and maintenance of all underground and surface utility structures, drains, sewers, and other obstruction encountered in the progress of the work shall be furnished at the Contractor's expense incidental to the project.

2.2 Obstruction by Other Utilities

2.2.1 Existing underground utilities shown on the plans are shown in approximate locations based on information furnished by others. Prior to beginning construction of proposed facilities the Contractor shall accurately locate existing underground utilities

by whatever means necessary including excavation where required. The Contractor shall notify the Engineer where utilities, so located will interfere with proposed construction.

2.2.2 Where the limits of construction of the proposed work enhances work encroaches upon existing utilities, the Contractor, where possible, shall provide temporary support or protection satisfactory to the owner of the utility

to permit continuation of proposed construction and no additional payment authorized.

2.2.3 Where existing utilities are encountered which prohibit construction of proposed facilities unless relocated the Contractor shall so notify the Engineer unless the plans provide for their relocation. Relocation shall be accomplished in a manner acceptable to the owner of the utility, and shall be furnished at the Contractor's expense incidental to the project.

2.3 Property Protection

2.3.1 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.

2.3.2 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.

2.3.3 Beyond the limits of the easement the contractor shall be responsible for any damage caused by his operation and/or his personnel.

3. INCIDENTAL ITEMS OF CONSTRUCTION

3.1 Barricades, Guards, and Safety Provisions

3.1.1 To protect the public from injury and to avoid property damage, adequate barricades, construction signs, warning lights and guards shall be placed and maintained by the Contractor during the progress of construction work until it is safe for the public to use the construction site.

3.1.2 The Contractor shall provide and maintain all safety facilities and devices required by the Occupational Safety and Health Act (OSHA). The Engineer is not responsible for safety provisions furnished or used by the Contractor nor will the Engineer advise or direct safety operation of the Contractor.

3.2 Traffic and Utility Control

3.2.1 All excavations shall be conducted in a manner to cause the least interruption to traffic. The Contractor shall provide suitable bridges at streets and driveways where traffic must cross excavated areas.

3.2.2 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.

3.2.3 Existing fire hydrants, valve pit covers, valve boxes, meter boxes, curb-stop boxes, fire or police call boxes or other utility controls shall be kept unobstructed and accessible during the construction period.

3.3 Maintenance of Utility Service and Flow of Drains

3.3.1 Adequate provisions shall be made for the maintenance of flow in sewers (storm of sanitary), drains, water lines and gas lines and electrical lines encountered during construction.

3.3.2 No valve, switch or other control device of any utility system within the construction, area shall be operated by the Contractor without approval of the utility except in cases of an emergency. All utility customers which will be affected by the operation of any utility valve or control device shall be notified by the Contractor in sufficient time for each customer to make arrangements for the period of no service. Each customer shall be advised as to the time service will be off and probable time when it will be resumed.

3.4 Fencing

3.4.1 When the pipe line is being constructed through fields where livestock is being held the contractor shall provide, either temporary fencing or stationing of personnel, adequate protection to livestock from machinery and open trenches. The Contractor shall take all precautions necessary to insure that all animals are not isolated.

3.4.2 Where pipe line crosses fences in good condition and the work area is easily accessible through gates, the Contractor shall excavate or tunnel beneath the fences.

3.4.3 When it is necessary to cut existing fences, new end posts shall be installed one each side of the construction easement and old fence thoroughly stapled to these new posts before cutting fence.

After pipe is installed at this point and backfill is completed, a new fence of galvanized wire (No. 9 guage) shall be stretched between the new posts and thoroughly stapled to existing post

and any new intermediate posts necessary to provide a good fence. Replacement of fences shall be on an in kind basis and shall be considered incidental to installation of the pipe line.

4. SUMMARY

4.1 The Contractor shall furnish at the site of Work, all materials, labor and equipment necessary to complete the Work in accordance with the terms of the Contract and as required hereunder. He shall make the required excavation for installing the water lines and all other appurtenant structures: do all ditching, diking, pumping, bailing and draining or otherwise lowering and disposing of water encountered in the excavation necessary for rendering the foundation firm, dry and adequate for installing the water lines and appurtenances; do, as required, all sheeting, shoring, bracing, coffer damming and supporting; provide all lighting, barricades, signs, flagmen and watchmen: make all provisions necessary to maintain and protect, buildings, paved surfaces, fences, trees, shrubs, piles, water pipes, gas pipes, sewers, water courses, surface drains, railroads, railways and other structures in, on, across or adjacent to the Work and repair all damage done to them where and as required; provide all temporary bridges, detours or other means of maintaining travel, both vehicular and pedestrian; construct all concrete, brick and like work; lay all water connections; set in place all iron and other metal work; backfill all trenches; restore walks, grass pots, shrubs, trees, flowers, fences, paved surface, etc. damaged or disturbed; clear away all rubbish and surplus materials; furnish all materials,

tools, implements, machines, tracks, pumps, forms, supplies and labor required to build and put in complete and acceptable working order the water lines and appurtenances covered by the Contract Documents and described by the plans and specifications.

TECHNICAL SPECIFICATIONS

SECTION B

RELATED PIPING MATERIALS AND EQUIPMENT

1. GENERAL DESCRIPTION

1.1 All materials necessary for the completion of the work shall be furnished by the Contractor , as approved by the engineer to meet the requirements of the Plans and Specifications. Any materials found to be defective or not meeting the Specifications shall be rejected and replaced by approved materials at no additional cost to the Owner.

1.2 Concrete Materials

Materials used in all concrete construction shall be governed by the Concrete Section of these Technical Specifications.

2. BACKFILL MATERIALS

2.1 General

The following materials shall be used to backfill any trenches so designated and in any situation shown on the Plans where such materials are specified.

2.2 Sand or Sandy Materials

Sandy backfill in trenches for water lines, property service connection, and structures within the limits of existing or proposed paved surfaces and sand or sandy materials for other miscellaneous construction purposes not specified herein shall consist of natural, crushed, or conglomerate sand containing not more than twenty (20) percent clay.

2.3 Coarse Aggregates

Coarse aggregates shall conform to Kentucky Bureau of highways Standard Specifications (Latest Edition) Section 806, and shall be of the size and type as indicated on the Plans or Specifications.

2.4 Selected Excavated Materials

Backfill in trenches for water lines, property service connections, and structures outside the limits of existing or proposed paved surfaces, and in other specified locations shall be made with selected excavated materials taken from the trench excavation. The specified makeup of this material shall be governed by the Plans or Section e-1.17 of these Technical Specifications.

3. PAVING MATERIALS

3.1 General

All materials used for pavement replacement shall conform to requirements and regulations of the local governments and to Sections 401 and 806 of the Kentucky Bureau of Highways Standard Specification (Latest Edition) except for basis of payment.

3.2 Concrete Surface

Materials used in the construction of the concrete surface shall conform to Section 501.02 of the Kentucky Bureau of highways Standard Specifications (Latest Edition).

3.3 Bituminous Concrete Surface

Materials used in construction of the bituminous concrete surface shall conform to Section 402.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.4 Bituminous Concrete Base

Materials used in construction of the bituminous concrete base shall conform to Section 403.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.5 Bituminous Tack Coat

The material for the bituminous tack coat shall be type SS-1h and shall conform to Section 806 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

3.6 DGA Base

Materials used for the compacted dense graded aggregate base shall conform to Section 303.02 of the Kentucky Bureau of Highways Standard Specifications (Latest Edition).

TECHNICAL SPECIFICATIONS

SECTION C

PIPE MATERIALS

1. GENERAL

1.1 These Specifications describe several types of pipe which may or may not apply to the current project. All types listed herein will be acceptable alternates if no indication is other wise given either on the Plans or in other sections of these Specifications.

1.2 Selected pipe materials will be identified either on the Plans, or Bid Form, in Special provision, or in Measurement for Payment. The Contractor shall thoroughly familiarize himself with each of the items identified above and base his bid on the pipe material given therein.

1.3 Handling of Pipe and Accessories

1.3.1 Pipe and accessories shall be unloaded at the point of delivery, hauled to, and distributed at the site of the Project by Contractor in such a manner to avoid damage to the materials. Whether moved by hand, skidways, or hoists, materials shall not be dropped or bumped against pipe or accessories already on the ground or against any other object.

1.3.2 In distributing material at the construction site, each piece shall be unloaded as near the installation point as possible.

1.3.3 Pipe shall be handled in such a manner as to avoid damage to the ends. When such damaged pipe cannot be repaired to the Engineer' satisfaction, it shall be replaced at the Contractor's expense. The interior of all pipe and accessories shall be kept free from dirt and foreign matter at all times. The interior of all pipe and accessories shall checked for dirt and debris and, if necessary, thoroughly cleaned before use in the Project.

2. ASBESTOS CEMENT PRESSURE PIPE

2.1 Scope

This article covers the design, manufacturer, and testing of asbestos cement pressure pipe for sizes four (4") inch through forty-two (42") inch, nominal inside diameter.

2.1.1 The Contractor shall review the Plans and Bid Forms for information describing the Type, Class, and size of asbestos cement pressure pipe require on the Project.

2.2 Specific Requirements

2.2.1 Scope

The design, manufacturer, and inspection of asbestos cement pressure pipe shall conform to all requirements of AWWA Standard Specification designation AWWA C400 latest revision for sizes four (4") inch through sixteen (16") inch and designation AWWA C402 latest revision for sizes eighteen (18") inch through forty-two (42") inch.

3. CAST IRON PIPE AND FITTINGS

3.1 Scope

This article covers the design, manufacture and testing of cast iron pipe centrifugally cast in metal molds and cast iron fittings for pipe sizes three (3”) inch through forty-eight (48”) inch.

3.2 Specific Requirements

Cast iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of the Specification. Cast iron pipe shall be furnished with rubber-gasket push-on joints except as may other wise be noted on the Plans or in difficult working areas and approval of the Engineer.

3.2.1 Thickness design of cast iron shall conform in all aspects to the requirements of ANSI-AWWA C101 latest revision.

3.2.2 Manufacture and testing of cast iron pipe centrifugally cast in metal molds shall comply with the requirements of the National Standard Institute and American Water Works Association designation A 21.6/AWWA C106 latest revisions.

3.2.3 Cement mortar lining shall conform to the requirements of ANSI/AWWA C104/A 21.4, latest revision for Cement-Mortar Lining for Ductile Iron Pipe and Gray Iron Pipe and Fittings for Water.

3.2.4 Fittings and joints for cast iron pipe shall conform to the latest revisions of ANSI/AWWA C110 “Cast Iron and Ductile Iron Fittings, Three (3’’) Inches through Forty-Eight (48’’) Inches, for Water and Other Liquids”, ANSI/AWWA C111/A 21.11 “Rubber-Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings”, and ANSI/AWWA C115 21.15 “Flanged Cast Iron and Ductile Iron Pipe with Threaded Flanges”.

4. DUCTILE IRON PIPE AND FITTINGS

4.1 Scope

This article covers the design manufacture, and testing of ductile iron centrifugally cast in metal molds and ductile iron fittings.

4.2 Specific Requirements

Ductile iron pipe shall be centrifugally cast in metal molds and shall be furnished cement lined unless otherwise noted on the Plans or in other sections of these Specifications. Ductile iron pipe shall be furnished with rubber gasket push-on joints except as may otherwise be noted on the Plans or in difficult working areas with approval of the Engineer.

4.2.1 Thickness design of ductile iron shall conform in all aspects to the requirements of ANSI/AWWA C150/A 21/50 latest revision.

4.2.2 Manufacture and testing of ductile iron pipe shall conform in all respects to the requirements of the latest revisions of ANSI/AWWA C151/A 21.51.

4.2.3 Cement Mortar Lining – See ART. 3.2.3 above.
4.2.4 Fittings and Joints – See ART. 3.2.4 above.

5. PVC (POLYVINYL CHLORIDE) PRESSURE PIPE

5.1 Scope

This article covers the design, manufacture and testing of PVC 1120 manufactured of Class 12454-A or Class 12454-B resin material with a hydrostatic-design-basis (HDB) rating of 4,000 psi at 73.4 degree F (23 degree

5.2 Specific Requirements

PVC pressure pipe shall be furnished, constructed of materials and to the specifications of this section. The types of PVC pipe permitted for use on the Project will be as noted on the Plans, Bid Documents or other sections of these Specifications. The selected pipe will be designated either as PVC (ASTM) or PVC (AWWA) followed by an appropriate pressure rating. The Contractor shall thoroughly review the Plans and other sections of these Specifications for the type of PVC pipe selected for the Project. All PVC pipe shall be NSF approved.

5.2.1 PVC (ASTM) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project PVC (ASTM) pipe shall be designated, manufactured and tested to conform with the latest revision of the American Society for Testing and Materials designated ANSI/ASTM D-2241.

5.2.2 PVC (AWWA) pipe shall be furnished and installed when designated on the Plans or in the Bid Documents. When selected, by the Engineer, for use on the Project, PVC (AWWA) pipe shall be designated, manufactured, and tested in conformance to the latest revision of the American Waterworks Association designation AWWA C900

5.2.3 PVC pipe joints shall be rubber gasket push-on joints either constructed integrally with the pipe or as a separate coupling constructed on the same material and to the same pressure Specifications as the pipe.

5.2.4 PVC (ASTM) pipe shall be furnished as SDR 26, 21, and 17 for Class 160 psi, 200 psi and 250 psi respectively.

5.2.5 PVC (AWWA) pipe shall be furnished as SDR 25, 18, and 14 for Class 100 psi, 150 psi and 200 psi respectively.

5.2.6 PVC (AWWA) pipe shall be furnished with outside dimensions (O.D.) equal to that for ductile iron and cast iron pipe.

5.2.7 Fittings for PVC (ASTM) pipe may be either PVC, cast or ductile iron. Those for PVC (AWWA) pipe shall be ductile iron.

6. POLYETHYLENE PIPE AND FITTINGS

6.1 Scope

This section covers the design, manufacture and testing of polyethylene high density pressure pipe manufactured of grade P34 resin material with a hydrostatic – design basis (HDB) rating of 1,600 psi at 73.4 degree F (23 degrees C)

6.2 Specific Requirements

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.

6.2.1 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 Pie and Fittings Materials”.

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

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

6.2.4 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.

7. BALL AND SOCKET RIVER CROSSING PIPE

7.1 Scope

This article covers the design, manufacture, and testing of Ductile Iron Ball and Socket River Crossing pipe.

7.2 Specific Requirements

Joints for ductile iron river crossing pipe shall be flexible, ball and socket type, boltless joints with rubber gaskets conforming to the ANSI Specification for “Rubber-Gasket joints for Ductile Iron Pressure Pipe and Fittings”, A 21.11 (AWWAC11), Latest Revision.

TECHNICAL SPECIFICATIONS

SECTION D

PIPING APPURTENANCES

1. CRADLES AND ENCASEMENT

1.1 General

The cradle or encasement, as required to support the pipe, shall be of crushed stone or concrete and shall be installed as specified in the Pipe Work Section of these Specifications, and as shown on the Plans.

1.2 Crushed Stone Cradle

In all cases where the bedding is not specified the pipe is to be laid in crushed stone cradle. The crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 Crushed Stone, as specified by the Kentucky Bureau of Highways Standard Specifications (Latest Revision).

1.3 Concrete Cradle, Encasement, or Cap

Where a concrete cradle, encasement, or cap is required, concrete shall conform to the Concrete Section of these Technical Specifications. Dimensions shall be as shown on the plans.

1.4 Concrete Thrust Blocks and Anchor Blocks

Where concrete thrust blocks and anchor blocks are required (i.e. at all pipe bends and fittings), concrete as specified in the Concrete Section of these Technical Specifications shall be used.

1.5 Special Concrete Structures and Vaults

Cast in place concrete structures shall be constructed of concrete conforming to the Concrete Section of these Technical Specifications to the dimensions and grades as shown on the Plans.

1.6 Valves and Related Appurtenances

1.6.1 General

All valves and related appurtenances shall be installed as shown on the Plans and specified in these Technical Specifications. Material Specifications shall be as described below. Any materials found defective, not meeting the specifications, or improperly installed, shall be rejected and so marked and shall be replaced by materials approved by the Engineer, at no additional cost to the Owner.

1.7 Gate Valves

Gate valves shall be non-rising stem, iron body, bronze mounted, double disc, parallel seat type with o-ring stem seals. Unless otherwise specified the valves shall be suitable for 0-150 PSI operating pressures. Valves which are to be buried for outside use shall be furnished with a 2 inch operating nut and shall have mechanical joint ends. Other valves shall have either flanged or mechanical joint ends and shall be operated by handwheel or chain-wheel operator as shown on the Plans. All valves shall conform to the AWWA Standard C 500, Latest Revision, relative to materials, manufacture, dimensions, inspections, testing, and markings.

1.8 Gate Valves Boxes

Each buried gate valve shall be provided with a 5 ¼" shaft, slide-type, two-piece cast iron valve box. The box shall be of the length as necessary to conform to the depth of the valve. Any extension sections necessary shall be provided with the valve box. Unless shown otherwise on the Plans, the valve box cover shall be marked "Water".

1.9 Check Valves

Check valves shall be iron body, bronze mounted. They shall be outside weight and lever type (unless specified otherwise by the Engineer or indicated as such on the Plans) with bronze seat, hinge and guide busting. Unless otherwise indicated, check valves for interior use shall be flanged and those for exterior use shall be mechanical joint.

1.10 Automatic Air Release Valves

Air release valves shall be of the type, which will automatically release air which accumulates in the pipe system. The body and cover shall be case iron and the float shall be stainless steel. Unless otherwise indicated the valves shall be suitable for use in lines having an average working pressure of 150 psi. **ALL AIR RELEASE VALVE ASSEMBLIES TO HAVE PRESSURE GAUGES.**

1.11 Manual Air Release Valves

See "Detail Sheet" Plan Sheet for description of the manual air release valves.

1.12 Air Valve Pit

Air valves shall be installed in a pit as shown on the Plan Details.

1.13 Blowoff Assemblies

Blowoff assemblies shall be installed in accordance with the details and Specifications at the locations shown on the Plans or as directed by the Engineer for the purpose of removing any obstacles or impurities from the main. The blowoff assembly shall be connected to the main with a typical tapping saddle and corporation stop. The piping shall be 2 inch VC installed as shown in the details with a 2 inch iron body bronze mounted gate valve and 2 piece case iron valve box and lid marked "Water". The lid shall be secured with a pentagon lock nut.

1.14 Fire Hydrants

New fire hydrants shall be of the dry barrel type and be installed where indicated on the Drawings or otherwise directed by the Engineer. Hydrants shall be installed in such a manner as to be completely accessible and in such a position as to minimize possibilities for damage from vehicles or to pedestrians. Hydrants shall be set plumb with nozzles at least 18" above grade. The barrel shall be turned so that the pumper nozzle will face the street. When placed behind curb, the hydrant shall be set so the nozzle will be at least 12 inches from the gutter face of the curb, or at least 5 feet from the edge of the street or road where no curb exists.

Hydrants shall be supported upon a poured-in-place block of concrete as detailed. Such block shall not interfere with joint maintenance nor with proper hydrant drainage, but shall insure zero movement between the hydrant and the main.

Fire hydrants shall conform in all respects to the current Standards of the AWWA. They shall have a 6" inlet and be equipped with two (2) 2-1/2" hose nozzles and one (1) pumper nozzle; nozzles shall be standard to local governmental agencies' requirements. Each hydrant shall be equipped with traffic damage repair kits and hydrant wrenches provided for every five (5) hydrants.

1.15 Service Piping

Unless otherwise noted on plans service piping shall be high density ¾" Polyethylene (PE 3408) tubing or approved equal.

The piping shall be Type III C 5 P 34 as designated in ASTM-D-1248 ("Polyethylene Plastics Molding and Extrusion Materials") and shall be classified as a PE 335433 according to ADTM D-3350 ("Polyethylene Plastics Pipe and Fittings Materials").

1.16 Connection to Main

Service pipe connections to the main shall be made with a tapping saddle and corporation stop as shown in the Plans.

1.17 Setters

Setters shall be brass with 90° brass angle meter valve and 90° coupling sized for 5/8" x ¾" and ¾" meter.

1.18 Meters

All water meters shall be 5/8" x ¾", plastic or bronzed bodied, of the magnetic oscillating piston or rotating piston type with a working pressure of 150 psi and shall conform to the AWWA specifications for Cold Water Meters.

The main case shall be frost-proof with a single, hinged lid cover with raised characters indicating the direction of flow and manufacturers serial number. Strainers with an effective area at least double that of the main case inlet shall be of a non-corrosive material and should fit tightly against the main case.

The measuring chamber shall be of a non-corrosive material and shall be securely positioned in the main casing. Discs shall be straight reading U.S. Gallons type with a measuring capacity of 999,999 gallons. All parts shall be as non-corrosive as possible and completely encased and hermetically sealed.

Measuring accuracy shall conform to AWWA Standard C 700, latest edition. Testing will be done at Engineers request and any meter found defective shall be returned to the manufacturer for replacement or repair at manufacturer's expense.

11.19 Meter Boxes and Covers

All meters shall be installed in new concrete boxes unless otherwise shown on the plans or approved by the Engineer.

The box shall be a precast concrete vault 18" I.D. and 24" in height. The cast iron lid shall have an 11 ½" minimum opening with "Water Meter" stamped on top.

1.20 Back Flow Preventers

Back Flow preventers shall be angle check valves installed on customer side of meter. Such valves shall be brass or ductile iron with stainless steel spring.

1.21 Connection to Customer Service Line

All connections to the customers existing service line shall be made at the meter Setter connection only unless otherwise directed by the Engineer.

TECHNICAL SPECIFICATIONS

SECTION E

PIPING WORKMANSHIP AND CONSTRUCTION METHODS

1. EXCAVATIONS AND GRADING

1.1 General

This section shall include all clearing and grubbing, site preparation, excavating of earth and other material, filling, site restoration and grading, and other allied work necessary for the construction required for the project.

Any construction methods not specifically outlined in these specifications will be governed by the Kentucky Bureau of Highway Standard Specifications (Latest Revision)

1.2 Site Preparation

Prior to commencing construction operations the contractor shall make all the provisions necessary to assure the protection of all existing improvements, both public and private. He shall protect trees, shrubs, plantings, and grassed areas and shall make provisions for maintaining public travel in an acceptable manner.

1.3 Protection of Existing Improvements

Before any excavation is started, adequate protection shall be provided for all lawns, trees, shrubs, landscape work, fences, sidewalks, hydrants, utility poles, streets, alley and driveway paving, curbs, storm sewers, ditches, headwalls, catch basins, surface inlets and all other improvements that are to remain in place. Such protection shall be provided as long as necessary to prevent damage from Contractor's operations. Shrubs, bushes, small trees and flowers, which have to be removed to permit excavation for the water lines, shall be protected and replanted or replaced when backfill is complete.

The Contractor shall exercise every precaution to prevent damage to property within the outside easements. He shall remove all debris and rock from the site and restore the ground surfaces, replace or repair all driveways, buildings, fences, retaining walls, etc., which are removed or damaged during construction.

Repairs, restoration or replacement of any improvements damaged or removed, whether shown on the plans or not, shall be the obligation of the Contractor at no additional cost to the owner.

1.4 Maintenance of Public Travel

Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Department of Transportation . It is the responsibility of the Contractor 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.

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.

Unless specifically directed otherwise by the Engineer, no 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 he expense of the contractor.

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.

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 considerations. All public or private drives shall be promptly backfield or bridges at the direction of the Engineer. Excavated materials shall be disposed of as to cause the least interference, and in every case the disposition of excavated materials shall be satisfactory to the Engineer.

1.5 Drainage

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 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.

1.6 Excavation

1.6.1 General

Materials of excavation shall be unclassified and shall include whatever materials are encountered to the depth of the plans, stated in the specifications, or directed by the Engineer.

1.7 Disposal of Unsuitable Materials

Excavated materials which are either surplus and not required or are unsuitable for backfilling shall be removed from the site of operations as soon as excavated.

All excavated materials so removed shall be disposed of, at no additional cost to the owner, on sites acquired by the Contractor and approved by the Engineer.

1.8 Storage of Suitable Materials

Excavated materials suitable and required for backfill shall be stored in neat piles adjacent to the excavation in a manner so as to interfere as little as possible with traffic, but shall not be placed at such heights above or closeness to the sidewalls of the excavation to endanger such operations due to slides or cave-ins.

1.9 Open Cut Excavation for Structures

In excavation for masonry and concrete structures, the required width shall be such as to permit forms to be constructed in the proper manner and to permit proper backfilling on completion of the structures.

Depth of excavation for footings shall be as shown on the drawings and/or as directed by the Engineer to obtain sufficient bearing.

1.10 Open Cut Excavation for Pipeline Trenches

Open Cut excavation, either in earth or rock, shall be safely supported and of sufficient width and depth to provide adequate room for the construction or installation of the work to the lines and dimensions called for by the plans.
Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may be necessitate changing the alignment of the pipeline.

1.11 Trench Dimension

Excavations for water pipe in both earth and rock shall have a minimum allowance trench width as shown on the details which will permit good workmanship in laying the pipe and fittings, boring and jacking and compaction of backfill at he sides of the pipe, and shall be subject to the approval of the Engineer.

The maximum allowance trench width shall be no greater than 2' – 0" + the outside pipe diameter except where such dimensions may prohibit any other construction such as the boring and jacking of service connections under paved surfaces.

Subgrade – the depth of excavation below the pipe – shall be 3" minimum in earth trench and 6" in rock trench unless other wise stated in the plans and Specifications or approved by the Engineer.

1.12 Shoring, Sheering and Bracing

The Contractor shall furnish, place, and maintain adequate sheeting and bracing as may be required to support the sides of the excavation and prevent any movements of earth which could, in any way, diminish the width of the excavation to less than that necessary for proper construction, cause damage to the waterline or structures, utilities, pavements, or walks, or cause injury to workmen or others through movement of the adjacent earth banks, or to otherwise damage or delay the work.

The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under existing conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor, however, the Engineer may require the submission of shoring plans (accompanied by supporting computations) for approval prior to the Contractor undertaking any portion of the work.

1.13 Blasting

When blasting is required for the removal of rock, every precaution shall be used for the protection of persons and private and public property. The method of blasting will be as determined by the Contractor, subject to the approval of the engineer, prior to construction.

The Contractor shall comply wit hall laws, regulations, and ordinances of the local governmental agencies and the Commonwealth of Kentucky relating to the transportation, storage and use of any and all explosives or blasting agents. Compliance with all of the above stated regulations and submittal of the method of blasting as stated above does not in any way relieve the contractor of responsibility for any damage caused by the blasting. Any damage thus caused shall be promptly and satisfactorily repaired by the Contractor at no additional cost to the owner.

1.14 Unauthorized Excavation

Whenever the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor at his own expense shall refill such excavated space with such material and in such a manner as will insure stability of the structure involved.

1.15 Removal of Water

The Contractor, at his own expense, shall provide adequate facilities for promptly removing water from all excavations. No water lines shall be laid in a trench which is holding water.

1.16 Backfill, Embankment, and Grading

1.16.1 General

This section includes the filling of the excavated trenches and spaces around the completed structures or pipelines to the original grades or to finished grades as indicated on the plans.

1.16.2 Trench Backfilling in Unpaved Areas

Backfilling of Trenches in open cut shall be commenced as soon as possible after the distribution main and service taps to the main have been completed, and all jointing and alignment has been approved by the Engineer.

Selected excavated material containing no rock shall be carefully and solidly tamped around the pipe from the tip of the cradle or encasement up to a plane at least one (1) foot above the exterior of the pipe or structure. The filling of the trench shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipe line, except as may be necessary in tamping or backfilling, shall not be permitted, until the trench has been backfield to that height.

The Contractor may use any type of earth moving equipment he has at his disposal, provided such equipment is in satisfactory condition, and of such type and capacity that the work may be accomplished properly, the grading schedule maintained, and the required density obtained. Any questionable suitability problems related to earth moving equipment shall be resolved by the Engineer.

The selected excavated backfill materials used between the plan one (1) foot above the ground surface may include rock fragments taken from the excavation.

In backfill containing rock, no rock fragment shall be larger than 1 cubic foot in size and all rock fragments shall be mixed with sufficient earth materials to completely eliminate all voids, subject to the approval of the Engineer. The amount of rock in the backfill shall not exceed 33% of the total backfill. Rock fragments and surplus earth materials not used in the back fill shall be removed from the site of the work.

In filling the remainder of the trench, from the plane one (1) foot above the pipe to the top of the trench, the backfill material may be shoveled into the trench without compacting, and heaped over whenever, in the opinion of the Engineer, this method of backfilling may be used without inconvenience to the public.

Before final acceptance, the Contractor will be required to level off all trenches where backfill material has been piled up, or to bring the trench up to the level of the surrounding street, roadway, or terrain where necessary, also, the removal from the streets, roadways, and private property of all excess earth or other materials.

1.16.3 Trench Backfilling in Paved Areas

In areas where street paving is to be replaced, trenches shall be backfilled up to one (1) foot above the top of pipe or structure using the methods described above for unpaved areas. Backfill above this level shall be placed in layers not exceeding eighteen (18) inches and firmly tamped into place by tampers or rammers to 95% of Standard Proctor Maximum Density. In lieu of tamping the trench may be backfilled with granular material and puddled and jetted under the direction of the Engineer.

1.16.3 Backfill Around Structures

Sandy backfill material or selected excavated materials containing no rock shall be placed in uniform layers around air valve pits or other structures and shall be thoroughly tamped and compacted.

1.16.4 Backfill Around Iron Pipe

Selected excavated materials composed of clay, sand, gravel or other materials non-injurious to iron pipe shall be used for backfilling within 24 inches of iron pipe. Cinders, rubbish and other materials which would be injurious to iron pipe shall not be used in such backfilling.

1.17 Restoration of Ground Surfaces and Cleanup

1.17.1 General

All ground surfaces in public rights-of-way, easements and on private property that have been damaged or destroyed by the Contractor's operations shall be restored to original contours and in accordance with the following specifications.

1.17.2 Restoration of Grassed Areas with Sod

Where so designated, all established grassed areas shall be restored with sod containing grasses of comparable quality. Sod shall be placed and rolled so that the final elevations of the area being restored are the same as existed prior to the beginning of construction. Sod shall be pegged where necessary, and shall be watered and cared for to assure its survival until final acceptance of the project.

1.17.3 Restoration of Grassed Areas with Seed and Mulch

The Contractor shall seed and mulch all disturbed areas, unless otherwise specified , in the following manner: Rye or Fescue Seeding – The ground shall be loosened approximately 3 inches deep with a disc or harrow: fertilized with 25 pounds of 10-10-10, or equivalent, and 100 pounds of agricultural lime per 1,000 square feet; sown at a rate of 75 pounds per acre with an approved grade of perennial rye or Kentucky No. 31 Fescue grass seed that will provide early

growth during the season in which it was planted. The seed shall be well raked or boarded into the soil.

The time of application of the seed and fertilizer shall be at the discretion of the Engineer.

Unless other wise permitted by the Engineer, vegetable materials for mulching shall be wheat, oat, barley or rye straw only. All material shall be reasonably free from weed seeds, foreign material, and other grasses and chaff, and shall contain no Johnson Grass. The straw shall be reasonable bright in color and shall not be musty, mouldy caked or of otherwise low quality. It shall be dry on delivery

Unless otherwise specified, the bituminous material to be used for "tying down" straw mulch shall be a slow setting emulsified asphalt. It shall be non-toxic to plants.

Mulch net shall be used, if directed by the Engineer, to hold mulch in place until turf is established. The net shall be made of a tightly twisted kraft paper yarn, leno woven with a warp count of one pair of yarns per two (2) inches and a filling count of two per inch. Salvage edges and center shall be reinforced with polyethylene filament. The material shall a minimum width of 45 inches.

1.18 Cleanup

Before final acceptance of the work, the Contractor shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All sewers, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.

Where the Contractor's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contract shall reditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc., so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

The Contractor's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.

TECHNICAL SPECIFICATIONS

SECTION F

PIPING WORK

1. PIPEWORK

1.1 General Description

After the trench is excavated to subgrade as specified, it shall be filled to the proper depth with crushed stone or concrete as specified to provide a firm and satisfactory bed, hereafter referred to as the cradle or encasement, for the entire length of the pipe barrel. Pipe of designated class and required size shall be laid to form a closed joint with the next adjoining pipe, bringing the inverts continuously to the required depth of cover shown on the plans, The pipe shall be laid in an upstream direction, with bells upstream, unless otherwise permitted or directed.

In no case shall water be allowed to rise in or above the pipe before the joint has become thoroughly set. No walking on or working over the pipes after they are laid , except as may be necessary in placing and compacting the backfill, will be permitted until they are covered with backfill to a depth of one (1) foot.

The trench backfill shall be placed in accordance with backfill requirements of these Technical Specifications.

1.2 Cradle and Encasement

The cradle or encasement, as required to support and protect the water pipe, shall be of crushed stone or concrete and shall be installed as specified herein or as directed by the Engineer to the dimensions as shown on the plans.

1.2.1 Crushed Stone Cradle

Where indicated on the plans water main shall be installed with a crushed stone cradle.

Where the water pipe is to be laid in a crushed stone cradle, the crushed stone to be used shall be Kentucky Highway No. 9 or No. 78 crushed stone, as specified by the Kentucky Bureau of Highways. The crushed stone shall be deposited in the excavated trench to depth shown on plans, allowing for the pipe wall thickness and providing “bell holes” for making joints, where pipe is of the bell and spigot type. The pipe shall be laid to the depth as shown on the plans and crushed stone shall be carefully deposited around the pipe up to a plane through the centerline of the pipe as indicated on the plan details.

1.2.2 Concrete Cradle

Where a concrete cradle is required as additional support for the water pipe, concrete, as specified in the concrete section of these Technical Specifications and section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. First, the water pipe shall be laid accurately to the depth indicated on the plans, setting the pipe upon concrete blocks or saddles installed to provide both vertical and lateral supports for the pipe. The supporting of pipe on wooden blocks will not be permitted.

1.2.3 Concrete Encasement

Where a concrete encasement is specified, concrete, as specified in the Concrete Section of these Technical Specifications and Section 601 of the Kentucky Bureau of Highways Standard Specifications, shall be used. The water pipe shall be laid and reported in accordance with the specifications for water pipe and concrete cradle, as heretofore specified, and the concrete deposited around the pipe at the required width and depth to a plane at least 6 inches over the top of the pipe, as indicated on the Plan Details. Proper bracing of the pipe shall be provided to prevent its being floated by the concrete encasement.

1.3 Metered Service Connections

Metered service connections shall be installed to the point where the line from the customers residence or business joins the meter setter. The service piping shall be ¾" polyethylene tubing as noted in the Piping Appurtenances Section of these Technical Specifications. They shall be installed as shown on the plans or as directed by the Engineer.

1.4 Meter Boxes and Other Structures

Meter boxes shall be constructed as shown on the Plan Details. The concrete vault shall be placed on concrete bricks, with 6" crushed stone placed in the bottom for drainage.

The cast iron lid shall be set flush with existing ground or ½" maximum above ground. Backfill shall be carefully tamped around both vault and lid. Vaults placed in sidewalks, driveways, or other paved surfaces shall have lids placed flush with existing paved surfaces.

Service line depth shall be the same as the main water line with the exception that the service line may be brought up to a sufficient depth to enter the vault within 5' of the side of the vault.

Air release valve vaults shall be Type III 24" diameter Reinforced Concrete Pipe barrels set on 8 concrete bricks with 6" crushed stone in bottom for drainage. The lid shall be cast iron stamped "water" with 24 I.D. opening. Backfill shall be carefully tamped around vault and lid. The lid shall be flush or ½" maximum above existing ground in unpaved areas and flush with paved surfaces.

1.5 Branches and Fittings

Branches and Fittings shall be provided and laid as where directed.

Tapping saddles or other fittings for property service connections shall be placed on the water main at such points as to result in the property service connection having the shortest length possible between the water main and the property line unless otherwise indicated on the plans or directed by the Engineer.

1.6 Pipe Cutting

Pipe may be cut in any manner specified by the pipe manufacturer, but only when authorized and approved by the Engineer. Where a pipe is cut the Contractor shall remove the old section of pipe satisfactorily to the Engineer.

1.7 Pipe Handling and Installation

All procedures for receiving, handling, storing, and installing pipe used in the project, unless specified in these Technical Specifications, shall be governed by the Standards listed below with the approval of the Engineer.

Ductile Iron Pipe - The manufactures printed instructions.

Polyvinyl Chloride Pipe - The manufactures printed instructions.

Polyethylene Pipe - The manufactures printed instructions.

1.8 Pressure Pipe Thrust Blocking

Concrete thrust blocks shall be provided to prevent movement of pipe or appurtenances in response to the forces developed by the pressure of the piping system. In general, thrust blocking shall be provided where the pipeline changes direction (e.g. tees, bends, elbows, crosses, etc.), changes size (e.g. reducers), stops at dead ends, and/or has an appurtenance (e.g. valve or hydrant) attached at which thrust develops when closed. Thrust blocks shall be sized according to the plans.

1.9 Highway and Railroad Crossings

Steel casing pipe for road and railroad crossings shall be bored and/or jacked in place to the depth shown on the plans. Casing pipe shall also be laid in open cut where indicated on the drawings. All joints between lengths shall be solidly butt-welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The water line pipe shall be installed after the casing pipe is in place, and shall be braced within the casing with structural steel members welded into place or other Engineer approved method to preclude possible floatation.

Railroad crossing material and installation shall be in strict accordance with American Railway Engineering Association Specifications.

At each end of the casing pipe, the water line pipe shall be wrapped with two layers of roofing felt. The wrapping shall extend a minimum of 12 inches in each direction from the end of the casing pipe. After the water line has been installed, inspected, tested and wrapped as specified, both ends of the casing pipe shall be closed with brick or concrete block masonry in a manner acceptable by the Engineer.

Weep holes shall be provided in the closure at the lower end of the casing pipe to facilitate drainage and shall be located within the granular pipe bedding material. Granular bedding is not required under the open cut casing pipe; however, the Contractor shall insure that casing pipe does not bear directly on rock.

1.10 Creek Crossings

River and creek crossings shall be accomplished in a method determined by the Contractor and approved by the Engineer to the lines and grades as shown on the plans. Piping shall be ductile iron or polyethylene pipe as per the pipe materials section of these Technical Specifications and as approved by the Engineer. There are two types of creek crossings which shall be as shown on the plans and where indicated on the plans.

1.11 Pipeline Testing

1.11.1 General

Testing at the Contractor's expense of any water line section may be requested at any time by the Engineer to determine that the section is watertight.

1.12 Visual Inspection

During the final inspection the Engineer may inspect any section of the water lines by various methods at his disposal to determine whether the completed lines are true to line and grade as laid out or as shown on the Plans.

1.13 Hydrostatic Tests

After the pipe is laid and the line flushed, it shall be filled with water with care being exercised to expel all air from the pipe. During the test period all pipe, valves, fittings, and joints shall be examined carefully for defects. Any observed leaks or defective pipe shall be satisfactorily repaired or replaced, at the expense of the Contractor and the test repeated until the section tested is within the limits prescribed hereinafter. The entire distribution system or parts thereof shall be tested under hydrostatic pressure of 150 psi, or pressure class of the pipe which ever is greater, for a period of 4 hours, if joints are exposed, or for an 8 hour period if joints are covered. Repairs shall be made using approved materials and new replacement fittings, specials, or gaskets where leakages occur.

Leakage shall be measured by an approved calibrated meter through which all the water required to maintain test pressure shall be pumped. All testing shall be performed in the presence of the Engineer. Allowable leakage shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe, at the specified test pressure.

Tests shall be completed in accordance with the latest edition of AWWA C-600 except a modified herein.

1.14 Flushing

Any foreign material left in piping during construction shall be removed by flushing system prior to testing. Flushing should be accomplished by partially opening and closing valves and hydrants several times under expected line pressure with flow velocities adequate to flush foreign material out of valves and hydrants.

1.15 Disinfection

1.15.1 General

Thoroughly disinfect all water pipe on potable water lines prior to being placed in service. Follow the applicable provisions of the procedure established for the disinfection of the cast iron pipe as set forth in the latest edition of AWWA C651 entitled "Disinfecting Water Mains".

1.15.2 During the Construction

Workmen shall be required to use utmost care to see that the surface of parts of the structures, the inside of pipes, fittings, jointing materials, valves, and specials which come in contact with the local water system's water, are maintained in a sanitary condition. Every effort shall be made to keep the inside

of the pipe, fittings, and valves free of all foreign matter, sticks, dirt, rocks. As each joint of pipe is being laid, it shall be swabbed so that all foreign matter is removed. All fittings and exposed open ends of pipe shall be blocked or capped until the line is completed.

When the entire pipe line or certain selected sections thereof have been completed, tested and made ready for turning over to the local water system, ready for use, the line or section of line shall be thoroughly sterilized according to the following procedure: The new pipe shall be disinfected by introducing HTH, perchloron , or a similar hypochlorite solution, through taps made by the Contractor as directed by the Engineer. The water shall be turned into the mains slowly to allow a thorough mixing of solution which shall be brought to a strength of 50 parts per million of available chlorine. All valves shall then be closed and the sterilizing solutions permitted to remain in the pipe line sections for not less than 24 hours. At the end of the 24 hour period the water in the line must have a minimum chlorine residual of 25 parts per million, or the process shall be repeated until the residual of 25 ppm is maintained. After the required chlorine residual has been maintained the mains shall be flushed thoroughly until a chlorine residual not to exceed one (1) part per million is obtained.

No water line shall be put in service either permanently or temporarily until it has been thoroughly disinfected to the satisfaction of the Engineer. The Contractor shall be responsible for all baterialogical testing should this be required by the Engineer.

1.16 Restoration of Paved Surfaces

1.16.1 General Description

After all excavations within the limits of paved surfaces have been properly backfilled and compacted in accordance with the Plans and Specifications, the paved surfaces shall be restored to a condition as good as or better than existed prior to the beginning of the work, in accordance with the following Specifications.

1.17 City, County, and State Paved Surfaces

Streets, alleys, sidewalks, curbs, and gutters originally constructed by ordinance or maintained by the City, and highways, roads, and walks constructed and/or maintained by the Kentucky Department for Transportation or County, which are wholly or partially removed, damaged or disturbed by the Contractor’s operations, shall be promptly restored to a condition as good as or better than existed prior to the beginning of the work. Such restoration shall be performed in accordance with the pertinent Specifications and standards of the City, the County, or the Kentucky Department of Transportation as applicable.

1.18 Other Paved Surfaces

Streets, alleys, driveways, sidewalks, curbs, and gutters, not constructed or maintained by the City, the Kentucky Department of Transportation, or the County, but paved with asphalt, concrete, cinders, crushed stone, waterbound macadam, oilbound macadam, or heterogeneous paving materials, which are wholly or partically removed, damaged or disturbed by the Contactors operations, shall be restored with like or better materials, acceptable to the Engineer, to a condition as good or as better than existed prior to the beginning of the work, so that the movement of traffic, both vehicular and pedestrian, through the restored way shall be as free, safe and unimpeded as before.

1.19 Asphalt Roadway Paving

Existing asphalt paving in roadways shall be restored with base, binder and surfacing of the dimensions as shown in the plans. All material shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Sections 300 and 400 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.20 Concrete Roadway Paving

Existing concrete paving in roadways shall be restored with the dimensions shown in the plan details. All materials shall conform to the Materials section of these Technical Specifications and construction methods shall conform to Section 500 of the Kentucky Bureau of Highways Standard Specifications with the approval of the Engineer.

1.21 Driveway Replacement

For the restoration of all paved driveways disturbed by the installation of the water lines, the materials and dimensions shall be equivalent to the original paving. However, in no case shall the dimensions be less than (a) 6” DGA base and 6” Class “A” Concrete for concrete driveways and (b) 6” DGA base and 2” Bituminous Surface for asphalt driveways.

N O T I C E

Department of the Army Corps of Engineers
"Letter of Permission" Authorization

&

Kentucky Division of Water 401 Water Quality Certification

PROJECT: Item No. 10-126.50
Reconstruction of the Mountain Parkway
Mile point 62.6 to 65.0
Morgan and Magoffin Counties, KY

The Section 404 & 401 activities for this project have been permitted under the authority of the Department of the Army Nationwide Letter of Permission (LOP) & Division of Water General Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of these authorizations in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Division of Environmental Analysis. If such changes necessitate further permitting then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

23 SEP '16 AM 8:27

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
EASTERN KENTUCKY REGULATORY OFFICE
845 SASSAFRAS CREEK ROAD
SASSAFRAS, KY 41759-8806

September 20, 2016

Operations Division
Regulatory Branch (South)
ID No. LRL-2015-810

Mr. David Waldner
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Waldner:

This is in regard to your application for a Department of the Army (DA) permit dated October 2, 2015, concerning a plan to reconstruct and widen the Mountain Parkway (KY 9009) from mile point 62.6 to mile point 65, construct 8 culverts, 4 stream realignments and one excess material fill (KYTC Item 10-126.50) near Netty in Morgan and Magoffin Counties, Kentucky. We have reviewed your application and submitted information and have made the following determinations: the work is minor in nature, will not have a significant impact on the environment and should encounter no opposition.

Based on these determinations, your proposed work satisfies the Letter of Permission (LOP) criteria, as specified in our regulations and the procedures outlined in the LOP No. 200600259-pgj, issued on October 3, 2007. Therefore, you are authorized, in accordance with Section 404 of the Clean Water Act (CWA), to discharge fill material into 8,908 linear feet of Johnson Fork and 1.37 acres of wetlands within the Johnson Fork watershed, 250 linear feet of Tim Branch, 164 linear feet of Purcell Branch, and 3,619 linear feet of Wheel Rim Fork as part of the proposed project. The impacts would occur in and adjacent to the Johnson Creek watershed of the Licking River. This permission is granted with the following conditions:

1) The project shall be constructed in accordance with plans included in the October 2, 2015, application for Kentucky Transportation Cabinet, Item No. 10-0126.50 and all subsequent information received regarding changes to the original submittal and/or mitigation plan.

2) The applicant must conduct the permittee responsible mitigation as outlined in the mitigation plan entitled "KYTC Stonecoal Branch Tributaries 15 & 16 Rowan County, Kentucky" dated April 2016. Construction of stream mitigation must be done before or concurrently with the proposed stream to minimize temporal and cumulative loss of stream function.

3) The applicant must provide proof of purchase from Kentucky Department of Fish and Wildlife Resources for 1871.6 EIU stream mitigation credits prior to any discharge of dredged or fill material into "waters of the U.S."

4) The applicant must provide proof that 2.12 wetland mitigation credits have been obtained from the Ova Arnett mitigation site.

5) The time limit for completing the work authorized ends on 31 December 2022. If the permittee finds that more time is needed to complete the authorized activity, an application must be submitted for a time extension to this office for consideration at least 1 month before the above date is reached.

6) Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.

7) The permittee must agree to comply with the enclosed General Conditions.

8) The permittee must comply with the agreement outlined in the June 21, 2016 letter from U.S. Fish and Wildlife Service regarding the Biological Opinion on endangered species within the project area.

This authorization will be effective as soon as we receive your signed acceptance of these conditions. Please sign and date a duplicate copy of this letter in the space provided and return the signed copy. Note that we also perform periodic inspections to ensure compliance with our permit conditions and appropriate Federal laws.

This letter contains a proffered permit for your proposed project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision, you must submit a completed RFA form to the Lakes

and Rivers Division Office at the following address.

Regulatory Appeals Officer
U.S. Army Engineer Division
Great Lakes and Ohio River
550 Main Street - Room 10032
Cincinnati, Ohio 45202-3222
(513) 684-6212

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **November 21, 2016.**

It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

This letter also contains a preliminary jurisdictional determination for your records. Preliminary jurisdictional determinations are not appealable and only state that the aquatic resources therein may be "waters of the U.S."

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:

Justin Branham
Team Leader
Regulatory Branch

Enclosures

(I accept the conditions of this authorization):

Kentucky Transportation Cabinet

Date 9/29/16

Addresses for Coordinating Agencies

Mr. Duncan Powell
USEPA, Region IV
WCOB c/o SESD (Room A100-13)
980 College Station Road
Athens, Georgia 30605-2720

Mr. Virgil Lee Andrews
U.S. Fish & Wildlife Service
J.C. Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601

Director
Kentucky Energy & Environment Cabinet
Division of Water
200 Fair Oaks, 4th Floor
Frankfort, KY 40601

Dr. Jon Gassett
Commissioner
Ky. Dept. of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, KY 40601

Mr. Craig Potts
Executive Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

GENERAL CONDITIONS:

1. Discharges of dredged or fill material into "waters of the U.S." must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct, secondary, and cumulative impacts of the fill or work and any mitigation measures.

2. The permittee shall provide a mitigation/monitoring plan for impacts resulting from the placement of fill into "waters of the U.S." in excess of 300 linear feet of intermittent or perennial stream; the filling of greater than 0.10 acre (4,356 sq. feet) of waters of the U.S; or work causing more than minimal effects, to compensate for impacts to the "waters of the U.S." These impact thresholds are applied for each crossing. When mitigation is required, the permittee will develop the mitigation site concurrently with, or in advance of, the site construction unless the Corps determines on a project specific basis that it is not practical to do so. This will ensure that aquatic functions are not lost for long periods of time (e.g. temporal loss) which could adversely affect water quality and wildlife. The requirement for conservation easements or deed restrictions will be determined on a project specific basis.

3. The permittee shall ensure that sedimentation and soil erosion control measures are in place prior to commencement of construction activities. These measures will remain in place and be properly maintained throughout construction. Sedimentation and soil control measures shall include the installation of straw bale barriers, silt fencing and/or other approved methods to control sedimentation and erosion. Sedimentation and erosion controls will not be placed in "waters of the U.S." except if specifically approved by the District.

4. The permittee shall ensure that areas disturbed by any construction activity, including channel and stream banks, are immediately stabilized and revegetated with a combination of non-invasive plants (grasses, legumes and shrubs) which are compatible with the affected area and will not compete with native vegetation.

5. The permittee shall ensure that no in-stream construction activity is performed during periods of high stream flow or during the fish spawning season (April 1 through June 30) without first contacting the Kentucky Department of Fish and Wildlife Resources (KDFWR) for their expertise on impacts to the fishery resource. Additionally, the discharge of dredged and/or fill material in known waterfowl breeding and wintering areas must be avoided to the maximum extent practicable.
6. The permittee will ensure that the activity authorized will not

disrupt movement of those aquatic species indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's specific purpose is to impound water.

7. The permittee shall ensure that all construction equipment is refueled and maintained on an upland site away from existing streams, drainageways and wetland areas. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

8. The permittee must comply with any case specific special conditions added by the Corps or by the State Section 401 Water Quality Certification (WQC). The conditions imposed in the State Section 401 WQC are also conditions of this LOP.

9. The permittee shall ensure that no activity authorized by the LOP may cause more than a minimal adverse effect on navigation.

10. The permittee shall ensure proper maintenance of any structure or fill authorized by the LOP, in good condition and in conformance with the terms and conditions of the LOP, including maintenance to ensure public safety. The permittee is not relieved of this requirement if the permitted activity is abandoned, although the permittee may make a good faith transfer to a third party. Should the permittee wish to cease to maintain the authorized activity or desire to abandon it without a good faith transfer, the permittee must obtain a modification to the LOP from the Corps, which may require restoration of the area.

11. The permittee shall not perform any work within any Wild and Scenic Rivers or in any river officially designated as a "study river" for possible inclusion in the system, unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity authorized by the LOP will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal Land Management agency in the area (e.g. U.S. Forest Service, Bureau of Land Management, the National Parks Service, or the U.S. Fish and Wildlife Service).

12. The permittee shall not perform any work under the LOP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. The permittee shall notify the Corps and coordinate the

proposed action with the USFWS to determine if any listed species or critical habitat might be affected and/or adversely modified by the proposed work. No activity is authorized under the LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. At the direction of the Corps, the permittee shall complete the necessary consultation with the USFWS, satisfying the requirements of Section 7(a)(2) of the Endangered Species Act. The permittee shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity under the LOP does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act.

Obligations under Section 7 of the Act must be reconsidered by the Corps Districts if (1) new information reveals impacts of the proposed action may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

13. The permittee shall not perform any activity under the LOP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the LOP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the Kentucky Heritage Council.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the LOP, work must be immediately stopped and this office immediately notified regarding the discovery. The District will initiate the Federal, Tribal and State coordination required to determine if the

remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

14. The permittee shall not perform any work under the LOP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake.

15. No activity, including structures or work in "waters of the U.S." or discharges of dredged or fill material may consist of unsuitable materials (e.g. trash, debris, car bodies, asphalt, etc.) and that materials used for construction or discharge must be free from toxic pollutants in toxic amounts.

16. The permittee shall, to the maximum extent practicable, design the project to maintain pre-construction downstream flow conditions. Furthermore, the work must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of fill must withstand expected high flows. The project must provide, to the maximum extent practicable, for retaining excess flows from the site and for establishing flow rates from the site similar to pre-construction conditions.

17. The permittee shall ensure that all temporary fills, authorized under the LOP, be removed in their entirety and the affected areas returned to pre-construction elevation.

18. Representatives from the Corps of Engineers and/or the State of Kentucky may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the LOP, Section 401 WQC, and applicable laws.

19. All work authorized by this LOP must be completed within five years after the date of the Corps authorization letter. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least three months before the expiration date.

20. The permittee, after completion of work under the LOP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the LOP authorization including compliance with all general and special conditions and completion of mitigation work.

21. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is

being or has been accomplished with the terms and conditions of the LOP.

22. For Section 10 waters, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 18 August 2016

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD: Ronald Rigney, KYTC, 200 Mero Street, Frankfort, KY 40622

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: CELRL, Mountain Parkway Expansion MP 62.6 to MP 65, LRL-2015-810

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: Widening to 4 lanes from near KY 134 to near KY 3047 of KY 9009 (Mountain Parkway), and one excess material site

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: KY County/parish/borough: Morgan & Magoffin City: Netty
Center coordinates of site (lat/long in degree decimal format):
Lat. N 37.746280° N, Long. W 83.231716° W.
Universal Transverse Mercator:
Name of nearest waterbody: Johnson Creek

Identify (estimate) amount of waters in the review area:
Non-wetland waters: 12,941 linear feet: 6.4 width (ft) and/or 1.907 acres.
Cowardin Class: Riverine
Stream Flow: Ephemeral, Intermittent, Perennial
Wetlands: 1.370 acres.
Cowardin Class: Palustrine
Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal:
Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): Feb 22, 2016

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: KYTC, 10-2-2015.

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

- ☒ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .

- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name:1:24,000 – Lee City & Seitz

☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .

☒ National wetlands inventory map(s). Cite name: National Wetland Inventory Polygons-GIS coverage.

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): NAIP Color Imagery 2012 – 1 meter coverage.
or ☐ Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Jonathan Branch 9/20/2016
Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area (acre)	Class of aquatic resource
1	37.747716	-83.250902	P	0.521	non-section 10 – wetland
2	37.747377	-83.250102	R6	0.050	non-section 10 – non-wetland
3	37.747461	-83.248944	R6	0.022	non-section 10 – non-wetland
4	37.746944	-83.248575	R6	0.019	non-section 10 – non-wetland
5	37.744752	-83.244369	R3	0.129	non-section 10 – non-wetland
6	37.744319	-83.244641	R3	0.826	non-section 10 – non-wetland
7	37.743805	-83.243325	R6	0.017	non-section 10 – non-wetland
8	37.744133	-83.241855	R4	0.008	non-section 10 – non-wetland
9	37.745269	-83.239466	R4	0.012	non-section 10 – non-wetland
10	37.746438	-83.238188	R3	0.001	non-section 10 – non-wetland
11	37.746511	-83.237869	P	0.097	non-section 10 – wetland
12	37.746572	-83.236666	R4	0.005	non-section 10 – non-wetland
13	37.746561	-83.236188	P	0.157	non-section 10 – wetland
14	37.746255	-83.232758	P	0.038	non-section 10 – wetland
15	37.746280	-83.231716	P	0.075	non-section 10 – wetland
16	37.746230	-83.228847	R3	0.578	non-section 10 – non-wetland
17	37.746722	-83.227405	P	0.265	non-section 10 – wetland
18	37.746597	-83.226483	R6	0.003	non-section 10 – non-wetland
19	37.746291	-83.226069	R3	0.011	non-section 10 – non-wetland
20	37.751614	-83.22369	R3	0.015	non-section 10 – non-wetland
21	37.742772	-83.222669	R4	0.005	non-section 10 – non-wetland
22	37.743947	-83.218375	R3	0.000	non-section 10 – non-wetland
23	37.743819	-83.218261	P	0.121	non-section 10 – wetland
24	37.743675	-83.217933	R6	0.005	non-section 10 – non-wetland
25	37.742666	-83.214913	R4	0.023	non-section 10 – non-wetland
26	37.742191	-83.212466	P	0.045	non-section 10 – wetland
27	37.742144	-83.211958	P	0.051	non-section 10 – wetland

28	37.742005	-83.211797	R4	0.002	non-section 10 – non-wetland
29	37.742177	-83.211588	R4	0.012	non-section 10 – non-wetland
30	37.742100	-83.211525	R6	0.002	non-section 10 – non-wetland
31	37.742102	-83.211155	R6	0.002	non-section 10 – non-wetland
32	37.743550	-83.252433	R4	0.087	non-section 10 – non-wetland
33	37.744641	-83.253877	R4	0.007	non-section 10 – non-wetland
34	37.744844	-83.253666	R6	0.004	non-section 10 – non-wetland
35	37.744313	-83.253725	R4	0.007	non-section 10 – non-wetland
36	37.743786	-83.253125	R6	0.004	non-section 10 – non-wetland
37	37.743702	-83.252963	R6	0.012	non-section 10 – non-wetland
38	37.744300	-83.250755	R4	0.035	non-section 10 – non-wetland
39	37.745155	-83.251452	R6	0.002	non-section 10 – non-wetland
40	37.745250	-83.251163	R6	0.002	non-section 10 – non-wetland
41	37.745233	-83.250950	R6	0.004	non-section 10 – non-wetland
42	37.745166	-83.250869	R6	0.008	non-section 10 – non-wetland
43	37.744727	-83.250730	R6	0.002	non-section 10 – non-wetland
44	37.744563	-83.250600	R6	0.005	non-section 10 – non-wetland

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

May 10, 2016

David Waldner
Kentucky Transportation Cabinet (KYTC)
200 Mero St
Frankfort, KY 40622

Re: Letter of Permission No.: 2016-036-7
AI No.: 123262; Activity ID: APE20150004
KYTC Item No.: 10-126.5
USACE ID No.: LRL-2015-810
Johnson Creek, UTs to Johnson Creek, Wheel Rim Fork, UTs to Wheel Rim Fork, Tim Branch, UTs to Tim Branch, Purcell Branch, and adjacent wetlands
Morgan and Magoffin Counties, Kentucky

Dear Mr. Waldner:

This letter transmits to you a copy of our General Water Quality Certification for the Letter of Permission Authorizing Transportation Projects for the Kentucky Transportation Cabinet - KY 9009 Bert T Combs Mountain Parkway Widening Project in Morgan and Magoffin Counties, Kentucky, in accordance with plans included in the "Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification" dated September 28, 2015, the Addendum to the "Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification" received March 10, 2016, the Mitigation Plan: KYTC Stonecoal Branch Tributaries 15 & 16, Rowan County, Kentucky dated April 22, 2016, and correspondence concerning mitigation received March 17, 2016 , resulting in impacts to 13,021 linear feet of ephemeral, intermittent, and perennial stream (1.925 acres of channel fill) and 1.370 acres of wetland, and the restoration of 4,955 linear feet of ephemeral and intermittent stream.

An individual Water Quality Certification is not necessary for this activity provided that this project has satisfies the Transportation Letter of Permission from the U.S. Army Corps of Engineers (Letter of Permission for Transportation Projects, Corps ID No. LRL-2006-259, issued October 03, 2007 and revised October 28, 2010) and all conditions of the attached General Water Quality Certification - Letter of Permission Authorizing Transportation Projects are met.

Although an Individual WQC is not needed, other permits from the Division of Water may be required. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or SWPBSupport@ky.gov)

All future correspondence on this project must reference **AI No. 123262**. If you should have any questions concerning this letter, please contact Cody Thayer of my staff, at (502) 564-3410 or Cody.Thayer@ky.gov.

Sincerely,

Stephanie Hayes, Supervisor
Water Quality Certification Section
Kentucky Division of Water

Attachment
cc: Ronald Rigney II, KYTC: Frankfort (via email: RonB.RigneyII@ky.gov)
David Baldridge, USACE: Louisville (via email: David.E.Baldridge@usace.army.mil)
Layna Thrush, USACE: Louisville (via email: Layna.E.Thrush@usace.army.mil)
Lee Andrews, USFWS: Frankfort (via email: Teresa_Hyatt@fws.gov)
Damon White, KDOW: Hazard Regional Office (via email: Damon.White@ky.gov)
Daniel Fraley, KDOW: Morehead Regional Office (via email: Daniel.Fraley@ky.gov)
Chad VonGruenigen, KDOW: Licking River Basin Coordinator
(via email: Chad.VonGruenigen@ky.gov)

Matthew G. Bevin
Governor

Charles G. Snavely
Secretary

ENERGY AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

General Certification -- Letter of Permission Authorizing Transportation Projects (LRL-2006-259-pgj- Date: 28 Oct 2010)

This general certification is issued February 26, 2016, by the Kentucky Division of Water, 401 Water Quality Certification Program in conformity with the requirements of Sections 301, 302, 304, 306 and 401, as amended (33 U.S.C. §1341), of the Clean Water Act, as well as Kentucky Statute KRS 224.16-050 and Kentucky Administrative Regulations Title 401, Chapter 9 and 10.

For this and all general permits, the definition of surface water is as per 401 KAR 10:001 Chapter 10, Section 1(80): Surface Waters mean those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered surface waters of the commonwealth.

In addition to all the restrictions and conditions of the U.S. Army Corps of Engineers, Louisville District Letter of Permission Issuance (LRL-2006-259-pgj) hereby incorporated into this general certification (included herein), the following 401 Water Quality Certification criteria applies to all transportation projects certified under a Certified Letter of Permission issued by the Kentucky Division of Water, 401 Water Quality Certification Program:

1. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified by the Kentucky Division of Water as Outstanding State or National Resource Water, Cold Water Aquatic Habitat, or Exceptional Water.

2. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified as perpetually-protected (e.g. deed restriction, conservation easement) stream and/or wetland mitigation sites permitted by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

Certification of Transportation Letter of Permission
Page 2

3. The Kentucky Division of Water may require an individual certification for any project if the project is likely to have adverse impacts to water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.
4. Activities qualifying for coverage under this General Water Quality Certification are subject to the following conditions:

- The proposed relocation of an existing stream or channel will be designed and constructed to ensure the stability of the relocated stream or channel. Stream habitat enhancements, such as bioengineering methods and/or best management practices for protecting water quality will be considered, on a case-by-case basis, during the design process. Documentation must be provided if stream habitat enhancements will not be used for the proposed stream relocation.

- Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that state water quality are maintained (401 KAR Chapter 10).

- Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without notifying the Kentucky Division of Water. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities.

- Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

- Removal of riparian vegetation in the right-of-way shall be limited to that necessary.

- To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions.

- Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it should be performed in low-flow or no-flow instances or in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation.

Certification of Transportation Letter of Permission
Page 3

- Fill shall not be of such composition that it will adversely affect the biological, chemical, or physical properties of the receiving waters and associated water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement.

- If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the public supply system when such work will be done.

- Should evidence of stream and/or wetland pollution impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Environmental Response Team (ERT) shall be notified immediately by calling 1-800-928-2380 or 502-564-2380.

This general certification does not have an expiration date, however if the need for changes develop or if the U.S. Army Corps of Engineers, Louisville District makes modifications to the Letter of Permission (LRL-2006-259-pgj- Date: 28 Oct 2010) then a certification modification may be issued. Non-compliance with the conditions of this general certification or failure to maintain Kentucky state water quality standards may result in civil penalties.

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.

3. In areas not riprapped or otherwise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.

4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.

5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.

6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.

7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.

8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

9. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

ATTENTION APPLICANT

If your project involves one or more of the following activities, you may need more than one permit from the Kentucky Division of Water.

***building in a floodplain *road culvert in a stream**
***streambank stabilization *stream cleanout**
***utility line crossing a stream**
***construction sites greater than 1 acre**

- **Construction sites greater than 1 acre will require the filing of a Notice of Intent to be covered under the KPDES General Stormwater Permit. This permit requires the creation of an erosion control plan.**
  Contact: Surface Water Permits Branch (SWPB) Support at (502) 564-3410 or SWPBSupport@ky.gov

- **Projects that involve filling in the floodplain will require a floodplain construction permit from the Water Resources Branch.**
  Contact: Ron Dutta

- **Projects that involve work IN a stream, such as bank stabilization, road culverts, utility line crossings, and stream alteration will require a floodplain permit and a Water Quality Certification from the Division of Water.**
  Contact: Stephanie Hayes

All three contacts listed above can be reached at (502) 564-3410. A complete listing of environmental programs administered by the Kentucky Department for Environmental Protection is available from Pete Goodmann by calling (502) 564-3410.

N O T I C E

Department of the Army Corps of Engineers
"Letter of Permission" Authorization

&

Kentucky Division of Water 401 Water Quality Certification

PROJECT: Item No. 10-126.60
Widening of the Mountain Parkway
Mile point 59.3 to 62.6
Morgan County, KY

The Section 404 & 401 activities for this project have been permitted under the authority of the Department of the Army Nationwide Letter of Permission (LOP) & Division of Water General Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of these authorizations in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Division of Environmental Analysis. If such changes necessitate further permitting then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

24 OCT '16 AM 9:34

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
EASTERN KENTUCKY REGULATORY OFFICE
845 SASSAFRAS CREEK ROAD
SASSAFRAS, KY 41759-8806

October 20, 2016

Operations Division
Regulatory Branch (South)
ID No. LRL-2015-805

Mr. David Waldner
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Waldner:

This is in regard to your application for a Department of the Army (DA) permit dated September 15, 2015, concerning a plan to reconstruct and widen the Mountain Parkway (KY 9009) from mile point 59.3 to mile point 62.6, construct 20 culverts, 9 stream realignments and two excess material fill (KYTC Item 10-126.60) near Adele in Morgan County, Kentucky. We have reviewed your application and submitted information and have made the following determinations: the work is minor in nature, will not have a significant impact on the environment and should encounter no opposition.

Based on these determinations, your proposed work satisfies the Letter of Permission (LOP) criteria, as specified in our regulations and the procedures outlined in the LOP No. 200600259-pgj, issued on October 3, 2007. Therefore, you are authorized, in accordance with Section 404 of the Clean Water Act (CWA), to discharge fill material into 9,024 linear feet of State Road Fork and 1.20 acres of wetlands within the State Road Fork watershed, 3,895 linear feet of Prater Branch and 0.48 acres of wetlands within the Prater Branch watershed, 1,872 linear feet of Johnson Creek and 0.45 acres of wetlands within the Johnson Creek watershed as part of the proposed project. The impacts would occur in and adjacent to the Johnson Creek watershed of the Licking River and State Fork Road of the Upper Kentucky River. This permission is granted with the following conditions:

1) The project shall be constructed in accordance with plans included in the September 21, 2015, application for Kentucky Transportation Cabinet, Item No. 10-0126.60 and

all subsequent information received regarding changes to the original submittal.

2) The applicant must provide proof of purchase from Kentucky Department of Fish and Wildlife Resources for 1153.2 EIU stream mitigation credits and 2.2 wetland mitigation credits prior to any discharge of dredged or fill material into "waters of the U.S."

3) The time limit for completing the work authorized ends on 31 December 2022. If the permittee finds that more time is needed to complete the authorized activity, an application must be submitted for a time extension to this office for consideration at least 1 month before the above date is reached.

4) Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.

5) The permittee must agree to comply with the enclosed General Conditions.

6) The permittee must comply with the agreement outlined in the June 21, 2016 letter from U.S. Fish and Wildlife Service regarding the Biological Opinion on endangered species within the project area.

This authorization will be effective as soon as we receive your signed acceptance of these conditions. Please sign and date a duplicate copy of this letter in the space provided and return the signed copy. Note that we also perform periodic inspections to ensure compliance with our permit conditions and appropriate Federal laws.

This letter contains a proffered permit for your proposed project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision, you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address.

Regulatory Appeals Officer
U.S. Army Engineer Division
Great Lakes and Ohio River
550 Main Street - Room 10032
Cincinnati, Ohio 45202-3222
(513) 684-6212

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **December 20, 2016.**

It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

This letter also contains a preliminary jurisdictional determination for your records. Preliminary jurisdictional determinations are not appealable and only state that the aquatic resources therein may be "waters of the U.S."

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:

Justin Branham
Team Leader
Regulatory Branch

Enclosures

(I accept the conditions of this authorization):

for D. Waldner
Kentucky Transportation Cabinet

10/26/2016
Date

Addresses for Coordinating Agencies

Mr. Duncan Powell
USEPA, Region IV
WCOB c/o SESD (Room A100-13)
980 College Station Road
Athens, Georgia 30605-2720

Mr. Virgil Lee Andrews
U.S. Fish & Wildlife Service
J.C. Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601

Director
Kentucky Energy & Environment Cabinet
Division of Water
200 Fair Oaks, 4th Floor
Frankfort, KY 40601

Dr. Jon Gassett
Commissioner
Ky. Dept. of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, KY 40601

Mr. Craig Potts
Executive Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

GENERAL CONDITIONS:

1. Discharges of dredged or fill material into "waters of the U.S." must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct, secondary, and cumulative impacts of the fill or work and any mitigation measures.

2. The permittee shall provide a mitigation/monitoring plan for impacts resulting from the placement of fill into "waters of the U.S." in excess of 300 linear feet of intermittent or perennial stream; the filling of greater than 0.10 acre (4,356 sq. feet) of waters of the U.S; or work causing more than minimal effects, to compensate for impacts to the "waters of the U.S." These impact thresholds are applied for each crossing. When mitigation is required, the permittee will develop the mitigation site concurrently with, or in advance of, the site construction unless the Corps determines on a project specific basis that it is not practical to do so. This will ensure that aquatic functions are not lost for long periods of time (e.g. temporal loss) which could adversely affect water quality and wildlife. The requirement for conservation easements or deed restrictions will be determined on a project specific basis.

3. The permittee shall ensure that sedimentation and soil erosion control measures are in place prior to commencement of construction activities. These measures will remain in place and be properly maintained throughout construction. Sedimentation and soil control measures shall include the installation of straw bale barriers, silt fencing and/or other approved methods to control sedimentation and erosion. Sedimentation and erosion controls will not be placed in "waters of the U.S." except if specifically approved by the District.

4. The permittee shall ensure that areas disturbed by any construction activity, including channel and stream banks, are immediately stabilized and revegetated with a combination of non-invasive plants (grasses, legumes and shrubs) which are compatible with the affected area and will not compete with native vegetation.

5. The permittee shall ensure that no in-stream construction activity is performed during periods of high stream flow or during the fish spawning season (April 1 through June 30) without first contacting the Kentucky Department of Fish and Wildlife Resources (KDFWR) for their expertise on impacts to the fishery resource. Additionally, the discharge of dredged and/or fill material in known waterfowl breeding and wintering areas must be avoided to the maximum extent practicable.
6. The permittee will ensure that the activity authorized will not

disrupt movement of those aquatic species indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's specific purpose is to impound water.

7. The permittee shall ensure that all construction equipment is refueled and maintained on an upland site away from existing streams, drainageways and wetland areas. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

8. The permittee must comply with any case specific special conditions added by the Corps or by the State Section 401 Water Quality Certification (WQC). The conditions imposed in the State Section 401 WQC are also conditions of this LOP.

9. The permittee shall ensure that no activity authorized by the LOP may cause more than a minimal adverse effect on navigation.

10. The permittee shall ensure proper maintenance of any structure or fill authorized by the LOP, in good condition and in conformance with the terms and conditions of the LOP, including maintenance to ensure public safety. The permittee is not relieved of this requirement if the permitted activity is abandoned, although the permittee may make a good faith transfer to a third party. Should the permittee wish to cease to maintain the authorized activity or desire to abandon it without a good faith transfer, the permittee must obtain a modification to the LOP from the Corps, which may require restoration of the area.

11. The permittee shall not perform any work within any Wild and Scenic Rivers or in any river officially designated as a "study river" for possible inclusion in the system, unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity authorized by the LOP will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal Land Management agency in the area (e.g. U.S. Forest Service, Bureau of Land Management, the National Parks Service, or the U.S. Fish and Wildlife Service).

12. The permittee shall not perform any work under the LOP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. The permittee shall notify the Corps and coordinate the

proposed action with the USFWS to determine if any listed species or critical habitat might be affected and/or adversely modified by the proposed work. No activity is authorized under the LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. At the direction of the Corps, the permittee shall complete the necessary consultation with the USFWS, satisfying the requirements of Section 7(a)(2) of the Endangered Species Act. The permittee shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity under the LOP does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act.

Obligations under Section 7 of the Act must be reconsidered by the Corps Districts if (1) new information reveals impacts of the proposed action may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

13. The permittee shall not perform any activity under the LOP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the LOP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the Kentucky Heritage Council.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the LOP, work must be immediately stopped and this office immediately notified regarding the discovery. The District will initiate the Federal, Tribal and State coordination required to determine if the

remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

14. The permittee shall not perform any work under the LOP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake.

15. No activity, including structures or work in "waters of the U.S." or discharges of dredged or fill material may consist of unsuitable materials (e.g. trash, debris, car bodies, asphalt, etc.) and that materials used for construction or discharge must be free from toxic pollutants in toxic amounts.

16. The permittee shall, to the maximum extent practicable, design the project to maintain pre-construction downstream flow conditions. Furthermore, the work must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of fill must withstand expected high flows. The project must provide, to the maximum extent practicable, for retaining excess flows from the site and for establishing flow rates from the site similar to pre-construction conditions.

17. The permittee shall ensure that all temporary fills, authorized under the LOP, be removed in their entirety and the affected areas returned to pre-construction elevation.

18. Representatives from the Corps of Engineers and/or the State of Kentucky may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the LOP, Section 401 WQC, and applicable laws.

19. All work authorized by this LOP must be completed within five years after the date of the Corps authorization letter. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least three months before the expiration date.

20. The permittee, after completion of work under the LOP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the LOP authorization including compliance with all general and special conditions and completion of mitigation work.

21. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is

being or has been accomplished with the terms and conditions of the LOP.

22. For Section 10 waters, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 10/20/2016

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
Ronald Rigney, KYTC, 200 Mero Street, Frankfort, KY 40622

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: LRL-2015-805; KYTC Item No. 10-126.60 (Mountain Parkway MP 59.3 to MP 62.6)

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
The project is located within the Johnson Creek HUC-12 and Red River Headwaters HUC-12 affecting unnamed tributaries of Prater Branch, Johnson Creek, and State Road Fork. State Road Fork empties into the Red River, a tributary of the Kentucky River. Prater Branch is a tributary of Johnson Creek which empties into the Licking River.

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: KY County/parish/borough: Morgan City: Adele
Center coordinates of site (lat/long in degree decimal format):
Lat. N 37.753252°, Long. W 83.281446°

Universal Transverse Mercator:

Name of nearest waterbody: Johnson Creek, Prater Branch, State Road Fork

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 19,715 linear feet: 3.3 width (ft) and/or 1.49 acres.
Cowardin Class: Riverine
Stream Flow: RPW, Seasonal-RPW, and Non-RPW
Wetlands: 1.30 acres.
Cowardin Class: PEM

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☒ Field Determination. Date(s): Feb 22, 2016

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will

provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: KYTC 9/21/2015 .

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
- ☐ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps: .

☐ Corps navigable waters' study: .

☐ U.S. Geological Survey Hydrologic Atlas: .
- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 - Haldeman

☐ USDA Natural Resources Conservation Service Soil Survey. Citation:

☒ National wetlands inventory map(s). Cite name: National Wetland Inventory Polygons-GIS coverage.

☐ State/Local wetland inventory map(s): .

☐ FEMA/FIRM maps: .

☐ 100-year Floodplain Elevation is:(National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date):NAIP Color Imagery 2012 - 1 meter. Or Other (Name & Date): .

☐ Previous determination(s). File no. and date of response letter: .

☐ Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

10/20/2016

Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Site number	Upstream Latitude	Upstream Longitude	Cowardin Class	Estimated amount of aquatic resource in review area (LF/Ac.)	Class of aquatic resource
1	37.75528	-83.30896	R6	300 LF	Non-RPW
2	37.75601	-83.30396	R6	320 LF	Non-RPW
3	37.75601	-83.30082	R6	100 LF	Non-RPW
4	37.75478	-83.30168	R4	560 LF	Seasonal RPW
5	37.75650	-83.30005	R6	100 LF	Non-RPW
6	37.75453	-83.29979	R6	300 LF	Non-RPW
7	37.75359	-83.29666	PEM	0.749	Wetland
8	37.75398	-83.29817	PEM	0.004	Wetland
9	37.753771	-83.29824	R4	250 LF	Seasonal RPW
10	37.75185	-83.29681	R4	750 LF	Seasonal RPW
11	37.75337	-83.29564	PEM	0.138	Wetland
12	37.75334	-83.29477	R6	360 LF	Non-RPW
13	37.75344	-83.29384	R3	650 LF	RPW
14	37.75237	-83.29423	R6	325 LF	Non-RPW
15	37.75317	-83.29379	R6	60 LF	Non-RPW
16	37.75531	-83.29361	R4	500 LF	Seasonal RPW
17	37.75348	-83.29335	PEM	0.209	Wetland
18	37.75371	-83.29314	R3	220 LF	RPW
19	37.75191	-83.28880	R6	100 LF	Non-RPW
20	37.75161	-83.28854	PEM	0.03	Wetland
21	37.75174	-83.28840	PEM	0.009	Wetland
22	37.75149	-83.28812	R3	250 LF	RPW
23	37.75206	-83.28714	R6	350 LF	Non-RPW
24	37.75131	-83.28381	R4	1,150 LF	Seasonal RPW
25	37.75131	-83.28558	PEM	0.015	Wetland
26	37.75425	-83.27949	R6	340 LF	Non-RPW
27	37.75370	-83.28054	R4	860 LF	Seasonal RPW
28	37.75337	-83.28192	R6	100 LF	Non-RPW
29	37.75325	-83.28145	PEM	0.054	Wetland
30	37.75383	-83.28113	R6	230 LF	Non-RPW
31	37.75317	-83.28051	R6	155 LF	Non-RPW
32	37.75350	-83.27749	R4	560 LF	Seasonal RPW
33	37.75453	-83.27671	R6	300 LF	Non-RPW
34	37.75403	-83.27582	PEM	0.013	Wetland
35	37.75444	-83.27610	R4	160 LF	Seasonal RPW
36	37.75321	-83.27605	R6	95 LF	Non-RPW
37	37.75292	-83.27562	R6	470 LF	Non-RPW
38	37.75310	-83.27474	R6	345 LF	Non-RPW
39	37.75404	-83.27292	R6	275 LF	Non-RPW
40	37.75373	-83.27304	R6	110 LF	Non-RPW
41 & 42	37.75320	-83.27092	R6	250 LF	Non-RPW

43	37.75295	-83.26946	R6	300 LF	Non-RPW
44 & 45	37.75276	-83.26750	R6	300 LF	Non-RPW
46	37.75254	-83.26599	R6	250 LF	Non-RPW
47	37.75290	-83.26485	R6	90 LF	Non-RPW
48	37.75194	-83.26515	R6	350 LF	Non-RPW
49	37.75131	-83.26337	R6	290 LF	Non-RPW
50	37.75060	-83.26270	R6	350 LF	Non-RPW
51	37.74998	-83.26009	R6	260 LF	Non-RPW
52	37.74938	-83.25965	R3	125 LF	RPW
53	37.74964	-83.25925	R3	125 LF	RPW
54	37.74924	-83.25363	R4	290 LF	Seasonal RPW
55	37.74915	-83.25939	PEM	0.045	Wetland
56	37.74910	-83.25814	R6	250 LF	Non-RPW
57	37.74829	-83.25760	R4	260 LF	Seasonal RPW
58	37.74838	-83.25537	PEM	0.035	Wetland
59	37.74778	-83.25584	R4	360 LF	Seasonal RPW
60	37.75236	-83.30332	R4	1,700 LF	Seasonal RPW
61	37.75208	-83.29925	R6	350 LF	Non-RPW
62	37.75357	-83.30010	R6	300 LF	Non-RPW
63	37.75369	-83.30077	R6	350 LF	Non-RPW
64	37.75332	-83.30165	R6	370 LF	Non-RPW
65	37.75125	-83.30092	R6	440 LF	Non-RPW
66	37.75295	-83.30236	R6	350 LF	Non-RPW
67	37.75235	-83.27131	R6	100 LF	Non-RPW
68	37.75216	-83.27152	R6	100 LF	Non-RPW
69	37.75198	-83.27149	R6	100 LF	Non-RPW
70	37.75206	-83.27115	R4	750 LF	Seasonal RPW
71	37.75023	-83.27043	R6	310 LF	Non-RPW

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

May 10, 2016

David Waldner
Kentucky Transportation Cabinet (KYTC)
200 Mero St
Frankfort, KY 40622

Re: Letter of Permission No.: 2016-035-7
AI No.: 127461; Activity ID: APE20150001
KYTC Item No.: 10-126.6
USACE ID No.: LRL-2015-805
State Road Fork, Johnson Creek, UTs to State Road Fork, UTs to Prater Branch, UTs to Johnson Creek, and adjacent wetlands
Morgan County, Kentucky

Dear Mr. Waldner:

This letter transmits to you a copy of our General Water Quality Certification for the Letter of Permission Authorizing Transportation Projects for the Kentucky Transportation Cabinet - KY 9009 Bert T Combs Mountain Parkway Widening Project in Morgan County, Kentucky, in accordance with plans included in the "Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification" dated September 16, 2015, the Addendum to the "Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification" received March 2, 2016, the Mitigation Plan: KYTC Stonecoal Branch Trib 16A, Rowan County, Kentucky dated April 25, 2016, and correspondence concerning mitigation received March 17, 2016 , resulting in impacts to 14,791 linear feet of ephemeral, intermittent, and perennial stream (1.081 acres of channel fill) and 1.292 acres of wetland, and the restoration of 110 linear feet of intermittent stream.

An individual Water Quality Certification is not necessary for this activity provided that this project has satisfies the Transportation Letter of Permission from the U.S. Army Corps of Engineers (Letter of Permission for Transportation Projects, Corps ID No. LRL-2006-259, issued October 03, 2007 and revised October 28, 2010) and all conditions of the attached General Water Quality Certification - Letter of Permission Authorizing Transportation Projects are met.

Although an Individual WQC is not needed, other permits from the Division of Water may be required. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or SWPBSupport@ky.gov)

All future correspondence on this project must reference **AI No. 127461**. If you should have any questions concerning this letter, please contact Cody Thayer of my staff, at (502) 564-3410 or Cody.Thayer@ky.gov.

Sincerely,

Stephanie Hayes, Supervisor
Water Quality Certification Section
Kentucky Division of Water

Attachment

cc: Ronald Rigney II, KYTC: Frankfort (via email: RonB.RigneyII@ky.gov)
David Baldridge, USACE: Louisville (via email: David.E.Baldridge@usace.army.mil)
Layna Thrush, USACE: Louisville (via email: Layna.E.Thrush@usace.army.mil)
Lee Andrews, USFWS: Frankfort (via email: Teresa_Hyatt@fws.gov)
Daniel Fraley, KDOW: Morehead Regional Office (via email: Daniel.Fraley@ky.gov)
Chad VonGruenigen, KDOW: Licking River Basin Coordinator
(via email: Chad.VonGruenigen@ky.gov)
Malissa McAlister, University of Kentucky: Kentucky River Basin Coordinator
(via email: mlmcal2@uky.edu)

Matthew G. Bevin
Governor

Charles G. Snavely
Secretary

ENERGY AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

General Certification -- Letter of Permission Authorizing Transportation Projects (LRL-2006-259-pgj- Date: 28 Oct 2010)

This general certification is issued February 26, 2016, by the Kentucky Division of Water, 401 Water Quality Certification Program in conformity with the requirements of Sections 301, 302, 304, 306 and 401, as amended (33 U.S.C. §1341), of the Clean Water Act, as well as Kentucky Statute KRS 224.16-050 and Kentucky Administrative Regulations Title 401, Chapter 9 and 10.

For this and all general permits, the definition of surface water is as per 401 KAR 10:001 Chapter 10, Section 1(80): Surface Waters mean those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered surface waters of the commonwealth.

In addition to all the restrictions and conditions of the U.S. Army Corps of Engineers, Louisville District Letter of Permission Issuance (LRL-2006-259-pgj) hereby incorporated into this general certification (included herein), the following 401 Water Quality Certification criteria applies to all transportation projects certified under a Certified Letter of Permission issued by the Kentucky Division of Water, 401 Water Quality Certification Program:

1. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified by the Kentucky Division of Water as Outstanding State or National Resource Water, Cold Water Aquatic Habitat, or Exceptional Water.

2. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified as perpetually-protected (e.g. deed restriction, conservation easement) stream and/or wetland mitigation sites permitted by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

Certification of Transportation Letter of Permission
Page 2

3. The Kentucky Division of Water may require an individual certification for any project if the project is likely to have adverse impacts to water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.
4. Activities qualifying for coverage under this General Water Quality Certification are subject to the following conditions:

- The proposed relocation of an existing stream or channel will be designed and constructed to ensure the stability of the relocated stream or channel. Stream habitat enhancements, such as bioengineering methods and/or best management practices for protecting water quality will be considered, on a case-by-case basis, during the design process. Documentation must be provided if stream habitat enhancements will not be used for the proposed stream relocation.

- Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that state water quality are maintained (401 KAR Chapter 10).

- Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without notifying the Kentucky Division of Water. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities.

- Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

- Removal of riparian vegetation in the right-of-way shall be limited to that necessary.

- To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions.

- Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it should be performed in low-flow or no-flow instances or in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation.

Certification of Transportation Letter of Permission
Page 3

- Fill shall not be of such composition that it will adversely affect the biological, chemical, or physical properties of the receiving waters and associated water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement.

- If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the public supply system when such work will be done.

- Should evidence of stream and/or wetland pollution impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Environmental Response Team (ERT) shall be notified immediately by calling 1-800-928-2380 or 502-564-2380.

This general certification does not have an expiration date, however if the need for changes develop or if the U.S. Army Corps of Engineers, Louisville District makes modifications to the Letter of Permission (LRL-2006-259-pgj- Date: 28 Oct 2010) then a certification modification may be issued. Non-compliance with the conditions of this general certification or failure to maintain Kentucky state water quality standards may result in civil penalties.

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.

3. In areas not riprapped or otherwise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.

4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.

5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.

6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.

7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.

8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

9. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

N O T I C E

Department of the Army Corps of Engineers
"Letter of Permission" Authorization

&

Kentucky Division of Water 401 Water Quality Certification

PROJECT: Item No. 10-126.70
Widening of the Mountain Parkway
Mile point 56.8 to 59.3
Morgan and Wolfe Counties, KY

The Section 404 & 401 activities for this project have been permitted under the authority of the Department of the Army Nationwide Letter of Permission (LOP) & Division of Water General Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of these authorizations in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Division of Environmental Analysis. If such changes necessitate further permitting then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
EASTERN KENTUCKY REGULATORY OFFICE
845 SASSAFRAS CREEK ROAD
SASSAFRAS, KY 41759-8806

October 25, 2016

Operations Division
Regulatory Branch (South)
ID No. LRL-2015-802

Mr. David Waldner
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Waldner:

This is in regard to your application for a Department of the Army (DA) permit dated September 3, 2015, concerning a plan to reconstruct and widen the Mountain Parkway (KY 9009) from mile point 56.8 to mile point 59.3, construct 13 culverts, 4 stream realignments and two excess material fills (KYTC Item 10-126.70) near Helechawa in Morgan and Wolfe Counties, Kentucky. We have reviewed your application and submitted information and have made the following determinations: the work is minor in nature, will not have a significant impact on the environment and should encounter no opposition.

Based on these determinations, your proposed work satisfies the Letter of Permission (LOP) criteria, as specified in our regulations and the procedures outlined in the LOP No. 200600259-pgj, issued on October 3, 2007. Therefore, you are authorized, in accordance with Section 404 of the Clean Water Act (CWA), to discharge fill material into 6,102 linear feet of tributaries of State Road Fork and 2.91 acres of wetlands within the State Road Fork watershed and 4,663 linear feet of tributaries of the Red River and 0.18 acres of wetlands within the Red River watershed as part of the proposed project. The impacts would occur in and adjacent to the State Fork Road watershed of the Red River of the Upper Kentucky River. This permission is granted with the following conditions:

1) The project shall be constructed in accordance with plans included in the September 3, 2015, application for Kentucky Transportation Cabinet, Item No. 10-0126.70 and all subsequent information received regarding changes to the original submittal.

2) The applicant must provide proof of purchase from Kentucky Department of Fish and Wildlife Resources for 1743.8 EIU stream mitigation credits and 5.46 wetland mitigation credits prior to any discharge of dredged or fill material into "waters of the U.S."

3) The time limit for completing the work authorized ends on 31 December 2022. If the permittee finds that more time is needed to complete the authorized activity, an application must be submitted for a time extension to this office for consideration at least 1 month before the above date is reached.

4) Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.

5) The permittee must agree to comply with the enclosed General Conditions.

6) The permittee must comply with the agreement outlined in the April 1, 2016 letter from U.S. Fish and Wildlife Service regarding the Biological Opinion on endangered species within the project area.

This authorization will be effective as soon as we receive your signed acceptance of these conditions. Please sign and date a duplicate copy of this letter in the space provided and return the signed copy. Note that we also perform periodic inspections to ensure compliance with our permit conditions and appropriate Federal laws.

This letter contains a proffered permit for your proposed project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision, you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address.

Regulatory Appeals Officer
U.S. Army Engineer Division
Great Lakes and Ohio River
550 Main Street - Room 10032
Cincinnati, Ohio 45202-3222
(513) 684-6212

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for

appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **December 26, 2016.**

It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

This letter also contains a preliminary jurisdictional determination for your records. Preliminary jurisdictional determinations are not appealable and only state that the aquatic resources therein may be "waters of the U.S."

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:

Justin Branham
Team Leader
Regulatory Branch

Enclosures

(I accept the conditions of this authorization):

Kentucky Transportation Cabinet

10/28/16
Date

Addresses for Coordinating Agencies

Mr. Duncan Powell
USEPA, Region IV
WCOB c/o SESD (Room A100-13)
980 College Station Road
Athens, Georgia 30605-2720

Mr. Virgil Lee Andrews
U.S. Fish & Wildlife Service
J.C. Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601

Director
Kentucky Energy & Environment Cabinet
Division of Water
200 Fair Oaks, 4th Floor
Frankfort, KY 40601

Dr. Jon Gassett
Commissioner
Ky. Dept. of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, KY 40601

Mr. Craig Potts
Executive Director
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

GENERAL CONDITIONS:

1. Discharges of dredged or fill material into "waters of the U.S." must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct, secondary, and cumulative impacts of the fill or work and any mitigation measures.

2. The permittee shall provide a mitigation/monitoring plan for impacts resulting from the placement of fill into "waters of the U.S." in excess of 300 linear feet of intermittent or perennial stream; the filling of greater than 0.10 acre (4,356 sq. feet) of waters of the U.S; or work causing more than minimal effects, to compensate for impacts to the "waters of the U.S." These impact thresholds are applied for each crossing. When mitigation is required, the permittee will develop the mitigation site concurrently with, or in advance of, the site construction unless the Corps determines on a project specific basis that it is not practical to do so. This will ensure that aquatic functions are not lost for long periods of time (e.g. temporal loss) which could adversely affect water quality and wildlife. The requirement for conservation easements or deed restrictions will be determined on a project specific basis.

3. The permittee shall ensure that sedimentation and soil erosion control measures are in place prior to commencement of construction activities. These measures will remain in place and be properly maintained throughout construction. Sedimentation and soil control measures shall include the installation of straw bale barriers, silt fencing and/or other approved methods to control sedimentation and erosion. Sedimentation and erosion controls will not be placed in "waters of the U.S." except if specifically approved by the District.

4. The permittee shall ensure that areas disturbed by any construction activity, including channel and stream banks, are immediately stabilized and revegetated with a combination of non-invasive plants (grasses, legumes and shrubs) which are compatible with the affected area and will not compete with native vegetation.

5. The permittee shall ensure that no in-stream construction activity is performed during periods of high stream flow or during the fish spawning season (April 1 through June 30) without first contacting the Kentucky Department of Fish and Wildlife Resources (KDFWR) for their expertise on impacts to the fishery resource. Additionally, the discharge of dredged and/or fill material in known waterfowl breeding and wintering areas must be avoided to the maximum extent practicable.
6. The permittee will ensure that the activity authorized will not

disrupt movement of those aquatic species indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's specific purpose is to impound water.

7. The permittee shall ensure that all construction equipment is refueled and maintained on an upland site away from existing streams, drainageways and wetland areas. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

8. The permittee must comply with any case specific special conditions added by the Corps or by the State Section 401 Water Quality Certification (WQC). The conditions imposed in the State Section 401 WQC are also conditions of this LOP.

9. The permittee shall ensure that no activity authorized by the LOP may cause more than a minimal adverse effect on navigation.

10. The permittee shall ensure proper maintenance of any structure or fill authorized by the LOP, in good condition and in conformance with the terms and conditions of the LOP, including maintenance to ensure public safety. The permittee is not relieved of this requirement if the permitted activity is abandoned, although the permittee may make a good faith transfer to a third party. Should the permittee wish to cease to maintain the authorized activity or desire to abandon it without a good faith transfer, the permittee must obtain a modification to the LOP from the Corps, which may require restoration of the area.

11. The permittee shall not perform any work within any Wild and Scenic Rivers or in any river officially designated as a "study river" for possible inclusion in the system, unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity authorized by the LOP will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal Land Management agency in the area (e.g. U.S. Forest Service, Bureau of Land Management, the National Parks Service, or the U.S. Fish and Wildlife Service).

12. The permittee shall not perform any work under the LOP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. The permittee shall notify the Corps and coordinate the

proposed action with the USFWS to determine if any listed species or critical habitat might be affected and/or adversely modified by the proposed work. No activity is authorized under the LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. At the direction of the Corps, the permittee shall complete the necessary consultation with the USFWS, satisfying the requirements of Section 7(a)(2) of the Endangered Species Act. The permittee shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity under the LOP does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act.

Obligations under Section 7 of the Act must be reconsidered by the Corps Districts if (1) new information reveals impacts of the proposed action may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

13. The permittee shall not perform any activity under the LOP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the LOP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the Kentucky Heritage Council.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the LOP, work must be immediately stopped and this office immediately notified regarding the discovery. The District will initiate the Federal, Tribal and State coordination required to determine if the

remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

14. The permittee shall not perform any work under the LOP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake.

15. No activity, including structures or work in "waters of the U.S." or discharges of dredged or fill material may consist of unsuitable materials (e.g. trash, debris, car bodies, asphalt, etc.) and that materials used for construction or discharge must be free from toxic pollutants in toxic amounts.

16. The permittee shall, to the maximum extent practicable, design the project to maintain pre-construction downstream flow conditions. Furthermore, the work must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of fill must withstand expected high flows. The project must provide, to the maximum extent practicable, for retaining excess flows from the site and for establishing flow rates from the site similar to pre-construction conditions.

17. The permittee shall ensure that all temporary fills, authorized under the LOP, be removed in their entirety and the affected areas returned to pre-construction elevation.

18. Representatives from the Corps of Engineers and/or the State of Kentucky may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the LOP, Section 401 WQC, and applicable laws.

19. All work authorized by this LOP must be completed within five years after the date of the Corps authorization letter. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least three months before the expiration date.

20. The permittee, after completion of work under the LOP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the LOP authorization including compliance with all general and special conditions and completion of mitigation work.

21. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is

being or has been accomplished with the terms and conditions of the LOP.

22. For Section 10 waters, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 10/20/2016

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:
John Purdy, KYTC, 200 Mero Street, Frankfort, KY 40622

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: LRL-2015-802; KYTC Item No. 10-126.70 (Mountain Parkway MP 56.8 to MP 59.3)

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
The project is located within the Lacy Creek HUC-12 and Red River Headwaters HUC-12 affecting unnamed tributaries of State Road Fork and unnamed tributaries of the Red River. State Road Fork empties into the Red River, a tributary of the Kentucky River.

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: KY County/parish/borough: Morgan & Wolfe City: Helechawa
Center coordinates of site (lat/long in degree decimal format):
Lat. N 37.763638°, Long. W 83.336972°

Universal Transverse Mercator:

Name of nearest waterbody: State Road Fork

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 11,265 linear feet: ~16 width (ft.) and/or 4.1 acres.
Cowardin Class: Riverine
Stream Flow: RPW, Seasonal-RPW, and Non-RPW
Wetlands: 3.082 acres.
Cowardin Class: PEM

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): Jan 21, 2016

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: KYTC 2/22/2016

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
- ☐ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.

☒ Data sheets prepared by the Corps:

☐ Corps navigable waters' study:

☐ U.S. Geological Survey Hydrologic Atlas:
- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 - Cannel City

☐ USDA Natural Resources Conservation Service Soil Survey. Citation:

☒ National wetlands inventory map(s). Cite name: National Wetland Inventory Polygons-GIS coverage.

☐ State/Local wetland inventory map(s):

☐ FEMA/FIRM maps:

☐ 100-year Floodplain Elevation is :(National Geodectic Vertical Datum of 1929)

☒ Photographs: ☒ Aerial (Name & Date): Google Earth 6-13-14 Or Other (Name & Date):

☐ Previous determination(s). File no. and date of response letter:

☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Justin Branch 10/20/2016

Signature and date of
Regulatory Project Manager
(REQUIRED)

Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area (LF/Ac.)	Class of aquatic resource
1	37.764155	-83.355377	R4	1,812 LF	Seasonal RPW
2	37.763986	-83.354422	R6	242 LF	Non-RPW
3	37.763990	-83.354390	PEM	0.012 Ac	Wetland
4	37.764347	-83.354722	R6	48 LF	Non-RPW
5	37.763905	-83.354191	R4	91 LF	Seasonal RPW
6	37.764547	-83.352433	R6	124 LF	Non-RPW
7	37.764611	-83.351499	R6	87 LF	Non-RPW
8	37.765097	-83.349869	R6	165 LF	Non-RPW
9	37.765455	-83.347036	R3	100 LF	RPW
10	37.764544	-83.347036	R3	100 LF	RPW
11	37.765105	-83.346722	R3	100 LF	RPW
12	37.765830	-83.347727	R3	100 LF	RPW
13	37.766083	-83.346899	R4	862 LF	Seasonal RPW
14	37.766363	-83.344636	R4	135 LF	Seasonal RPW
15	37.763119	-83.345361	R6	213 LF	Non-RPW
16	37.764461	-83.344377	R3	100 LF	RPW
17	37.764775	-83.342963	R6	156 LF	Non-RPW
18	37.764980	-83.342770	PEM	0.127 Ac	Wetland
19	37.765225	-83.342405	PEM	0.059 Ac	Wetland
20	37.765557	-83.341725	PEM	0.094 Ac	Wetland
21	37.764949	-83.341563	PEM	0.065 Ac	Wetland
22	37.765203	-83.340521	PEM	0.187 Ac	Wetland
23	37.764425	-83.340791	R3	727 LF	RPW
24	37.765036	-83.339841	R6	90 LF	Non-RPW
25	37.764361	-83.340088	R6	47 LF	Non-RPW
26	37.764177	-83.338697	R6	81 LF	Non-RPW
27	37.763368	-83.336972	R3	274 LF	RPW
28	37.763455	-83.336158	R6	241 LF	Non-RPW
29	37.763469	-83.336225	R6	116 LF	Non-RPW
30	37.763470	-83.336060	PEM	0.025 Ac	Wetland
31	37.763290	-83.335840	PEM	0.157 Ac	Wetland
32	37.762250	-83.331560	PEM	0.261 Ac	Wetland
33	37.762147	-83.331308	R3	198 LF	RPW
34	37.762040	-83.331020	PEM	0.12 Ac	Wetland
35	37.761969	-83.330602	R4	139 LF	Seasonal RPW
36	37.761983	-83.329161	R6	90 LF	Non-RPW
37	37.761280	-83.327750	PEM	0.043 Ac	Wetland
38	37.760827	-83.326636	R4	394 LF	Seasonal RPW
39	37.760450	-83.325050	PEM	0.225 Ac	Wetland
40	37.759883	-83.324138	R6	132 LF	Non-RPW
41	37.759311	-83.323036	R6	129 LF	Non-RPW

42	37.757970	-83.320700	PEM	0.039 Ac	Wetland
43	37.757408	-83.320213	R4	180 LF	Seasonal RPW
44	37.756804	-83.319308	PEM	1.26 Ac	Wetland
45	37.756227	-83.318641	R4	123 LF	Seasonal RPW
46	37.755866	-83.317812	PEM	0.112 Ac	Wetland
47	37.754375	-83.314566	R6	128 LF	Non-RPW
48	37.754536	-83.312958	R6	47 LF	Non-RPW
49	37.754305	-83.312363	R6	127 LF	Non-RPW
50	37.754800	-83.309383	R4	248 LF	Seasonal RPW
51	37.754969	-83.309297	PEM	0.285 Ac	Wetland
52	37.760511	-83.330513	R4	971 LF	Seasonal RPW
53	37.761222	-83.330544	R4	270 LF	Seasonal RPW
54	37.758208	-83.330919	R6	118 LF	Non-RPW
55	37.758316	-83.331052	R6	221 LF	Non-RPW
56	37.759705	-83.330419	R4	230 LF	Seasonal RPW
57	37.760080	-83.330069	R6	412 LF	Non-RPW
58	37.762655	-83.354322	R4	340 LF	Seasonal RPW
59	37.762405	-83.354622	R6	108 LF	Non-RPW
60	37.762633	-83.353769	R6	119 LF	Non-RPW
61	37.762730	-83.353719	R6	116 LF	Non-RPW
62	37.762877	-83.354013	R6	88 LF	Non-RPW
63	37.763383	-83.354166	R4	326 LF	Seasonal RPW
64	37.763783	-83.354810	PEM	0.011 Ac	Wetland

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

March 15, 2016

Attention: David Waldner
cc. Ronald Rigney II
Kentucky Transportation Cabinet (KYTC)
Division of Environmental Analysis
200 Mero St
Frankfort, KY 40622

Re: Water Quality Certification #2016-019-7
AI No.: 127461 Activity ID: APE20160001
KYTC Item No.: 10-126.70
USACE Public Notice No.: LRL-2015-802
Red River, State Run Fork, UTs to Red River, UTs to State Run Fork, and adjacent wetlands
Wolfe and Morgan Counties, Kentucky

Dear Mr. Waldner:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 127461**. **The attached document is your official Water Quality Certification; please read it carefully**. If you should have any questions concerning the conditions of this water quality certification, please contact Mr. Cody Thayer of my staff by calling (502) 564-3410.

Sincerely,

Stephanie Hayes

Stephanie Hayes, Supervisor
Water Quality Certification Section
Kentucky Division of Water

Attachment
cc: Todd Williams, USACE: Louisville District (via email: Christopher.T.Williams@usace.army.mil)
Lee Andrews, USFWS: Frankfort (via email: Teresa_Hyatt@fws.gov)
Danny Fraley, KDOW: Morehead Regional Office (via email: Daniel.Fraley@ky.gov)
Damon White, KDOW: Hazard Regional Office (via email: Damon.White@ky.gov)
Malissa McAlister, UK: Kentucky River Basin Coordinator (via email: mlmcal2@uky.edu)
Clifford Scott, KDFWR: FILO Program (via email: clifford.scott@ky.gov)

KTC Water Quality Certification

KY 9009 Bert T Combs Mountain Parkway - Morgan Co

Facility Requirements

Permit Number: 2016-019-7

Activity ID No.:APE20160001

ACTV0000000001 (Transportation Project: 10-126.7) New Construction of KY 9009 (Mountain Parkway) from 0.45 mile west of KY 250 to CR 1226, includes two excess material sites.:

Submittal/Action Requirements:

Condition No.	Condition
S-1	The Kentucky Transportation Cabinet shall notify the Division: Due prior to any construction activity. Notify Cody Thayer at (502) 564-4310 or Cody.Thayer@ky.gov at least two weeks prior to the start of construction. [Clean Water Act]
S-2	The Kentucky Transportation Cabinet shall submit a copy of the in-lieu fee receipt paid to the Kentucky Department of Fish and Wildlife Resources: Wetland and Stream Restoration Fund to the Water Quality Certification Section before the beginning of construction. The in-lieu fee is mitigation for 1,453.22 EIUs of stream impact and 2.12 AMUs of wetland impact. [Clean Water Act]
S-3	The Kentucky Transportation Cabinet shall notify the Division: Due when construction is complete. Notify Cody Thayer at (502) 564-4310 or Cody.Thayer@ky.gov no later than two weeks post-construction. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: -Construction of KY 9009 (Mountain Parkway) from 0.45 miles west of KY 205 to CR 1226 resulting in impacts to approximately 10,765 linear ft. of stream (1,001 linear ft. perennial; 6,180 linear ft. intermittent; 3,584 linear ft. ephemeral) and 3.082 acres of wetland. [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the following documents: - Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification dated February 2, 2016; - Correspondence concerning mitigation dated February 12, 2016; - Correspondence concerning stream relocations dated February 15, 2016. [Clean Water Act]
T-3	The Kentucky Transportation Cabinet is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]
T-4	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]

KTC Water Quality Certification

KY 9009 Bert T Combs Mountain Parkway - Morgan Co

Facility Requirements

Permit Number: 2016-019-7

Activity ID No.:APE20160001

ACTV0000000001 (Transportation Project: 10-126.7) New Construction of KY 9009 (Mountain Parkway) from 0.45 mile west of KY 250 to CR 1226, includes two excess material sites.:

Narrative Requirements:

Condition No.	Condition
T-5	If construction does not commence within one year of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-6	Other permits from the Division of Water may be required for this activity. If this activity occurs within a floodplain, a Permit to Construct Across or Along a Stream may be required. Please contact the Floodplain Section Supervisor (502-564-3410) for more information. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or SWPBSupport@ky.gov)
T-7	Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th. [Clean Water Act]
T-8	Check dams are not allowed within the stream channel. [Clean Water Act]
T-9	Remove all sediment and erosion control measures after re-vegetation has become well-established. [Clean Water Act]

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.

3. In areas not riprapped or otherwise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.

4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.

5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.

6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.

7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.

8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

9. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

October 4, 2016

Marshall Carrier
KYTC Division of Construction
200 Mero St
Frankfort, KY 40622

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10K934
10-126.50 Mountain Parkway Widening
Permit Type: Construction
AI ID: 123262
Magoffin County, Kentucky

Dear Marshall Carrier:

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Construction Activities (KYR100000)" master general permit. Your coverage becomes effective on the date of this letter, and will automatically terminate two years from the effective date of your coverage unless an extension is requested prior to the termination date, until the KYR100000 master general permit expires on November 30, 2019, or the Division of Water revokes coverage, whichever comes first. During this period of coverage all discharges shall comply with the conditions of the KYR100000 master general permit. This permit and links to the eNOI (and permit coverage extension) and eNOT forms can be found on our website:

http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf.

Any questions concerning the general permit and its requirements should be directed to me at (502) 782-7048.

Construction Site GPS Coordinates: 37.746361 , -83.234309
Receiving Water: Burning Fork

Sincerely,

Justina Riddick

Justina Riddick
Surface Water Permits Branch
Division of Water

Kentucky Transportation Cabinet

Highway District 10

And

_____(2), Construction

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

Groundwater protection plan

For Highway Construction Activities

For

Widening of the Mountain Parkway

Project 10-126.50

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

Project information

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

1. Owner – **Kentucky Transportation Cabinet, District 10** (1)

2. Resident Engineer: (2)

3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):

4. Project Control Number (2)

5. Route (Address) **Mountain Parkway (KY 9009)** (1)

6. Latitude/Longitude (project mid-point) **37°44'46.8990", 83°14'3.5115"** (1)

7. County (project mid-point) **MAGOFFIN COUNTY** (1)

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

9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description) (1)
   MAJOR WIDENING/RECONSTRUCTION

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

3. Projected volume of material to be moved (1)
   2,039,945 CU. YDS.

4. Estimate of total project area (acres) (1)
   166 ACRES

5. Estimate of area to be disturbed (acres) (1)
   88 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. (1)

7. Data describing existing soil condition (1) & (2)

8. Data describing existing discharge water quality (if any) (1) & (2)

9. Receiving water name (1)
   JOHNSON CREEK, WHEEL RIM FORK, TIM BRANCH, and PURCELL BRANCH

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: (1)

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure

- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55-gallon capacity and larger.

➢ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will

be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean-up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

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.

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:

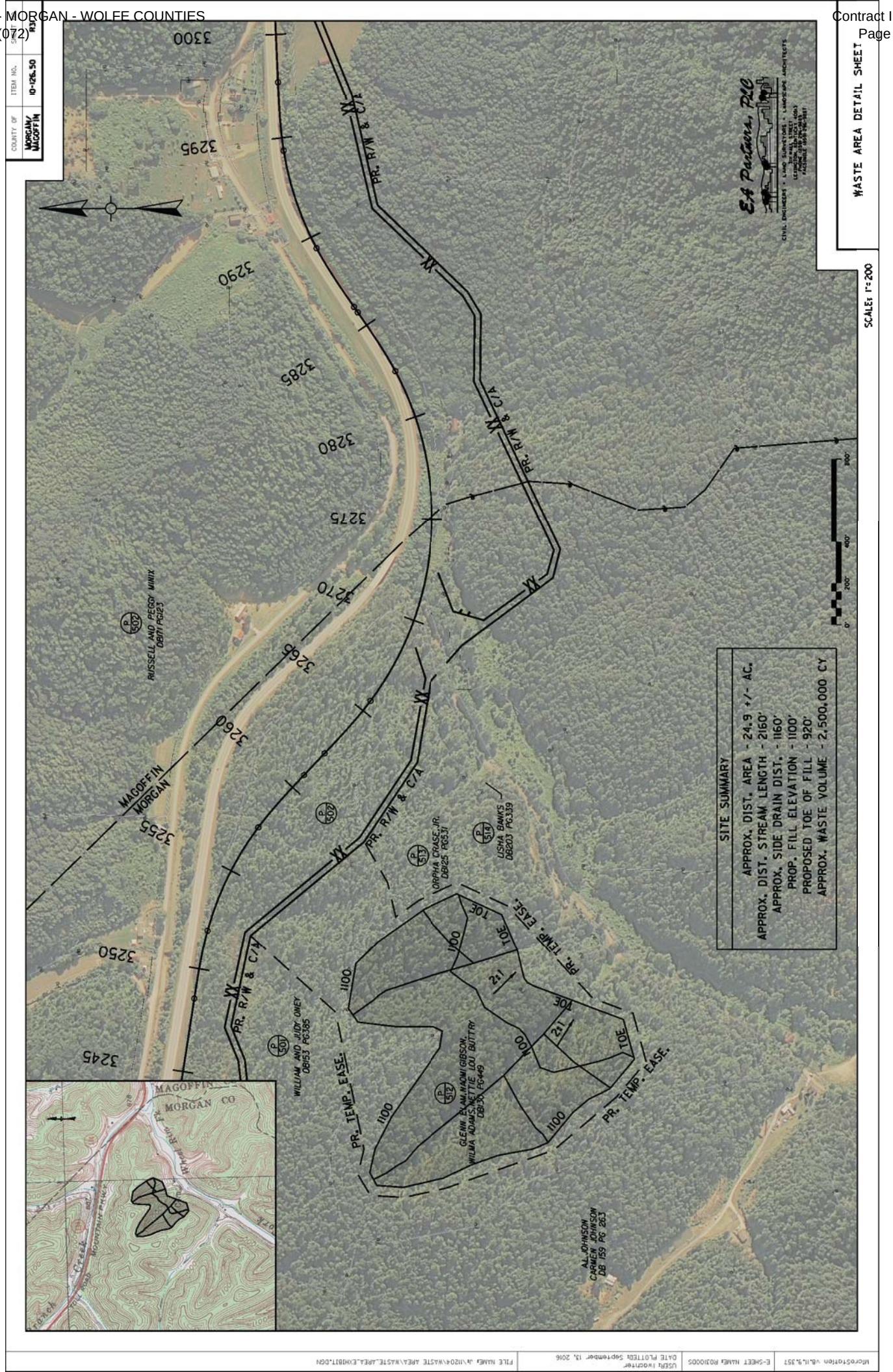
Phone:

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.


WASTE AREA DETAIL SHEET
SCALE: 1"=200'
COUNTY OF: MORGAN/MAGOFFIN
ITEM NO.: 10-126.50
SHEET: R3
E.H. Partners, PLC
CIVIL ENGINEERS • LAND SURVEYORS • LANDSCAPE ARCHITECTS
SITE SUMMARY
APPROX. DIST. AREA - 24.9 +/- AC.
APPROX. DIST. STREAM LENGTH - 2160'
APPROX. SIDE DRAIN DIST. - 1160'
PROP. FILL ELEVATION - 1100'
PROPOSED TOE OF FILL - 920'
APPROX. WASTE VOLUME - 2,500,000 CY
PR. R/W & C/L
PR. TEMP. EASE.
TOE
1100'
2:1
MAGOFFIN
MORGAN
RUSSELL AND PEGGY MINIX DB111 PG123
WILLIAM AND JUDY OWEY DB153 PG385
ORPHA CRASE, JR. DB125 PG531
USHA BANKS DB203 PG339
GLENN EX.AM. NAOMI GIBSON, WILMA ADAMS, NETTIE LOU BUTTRY DB130 PG449
AL JOHNSON CARMEN JOHNSON DB 159 PG 263
MAGOFFIN CO
MORGAN CO
3300
3295
3290
3285
3280
3275
3270
3265
3260
3255
3250
3245

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

October 4, 2016

Marshall Carrier
KYTC Division of Construction
200 Mero St
Frankfort, KY 40622

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10K935
10-126.60 Mountain Parkway Widening
Permit Type: Construction
AI ID: 127461
Morgan County, Kentucky

Dear Marshall Carrier:

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Construction Activities (KYR100000)" master general permit. Your coverage becomes effective on the date of this letter, and will automatically terminate two years from the effective date of your coverage unless an extension is requested prior to the termination date, until the KYR100000 master general permit expires on November 30, 2019, or the Division of Water revokes coverage, whichever comes first. During this period of coverage all discharges shall comply with the conditions of the KYR100000 master general permit. This permit and links to the eNOI (and permit coverage extension) and eNOT forms can be found on our website:

http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf.

Any questions concerning the general permit and its requirements should be directed to me at (502) 782-7048.

Construction Site GPS Coordinates: 37.75348 , -83.28192
Receiving Water: Prater Branch

Sincerely,

Justina Riddick

Justina Riddick
Surface Water Permits Branch
Division of Water

Kentucky Transportation Cabinet

Highway District 10

And

_____(2), Construction

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

Groundwater protection plan

For Highway Construction Activities

For

Widening of the Mountain Parkway

Project 10-126.60

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

Project information

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

1. Owner – **Kentucky Transportation Cabinet, District 10** (1)

2. Resident Engineer: (2)

3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):

4. Project Control Number (2)

5. Route (Address) **Mountain Parkway (KY 402)** (1)

6. Latitude/Longitude (project mid-point) **37°45'12.527", 83°16'54.898"** (1)

7. County (project mid-point) **MORGAN COUNTY** (1)

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

9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description) (1)
   MAJOR WIDENING/RECONSTRUCTION

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

3. Projected volume of material to be moved (1)
   2,762,128 CU. YDS.

4. Estimate of total project area (acres) (1)
   197 ACRES

5. Estimate of area to be disturbed (acres) (1)
   123 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. (1)

7. Data describing existing soil condition (1) & (2)

8. Data describing existing discharge water quality (if any) (1) & (2)

9. Receiving water name (1)
   STATE ROAD FORK AND PRATER BRANCH

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: (1)

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer’s label

- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55-gallon capacity and larger.

➢ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to

storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean-up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

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.

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:

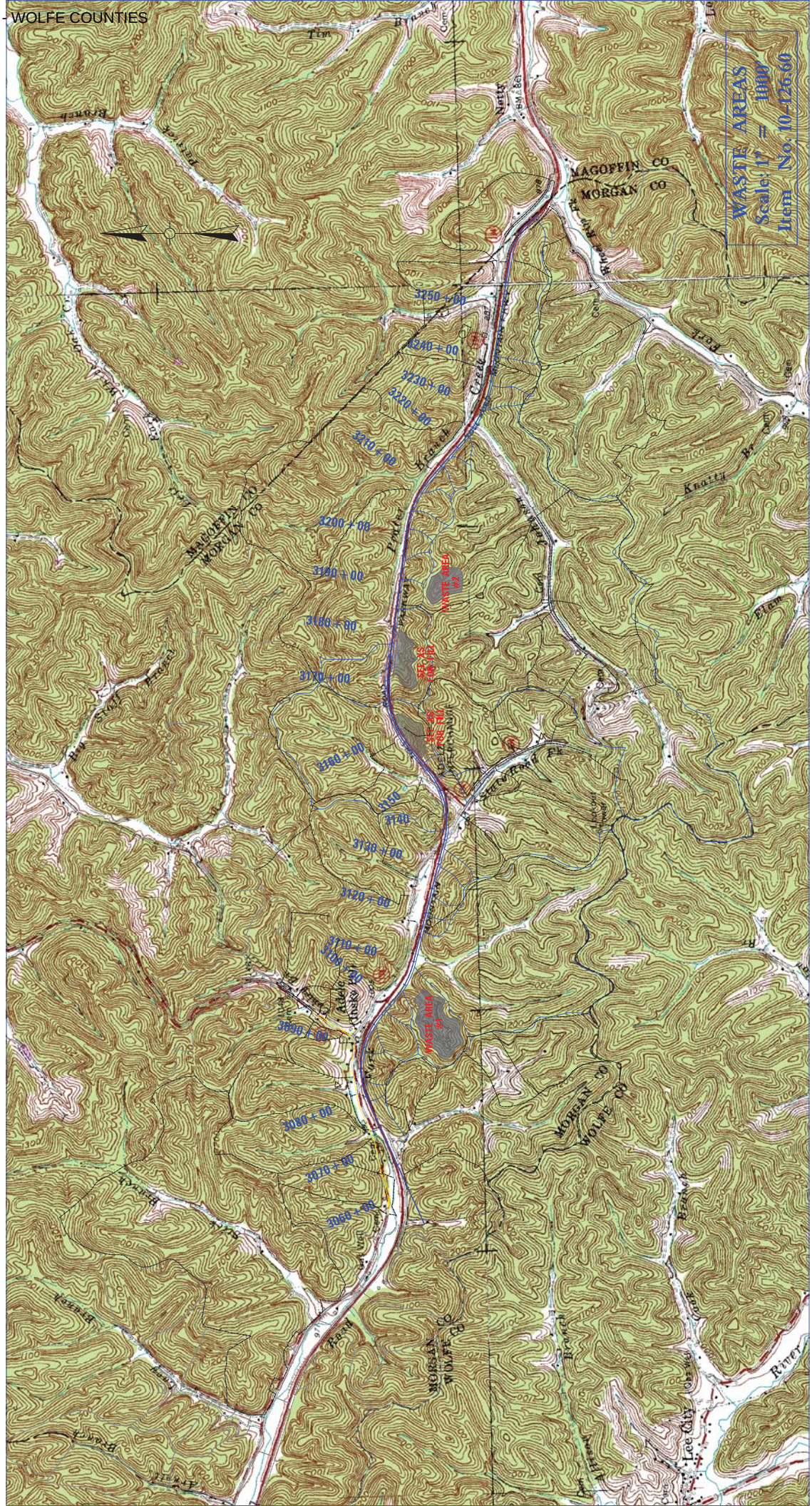
Phone:

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.


WASTE AREAS
Scale: 1" = 1000'
Item No. 10-126.60
MAGOFFIN CO
MORGAN CO
MORGAN CO
WOLFE CO
3250 + 00
3240 + 00
3230 + 00
3220 + 00
3210 + 00
3200 + 00
3190 + 00
3180 + 00
3170 + 00
3160 + 00
3150
3140
3130 + 00
3120 + 00
3110 + 00
3100 + 00
3090 + 00
3080 + 00
3070 + 00
3060 + 00
WASTE AREA 22
SEE SHEET 108 FOR
WASTE AREA 21
Lee City

Kentucky Transportation Cabinet

Highway District 10

And

_____(2), Construction

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

Groundwater protection plan

For Highway Construction Activities

For

Widening of the Mountain Parkway

Project 10-126.70

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

Project information

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

1. Owner – **Kentucky Transportation Cabinet, District 10** (1)

2. Resident Engineer: (2)

3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):

4. Project Control Number (2)

5. Route (Address) **Mountain Parkway (KY 402)** (1)

6. Latitude/Longitude (project mid-point) **37°45'44.43"N, 83°19'53.38"W** (1)

7. County (project mid-point) **MORGAN COUNTY** (1)

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

9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description) (1)
   MAJOR WIDENING/RECONSTRUCTION

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

3. Projected volume of material to be moved (1)
   1,061,403 CU. YDS.

4. Estimate of total project area (acres) (1)
   152 ACRES

5. Estimate of area to be disturbed (acres) (1)
   104 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. (1)

7. Data describing existing soil condition (1) & (2)

8. Data describing existing discharge water quality (if any) (1) & (2)

9. Receiving water name (1)
   RED RIVER and STATE ROAD FORK

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: (1)

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer’s label

- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55-gallon capacity and larger.

➢ **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to

storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

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.

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.

MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

October 4, 2016

Marshall Carrier
KYTC Division of Construction
200 Mero St
Frankfort, KY 40622

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10K936
10-126.70 Mountain Parkway Widening
Permit Type: Construction
AI ID: 127461
Morgan County, Kentucky

Dear Marshall Carrier:

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Storm Water Discharges Associated with Construction Activities (KYR100000)" master general permit. Your coverage becomes effective on the date of this letter, and will automatically terminate two years from the effective date of your coverage unless an extension is requested prior to the termination date, until the KYR100000 master general permit expires on November 30, 2019, or the Division of Water revokes coverage, whichever comes first. During this period of coverage all discharges shall comply with the conditions of the KYR100000 master general permit. This permit and links to the eNOI (and permit coverage extension) and eNOT forms can be found on our website:

http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf.

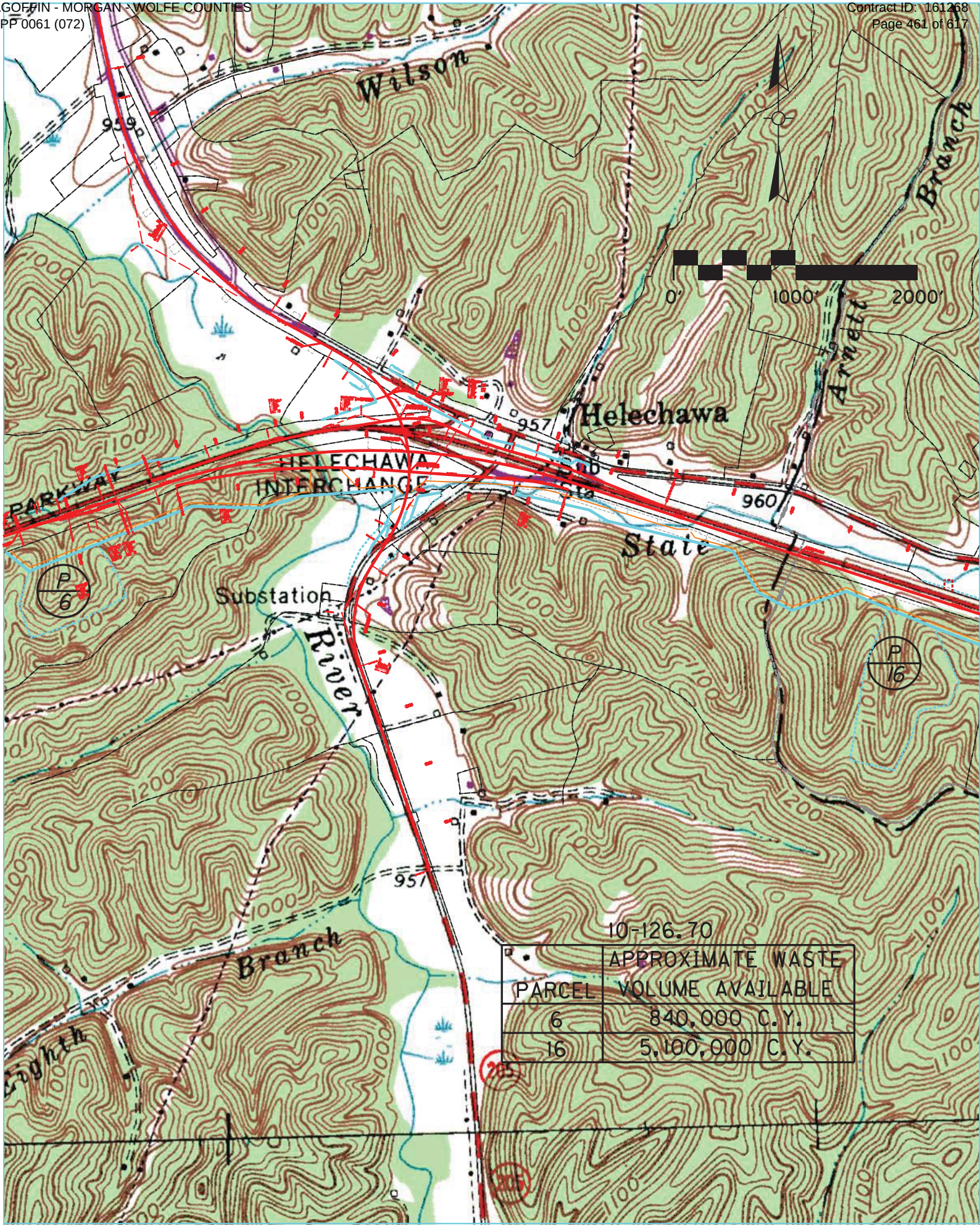
Any questions concerning the general permit and its requirements should be directed to me at (502) 782-7048.

Construction Site GPS Coordinates: 37.762342 , -83.331494
Receiving Water: Red River

Sincerely,

Justina Riddick

Justina Riddick
Surface Water Permits Branch
Division of Water



10-126.70

PARCEL	APPROXIMATE WASTE VOLUME AVAILABLE
6	840,000 C.Y.
16	5,100,000 C.Y.

KENTUCKY TRANSPORTATION CABINET
COMMUNICATION ALL PROMISES (CAP)

Item Number	County	Route	Project Manager
10-126.5	MAGOFFIN - MORGAN	KY 9009	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
1		Environmental		Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th [Clean Water Act].
2		Environmental		No clearing of trees 5 inches or greater (diameter breast height) from June 1 - July 31. See SPECIAL NOTE for Tree Removal

Item Number	County	Route	Project Manager
10-126.6	MORGAN	KY 9009	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
1		Environmental		Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th [Clean Water Act].
2		Environmental		No clearing of trees 5 inches or greater (diameter breast height) from June 1 - July 31. See SPECIAL NOTE for Tree Removal

Item Number	County	Route	Project Manager
10-126.7	WOLFE-MORGAN	KY 9009	KYTC/MARSHALL CARRIER

CAP #	Date of Promise	Requestor	Location of Promise	CAP Description
1		Environmental		Dredging work shall not be conducted during the fish spawning season, April 15th through June 15th [Clean Water Act].
2		Environmental		No clearing of trees 5 inches or greater (diameter breast height) from June 1 - July 31. See SPECIAL NOTE for Tree Removal

MATERIAL SUMMARY

CONTRACT ID: 161268 **NHPP 0061 (072)** **DE07790091668**

MOUNTAIN PARKWAY (KY 9009) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.4 MILE EAST OF THE KY-134 JOHNSON CREEK BRIDGE TO 0.3 MILE WEST OF KY-3047 (SECTION 5) GRADE, DRAIN & SURFACE WITH BRIDGE, A DISTANCE OF 1.87 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00003	CRUSHED STONE BASE	33,585.00	TON
0010	00020	TRAFFIC BOUND BASE	416.00	TON
0015	00100	ASPHALT SEAL AGGREGATE	334.00	TON
0020	00103	ASPHALT SEAL COAT	40.00	TON
0025	00190	LEVELING & WEDGING PG64-22	1,252.00	TON
0030	00212	CL2 ASPH BASE 1.00D PG64-22	3,562.00	TON
0035	00214	CL3 ASPH BASE 1.00D PG64-22	23,040.00	TON
0040	00301	CL2 ASPH SURF 0.38D PG64-22	1,363.00	TON
0045	00388	CL3 ASPH SURF 0.38B PG64-22	3,817.00	TON
0050	02081	JPC PAVEMENT-8 IN SHLD	139.00	SQYD
0055	02676	MOBILIZATION FOR MILL & TEXT - (MAGOFFIN 10-126.50)	1.00	LS
0060	02677	ASPHALT PAVE MILLING & TEXTURING	1,730.00	TON
0065	20430ED	SAW CUT	4,751.00	LF
0070	00021	DRAINAGE BLANKET-EMBANKMENT	1,908.00	CUYD
0075	01015	INSPECT & CERTIFY EDGE DRAIN SYSTEM - (MAGOFFIN 10-126-50)	1.00	LS
0080	01825	ISLAND CURB AND GUTTER	62.25	LF
0085	01891	ISLAND HEADER CURB TYPE 2	86.50	LF
0090	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	174.00	EACH
0095	01983	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	6.00	EACH
0100	01990	DELINEATOR FOR BARRIER WALL-B/W	61.00	EACH
0105	02003	RELOCATE TEMP CONC BARRIER	500.00	LF
0110	02159	TEMP DITCH	4,944.00	LF
0115	02160	CLEAN TEMP DITCH	2,472.00	LF
0120	02200	ROADWAY EXCAVATION	696,129.00	CUYD
0125	02242	WATER - (FOR DUST CONTROL)	1,873.00	MGAL
0130	02262	FENCE-WOVEN WIRE TYPE 1	11,598.00	LF
0135	02265	REMOVE FENCE	1,505.00	LF
0140	02268	REMOVE & REPLACE FENCE	2,865.00	LF
0145	02347	WATER GATE TYPE 1	1.00	EACH
0150	02351	GUARDRAIL-STEEL W BEAM-S FACE	11,865.00	LF
0155	02352	GUARDRAIL-STEEL W BEAM-D FACE	294.50	LF
0160	02360	GUARDRAIL TERMINAL SECTION NO 1	2.00	EACH
0165	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	6.00	EACH
0170	02367	GUARDRAIL END TREATMENT TYPE 1	10.00	EACH
0175	02369	GUARDRAIL END TREATMENT TYPE 2A	3.00	EACH
0180	02381	REMOVE GUARDRAIL	10,902.00	LF
0185	02387	GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	2.00	EACH
0190	02397	TEMP GUARDRAIL	150.00	LF
0195	02429	RIGHT-OF-WAY MONUMENT TYPE 1	18.00	EACH
0200	02432	WITNESS POST	7.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0205	02488	CHANNEL LINING CLASS IV	7,140.00	CUYD
0210	02545	CLEARING AND GRUBBING - (APPROXIMATELY 85.4 ACRES, MAGOFFIN 10-126.50)	1.00	LS
0215	02555	CONCRETE-CLASS B	349.33	CUYD
0220	02562	TEMPORARY SIGNS	333.25	SQFT
0225	02596	FABRIC-GEOTEXTILE TYPE I	506.00	SQYD
0230	02599	FABRIC-GEOTEXTILE TYPE IV	156,180.00	SQYD
0235	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	5,541.00	SQYD
0240	02650	MAINTAIN & CONTROL TRAFFIC - (MAGOFFIN 10-126.50)	1.00	LS
0245	02671	PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH
0250	02690	SAFELOADING	4.00	CUYD
0255	02696	SHOULDER RUMBLE STRIPS-SAWED	38,840.00	LF
0260	02701	TEMP SILT FENCE	4,944.00	LF
0265	02703	SILT TRAP TYPE A	123.00	EACH
0270	02704	SILT TRAP TYPE B	123.00	EACH
0275	02705	SILT TRAP TYPE C	123.00	EACH
0280	02706	CLEAN SILT TRAP TYPE A	123.00	EACH
0285	02707	CLEAN SILT TRAP TYPE B	123.00	EACH
0290	02708	CLEAN SILT TRAP TYPE C	123.00	EACH
0295	02726	STAKING - (MAGOFFIN 10-126.50)	1.00	LS
0300	02731	REMOVE STRUCTURE - (P504, MAGOFFIN 10-126.50)	1.00	LS
0305	02731	REMOVE STRUCTURE - (P506, MAGOFFIN 10-126.50)	1.00	LS
0310	02731	REMOVE STRUCTURE - (STA. 3351+00, MAGOFFIN 10-126.50)	1.00	LS
0315	02775	ARROW PANEL	1.00	EACH
0320	02898	RELOCATE CRASH CUSHION	2.00	EACH
0325	02929	CRASH CUSHION TYPE IX	3.00	EACH
0330	03171	CONCRETE BARRIER WALL TYPE 9T	3,708.00	LF
0335	05950	EROSION CONTROL BLANKET	4,630.00	SQYD
0340	05952	TEMP MULCH	398,832.00	SQYD
0345	05953	TEMP SEEDING AND PROTECTION	297,636.00	SQYD
0350	05963	INITIAL FERTILIZER	18.00	TON
0355	05964	20-10-10 FERTILIZER	30.80	TON
0360	05985	SEEDING AND PROTECTION	595,272.00	SQYD
0365	05992	AGRICULTURAL LIMESTONE	369.00	TON
0370	06401	FLEXIBLE DELINEATOR POST-M/W	192.00	EACH
0375	06403	FLEXIBLE DELINEATOR POST-B/W	32.00	EACH
0380	06511	PAVE STRIPING-TEMP PAINT-6 IN	39,152.00	LF
0385	06515	PAVE STRIPING-PERM PAINT-6 IN	44,496.00	LF
0390	06549	PAVE STRIPING-TEMP REM TAPE-B	250.00	LF
0395	06550	PAVE STRIPING-TEMP REM TAPE-W	250.00	LF
0400	06551	PAVE STRIPING-TEMP REM TAPE-Y	250.00	LF
0405	06570	PAVE MARKING-PAINT CROSS-HATCH	8,396.50	SQFT
0410	08900	CRASH CUSHION TY VI CLASS B TL2	7.00	EACH
0415	10020NS	FUEL ADJUSTMENT	184,046.00	DOLL
0420	10030NS	ASPHALT ADJUSTMENT	129,150.00	DOLL
0425	20071EC	JOINT ADHESIVE	18,875.00	LF
0430	20191ED	OBJECT MARKER TY 3	10.00	EACH
0435	24489EC	INLAID PAVEMENT MARKER	306.00	EACH
0440	24543EC	CLEAN - CLEAN (CHANNEL CHANGE)	1,127.00	LF

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0445	24640ED	OBJECT MARKER TYPE 1	7.00	EACH
0450	24814EC	PIPELINE INSPECTION	1,574.00	LF
0455	24866ED	MOT TEMPORARY TIE - (NO. 2. MAGOFFIN 10-126.50)	1.00	L S
0460	00078	CRUSHED AGGREGATE SIZE NO 2	774.00	TON
0465	00469	CULVERT PIPE-42 IN	76.00	LF
0470	00522	STORM SEWER PIPE-18 IN	966.00	LF
0475	00522	STORM SEWER PIPE-18 IN - (RCP, NO ALT)	28.00	LF
0480	00524	STORM SEWER PIPE-24 IN	325.00	LF
0485	00524	STORM SEWER PIPE-24 IN - (RCP, NO ALT)	23.00	LF
0490	00526	STORM SEWER PIPE-30 IN	8.00	LF
0495	00528	STORM SEWER PIPE-36 IN	131.00	LF
0500	00528	STORM SEWER PIPE-36 IN - (RCP, NO ALT)	14.00	LF
0505	00529	STORM SEWER PIPE-42 IN	65.00	LF
0510	00529	STORM SEWER PIPE-42 IN - (CMP, NO ALT)	4.00	LF
0515	00529	STORM SEWER PIPE-42 IN - (RCP, NO ALT)	31.00	LF
0520	01000	PERFORATED PIPE-4 IN	1,650.00	LF
0525	01001	PERFORATED PIPE-6 IN	244.00	LF
0530	01002	PERFORATED PIPE-8 IN	2,650.00	LF
0535	01010	NON-PERFORATED PIPE-4 IN	180.00	LF
0540	01011	NON-PERFORATED PIPE-6 IN	20.00	LF
0545	01020	PERF PIPE HEADWALL TY 1-4 IN	6.00	EACH
0550	01021	PERF PIPE HEADWALL TY 1-6 IN	1.00	EACH
0555	01028	PERF PIPE HEADWALL TY 3-4 IN	2.00	EACH
0560	01033	PERF PIPE HEADWALL TY 4-6 IN	1.00	EACH
0565	01204	PIPE CULVERT HEADWALL-18 IN	8.00	EACH
0570	01208	PIPE CULVERT HEADWALL-24 IN	4.00	EACH
0575	01212	PIPE CULVERT HEADWALL-36 IN	1.00	EACH
0580	01214	PIPE CULVERT HEADWALL-42 IN	3.00	EACH
0585	01433	SLOPED BOX OUTLET TYPE 1-18 IN	2.00	EACH
0590	01451	S & F BOX INLET-OUTLET-24 IN	1.00	EACH
0595	01480	CURB BOX INLET TYPE B	4.00	EACH
0600	01490	DROP BOX INLET TYPE 1	3.00	EACH
0605	01493	DROP BOX INLET TYPE 2	6.00	EACH
0610	01502	DROP BOX INLET TYPE 5A	1.00	EACH
0615	01505	DROP BOX INLET TYPE 5B	6.00	EACH
0620	01517	DROP BOX INLET TYPE 5F	3.00	EACH
0625	01538	DROP BOX INLET TYPE 7	1.00	EACH
0630	01650	JUNCTION BOX	1.00	EACH
0635	01653	JUNCTION BOX-SPECIAL	5.00	EACH
0640	01742	CORED HOLE DRAINAGE BOX CON-8 IN	6.00	EACH
0645	02482	CHANNEL LINING CLASS IA	1,656.00	TON
0650	23126EN	BORE AND JACK PIPE-18 IN	90.00	LF
0655	02223	GRANULAR EMBANKMENT	50.00	CUYD
0660	08002	STRUCTURE EXCAV-SOLID ROCK	146.00	CUYD
0665	08003	FOUNDATION PREPARATION	1.00	LS
0670	08100	CONCRETE-CLASS A	64.00	CUYD
0675	08150	STEEL REINFORCEMENT	4,140.00	LB
0680	02223	GRANULAR EMBANKMENT	180.00	CUYD
0685	08003	FOUNDATION PREPARATION	1.00	LS
0690	08100	CONCRETE-CLASS A	109.80	CUYD

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0695	08150	STEEL REINFORCEMENT	11,700.00	LB
0700	02223	GRANULAR EMBANKMENT	150.00	CUYD
0705	08003	FOUNDATION PREPARATION	1.00	LS
0710	08100	CONCRETE-CLASS A	94.40	CUYD
0715	08150	STEEL REINFORCEMENT	6,890.00	LB
0720	02231	STRUCTURE GRANULAR BACKFILL	456.00	CUYD
0725	02998	MASONRY COATING	2,113.00	SQYD
0730	03299	ARMORED EDGE FOR CONCRETE	186.00	LF
0735	08001	STRUCTURE EXCAVATION-COMMON	72.00	CUYD
0740	08019	CYCLOPEAN STONE RIP RAP	2,330.00	TON
0745	08020	CRUSHED AGGREGATE SLOPE PROT	590.00	TON
0750	08033	TEST PILES	202.00	LF
0755	08039	PRE-DRILLING FOR PILES	723.00	LF
0760	08046	PILES-STEEL HP12X53	1,446.00	LF
0765	08094	PILE POINTS-12 IN - 27569	40.00	EACH
0770	08100	CONCRETE-CLASS A	296.00	CUYD
0775	08104	CONCRETE-CLASS AA	624.00	CUYD
0780	08150	STEEL REINFORCEMENT	65,533.00	LB
0785	08151	STEEL REINFORCEMENT-EPOXY COATED	182,760.00	LB
0790	20743ED	DRILLED SHAFT 54 IN-SOLID ROCK	42.00	LF
0795	20744ED	DRILLED SHAFT 60 IN-COMMON	115.80	LF
0800	20745ED	ROCK SOUNDINGS	110.00	LF
0805	20746ED	ROCK CORINGS	130.00	LF
0810	21532ED	RAIL SYSTEM TYPE III	762.00	LF
0815	24520EC	PPC I-BEAM HN 48-49	1,489.40	LF
0820	06406	SBM ALUM SHEET SIGNS .080 IN	31.50	SQFT
0825	06407	SBM ALUM SHEET SIGNS .125 IN	272.25	SQFT
0830	06410	STEEL POST TYPE 1	270.00	LF
0835	06411	STEEL POST TYPE 2	270.00	LF
0840	24631EC	BARCODE SIGN INVENTORY	22.00	EACH
0845	14003	W CAP EXISTING MAIN	2.00	EACH
0850	14007	W ENCASEMENT STEEL BORED RANGE 2	150.00	LF
0855	14013	W ENCASEMENT STEEL OPEN CUT RANGE 2	145.00	LF
0860	14023	W FLUSHING ASSEMBLY	1.00	EACH
0865	14028	W METER 3/4 INCH	1.00	EACH
0870	14046	W PIPE DCTL IRON RSTRND JOINT 04 IN	260.00	LF
0875	14058	W PIPE PVC 04 INCH	465.00	LF
0880	14080	W SERV PE/PLST LONG SIDE 3/4 IN	1.00	EACH
0885	14089	W TAPPING SLEEVE AND VALVE SIZE 1	2.00	EACH
0890	02568	MOBILIZATION	1.00	LS
0895	02569	DEMOBILIZATION	1.00	LS
0900	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR

MOUNTAIN PARKWAY (KY 9009) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.4 MILE EAST OF THE KY-134 JOHNSON CREEK BRIDGE TO 0.3 MILE WEST OF KY-3047 GRADE, DRAIN & SURFACE WITH BRIDGE, A DISTANCE OF .69 MILES.

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00003	CRUSHED STONE BASE	16,366.00	TON
0010	00100	ASPHALT SEAL AGGREGATE	118.00	TON
0015	00103	ASPHALT SEAL COAT	14.00	TON
0020	00212	CL2 ASPH BASE 1.00D PG64-22	1,204.00	TON
0025	00214	CL3 ASPH BASE 1.00D PG64-22	9,913.00	TON
0030	00301	CL2 ASPH SURF 0.38D PG64-22	502.00	TON
0035	00388	CL3 ASPH SURF 0.38B PG64-22	1,405.00	TON
0040	02081	JPC PAVEMENT-8 IN SHLD	138.00	SQYD
0045	00021	DRAINAGE BLANKET-EMBANKMENT	1,241.00	CUYD
0050	01825	ISLAND CURB AND GUTTER	67.25	LF
0055	01891	ISLAND HEADER CURB TYPE 2	96.25	LF
0060	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	34.00	EACH
0065	01983	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	11.00	EACH
0070	01990	DELINEATOR FOR BARRIER WALL-B/W	14.00	EACH
0075	02003	RELOCATE TEMP CONC BARRIER	550.00	LF
0080	02091	REMOVE PAVEMENT	8,724.00	SQYD
0085	02159	TEMP DITCH	1,834.00	LF
0090	02160	CLEAN TEMP DITCH	917.00	LF
0095	02200	ROADWAY EXCAVATION	1,343,816.00	CUYD
0100	02242	WATER	694.00	MGAL
0105	02262	FENCE-WOVEN WIRE TYPE 1	4,605.00	LF
0110	02268	REMOVE & REPLACE FENCE	1,929.00	LF
0115	02347	WATER GATE TYPE 1	1.00	EACH
0120	02351	GUARDRAIL-STEEL W BEAM-S FACE	1,785.00	LF
0125	02352	GUARDRAIL-STEEL W BEAM-D FACE	255.50	LF
0130	02360	GUARDRAIL TERMINAL SECTION NO 1	3.00	EACH
0135	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	6.00	EACH
0140	02367	GUARDRAIL END TREATMENT TYPE 1	2.00	EACH
0145	02369	GUARDRAIL END TREATMENT TYPE 2A	1.00	EACH
0150	02381	REMOVE GUARDRAIL	4,738.00	LF
0155	02429	RIGHT-OF-WAY MONUMENT TYPE 1	10.00	EACH
0160	02432	WITNESS POST	3.00	EACH
0165	02488	CHANNEL LINING CLASS IV	2,514.00	CUYD
0170	02545	CLEARING AND GRUBBING - (APPROXIMATELY 31.6 ACRES, MORGAN 10-126.50)	1.00	LS
0175	02555	CONCRETE-CLASS B	43.33	CUYD
0180	02562	TEMPORARY SIGNS	123.50	SQFT
0185	02596	FABRIC-GEOTEXTILE TYPE I	566.00	SQYD
0190	02599	FABRIC-GEOTEXTILE TYPE IV	73,413.00	SQYD
0195	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	3,412.00	SQYD
0200	02650	MAINTAIN & CONTROL TRAFFIC - (MORGAN 10-126.50)	1.00	LS
0205	02671	PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH
0210	02690	SAFELOADING	6.00	CUYD
0215	02696	SHOULDER RUMBLE STRIPS-SAWED	14,464.00	LF
0220	02701	TEMP SILT FENCE	1,834.00	LF
0225	02703	SILT TRAP TYPE A	51.00	EACH
0230	02704	SILT TRAP TYPE B	51.00	EACH
0235	02705	SILT TRAP TYPE C	51.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0240	02706	CLEAN SILT TRAP TYPE A	51.00	EACH
0245	02707	CLEAN SILT TRAP TYPE B	51.00	EACH
0250	02708	CLEAN SILT TRAP TYPE C	51.00	EACH
0255	02726	STAKING - (MORGAN 10-126.50)	1.00	LS
0260	02731	REMOVE STRUCTURE - (STA.3271+01, MORGAN 10-126.50)	1.00	LS
0265	02775	ARROW PANEL	1.00	EACH
0270	02898	RELOCATE CRASH CUSHION	2.00	EACH
0275	02929	CRASH CUSHION TYPE IX	1.00	EACH
0280	03171	CONCRETE BARRIER WALL TYPE 9T	782.00	LF
0285	05950	EROSION CONTROL BLANKET	1,299.00	SQYD
0290	05952	TEMP MULCH	166,096.00	SQYD
0295	05953	TEMP SEEDING AND PROTECTION	123,952.00	SQYD
0300	05963	INITIAL FERTILIZER	8.00	TON
0305	05964	20-10-10 FERTILIZER	12.80	TON
0310	05985	SEEDING AND PROTECTION	247,905.00	SQYD
0315	05992	AGRICULTURAL LIMESTONE	153.70	TON
0320	06401	FLEXIBLE DELINEATOR POST-M/W	83.00	EACH
0325	06403	FLEXIBLE DELINEATOR POST-B/W	40.00	EACH
0330	06511	PAVE STRIPING-TEMP PAINT-6 IN	14,048.00	LF
0335	06515	PAVE STRIPING-PERM PAINT-6 IN	16,502.00	LF
0340	06549	PAVE STRIPING-TEMP REM TAPE-B	250.00	LF
0345	06550	PAVE STRIPING-TEMP REM TAPE-W	250.00	LF
0350	06551	PAVE STRIPING-TEMP REM TAPE-Y	250.00	LF
0355	06570	PAVE MARKING-PAINT CROSS-HATCH	3,536.50	SQFT
0360	08900	CRASH CUSHION TY VI CLASS B TL2	2.00	EACH
0365	10020NS	FUEL ADJUSTMENT	258,573.00	DOLL
0370	10030NS	ASPHALT ADJUSTMENT	50,919.00	DOLL
0375	20071EC	JOINT ADHESIVE	7,335.00	LF
0380	20191ED	OBJECT MARKER TY 3	3.00	EACH
0385	24489EC	INLAID PAVEMENT MARKER	131.00	EACH
0390	24543EC	CLEAN - CLEAN (CHANNEL CHANGE)	3,730.00	LF
0395	24640ED	OBJECT MARKER TYPE 1	2.00	EACH
0400	24814EC	PIPELINE INSPECTION - (PIPELINE VIDEO INSPECTION)	776.00	LF
0405	24866ED	MOT TEMPORARY TIE - (NO. 1, MORGAN 10-126.50)	1.00	L S
0410	00078	CRUSHED AGGREGATE SIZE NO 2	5.00	TON
0415	00522	STORM SEWER PIPE-18 IN	456.00	LF
0420	00524	STORM SEWER PIPE-24 IN	254.00	LF
0425	00526	STORM SEWER PIPE-30 IN	267.00	LF
0430	01000	PERFORATED PIPE-4 IN	300.00	LF
0435	01001	PERFORATED PIPE-6 IN	548.00	LF
0440	01010	NON-PERFORATED PIPE-4 IN	188.00	LF
0445	01011	NON-PERFORATED PIPE-6 IN	71.00	LF
0450	01020	PERF PIPE HEADWALL TY 1-4 IN	2.00	EACH
0455	01021	PERF PIPE HEADWALL TY 1-6 IN	3.00	EACH
0460	01208	PIPE CULVERT HEADWALL-24 IN	1.00	EACH
0465	01210	PIPE CULVERT HEADWALL-30 IN	2.00	EACH
0470	01433	SLOPED BOX OUTLET TYPE 1-18 IN	2.00	EACH
0475	01452	S & F BOX INLET-OUTLET-30 IN	1.00	EACH
0480	01480	CURB BOX INLET TYPE B	2.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0485	01490	DROP BOX INLET TYPE 1	2.00	EACH
0490	01493	DROP BOX INLET TYPE 2	2.00	EACH
0495	01505	DROP BOX INLET TYPE 5B	4.00	EACH
0500	01517	DROP BOX INLET TYPE 5F	1.00	EACH
0505	01741	CORED HOLE DRAINAGE BOX CON-6 IN	1.00	EACH
0510	08100	CONCRETE-CLASS A	4.22	CUYD
0515	21800EN	BORE AND JACK PIPE-30 IN	55.00	LF
0520	02231	STRUCTURE GRANULAR BACKFILL	920.00	CUYD
0525	02555	CONCRETE-CLASS B	20.50	CUYD
0530	02998	MASONRY COATING	4,690.00	SQYD
0535	03299	ARMORED EDGE FOR CONCRETE	197.10	LF
0540	08002	STRUCTURE EXCAV-SOLID ROCK	166.00	CUYD
0545	08019	CYCLOPEAN STONE RIP RAP	3,500.00	TON
0550	08020	CRUSHED AGGREGATE SLOPE PROT	1,300.00	TON
0555	08033	TEST PILES	160.00	LF
0560	08046	PILES-STEEL HP12X53	1,312.00	LF
0565	08094	PILE POINTS-12 IN	21.00	EACH
0570	08100	CONCRETE-CLASS A	953.50	CUYD
0575	08104	CONCRETE-CLASS AA	1,208.20	CUYD
0580	08137	MECHANICAL REINF COUPLER #14	72.00	EACH
0585	08150	STEEL REINFORCEMENT	170,085.00	LB
0590	08151	STEEL REINFORCEMENT-EPOXY COATED	350,720.00	LB
0595	08634	PRECAST PC I BEAM TYPE 4	3,786.40	LF
0600	20637ED	DRILLED SHAFT-ROCK 48 IN	42.00	LF
0605	20745ED	ROCK SOUNDINGS	237.00	LF
0610	20746ED	ROCK CORINGS	524.00	LF
0615	21532ED	RAIL SYSTEM TYPE III	1,536.00	LF
0620	22417EN	DRILLED SHAFT-54 IN-COMMON	80.00	LF
0625	22885EN	DRILLED SHAFT-72 IN-ROCK	40.00	LF
0630	23000EX	DRILLED SHAFT-66 IN (ROCK)	72.00	LF
0635	23249EC	DRILLED SHAFT-72 IN COMMON	182.00	LF
0640	24001EC	DRILLED SHAFT-78 IN COMMON	38.00	LF
0645	06406	SBM ALUM SHEET SIGNS .080 IN	6.00	SQFT
0650	06407	SBM ALUM SHEET SIGNS .125 IN	168.50	SQFT
0655	06410	STEEL POST TYPE 1	210.00	LF
0660	06411	STEEL POST TYPE 2	210.00	LF
0665	24631EC	BARCODE SIGN INVENTORY	16.00	EACH
0670	14014	W ENCASEMENT STEEL OPEN CUT RANGE 3	490.00	LF
0675	14019	W FIRE HYDRANT ASSEMBLY	1.00	EACH
0680	14069	W PIPE POLYETHYLENE/PLASTIC 06 INCH - (DR-9)	560.00	LF
0685	14101	W TIE-IN SPECIAL	2.00	EACH
0690	02568	MOBILIZATION	1.00	LS
0695	02569	DEMOBILIZATION	1.00	LS
0700	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR

MATERIAL SUMMARY

LANES FROM CR 1226 PARKWAY TUNNEL ROAD TO 0.4 MI EAST OF THE KY 134 JOHNSON CREEK BRIDGE - SECTION 6 GRADE, DRAIN & SURFACE WITH BRIDGE, A DISTANCE OF 3.3 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00003	CRUSHED STONE BASE	57,053.00	TON
0010	00100	ASPHALT SEAL AGGREGATE	1,925.00	TON
0015	00103	ASPHALT SEAL COAT	230.10	TON
0020	00190	LEVELING & WEDGING PG64-22	2,213.00	TON
0025	00212	CL2 ASPH BASE 1.00D PG64-22	9,232.00	TON
0030	00214	CL3 ASPH BASE 1.00D PG64-22	45,933.00	TON
0035	00301	CL2 ASPH SURF 0.38D PG64-22	3,310.00	TON
0040	00388	CL3 ASPH SURF 0.38B PG64-22	6,687.00	TON
0045	02081	JPC PAVEMENT-8 IN SHLD	260.00	SQYD
0050	02677	ASPHALT PAVE MILLING & TEXTURING	991.00	TON
0055	20071EC	JOINT ADHESIVE	67,072.00	LF
0060	00021	DRAINAGE BLANKET-EMBANKMENT	12,200.00	CUYD
0065	00071	CRUSHED AGGREGATE SIZE NO 57	1,648.00	TON
0070	00078	CRUSHED AGGREGATE SIZE NO 2	2,220.00	TON
0075	01000	PERFORATED PIPE-4 IN	1,712.00	LF
0080	01001	PERFORATED PIPE-6 IN	310.00	LF
0085	01010	NON-PERFORATED PIPE-4 IN	439.00	LF
0090	01020	PERF PIPE HEADWALL TY 1-4 IN	8.00	EACH
0095	01028	PERF PIPE HEADWALL TY 3-4 IN	1.00	EACH
0100	01310	REMOVE PIPE	243.00	LF
0105	01741	CORED HOLE DRAINAGE BOX CON-6 IN	31.00	EACH
0110	01825	ISLAND CURB AND GUTTER	256.20	LF
0115	01845	ISLAND INTEGRAL CURB	138.00	LF
0120	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	261.00	EACH
0125	01983	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	28.00	EACH
0130	01990	DELINEATOR FOR BARRIER WALL-B/W	168.00	EACH
0135	02014	BARRICADE-TYPE III	8.00	EACH
0140	02091	REMOVE PAVEMENT	2,335.00	SQYD
0145	02159	TEMP DITCH	8,450.00	LF
0150	02160	CLEAN TEMP DITCH	4,225.00	LF
0155	02200	ROADWAY EXCAVATION	2,735,195.00	CUYD
0160	02203	STRUCTURE EXCAV-UNCLASSIFIED	427.00	CUYD
0165	02223	GRANULAR EMBANKMENT	1,250.00	CUYD
0170	02231	STRUCTURE GRANULAR BACKFILL	990.00	CUYD
0175	02262	FENCE-WOVEN WIRE TYPE 1	19,607.00	LF
0180	02268	REMOVE & REPLACE FENCE	15,651.00	LF
0185	02351	GUARDRAIL-STEEL W BEAM-S FACE	19,825.00	LF
0190	02352	GUARDRAIL-STEEL W BEAM-D FACE	825.00	LF
0195	02360	GUARDRAIL TERMINAL SECTION NO 1	6.00	EACH
0200	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	23.00	EACH
0205	02365	CRASH CUSHION TYPE IX-A	6.00	EACH
0210	02367	GUARDRAIL END TREATMENT TYPE 1	12.00	EACH
0215	02369	GUARDRAIL END TREATMENT TYPE 2A	10.00	EACH
0220	02373	GUARDRAIL END TREATMENT TYPE 3	2.00	EACH
0225	02381	REMOVE GUARDRAIL	20,961.50	LF
0230	02387	GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	4.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0235	02391	GUARDRAIL END TREATMENT TYPE 4A	11.00	EACH
0240	02397	TEMP GUARDRAIL	925.00	LF
0245	02403	REMOVE CONCRETE MASONRY	3.20	CUYD
0250	02429	RIGHT-OF-WAY MONUMENT TYPE 1	59.00	EACH
0255	02432	WITNESS POST	10.00	EACH
0260	02488	CHANNEL LINING CLASS IV	6,097.00	CUYD
0265	02545	CLEARING AND GRUBBING - (APPROXIMATELY 102.50 ACRES, MORGAN 10-126.60)	1.00	LS
0270	02555	CONCRETE-CLASS B	100.90	CUYD
0275	02562	TEMPORARY SIGNS	1,270.00	SQFT
0280	02565	OBJECT MARKER TYPE 2	14.00	EACH
0285	02585	EDGE KEY	72.00	LF
0290	02596	FABRIC-GEOTEXTILE TYPE I	7,961.00	SQYD
0295	02599	FABRIC-GEOTEXTILE TYPE IV	131,400.00	SQYD
0300	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	9,711.00	SQYD
0305	02625	REMOVE HEADWALL	16.00	EACH
0310	02650	MAINTAIN & CONTROL TRAFFIC - (MORGAN 10-126.60)	1.00	LS
0315	02651	DIVERSIONS (BY-PASS DETOURS) - (NO. 1, MORGAN 10-126.60)	1.00	LS
0320	02651	DIVERSIONS (BY-PASS DETOURS) - (NO. 2, MORGAN 10-126.60)	1.00	LS
0325	02655	CROSSOVER - (NO. 1, WEST, MORGAN 10-126.60)	1.00	LS
0330	02655	CROSSOVER - (NO. 2, EAST, MORGAN 10-126.60)	1.00	LS
0335	02671	PORTABLE CHANGEABLE MESSAGE SIGN	6.00	EACH
0340	02676	MOBILIZATION FOR MILL & TEXT - (MORGAN 10-126.60)	1.00	LS
0345	02690	SAFELOADING	101.00	CUYD
0350	02696	SHOULDER RUMBLE STRIPS-SAWED	72,474.00	LF
0355	02701	TEMP SILT FENCE	8,450.00	LF
0360	02704	SILT TRAP TYPE B	103.00	EACH
0365	02705	SILT TRAP TYPE C	103.00	EACH
0370	02707	CLEAN SILT TRAP TYPE B	103.00	EACH
0375	02708	CLEAN SILT TRAP TYPE C	103.00	EACH
0380	02726	STAKING - (MORGAN 10-126.60)	1.00	LS
0385	02731	REMOVE STRUCTURE - (12-FT X 6-FT RCBC - STA. 3098+50, MORGAN 10-126.60)	1.00	LS
0390	02731	REMOVE STRUCTURE - (RCDG BRIDGE - STA. 3135+03, MORGAN 10-126.60)	1.00	LS
0395	02731	REMOVE STRUCTURE - (RCDG BRIDGE - STA. 3224+88,MORGAN 10-126.60)	1.00	LS
0400	02731	REMOVE STRUCTURE - (WAGON BOX - STA. 3072+55,MORGAN 10-126.60)	1.00	LS
0405	02775	ARROW PANEL	2.00	EACH
0410	02898	RELOCATE CRASH CUSHION	4.00	EACH
0415	02898	RELOCATE CRASH CUSHION - (PERM)	1.00	EACH
0420	02929	CRASH CUSHION TYPE IX	2.00	EACH
0425	03145	CONC MEDIAN BARRIER TYPE 9C2	162.00	LF
0430	03171	CONCRETE BARRIER WALL TYPE 9T	13,280.00	LF
0435	03225	TUBULAR MARKERS	40.00	EACH
0440	03262	CLEAN PIPE STRUCTURE	1.00	EACH
0445	05950	EROSION CONTROL BLANKET	10,493.00	SQYD
0450	05952	TEMP MULCH	248,050.00	SQYD
0455	05953	TEMP SEEDING AND PROTECTION	248,050.00	SQYD

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0460	05963	INITIAL FERTILIZER	26.00	TON
0465	05964	20-10-10 FERTILIZER	25.70	TON
0470	05985	SEEDING AND PROTECTION	496,100.00	SQYD
0475	05992	AGRICULTURAL LIMESTONE	308.00	TON
0480	06401	FLEXIBLE DELINEATOR POST-M/W	270.00	EACH
0485	06404	FLEXIBLE DELINEATOR POST-M/Y	50.00	EACH
0490	06511	PAVE STRIPING-TEMP PAINT-6 IN	151,915.00	LF
0495	06514	PAVE STRIPING-PERM PAINT-4 IN	11,275.00	LF
0500	06515	PAVE STRIPING-PERM PAINT-6 IN	76,525.00	LF
0505	06517	PAVE STRIPING-PERM PAINT-12 IN	3,775.00	LF
0510	06550	PAVE STRIPING-TEMP REM TAPE-W	6,400.00	LF
0515	06551	PAVE STRIPING-TEMP REM TAPE-Y	6,400.00	LF
0520	06572	PAVE MARKING-DOTTED LANE EXTEN	4,405.00	LF
0525	06574	PAVE MARKING-THERMO CURV ARROW	1.00	EACH
0530	06578	PAVE MARKING-THERMO MERGE ARROW	15.00	EACH
0535	06588	PAVEMENT MARKER TY IVA-BY TEMP	1,855.00	EACH
0540	08018	RETAINING WALL	1,756.50	SQFT
0545	08100	CONCRETE-CLASS A	11.46	CUYD
0550	08150	STEEL REINFORCEMENT	392.00	LB
0555	08903	CRASH CUSHION TY VI CLASS BT TL3	10.00	EACH
0560	10020NS	FUEL ADJUSTMENT	1,059,988.00	DOLL
0565	10030NS	ASPHALT ADJUSTMENT	254,757.00	DOLL
0570	20166ES810	TEMPORARY PIPE	44.00	LF
0575	20318ES508	RELOCATE CONC BARRIER WALL	1,740.00	LF
0580	20318ES508	RELOCATE CONC BARRIER WALL - (PERM)	780.00	LF
0585	21289ED	LONGITUDINAL EDGE KEY	5,400.00	LF
0590	21802EN	G/R STEEL W BEAM-S FACE (7 FT POST)	475.00	LF
0595	22664EN	WATER BLASTING EXISTING STRIPE	6,200.00	LF
0600	23791EC	PAVE STRIPING-CHEVRON MARKINGS	16,400.00	SQFT
0605	24489EC	INLAID PAVEMENT MARKER	515.00	EACH
0610	24530ED	LONGITUDINAL SAW CUT 8 IN	5,400.00	LF
0615	24814EC	PIPELINE INSPECTION	2,770.00	LF
0620	00440	ENTRANCE PIPE-15 IN	60.00	LF
0625	00462	CULVERT PIPE-18 IN	2,185.00	LF
0630	00462	CULVERT PIPE-18 IN - (RCP)	27.00	LF
0635	00464	CULVERT PIPE-24 IN	1,063.00	LF
0640	00464	CULVERT PIPE-24 IN - (RCP)	29.00	LF
0645	00466	CULVERT PIPE-30 IN	537.00	LF
0650	00468	CULVERT PIPE-36 IN	102.00	LF
0655	00468	CULVERT PIPE-36 IN - (RCP)	18.00	LF
0660	00469	CULVERT PIPE-42 IN	314.00	LF
0665	00469	CULVERT PIPE-42 IN - (RCP)	4.00	LF
0670	00471	CULVERT PIPE-54 IN	254.00	LF
0675	00471	CULVERT PIPE-54 IN - (RCP)	57.00	LF
0680	00491	CULVERT PIPE-18 IN EQUIV	186.00	LF
0685	00521	STORM SEWER PIPE-15 IN	709.00	LF
0690	00522	STORM SEWER PIPE-18 IN	441.00	LF
0695	00524	STORM SEWER PIPE-24 IN	173.00	LF
0700	01204	PIPE CULVERT HEADWALL-18 IN	17.00	EACH
0705	01208	PIPE CULVERT HEADWALL-24 IN	8.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0710	01210	PIPE CULVERT HEADWALL-30 IN	3.00	EACH
0715	01212	PIPE CULVERT HEADWALL-36 IN	1.00	EACH
0720	01214	PIPE CULVERT HEADWALL-42 IN	2.00	EACH
0725	01433	SLOPED BOX OUTLET TYPE 1-18 IN	4.00	EACH
0730	01434	SLOPED BOX OUTLET TYPE 1-24 IN	1.00	EACH
0735	01450	S & F BOX INLET-OUTLET-18 IN	6.00	EACH
0740	01451	S & F BOX INLET-OUTLET-24 IN	4.00	EACH
0745	01452	S & F BOX INLET-OUTLET-30 IN	2.00	EACH
0750	01453	S & F BOX INLET-OUTLET-36 IN	1.00	EACH
0755	01480	CURB BOX INLET TYPE B	10.00	EACH
0760	01490	DROP BOX INLET TYPE 1	15.00	EACH
0765	01505	DROP BOX INLET TYPE 5B	10.00	EACH
0770	01517	DROP BOX INLET TYPE 5F	22.00	EACH
0775	01544	DROP BOX INLET TYPE 11	2.00	EACH
0780	01642	JUNCTION BOX-18 IN	2.00	EACH
0785	01643	JUNCTION BOX-24 IN	5.00	EACH
0790	01644	JUNCTION BOX-30 IN	2.00	EACH
0795	01645	JUNCTION BOX-36 IN	1.00	EACH
0800	01648	JUNCTION BOX-54 IN	1.00	EACH
0805	01653	JUNCTION BOX-SPECIAL	2.00	EACH
0810	21799EN	BORE AND JACK PIPE-24 IN	68.00	LF
0815	21800EN	BORE AND JACK PIPE-30 IN	101.00	LF
0820	23126EN	BORE AND JACK PIPE-18 IN	151.00	LF
0825	24026EC	PIPE CULVERT HEADWALL-54 IN	2.00	EACH
0830	02231	STRUCTURE GRANULAR BACKFILL	91.00	CUYD
0835	02998	MASONRY COATING	920.00	SQYD
0840	03299	ARMORED EDGE FOR CONCRETE	60.00	LF
0845	08002	STRUCTURE EXCAV-SOLID ROCK	70.00	CUYD
0850	08016	REINF CONC SLOPE WALL-6 IN	160.00	SQYD
0855	08020	CRUSHED AGGREGATE SLOPE PROT	63.00	TON
0860	08046	PILES-STEEL HP12X53	140.00	LF
0865	08094	PILE POINTS-12 IN	4.00	EACH
0870	08100	CONCRETE-CLASS A	98.10	CUYD
0875	08104	CONCRETE-CLASS AA	225.60	CUYD
0880	08150	STEEL REINFORCEMENT	11,346.00	LB
0885	08151	STEEL REINFORCEMENT-EPOXY COATED	59,460.00	LB
0890	08634	PRECAST PC I BEAM TYPE 4	844.70	LF
0895	21532ED	RAIL SYSTEM TYPE III	426.00	LF
0900	02231	STRUCTURE GRANULAR BACKFILL	334.00	CUYD
0905	02998	MASONRY COATING	1,484.00	SQYD
0910	03299	ARMORED EDGE FOR CONCRETE	196.00	LF
0915	08001	STRUCTURE EXCAVATION-COMMON	348.00	CUYD
0920	08002	STRUCTURE EXCAV-SOLID ROCK	240.00	CUYD
0925	08020	CRUSHED AGGREGATE SLOPE PROT	570.00	TON
0930	08039	PRE-DRILLING FOR PILES	480.00	LF
0935	08046	PILES-STEEL HP12X53	552.00	LF
0940	08094	PILE POINTS-12 IN	24.00	EACH
0945	08100	CONCRETE-CLASS A	343.80	CUYD
0950	08104	CONCRETE-CLASS AA	387.40	CUYD
0955	08150	STEEL REINFORCEMENT	50,836.00	LB

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0960	08151	STEEL REINFORCEMENT-EPOXY COATED	131,662.00	LB
0965	08668	PRECAST PC BOX BEAM SB17	1,427.70	LF
0970	21532ED	RAIL SYSTEM TYPE III	584.00	LF
0975	02231	STRUCTURE GRANULAR BACKFILL	433.00	CUYD
0980	02998	MASONRY COATING	1,348.00	SQYD
0985	03299	ARMORED EDGE FOR CONCRETE	183.20	LF
0990	08001	STRUCTURE EXCAVATION-COMMON	608.00	CUYD
0995	08002	STRUCTURE EXCAV-SOLID ROCK	191.00	CUYD
1000	08020	CRUSHED AGGREGATE SLOPE PROT	393.00	TON
1005	08046	PILES-STEEL HP12X53	514.00	LF
1010	08094	PILE POINTS-12 IN	22.00	EACH
1015	08100	CONCRETE-CLASS A	356.30	CUYD
1020	08104	CONCRETE-CLASS AA	500.70	CUYD
1025	08150	STEEL REINFORCEMENT	51,591.00	LB
1030	08151	STEEL REINFORCEMENT-EPOXY COATED	116,084.00	LB
1035	08634	PRECAST PC I BEAM TYPE 4	1,301.00	LF
1040	21532ED	RAIL SYSTEM TYPE III	491.00	LF
1045	02231	STRUCTURE GRANULAR BACKFILL	203.00	CUYD
1050	02998	MASONRY COATING	952.00	SQYD
1055	03299	ARMORED EDGE FOR CONCRETE	118.00	LF
1060	08001	STRUCTURE EXCAVATION-COMMON	491.00	CUYD
1065	08002	STRUCTURE EXCAV-SOLID ROCK	44.00	CUYD
1070	08020	CRUSHED AGGREGATE SLOPE PROT	291.00	TON
1075	08039	PRE-DRILLING FOR PILES	111.00	LF
1080	08046	PILES-STEEL HP12X53	408.00	LF
1085	08094	PILE POINTS-12 IN	18.00	EACH
1090	08100	CONCRETE-CLASS A	223.00	CUYD
1095	08104	CONCRETE-CLASS AA	299.90	CUYD
1100	08150	STEEL REINFORCEMENT	29,439.00	LB
1105	08151	STEEL REINFORCEMENT-EPOXY COATED	78,813.00	LB
1110	08632	PRECAST PC I BEAM TYPE 2	943.20	LF
1115	21532ED	RAIL SYSTEM TYPE III	434.00	LF
1120	02231	STRUCTURE GRANULAR BACKFILL	753.00	CUYD
1125	02998	MASONRY COATING	1,896.00	SQYD
1130	03299	ARMORED EDGE FOR CONCRETE	161.20	LF
1135	08001	STRUCTURE EXCAVATION-COMMON	454.00	CUYD
1140	08002	STRUCTURE EXCAV-SOLID ROCK	58.00	CUYD
1145	08019	CYCLOPEAN STONE RIP RAP	372.00	TON
1150	08020	CRUSHED AGGREGATE SLOPE PROT	581.00	TON
1155	08039	PRE-DRILLING FOR PILES	315.00	LF
1160	08046	PILES-STEEL HP12X53	963.00	LF
1165	08094	PILE POINTS-12 IN	36.00	EACH
1170	08100	CONCRETE-CLASS A	316.40	CUYD
1175	08104	CONCRETE-CLASS AA	574.20	CUYD
1180	08150	STEEL REINFORCEMENT	34,958.00	LB
1185	08151	STEEL REINFORCEMENT-EPOXY COATED	147,610.00	LB
1190	08634	PRECAST PC I BEAM TYPE 4	2,008.10	LF
1195	21532ED	RAIL SYSTEM TYPE III	812.00	LF
1200	02223	GRANULAR EMBANKMENT	45.00	CUYD
1205	02403	REMOVE CONCRETE MASONRY	8.50	CUYD

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1210	08002	STRUCTURE EXCAV-SOLID ROCK	6.00	CUYD
1215	08003	FOUNDATION PREPARATION	1.00	LS
1220	08100	CONCRETE-CLASS A	129.70	CUYD
1225	08150	STEEL REINFORCEMENT	10,149.00	LB
1230	02223	GRANULAR EMBANKMENT	91.00	CUYD
1235	02403	REMOVE CONCRETE MASONRY	44.30	CUYD
1240	08003	FOUNDATION PREPARATION	1.00	LS
1245	08100	CONCRETE-CLASS A	235.40	CUYD
1250	08150	STEEL REINFORCEMENT	29,450.00	LB
1255	02223	GRANULAR EMBANKMENT	19.00	CUYD
1260	08002	STRUCTURE EXCAV-SOLID ROCK	83.00	CUYD
1265	08003	FOUNDATION PREPARATION	1.00	LS
1270	08100	CONCRETE-CLASS A	204.30	CUYD
1275	08150	STEEL REINFORCEMENT	18,185.00	LB
1280	06400	GMSS GALV STEEL TYPE A	3,714.00	LB
1285	06405	SBM ALUMINUM PANEL SIGNS	1,202.00	SQFT
1290	06406	SBM ALUM SHEET SIGNS .080 IN	115.00	SQFT
1295	06407	SBM ALUM SHEET SIGNS .125 IN	664.00	SQFT
1300	06410	STEEL POST TYPE 1	2,133.00	LF
1305	06412	STEEL POST MILE MARKERS	6.00	EACH
1310	06441	GMSS GALV STEEL TYPE C	4,593.00	LB
1315	06451	REMOVE SIGN SUPPORT BEAM	6.00	EACH
1320	06490	CLASS A CONCRETE FOR SIGNS	25.00	CUYD
1325	06491	STEEL REINFORCEMENT FOR SIGNS	1,038.00	LB
1330	20419ND	ROADWAY CROSS SECTION	10.00	EACH
1335	21373ND	REMOVE SIGN	3.00	EACH
1340	21596ND	GMSS TYPE D	4.00	EACH
1345	24631EC	BARCODE SIGN INVENTORY	91.00	EACH
1350	14004	W DIRECTIONAL BORE - (12 IN HDPE CASING PIPE)	600.00	LF
1355	14004	W DIRECTIONAL BORE - (CREEK CROSSING)	240.00	LF
1360	14008	W ENCASEMENT STEEL BORED RANGE 3 - (10 IN CASING PIPE)	50.00	LF
1365	14019	W FIRE HYDRANT ASSEMBLY - (3 NOZZLE BLOWOFF)	2.00	EACH
1370	14059	W PIPE PVC 06 INCH - (SDR - 17)	1,395.00	LF
1375	14069	W PIPE POLYETHYLENE/PLASTIC 06 INCH - (HDPE DR-9)	620.00	LF
1380	14101	W TIE-IN SPECIAL - (CONNECTION TO EXISTING WATER LINE - ALL SIZES AND TYPES)	4.00	EACH
1385	02568	MOBILIZATION	1.00	LS
1390	02569	DEMOBILIZATION	1.00	LS
1395	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR
1400	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR
1405	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR
1410	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR

MATERIAL SUMMARY

MOUNTAIN PARKWAY (KY 9009) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.45 MILES WEST OF KY-205 TO CR-1226 PARKWAY ROAD TUNNEL GRADE, DRAIN & SURFACE WITH BRIDGE.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00003	CRUSHED STONE BASE	28,889.00	TON
0010	00078	CRUSHED AGGREGATE SIZE NO 2	125.00	TON
0015	00100	ASPHALT SEAL AGGREGATE	352.80	TON
0020	00103	ASPHALT SEAL COAT	42.30	TON
0025	00190	LEVELING & WEDGING PG64-22	5,478.00	TON
0030	00212	CL2 ASPH BASE 1.00D PG64-22	4,427.00	TON
0035	00214	CL3 ASPH BASE 1.00D PG64-22	18,688.00	TON
0040	00307	CL2 ASPH SURF 0.38B PG64-22	1,652.00	TON
0045	00388	CL3 ASPH SURF 0.38B PG64-22	3,457.00	TON
0050	02676	MOBILIZATION FOR MILL & TEXT - (MORGAN 10-126.70)	1.00	LS
0055	02677	ASPHALT PAVE MILLING & TEXTURING	596.00	TON
0060	01002	PERFORATED PIPE-8 IN	250.00	LF
0065	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	76.00	EACH
0070	01983	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	5.00	EACH
0075	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	18.00	EACH
0080	02159	TEMP DITCH	5,719.00	LF
0085	02160	CLEAN TEMP DITCH	2,860.00	LF
0090	02200	ROADWAY EXCAVATION	593,249.00	CUYD
0095	02242	WATER - (FOR DUST CONTROL)	2,166.00	MGAL
0100	02262	FENCE-WOVEN WIRE TYPE 1	16,259.00	LF
0105	02265	REMOVE FENCE	8,060.00	LF
0110	02351	GUARDRAIL-STEEL W BEAM-S FACE	5,050.00	LF
0115	02360	GUARDRAIL TERMINAL SECTION NO 1	1.00	EACH
0120	02371	GUARDRAIL END TREATMENT TYPE 7	8.00	EACH
0125	02381	REMOVE GUARDRAIL	4,929.50	LF
0130	02399	EXTRA LENGTH GUARDRAIL POST	688.00	EACH
0135	02429	RIGHT-OF-WAY MONUMENT TYPE 1	18.00	EACH
0140	02432	WITNESS POST	3.00	EACH
0145	02475	PLUG WATER WELL	1.00	EACH
0150	02488	CHANNEL LINING CLASS IV	1,857.00	CUYD
0155	02545	CLEARING AND GRUBBING - (APPROXIMATELY 68 ACRES, MORGAN 126.70)	1.00	LS
0160	02585	EDGE KEY	18.00	LF
0165	02599	FABRIC-GEOTEXTILE TYPE IV	104,538.00	SQYD
0170	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	4,635.00	SQYD
0175	02610	RETAINING WALL-GABION	49.00	CUYD
0180	02690	SAFELOADING	24.80	CUYD
0185	02696	SHOULDER RUMBLE STRIPS-SAWED	34,268.00	LF
0190	02701	TEMP SILT FENCE	5,719.00	LF
0195	02703	SILT TRAP TYPE A	71.00	EACH
0200	02704	SILT TRAP TYPE B	71.00	EACH
0205	02705	SILT TRAP TYPE C	71.00	EACH
0210	02706	CLEAN SILT TRAP TYPE A	71.00	EACH
0215	02707	CLEAN SILT TRAP TYPE B	71.00	EACH
0220	02708	CLEAN SILT TRAP TYPE C	71.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0225	02726	STAKING - (MORGAN 126.70)	1.00	LS
0230	02731	REMOVE STRUCTURE - PARCEL 26(WELL HOUSE)	1.00	LS
0235	05950	EROSION CONTROL BLANKET	20,332.00	SQYD
0240	05952	TEMP MULCH	224,364.00	SQYD
0245	05953	TEMP SEEDING AND PROTECTION	168,274.00	SQYD
0250	05963	INITIAL FERTILIZER	5.80	TON
0255	05964	20-10-10 FERTILIZER	9.70	TON
0260	05985	SEEDING AND PROTECTION	241,904.00	SQYD
0265	05992	AGRICULTURAL LIMESTONE	116.90	TON
0270	08100	CONCRETE-CLASS A	50.00	CUYD
0275	10020NS	FUEL ADJUSTMENT	165,453.00	DOLL
0280	10030NS	ASPHALT ADJUSTMENT	131,761.00	DOLL
0285	20667ED	PNEUMATIC BACKSTOWING	120.00	TON
0290	21289ED	LONGITUDINAL EDGE KEY	1,978.00	LF
0295	24814EC	PIPELINE INSPECTION	1,843.00	LF
0300	00078	CRUSHED AGGREGATE SIZE NO 2	30.00	TON
0305	00441	ENTRANCE PIPE-18 IN	35.00	LF
0310	00468	CULVERT PIPE-36 IN	633.00	LF
0315	00470	CULVERT PIPE-48 IN	87.00	LF
0320	00522	STORM SEWER PIPE-18 IN	467.00	LF
0325	00524	STORM SEWER PIPE-24 IN	167.00	LF
0330	00526	STORM SEWER PIPE-30 IN	547.00	LF
0335	01000	PERFORATED PIPE-4 IN	2,663.00	LF
0340	01010	NON-PERFORATED PIPE-4 IN	575.00	LF
0345	01020	PERF PIPE HEADWALL TY 1-4 IN	7.00	EACH
0350	01028	PERF PIPE HEADWALL TY 3-4 IN	1.00	EACH
0355	01032	PERF PIPE HEADWALL TY 4-4 IN	22.00	EACH
0360	01204	PIPE CULVERT HEADWALL-18 IN	5.00	EACH
0365	01208	PIPE CULVERT HEADWALL-24 IN	2.00	EACH
0370	01210	PIPE CULVERT HEADWALL-30 IN	3.00	EACH
0375	01212	PIPE CULVERT HEADWALL-36 IN	9.00	EACH
0380	01216	PIPE CULVERT HEADWALL-48 IN	2.00	EACH
0385	01450	S & F BOX INLET-OUTLET-18 IN	3.00	EACH
0390	01490	DROP BOX INLET TYPE 1	2.00	EACH
0395	01493	DROP BOX INLET TYPE 2	4.00	EACH
0400	01505	DROP BOX INLET TYPE 5B	6.00	EACH
0405	01506	DROP BOX INLET TYPE 5B MOD	1.00	EACH
0410	02562	TEMPORARY SIGNS	178.00	SQFT
0415	02650	MAINTAIN & CONTROL TRAFFIC - (MORGAN 126.70)	1.00	LS
0420	02655	CROSSOVER - (TEMP ALTERNATE EAST END TIE-IN, MORGAN 126.70)	1.00	LS
0425	02671	PORTABLE CHANGEABLE MESSAGE SIGN	1.00	EACH
0430	03171	CONCRETE BARRIER WALL TYPE 9T	6,160.00	LF
0435	06511	PAVE STRIPING-TEMP PAINT-6 IN	37,056.00	LF
0440	08901	CRASH CUSHION TY VI CLASS BT TL2	6.00	EACH
0445	02223	GRANULAR EMBANKMENT	149.00	CUYD
0450	02403	REMOVE CONCRETE MASONRY	3.00	CUYD
0455	08002	STRUCTURE EXCAV-SOLID ROCK	6.00	CUYD
0460	08003	FOUNDATION PREPARATION - MORGAN	1.00	LS
0465	08100	CONCRETE-CLASS A	207.00	CUYD

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0470	08150	STEEL REINFORCEMENT	12,349.00	LB
0475	06401	FLEXIBLE DELINEATOR POST-M/W	133.00	EACH
0480	06405	SBM ALUMINUM PANEL SIGNS	460.00	SQFT
0485	06407	SBM ALUM SHEET SIGNS .125 IN	80.00	SQFT
0490	06410	STEEL POST TYPE 1	112.00	LF
0495	06412	STEEL POST MILE MARKERS	4.00	EACH
0500	06441	GMSS GALV STEEL TYPE C	3,065.70	LB
0505	06490	CLASS A CONCRETE FOR SIGNS	10.19	CUYD
0510	06491	STEEL REINFORCEMENT FOR SIGNS	440.00	LB
0515	06515	PAVE STRIPING-PERM PAINT-6 IN	36,526.00	LF
0520	21596ND	GMSS TYPE D	8.00	EACH
0525	24489EC	INLAID PAVEMENT MARKER	204.00	EACH
0530	24631EC	BARCODE SIGN INVENTORY	12.00	EACH
0535	30012	MILE MARKER	4.00	EACH
0540	14003	W CAP EXISTING MAIN - 3 IN CUT AND CAP	1.00	EACH
0545	14004	W DIRECTIONAL BORE - 8 IN HDPE CASING PIPE	325.00	LF
0550	14004	W DIRECTIONAL BORE - CREEK CROSSING	40.00	LF
0555	14008	W ENCASEMENT STEEL BORED RANGE 3 - 10 IN STEEL	95.00	LF
0560	14013	W ENCASEMENT STEEL OPEN CUT RANGE 2 - 8 IN STEEL	310.00	LF
0565	14014	W ENCASEMENT STEEL OPEN CUT RANGE 3 - 10 IN STEEL	20.00	LF
0570	14019	W FIRE HYDRANT ASSEMBLY - 3 INCH NOZZLE BLOWOFF	1.00	EACH
0575	14023	W FLUSHING ASSEMBLY - 3 INCH BLOWOFF	1.00	EACH
0580	14028	W METER 3/4 INCH	1.00	EACH
0585	14029	W METER ADJUST - RECONNECT TO EXIST SERVICE	2.00	EACH
0590	14036	W PIPE DUCTILE IRON 06 INCH	400.00	LF
0595	14057	W PIPE PVC 03 INCH - SDR - 17	2,930.00	LF
0600	14059	W PIPE PVC 06 INCH - SDR - 17	2,640.00	LF
0605	14067	W PIPE POLYETHYLENE/PLASTIC 03 INCH - HDPE DR 9	440.00	LF
0610	14101	W TIE-IN SPECIAL - VARIOUS TYPES	3.00	EACH
0615	14131	W METER SPECIAL - (SALVAGE)	1.00	EACH
0620	14571	W SERV PE/PLST SHORT SIDE 3/4 IN INST - (APPROXIMATELY 150 LF)	1.00	EACH
0625	21233ED	ASPHALT PAVING REPLACEMENT - 140 LF	140.00	LF
0630	24441EC	GRAVEL REPLACEMENT DRIVEWAYS - 40 LF	40.00	LF
0635	02568	MOBILIZATION	1.00	LS
0640	02569	DEMOBILIZATION	1.00	LS
0645	02742	TRAINEE PAYMENT REIMBURSEMENT - 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR

MOUNTAIN PARKWAY (KY 9009) MOUNTAIN PARKWAY CORRIDOR: WIDEN THE MOUNTAIN PARKWAY TO 4 LANES FROM 0.45 MILES WEST OF KY-205 TO CR-1226 PARKWAY ROAD TUNNEL GRADE, DRAIN & SURFACE WITH BRIDGE.

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00003	CRUSHED STONE BASE	47,261.00	TON
0010	00078	CRUSHED AGGREGATE SIZE NO 2	125.00	TON
0015	00100	ASPHALT SEAL AGGREGATE	371.30	TON
0020	00103	ASPHALT SEAL COAT	44.50	TON
0025	00190	LEVELING & WEDGING PG64-22	2,274.00	TON
0030	00212	CL2 ASPH BASE 1.00D PG64-22	3,982.00	TON
0035	00214	CL3 ASPH BASE 1.00D PG64-22	30,124.00	TON
0040	00307	CL2 ASPH SURF 0.38B PG64-22	1,488.00	TON
0045	00388	CL3 ASPH SURF 0.38B PG64-22	4,556.00	TON
0050	02676	MOBILIZATION FOR MILL & TEXT - (WOLFE 10-126.70)	1.00	LS
0055	02677	ASPHALT PAVE MILLING & TEXTURING	1,079.00	TON
0060	01002	PERFORATED PIPE-8 IN	250.00	LF
0065	01825	ISLAND CURB AND GUTTER	757.00	LF
0070	01982	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	221.00	EACH
0075	01983	DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	77.00	EACH
0080	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	18.00	EACH
0085	02091	REMOVE PAVEMENT	4,459.00	SQYD
0090	02159	TEMP DITCH	8,980.00	LF
0095	02160	CLEAN TEMP DITCH	4,494.00	LF
0100	02200	ROADWAY EXCAVATION	496,102.00	CUYD
0105	02242	WATER - (FOR DUST CONTROL)	3,402.00	MGAL
0110	02262	FENCE-WOVEN WIRE TYPE 1	12,673.00	LF
0115	02265	REMOVE FENCE	1,395.00	LF
0120	02351	GUARDRAIL-STEEL W BEAM-S FACE	12,314.30	LF
0125	02352	GUARDRAIL-STEEL W BEAM-D FACE	575.00	LF
0130	02360	GUARDRAIL TERMINAL SECTION NO 1	15.00	EACH
0135	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	16.00	EACH
0140	02367	GUARDRAIL END TREATMENT TYPE 1	9.00	EACH
0145	02373	GUARDRAIL END TREATMENT TYPE 3	1.00	EACH
0150	02381	REMOVE GUARDRAIL	11,537.00	LF
0155	02387	GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	8.00	EACH
0160	02391	GUARDRAIL END TREATMENT TYPE 4A	2.00	EACH
0165	02429	RIGHT-OF-WAY MONUMENT TYPE 1	28.00	EACH
0170	02432	WITNESS POST	3.00	EACH
0175	02488	CHANNEL LINING CLASS IV	10,918.00	CUYD
0180	02545	CLEARING AND GRUBBING - (APPROXIMATELY 86 ACRES, WOLFE 10-126.70)	1.00	LS
0185	02585	EDGE KEY	22.00	LF
0190	02596	FABRIC-GEOTEXTILE TYPE I	11,205.00	SQYD
0195	02599	FABRIC-GEOTEXTILE TYPE IV	118,171.00	SQYD
0200	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	4,945.00	SQYD
0205	02690	SAFELOADING	92.50	CUYD
0210	02696	SHOULDER RUMBLE STRIPS-SAWED	37,180.00	LF
0215	02701	TEMP SILT FENCE	8,980.00	LF
0220	02703	SILT TRAP TYPE A	86.00	EACH
0225	02704	SILT TRAP TYPE B	86.00	EACH
0230	02705	SILT TRAP TYPE C	86.00	EACH
0235	02706	CLEAN SILT TRAP TYPE A	86.00	EACH
0240	02707	CLEAN SILT TRAP TYPE B	86.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0245	02708	CLEAN SILT TRAP TYPE C	86.00	EACH
0250	02726	STAKING - (WOLFE 10-126.70)	1.00	LS
0255	02731	REMOVE STRUCTURE - (KY 205 BRIDGE OVER STATE ROAD FORK, WOLFE 10-126.70)	1.00	LS
0260	02731	REMOVE STRUCTURE - (MT PKWY BRIDGE OVER KY 205, WOLFE 10-126.70)	1.00	LS
0265	02731	REMOVE STRUCTURE - (MT PKWY BRIDGE OVER RED RIVER, WOLFE 10-126.70)	1.00	LS
0270	02929	CRASH CUSHION TYPE IX	2.00	EACH
0275	05950	EROSION CONTROL BLANKET	31,929.00	SQYD
0280	05952	TEMP MULCH	274,373.00	SQYD
0285	05953	TEMP SEEDING AND PROTECTION	205,781.00	SQYD
0290	05963	INITIAL FERTILIZER	7.40	TON
0295	05964	20-10-10 FERTILIZER	12.30	TON
0300	05985	SEEDING AND PROTECTION	291,723.00	SQYD
0305	05992	AGRICULTURAL LIMESTONE	14.30	TON
0310	08100	CONCRETE-CLASS A	50.00	CUYD
0315	10020NS	FUEL ADJUSTMENT	168,865.00	DOLL
0320	10030NS	ASPHALT ADJUSTMENT	165,931.00	DOLL
0325	21289ED	LONGITUDINAL EDGE KEY	686.00	LF
0330	23274EN11F	TURF REINFORCEMENT MAT 1	832.00	SQYD
0335	24814EC	PIPELINE INSPECTION	2,190.00	LF
0340	00001	DGA BASE - (6-IN)	3,699.00	TON
0345	00212	CL2 ASPH BASE 1.00D PG64-22 - (3-IN)	1,728.00	TON
0350	00307	CL2 ASPH SURF 0.38B PG64-22 - (1.25-IN)	704.00	TON
0355	02003	RELOCATE TEMP CONC BARRIER	1,900.00	LF
0360	02014	BARRICADE-TYPE III	6.00	EACH
0365	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	2.00	EACH
0370	02381	REMOVE GUARDRAIL	2,475.50	LF
0375	02391	GUARDRAIL END TREATMENT TYPE 4A	5.00	EACH
0380	02396	REMOVE GUARDRAIL END TREATMENT	3.00	EACH
0385	02397	TEMP GUARDRAIL	2,475.50	LF
0390	02562	TEMPORARY SIGNS	734.00	SQFT
0395	02650	MAINTAIN & CONTROL TRAFFIC - WOLFE	1.00	LS
0400	02651	DIVERSIONS (BY-PASS DETOURS) - (KY-205, WOLFE 10-126.70)	1.00	LS
0405	02651	DIVERSIONS (BY-PASS DETOURS) - (PHASE I, WOLFE 10-126.70)	1.00	LS
0410	02651	DIVERSIONS (BY-PASS DETOURS) - (PHASE III KY-205, WOLFE 10-126.70)	1.00	LS
0415	02651	DIVERSIONS (BY-PASS DETOURS) - (PHASE III, WOLFE 10-126.70)	1.00	LS
0420	02651	DIVERSIONS (BY-PASS DETOURS) - (TEMP RAMP B, WOLFE 10-126.70)	1.00	LS
0425	02655	CROSSOVER - (PHASE II, WOLFE 10-126.70)	1.00	LS
0430	02655	CROSSOVER - (PHASE III, WOLFE 10-126.70)	1.00	LS
0435	02655	CROSSOVER - (PHASE IV, WOLFE 10-126.70)	1.00	LS
0440	02655	CROSSOVER - (TEMP RAMP C, WOLFE 10-126.70)	1.00	LS
0445	02671	PORTABLE CHANGEABLE MESSAGE SIGN	1.00	EACH
0450	02898	RELOCATE CRASH CUSHION	2.00	EACH
0455	03171	CONCRETE BARRIER WALL TYPE 9T	560.00	LF
0460	04934	TEMP SIGNAL MULTI PHASE	1.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0465	06510	PAVE STRIPING-TEMP PAINT-4 IN	20,702.00	LF
0470	06511	PAVE STRIPING-TEMP PAINT-6 IN	77,304.00	LF
0475	06513	PAVE STRIPING-TEMP PAINT-12 IN	163.00	LF
0480	06531	PAVE STRIPING REMOVAL-6 IN	9,769.00	LF
0485	06533	PAVE STRIPING REMOVAL-12 IN	163.00	LF
0490	06586	PAVEMENT MARKER TY IVA-MY TEMP	134.00	EACH
0495	06588	PAVEMENT MARKER TY IVA-BY TEMP	452.00	EACH
0500	08901	CRASH CUSHION TY VI CLASS BT TL2	1.00	EACH
0505	08907	CRASH CUSHION TY VII CLASS B TL3	1.00	EACH
0510	20418ED	REMOVE & RELOCATE SIGNS	5.00	EACH
0515	20454NS835	TEMPORARY LIGHTING - (WOLFE 10-126.70)	1.00	LS
0520	23274EN11F	TURF REINFORCEMENT MAT 1	1,399.00	SQYD
0525	00078	CRUSHED AGGREGATE SIZE NO 2	35.00	TON
0530	00443	ENTRANCE PIPE-24 IN	214.00	LF
0535	00445	ENTRANCE PIPE-30 IN	30.00	LF
0540	00464	CULVERT PIPE-24 IN	115.00	LF
0545	00465	CULVERT PIPE-27 IN	129.00	LF
0550	00468	CULVERT PIPE-36 IN	273.00	LF
0555	00469	CULVERT PIPE-42 IN	53.00	LF
0560	00471	CULVERT PIPE-54 IN	101.00	LF
0565	00522	STORM SEWER PIPE-18 IN	1,347.00	LF
0570	00524	STORM SEWER PIPE-24 IN	572.00	LF
0575	01000	PERFORATED PIPE-4 IN	5,723.00	LF
0580	01010	NON-PERFORATED PIPE-4 IN	580.00	LF
0585	01020	PERF PIPE HEADWALL TY 1-4 IN	15.00	EACH
0590	01024	PERF PIPE HEADWALL TY 2-4 IN	2.00	EACH
0595	01028	PERF PIPE HEADWALL TY 3-4 IN	6.00	EACH
0600	01032	PERF PIPE HEADWALL TY 4-4 IN	12.00	EACH
0605	01204	PIPE CULVERT HEADWALL-18 IN	9.00	EACH
0610	01208	PIPE CULVERT HEADWALL-24 IN	5.00	EACH
0615	01210	PIPE CULVERT HEADWALL-30 IN	1.00	EACH
0620	01214	PIPE CULVERT HEADWALL-42 IN	1.00	EACH
0625	01223	PIPE CULVERT HEADWALL-27 IN	2.00	EACH
0630	01453	S & F BOX INLET-OUTLET-36 IN	2.00	EACH
0635	01480	CURB BOX INLET TYPE B	9.00	EACH
0640	01490	DROP BOX INLET TYPE 1	7.00	EACH
0645	01493	DROP BOX INLET TYPE 2	1.00	EACH
0650	01505	DROP BOX INLET TYPE 5B	4.00	EACH
0655	01506	DROP BOX INLET TYPE 5B MOD	1.00	EACH
0660	01538	DROP BOX INLET TYPE 7	1.00	EACH
0665	01541	DROP BOX INLET TYPE 10	1.00	EACH
0670	01642	JUNCTION BOX-18 IN	3.00	EACH
0675	01767	MANHOLE TYPE C	1.00	EACH
0680	24026EC	PIPE CULVERT HEADWALL-54 IN	2.00	EACH
0685	02231	STRUCTURE GRANULAR BACKFILL	482.00	CUYD
0690	02998	MASONRY COATING	3,293.00	SQYD
0695	03299	ARMORED EDGE FOR CONCRETE	164.00	LF
0700	08001	STRUCTURE EXCAVATION-COMMON	402.00	CUYD
0705	08020	CRUSHED AGGREGATE SLOPE PROT	504.00	TON
0710	08033	TEST PILES	418.00	LF

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0715	08046	PILES-STEEL HP12X53	4,137.00	LF
0720	08094	PILE POINTS-12 IN	136.00	EACH
0725	08100	CONCRETE-CLASS A	639.50	CUYD
0730	08104	CONCRETE-CLASS AA	819.70	CUYD
0735	08150	STEEL REINFORCEMENT	98,090.00	LB
0740	08151	STEEL REINFORCEMENT-EPOXY COATED	196,855.00	LB
0745	21532ED	RAIL SYSTEM TYPE III	973.00	LF
0750	24098EC	PPC I-BEAM TYPE HN 66-49	2,393.50	LF
0755	02231	STRUCTURE GRANULAR BACKFILL	662.00	CUYD
0760	02998	MASONRY COATING	4,195.00	SQYD
0765	03299	ARMORED EDGE FOR CONCRETE	213.00	LF
0770	08001	STRUCTURE EXCAVATION-COMMON	131.00	CUYD
0775	08019	CYCLOPEAN STONE RIP RAP	2,358.00	TON
0780	08033	TEST PILES	184.00	LF
0785	08039	PRE-DRILLING FOR PILES	67.00	LF
0790	08046	PILES-STEEL HP12X53	780.00	LF
0795	08094	PILE POINTS-12 IN	28.00	EACH
0800	08100	CONCRETE-CLASS A	678.50	CUYD
0805	08104	CONCRETE-CLASS AA	1,110.00	CUYD
0810	08150	STEEL REINFORCEMENT	93,448.00	LB
0815	08151	STEEL REINFORCEMENT-EPOXY COATED	330,263.00	LB
0820	20745ED	ROCK SOUNDINGS	248.00	LF
0825	20746ED	ROCK CORINGS	276.00	LF
0830	21420ED	DRILLED SHAFT-66 IN (COMMON)	248.00	LF
0835	21421ED	DRILLED SHAFT-60 IN (SOLID ROCK)	96.00	LF
0840	21532ED	RAIL SYSTEM TYPE III	1,238.00	LF
0845	24098EC	PPC I-BEAM TYPE HN 66-49	3,033.80	LF
0850	02231	STRUCTURE GRANULAR BACKFILL	140.00	CUYD
0855	02998	MASONRY COATING	1,030.00	SQYD
0860	03299	ARMORED EDGE FOR CONCRETE	58.00	LF
0865	08001	STRUCTURE EXCAVATION-COMMON	150.00	CUYD
0870	08002	STRUCTURE EXCAV-SOLID ROCK	4.00	CUYD
0875	08019	CYCLOPEAN STONE RIP RAP	1,005.00	TON
0880	08033	TEST PILES	75.00	LF
0885	08039	PRE-DRILLING FOR PILES	60.00	LF
0890	08046	PILES-STEEL HP12X53	228.00	LF
0895	08094	PILE POINTS-12 IN	12.00	EACH
0900	08100	CONCRETE-CLASS A	134.20	CUYD
0905	08104	CONCRETE-CLASS AA	249.90	CUYD
0910	08150	STEEL REINFORCEMENT	17,979.00	LB
0915	08151	STEEL REINFORCEMENT-EPOXY COATED	57,338.00	LB
0920	08634	PRECAST PC I BEAM TYPE 4	922.50	LF
0925	20745ED	ROCK SOUNDINGS	87.00	LF
0930	20746ED	ROCK CORINGS	92.00	LF
0935	21420ED	DRILLED SHAFT-66 IN (COMMON)	87.00	LF
0940	21421ED	DRILLED SHAFT-60 IN (SOLID ROCK)	32.00	LF
0945	21532ED	RAIL SYSTEM TYPE III	470.00	LF
0950	02231	STRUCTURE GRANULAR BACKFILL	146.00	CUYD
0955	02998	MASONRY COATING	783.00	SQYD
0960	03299	ARMORED EDGE FOR CONCRETE	61.00	LF

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0965	08001	STRUCTURE EXCAVATION-COMMON	214.00	CUYD
0970	08019	CYCLOPEAN STONE RIP RAP	1,438.00	TON
0975	08033	TEST PILES	89.00	LF
0980	08046	PILES-STEEL HP12X53	293.00	LF
0985	08094	PILE POINTS-12 IN	12.00	EACH
0990	08100	CONCRETE-CLASS A	133.60	CUYD
0995	08104	CONCRETE-CLASS AA	197.30	CUYD
1000	08150	STEEL REINFORCEMENT	14,904.00	LB
1005	08151	STEEL REINFORCEMENT-EPOXY COATED	48,351.00	LB
1010	08634	PRECAST PC I BEAM TYPE 4	642.50	LF
1015	20745ED	ROCK SOUNDINGS	75.00	LF
1020	20746ED	ROCK CORINGS	92.00	LF
1025	21420ED	DRILLED SHAFT-66 IN (COMMON)	75.00	LF
1030	21421ED	DRILLED SHAFT-60 IN (SOLID ROCK)	32.00	LF
1035	21532ED	RAIL SYSTEM TYPE III	331.00	LF
1040	23813EC	DECK DRAIN	5.00	EACH
1045	02231	STRUCTURE GRANULAR BACKFILL	277.00	CUYD
1050	02998	MASONRY COATING	417.00	SQYD
1055	03299	ARMORED EDGE FOR CONCRETE	111.00	LF
1060	08019	CYCLOPEAN STONE RIP RAP	849.00	TON
1065	08033	TEST PILES	93.00	LF
1070	08046	PILES-STEEL HP12X53	535.00	LF
1075	08094	PILE POINTS-12 IN	18.00	EACH
1080	08100	CONCRETE-CLASS A	69.10	CUYD
1085	08104	CONCRETE-CLASS AA	215.00	CUYD
1090	08151	STEEL REINFORCEMENT-EPOXY COATED	42,336.00	LB
1095	08633	PRECAST PC I BEAM TYPE 3	1,026.50	LF
1100	21532ED	RAIL SYSTEM TYPE III	211.00	LF
1105	02223	GRANULAR EMBANKMENT	302.00	CUYD
1110	02403	REMOVE CONCRETE MASONRY	28.00	CUYD
1115	08003	FOUNDATION PREPARATION	1.00	LS
1120	08100	CONCRETE-CLASS A	398.00	CUYD
1125	08150	STEEL REINFORCEMENT	45,590.00	LB
1130	02403	REMOVE CONCRETE MASONRY	6.00	CUYD
1135	08002	STRUCTURE EXCAV-SOLID ROCK	9.00	CUYD
1140	08003	FOUNDATION PREPARATION	1.00	LS
1145	08100	CONCRETE-CLASS A	47.70	CUYD
1150	08150	STEEL REINFORCEMENT	3,228.00	LB
1155	14001	W AIR RELEASE VALVE 3/4 INCH	2.00	EACH
1160	14003	W CAP EXISTING MAIN	7.00	EACH
1165	14004	W DIRECTIONAL BORE	240.00	LF
1170	14008	W ENCASEMENT STEEL BORED RANGE 3	889.00	LF
1175	14014	W ENCASEMENT STEEL OPEN CUT RANGE 3	40.00	LF
1180	14014	W ENCASEMENT STEEL OPEN CUT RANGE 3	20.00	LF
1185	14022	W FLUSH HYDRANT ASSEMBLY	3.00	EACH
1190	14028	W METER 3/4 INCH	2.00	EACH
1195	14030	W METER RELOCATE	2.00	EACH
1200	14057	W PIPE PVC 03 INCH	912.00	LF
1205	14059	W PIPE PVC 06 INCH	5,348.00	LF
1210	14092	W TIE-IN 03 INCH	1.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
1215	14094	W TIE-IN 06 INCH	6.00	EACH
1220	14103	W VALVE 03 INCH	1.00	EACH
1225	14105	W VALVE 06 INCH	11.00	EACH
1230	14144	W LINE MARKER	6.00	EACH
1235	06401	FLEXIBLE DELINEATOR POST-M/W	74.00	EACH
1240	06403	FLEXIBLE DELINEATOR POST-B/W	74.00	EACH
1245	06404	FLEXIBLE DELINEATOR POST-M/Y	87.00	EACH
1250	06405	SBM ALUMINUM PANEL SIGNS	476.50	SQFT
1255	06407	SBM ALUM SHEET SIGNS .125 IN	536.10	SQFT
1260	06410	STEEL POST TYPE 1	980.00	LF
1265	06412	STEEL POST MILE MARKERS	2.00	EACH
1270	06441	GMSS GALV STEEL TYPE C	3,022.80	LB
1275	06490	CLASS A CONCRETE FOR SIGNS	19.59	CUYD
1280	06491	STEEL REINFORCEMENT FOR SIGNS	440.00	LB
1285	06514	PAVE STRIPING-PERM PAINT-4 IN	12,720.00	LF
1290	06515	PAVE STRIPING-PERM PAINT-6 IN	43,096.00	LF
1295	06517	PAVE STRIPING-PERM PAINT-12 IN	2,258.00	LF
1300	06574	PAVE MARKING-THERMO CURV ARROW	8.00	EACH
1305	20205EC	PAVE MARK STOP BAR-24 IN PAINT	60.00	LF
1310	20418ED	REMOVE & RELOCATE SIGNS	4.00	EACH
1315	21596ND	GMSS TYPE D	49.00	EACH
1320	24489EC	INLAID PAVEMENT MARKER	525.00	EACH
1325	24631EC	BARCODE SIGN INVENTORY	81.00	EACH
1330	30012	MILE MARKER	2.00	EACH
1335	04701	POLE 40 FT MTG HT	11.00	EACH
1340	04724	BRACKET 12 FT	11.00	EACH
1345	04740	POLE BASE	11.00	EACH
1350	04750	TRANSFORMER BASE	11.00	EACH
1355	04761	LIGHTING CONTROL EQUIPMENT	1.00	EACH
1360	04780	FUSED CONNECTOR KIT	22.00	EACH
1365	04797	CONDUIT-3 IN	745.00	LF
1370	04820	TRENCHING AND BACKFILLING	1,965.00	LF
1375	04832	WIRE-NO. 12	1,320.00	LF
1380	04860	CABLE-NO. 8/3C DUCTED	1,965.00	LF
1385	20391NS835	ELECTRICAL JUNCTION BOX TYPE A	14.00	EACH
1390	24589ED	LED LUMINAIRE	11.00	EACH
1395	02568	MOBILIZATION	1.00	LS
1400	02569	DEMOBILIZATION	1.00	LS

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 to the Standard Specifications for Road and Bridge Construction, 2012 Edition Effective with the April 29, 2016 Letting

Subsection: **Revision:**	101.03 DEFINITIONS Add the following Definitions to this section: **Superpave Mix Design Technologist (SMDT)** - An inspector qualified by the KYTC to submit, adjust, or approve asphalt mix designs. **Superpave Plant Technologist (SPT)** - An inspector qualified by the KYTC to perform routine inspection and process control, acceptance, or verification testing on asphalt mixtures.
Subsection: **Revision:**	102.15 Process Agent. Replace the 1st paragraph with the following: Every corporation doing business with the Department shall submit evidence of compliance with KRS Sections 14A.4-010, 271B.11-010, 271B.11-070, 271B.11-080, 271B.5-010 and 271B.16-220, and file with the Department the name and address of the process agent upon whom process may be served.
Subsection: **Revision:**	105.13 Claims Resolution Process. Delete all references to TC 63-34 and TC 63-44 from the subsection as these forms are no longer available through the forms library and are forms generated within the AASHTO SiteManager software.
Subsection: **Revision:**	108.01 Subcontracting of Contract. Replace the section with the following: Do not subcontract, sell, transfer, assign, or otherwise dispose of the Contract or any portion of the Contract or Contracts, or of the right, title, or interest therein, without the Engineer's written consent. If the Contractor chooses to subcontract any portion of the Contract, a written request to sublet work must be submitted on the Subcontract Request (TC 63-35) form for the Engineer's approval. When directed by the Engineer, submit a certified copy of the actual subcontract agreement executed between the parties. The Engineer will allow the Contractor to subcontract a portion, but the Contractor must perform with his own organization work amounting to no less than 30 percent of the total Contract cost. The Engineer will not allow any subcontractor to exceed the percentage to be performed by the Contractor and will require the Contractor to maintain a supervisory role over the entire project. Do not allow any subcontractor to further subcontract any portion of the work without obtaining written consent from the Engineer. When the Engineer gives such consent, the first tier subcontractor may further subcontract a portion of his work not to exceed 50 percent of the work originally subcontracted to him by the Contractor. Do not allow any second tier subcontractor to subcontract any portion of the work. Extra work performed by subcontractors in accordance with Section 109 will not be utilized in the computation of total dollar amount subcontracted. Subcontract percentages are based upon the original contract amount. Payment to subcontractors for satisfactory performance of their work or materials supplied must be made within 7 calendar days from receipt of payment from the Engineer. Upon request by the Engineer, provide proof that payment has been made to the subcontractor within the 7 calendar days. Progress payments may be withheld for failure to comply with this request

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

	The Engineer's written consent to subcontract, assign, or otherwise dispose of any portion of the Contract does not, under any circumstances, relieve the Contractor or the surety of their respective liabilities and obligations under the Contract. The Engineer will make transactions only with the Contractor. The Engineer will recognize subcontractors only in the similar capacity of employees or workers of the Contractor who are subject to the same requirements as to character and competence as specified in Subsection 108.06. Lease agreements are acceptable on Department projects. No additional paperwork is needed when equipment is rented from a commercial rental company unless the leased equipment comes with an operator. In these circumstances, payroll records for the operator of the leased equipment must be maintained and submitted by the contractor in accordance with Department policy. Lease agreements between contractors that involve equipment only will require the submittal of a TC 63-71 Department Equipment Rental Form. If a Contractor is found to be in violation of these requirements, the Engineer reserves the right to withhold payment for the work which was performed in violation of these requirements. This provision does not include the lease or use of equipment from a corporation or company wholly owned by the Contractor. The Contractor shall not use equipment in the performance of the Contract to which title is not held by the Contractor or an approved subcontractor without a submitted lease agreement. If a public official has provided a documented Declaration of Emergency, then the Engineer may verbally waive the requirement of submitting a TC 63-71 Department Equipment Rental Form until the situation has ended. After the emergency situation ends, immediately remove the equipment from the project or submit a completed TC 63-71 Department Equipment Rental Form to the Engineer.
Subsection: **Revision:**	108.03 Preconstruction Conference. Replace 8) Staking with the following: 8) Staking (designated by a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	109.07.02 Fuel. Revise item Crushed Aggregate Used for Embankment Stabilization to the following: Crushed Aggregate Used for Stabilization of Unsuitable Materials Used for Embankment Stabilization
	Delete the following item from the table. ~~Crushed Sandstone Base (Cement Treated)~~
Subsection: **Revision:**	110.02 Demobilization. Replace the first part of the first sentence of the second paragraph with the following: Perform all work and operations necessary to accomplish final clean-up as specified in the first paragraph of Subsection 105.12;
Subsection: **Revision:**	112.03.12 Project Traffic Coordinator (PTC). Replace the last paragraph of this subsection with the following: Ensure the designated PTC has sufficient skill and experience to properly perform the task assigned and has successfully completed the qualification courses.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	112.04.18 Diversions (By-Pass Detours).
Revision:	Insert the following sentence after the 2nd sentence of this subsection. The Department will not measure temporary drainage structures for payment when the contract documents provide the required drainage opening that must be maintained with the diversion. The temporary drainage structures shall be incidental to the construction of the diversion. If the contract documents fail to provide the required drainage opening needed for the diversion, the cost of the temporary drainage structure will be handled as extra work in accordance with section 109.04.
Subsection:	201.03.01 Contractor Staking.
Revision:	Replace the first paragraph with the following: Perform all necessary surveying under the general supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection:	201.04.01 Contractor Staking.
Revision:	Replace the last sentence of the paragraph with the following: Complete the general layout of the project under the supervision of a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection:	206.04.01 Embankment-in-Place.
Revision:	Replace the fourth paragraph with the following: The Department will not measure **suitable** excavation included in the original plans that is disposed of for payment and will consider it incidental to Embankment-in-Place.
Subsection:	208.02.01 Cement.
Revision:	Replace paragraph with the following: Select Type I or Type II cement conforming to Section 801. Use the same type cement throughout the work.
Subsection:	208.03.06 Curing and Protection.
Revision:	Replace the fourth paragraph with the following: Do not allow traffic or equipment on the finished surface until the stabilized subgrade has cured for a total of 7-days with an ambient air temperature above 40 degrees Fahrenheit. A curing day consists of a continuous 24-hour period in which the ambient air temperature does not fall below 40 degrees Fahrenheit. Curing days will not be calculated consecutively, but must total seven (7) , 24-hour days with the ambient air temperature remaining at or above 40 degrees Fahrenheit before traffic or equipment will be allowed to traverse the stabilized subgrade. The Department may allow a shortened curing period when the Contractor requests. The Contractor shall give the Department at least 3 day notice of the request for a shortened curing period. The Department will require a minimum of 3 curing days after final compaction. The Contractor shall furnish cores to the treated depth of the roadbed at 500 feet intervals for each lane when a shortened curing time is requested. The Department will test cores using an unconfined compression test. Roadbed cores must achieve a minimum strength requirement of 80 psi.
Subsection:	208.03.06 Curing and Protection.
Revision:	Replace paragraph eight with the following: At no expense to the Department, repair any damage to the subgrade caused by freezing.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	A) Seed Mixtures for Permanent Seeding.
Revision:	Revise **Seed Mix Type I** to the mixture shown below: 50% Kentucky 31 Tall Fescue (Festuca arundinacea) 35% Hard Fescue (Festuca (Festuca longifolia) 10% Ryegrass, Perennial (Lolium perenne) 5% White Dutch Clover (Trifolium repens)
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	A) Seed Mixtures for Permanent Seeding.
Number:	2)
Revision:	Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 4, 5, 6, and 7. Apply seed mix Type II at a minimum application rate of 100 pounds per acre. If adjacent to a golf course replace the crown vetch with Kentucky 31 Tall Fescue.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	A) Seed Mixtures for Permanent Seeding.
Number:	3)
Revision:	Replace the paragraph with the following: Permanent Seeding on Slopes Greater than 3:1 in Highway Districts 1, 2, 3, 8, 9, 10, 11, and 12. Apply seed mix Type III at a minimum application rate of 100 pounds per acre. If adjacent to crop land or golf course, replace the Sericea Lespedeza with Kentucky 31 Fescue.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	B) Procedures for Permanent Seeding.
Revision:	Delete the first sentence of the section.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	B) Procedures for Permanent Seeding.
Revision:	Replace the second and third sentence of the section with the following: Prepare a seedbed and apply an initial fertilizer that contains a minimum of 100 pounds of nitrogen, 100 pounds of phosphate, and 100 pounds of potash per acre. Apply agricultural limestone to the seedbed when the Engineer determines it is needed. When required, place agricultural limestone at a rate of 3 tons per acre.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	D) Top Dressing.
Revision:	Change the title of part to D) Fertilizer.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	D) Fertilizer.
Revision:	Replace the first paragraph with the following: Apply fertilizer at the beginning of the seeding operation and after vegetation is established. Use fertilizer delivered to the project in bags or bulk. Apply initial fertilizer to all areas prior to the seeding or sodding operation at the application rate specified in 212.03.03 B). Apply 20-10-10 fertilizer to the areas after vegetation has been established at a rate of 11.5 pounds per 1,000 square feet. Obtain approval from the Engineer prior to the 2nd fertilizer application. Reapply fertilizer to any area that has a streaked appearance. The reapplication shall be at no additional cost to the Department. Re-establish any vegetation severely damaged or destroyed because of an excessive application of fertilizer at no cost to the Department.
Subsection:	212.03.03 Permanent Seeding and Protection.
Part:	D) Fertilizer.
Revision:	Delete the second paragraph.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	212.04.04 Agricultural Limestone.
Revision:	Replace the entire section with the following: The Department will measure the quantity of agricultural limestone in tons.
Subsection:	212.04.05 Fertilizer.
Revision:	Replace the entire section with the following: The Department will measure fertilizer used in the seeding or sodding operations for payment. The Department will measure the quantity by tons.
Subsection:	212.05 PAYMENT.
Revision:	Delete the following item code: Code Pay Item Pay Unit 05966 Topdressing Fertilizer Ton
Subsection:	212.05 PAYMENT.
Revision:	Add the following pay items: Code Pay Item Pay Unit 05963 Initial Fertilizer Ton 05964 20-10-10 Fertilizer Ton 05992 Agricultural Limestone Ton
Subsection:	213.03.02 Progress Requirements.
Revision:	Replace the third paragraph with the following: After exposing areas of erodible material, make every effort to stabilize and protect the areas as quickly as possible. Permanently seed and mulch all areas at final grade within 14 days. Temporary stabilization practices on those portions of the project where construction activities have temporarily ceased shall be initiated within 14 days of the date of activity cessation. The Engineer will suspend grading operations for instances where the Contractor fails to sustain erosion control measures to effectively control erosion and to prevent water pollution in accordance with the KPDES Permit. In addition, the Engineer will withhold monies due on current estimates until corrective work has been initiated and is continuously progressing to remediate noted deficiencies. Additionally, should noted deficiencies not be adequately addressed to the satisfaction of the Engineer within 7 calendar days of receipt of written notification of deficiencies, the Department will apply a penalty equal to the daily liquidated damages rate until all aspects of the work have been completed.
Subsection:	213.03.05 Temporary Control Measures.
Part:	E) Temporary Seeding and Protection.
Revision:	Delete the second sentence of the first paragraph.
Subsection:	304.02.01 Physical Properties.
Table:	Required Geogrid Properties
Revision:	Replace all references to Test Method "GRI-GG2-87" with ASTM D 7737.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	B) Sampling.
Revision:	Replace the second sentence with the following: The Department will determine when to obtain the quality control samples using the random-number feature of the mix design submittal and approval spreadsheet. The Department will randomly determine when to obtain the verification samples required in Subsections 402.03.03 and 402.03.04 using the Asphalt Mixture Sample Random Tonnage Generator.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	3) VMA.
Revision:	Add the following paragraph below Number 3) VMA: Retain the AV/VMA specimens and one additional corresponding G_{mm} sample for 5 working days for mixture verification testing by the Department. For Specialty Mixtures, retain a mixture sample for 5 working days for mixture verification testing by the Department. When the Department's test results do not verify that the Contractor's quality control test results are within the acceptable tolerances according to Subsection 402.03.03, retain the samples and specimens from the affected sublot(s) for the duration of the project.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	4) Density.
Revision:	Replace the second sentence of the Option A paragraph with the following: Perform coring by the end of the following work day.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	D) Testing Responsibilities.
Number:	5) Gradation.
Revision:	Delete the second paragraph.
Subsection:	402.03.02 Contractor Quality Control and Department Acceptance.
Part:	H) Unsatisfactory Work.
Number:	1) Based on Lab Data.
Revision:	Replace the second paragraph with the following: When the Engineer determines that safety concerns or other considerations prohibit an immediate shutdown, continue work and the Department will make an evaluation of acceptability according to Subsection 402.03.05.
Subsection:	402.03.03 Verification.
Revision:	Replace the first paragraph with the following: **402.03.03 Mixture Verification.** For volumetric properties, the Department will perform a minimum of one verification test for AC, AV, and VMA according to the corresponding procedures as given in Subsection 402.03.02. The Department will randomly determine when to obtain the verification sample using the Asphalt Mixture Sample Random Tonnage Generator. For specialty mixtures, the Department will perform one AC and one gradation determination per lot according to the corresponding procedures as given in Subsection 402.03.02. However, Department personnel will not perform AC determinations according to KM 64-405. The Contractor will obtain a quality control sample at the same time the Department obtains the mixture verification sample and perform testing according to the procedures given in Subsection 402.03.02. If the Contractor's quality control sample is verified by the Department's test results within the tolerances provided below, the Contractor's sample will serve as the quality control sample for the affected sublot. The Department may perform the mixture verification test on the Contractor's equipment or on the Department's equipment.
Subsection:	402.03.03 Verification.
Part:	A) Evaluation of Sublot(s) Verified by Department.
Revision:	Replace the third sentence of the second paragraph with the following: When the paired *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the first paragraph with the following: When differences between test results are not within the tolerances listed below, the Department will resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Part:** **Revision:**	402.03.03 Verification. B) Evaluation of Sublots Not Verified by Department. Replace the third sentence of the second paragraph with the following: When the *F* -test or *t* -test indicates that the Contractor's data and Department's data are possibly not from the same population, the Department will investigate the cause for the difference according to Subsection 402.03.05 and implement corrective measures as the Engineer deems appropriate.
Subsection: **Part:** **Revision:**	402.03.03 Verification. C) Test Data Patterns. Replace the second sentence with the following: When patterns indicate substantial differences between the verified and non-verified sublots, the Department will perform further comparative testing according to subsection 402.03.05.
Subsection: **Revision:**	402.03 CONSTRUCTION. Add the following subsection: **402.03.04 Testing Equipment and Technician Verification.** For mixtures with a minimum quantity of 20,000 tons and for every 20,000 tons thereafter, the Department will obtain an additional verification sample at random using the Asphalt Mixture Sample Random Tonnage Generator in order to verify the integrity of the Contractor's and Department's laboratory testing equipment and technicians. The Department will obtain a mixture sample of at least 150 lb at the asphalt mixing plant according to KM 64-425 and split it according to AASHTO R 47. The Department will retain one split portion of the sample and provide the other portion to the Contractor. At a later time convenient to both parties, the Department and Contractor will simultaneously reheat the sample to the specified compaction temperature and test the mixture for AV and VMA using separate laboratory equipment according to the corresponding procedures given in Subsection 402.03.02. The Department will evaluate the differences in test results between the two laboratories. When the difference between the results for AV or VMA is not within ± 2.0 percent, the Department will investigate and resolve the discrepancy according to Subsection 402.03.05.
Subsection: **Revision:**	402.03.04 Dispute Resolution. Change the subsection number to 402.03.05.
Subsection: **Part:** **Table:** **Revision:**	402.05 PAYMENT. Lot Pay Adjustment Schedule Compaction Option A Base and Binder Mixtures AC Replace the Deviation from JMF(%) that corresponds to a Pay Value of 0.95 to ±0.6.
Subsection: **Revision:**	403.01 Description. Replace the sentence three and four of the first paragraph with the following: Provide a Superpave Plant Technologist (SPT) or Superpave Mix Design Technician (SMDT) qualified by the Laboratories' Quality Acceptance program. Be available to address all Quality Control concerns arising during work performed under section 403.
Subsection: **Revision:**	403.02.10 Material Transfer Vehicle (MTV). Replace the first sentence with the following: In addition to the equipment specified above, provide a MTV with the following minimum characteristics:

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Part:** **Number:** **Revision:**	403.03.03 Preparation of Mixture C) Mix Design Criteria 2) Revise part 2) to read as follows: Selection of Optimum AC. Normally, the Department will approve the AC at an air-void content of 4.0 percent. The Engineer may assign an AC corresponding to other air-void levels as deemed appropriate. Ensure the optimum AC is a minimum of 5.2 percent by weight of the total mixture for all 0.5-inch nominal surface mixtures and 5.5 percent by weight of the total mixture for all 0.38-inch nominal surface mixtures.
Subsection: **Revision:**	412.02.09 Material Transfer Vehicle (MTV). Replace the paragraph with the following: Provide and utilize a MTV with the minimum characteristics outlined in section 403.02.10.
Subsection: **Revision:**	412.03.07 Placement and Compaction. Replace the first paragraph with the following: Use a MTV when placing SMA mixture in the driving lanes. The MTV is not required on ramps and/or shoulders unless specified in the contract. When the Engineer determines the use of the MTV is not practical for a portion of the project, the Engineer may waive its requirement for that portion of pavement by a letter documenting the waiver.
Subsection: **Revision:**	412.04 MEASUREMENT. Add the following subsection: 412.04.03. Material Transfer Vehicle (MTV). The Department will not measure the MTV for payment and will consider its use incidental to the asphalt mixture.
Subsection: **Part:** **Revision:**	501.03.19 Surface Tolerances and Testing Surface. B) Ride Quality. Add the following to the end of the first paragraph: The Department will specify if the ride quality requirements are Category A or Category B when ride quality is specified in the Contract. Category B ride quality requirements shall apply when the Department fails to classify which ride quality requirement will apply to the Contract.
Subsection: **Revision:**	501.03.05 Weather Limitations and Protection. Replace the reference to Subsection 501.03.19 in Paragraph 5, with Subsection 501.03.20.
Subsection: **Revision:**	601.02.02 Cement Replace the third sentence with the following: The Department will allow the use of Type IP(≤20), Type IS(≤30), Type IL, Type II, and Type III when the Engineer approves.
Subsection: **Revision:**	601.02.02 Cement Replace the fifth sentence with the following: If unsatisfactory test results are obtained using Type IP(≤20), Type IS(≤30), Type IL, Type II, or Type III cement complete the work using Type I cement.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: 601.03.02 Concrete Producer Responsibilities.
Part: E) Trip Tickets.
Revision: Replace the section with the following:

Furnish a trip ticket containing the minimum information shown in the table below. Certify that the data on the ticket is correct and that the mixture conforms to the approved mix design. Ensure that the plant manager or a Level II concrete technician signs the ticket. The Department's jobsite inspector will complete all other necessary information on the back of the trip ticket.

Contract Id:	Proj. Number:	Date:	County:	
Truck No:	Producer Name:		SiteManager Sample Id:	
Qty(Yds^3):	Time Loaded (Non Agitated Concrete Only):			
Begin Mixing Time: _____ AM ____ PM ____ REV _____				
Set Retarder Used	Yes ___	Type____	No____	
Water Reducer Used	Yes ___	Type____	No____	
Water Underrun _____ Gal/Yd^3 _____ Total Gallons				
Design W/C:	Actual W/C:	Slump (inches)		
Batch Weight Information:				
Material:	Description:	Design Qty:	Required:	Batched:	%Var:	%Moisture:	Actual:
Remarks:							
The data on this ticket is correct for the approved concrete mix design.							
Signature: _____ Date: _____							
KRMCA Level II Technician or Plant Manager							

Subsection: 601.03.03 Proportioning and Requirements
Part: A) Concrete
Revision: Revise Table for INGREDIENT PROPORTIONS AND REQUIREMENTS FOR VARIOUS CLASSES OF CONCRETE as follows: Replace "M1 w/ Type 1 cement" with "M1 w/ Type 1 or blended hydraulic cement"

Subsection: 601.03.03 Proportioning and Requirements
Part: C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures
Revision: Revise part C) header to read as follows: Mixtures Using Type IP(≤20), IS(≤30), and IL Cement and Mineral Admixtures.

Subsection: 601.03.03 Proportioning and Requirements
Part: C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures
Number: 1)
Revision: Revise first sentence to read as follows: Type IP(≤20), IS(≤30), IL Cement.

Subsection: 601.03.03 Proportioning and Requirements
Part: C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures
Number: 2)
Revision: Revise second sentence to read as follows: The use of fly ash, blast furnace slag cement, or micosilica in concrete is the Contractor's option.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Part:** **Number:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) Revise the first sentence in the second paragraph to read as follows: When the ability to use blast furnace slag cement or microsilica has not been demonstrated have the concrete producer provide trial batches in accordance with Subsection 601.03.02 G) 1).
Subsection: **Part:** **Number:** **Part:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) b) Revise first sentence to read as follows: Blast Furnace Slag Cement
Subsection: **Part:** **Number:** **Part:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) b) Revise second sentence to read as follows: When added as a separate ingredient, use Grade 120 or Grade 100 slag to reduce the quantity of cement, except do not use blast furnace slag cement to reduce the quantity of Type IS(≤30) cement.
Subsection: **Part:** **Number:** **Part:** **Revision:**	601.03.03 Proportioning and Requirements C) Mixtures Using Type IP, IS, and I(SM) Cement or Mineral Admixtures 2) b) In part b), replace all references to "GGBF slag" with "blast furnace slag cement".
Subsection: **Part:** **Revision:**	601.03.04 Classes and Primary Uses H) Class M1 Revise part H) to read as follows: High early strength for bridge joint repair and full or partial depth bridge deck patching. (Type 1 cement or blended hydraulic cement)
Subsection: **Revision:**	603.03.06 Cofferdams. Replace the seventh sentence of paragraph one with the following: Submit drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection: **Revision:**	605.03.04 Tack Welding. Insert the subsection and the following: 605.03.04 Tack Welding. The Department does not allow tack welding.
Subsection: **Part:** **Number:** **Revision:**	606.03.17 Special Requirements for Latex Concrete Overlays. A) Existing Bridges and New Structures. 1) Prewetting and Grout-Bond Coat. Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
Subsection: **Revision:**	609.03 Construction. Replace Subsection 609.03.01 with the following: 609.03.01 A) Swinging the Spans. Before placing concrete slabs on steel spans or precast concrete release the temporary erection supports under the bridge and swing the span free on its supports. 609.03.01 B) Lift Loops. Cut all lift loops flush with the top of the precast beam once the beam is placed in the final location and prior to placing steel reinforcement. At locations where lift loops are cut, paint the top of the beam with galvanized or epoxy paint.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	611.03.02 Precast Unit Construction.
Revision:	Replace the first sentence of the subsection with the following: Construct units according to ASTM C1577, **replacing Table 1 (Design Requirements for Precast Concrete Box Sections Under Earth, Dead and HL-93 Live Load Conditions) with KY Table 1 (Precast Culvert KYHL-93 Design Table)**, and Section 605 with the following exceptions and additions:
Subsection:	613.03.01 Design.
Number:	2)
Revision:	Replace "AASHTO Standard Specifications for Highway Bridges" with "AASHTO LRFD Bridge Design Specifications"
Subsection:	615.06.02
Revision:	Add the following sentence to the end of the subsection. The ends of units shall be normal to walls and centerline except exposed edges shall be beveled ¾ inch.
Subsection:	615.06.03 Placement of Reinforcement in Precast 3-Sided Units.
Revision:	Replace the reference of 6.6 in the section to 615.06.06.
Subsection:	615.06.04 Placement of Reinforcement for Precast Endwalls.
Revision:	Replace the reference of 6.7 in the section to 615.06.07.
Subsection:	615.06.06 Laps, Welds, and Spacing for Precast 3-Sided Units.
Revision:	Replace the subsection with the following: Tension splices in the circumferential reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. The overlap of welded wire fabric shall be measured between the outer most longitudinal wires of each fabric sheet. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. For splices other than tension splices, the overlap shall be a minimum of 12" for welded wire fabric or deformed billet-steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be no less than 2 inches and no more than 4 inches. The spacing center to center of the longitudinal wires shall not be more than 8 inches. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 16 inches.
Subsection:	615.06.07 Laps, Welds, and Spacing for Precast Endwalls.
Revision:	Replace the subsection with the following: Splices in the reinforcement shall be made by lapping. Laps may not be tack welded together for assembly purposes. For smooth welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.2 and AASHTO 2012 Bridge Design Guide Section 5.11.6.3. For deformed welded wire fabric, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.5.1 and AASHTO 2012 Bridge Design Guide Section 5.11.6.2. For deformed billet-steel bars, the overlap shall meet the requirements of AASHTO 2012 Bridge Design Guide Section 5.11.2.1. The spacing center-to-center of the wire fabric sheet shall not be less than 2 inches or more than 8 inches.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	615.08.01 Type of Test Specimen.
Revision:	Replace the subsection with the following: Start-up slump, air content, unit weight, and temperature tests will be performed each day on the first batch of concrete. Acceptable start-up results are required for production of the first unit. After the first unit has been established, random acceptance testing is performed daily for each 50 yd^3 (or fraction thereof). In addition to the slump, air content, unit weight, and temperature tests, a minimum of one set of cylinders shall be required each time plastic property testing is performed.
Subsection:	615.08.02 Compression Testing.
Revision:	Delete the second sentence.
Subsection:	615.08.04 Acceptability of Core Tests.
Revision:	Delete the entire subsection.
Subsection:	615.12 Inspection.
Revision:	Add the following sentences to the end of the subsection: Units will arrive at jobsite with the "Kentucky Oval" stamped on the unit which is an indication of acceptable inspection at the production facility. Units shall be inspected upon arrival for any evidence of damage resulting from transport to the jobsite.
Subsection:	701.04.16 Deduction for Pipe Deflection.
Revision:	Insert the following at the end of the paragraph: The section length is determined by the length of the pipe between joints where the failure occurred.
Subsection:	716.02.02 Paint.
Revision:	Replace sentence with the following: Conform to Section 821.
Subsection:	716.03 CONSTRUCTION.
Revision:	Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection:	716.03.02 Lighting Standard Installation.
Revision:	Replace the paragraph with the following: Locate poles to avoid trees, drainage, structures, etc. Regardless of the station & offset noted, locate all poles/bases behind guardrail a minimum of 4 feet behind the face of the guardrail. All poles shall be placed as close to stations and offsets as stated on Plans to provide proper illumination. If any pole needs to be relocated from stations indicated, the Division of Traffic Operations shall be contacted. When submitting brochures for suggested luminaires include iso lux curves, IES type distribution, lamp lumens, and typical ballast factor used for each type of luminaire. Submit the photometric data in a digital IES format to the Division of Traffic Operations. Include with the submittal a point of contact and phone number to answer technical questions about the luminaire.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	A) Conventional Installation.
Revision:	Replace the third sentence with the following: Orient the transformer base so the door is positioned on the side away from on-coming traffic.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	A) Conventional Installation.
Number:	1) Breakaway Installation and Requirements.
Revision:	Replace the first sentence with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.

Supplemental Specifications to the Standard Specifications for Road and Bridge Construction, 2012 Edition Effective with the April 29, 2016 Letting

Subsection: 716.03.02 Lighting Standard Installation.
Part: B) High Mast Installation
Revision: Replace the first three sentences of the first paragraph with the following: Install each high mast pole as noted on Plans. Install each high mast pole on a separate circuit and use luminaires with light patterns as indicated. Orient luminaires as shown in Plans.

Subsection: 716.03.02 Lighting Standard Installation.
Part: B) High Mast Installation
Number: 2) Concrete Base Installation
Revision: Modification of Chart and succeeding paragraphs within this section:

Drilled Shaft Depth Data							
Level Ground		3:1 Ground Slope		2:1 Ground Slope		1.5:1 Ground Slope (2)	
Soil	Rock	Soil	Rock	Soil	Rock	Soil	Rock
17 ft	7 ft	19 ft	7 ft	20 ft	7 ft	(1)	7 ft

Steel Requirements			
Vertical Bars		Ties or Spiral	
Size	Total	Size	Spacing or Pitch
#10	16	#4	12 inch

Note 1: Shaft length is 22 feet for cohesive soil only. For cohesionless soil, contact Geotechnical Branch for design.
Note 2: Do not construct high mast drilled shafts on ground slopes steeper than 1.5:1 without the approval of the Division of Traffic Operations.

If rock is encountered during drilling operations and confirmed by the Engineer to be of sound quality, the shaft is only required to be further advanced into the rock by the length of rock socket shown in the design table. The total length of the shaft need not be longer than that of soil alone. Both longitudinal rebar length and number of ties or spiral length shall be adjusted

If a shorter depth is desired for the drilled shaft, the Contractor shall provide, for the state's review and approval, a detailed column design with individual site specific soil and rock analysis performed and approved by a Professional Engineer licensed in the Commonwealth of Kentucky.

Spiral reinforcement may be substituted for ties. If spiral reinforcement is used, one and one-half closed coils shall be provided at the ends of each spiral unit. Subsurface conditions consisting of very soft clay or very loose saturated sand could result in soil parameters weaker than those assumed. Engineer shall consult with the Geotechnical Branch if such conditions

The bottom of the drilled hole shall be firm and thoroughly cleaned so no loose or compressible materials are present at the time of the concrete placement. If the drilled hole contains standing water, the concrete shall be placed using a tremie to displace water. Continuous concrete flow will be required to insure full displacement of any water.

The reinforcement and anchor bolts shall be adequately supported in the proper positions so no movement occurs during concrete placement. Welding of anchor bolts to the reinforcing cage is unacceptable, templates shall be used. Exposed portions of the foundation shall be formed to create a smooth finished surface. All forming shall be removed upon completion of foundation construction.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Part:** **Revision:**	716.03.03 Trenching. A) Trenching of Conduit for Highmast Ducted Cables. Add the following after the first sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection: **Part:** **Revision:**	716.03.03 Trenching. B) Trenching of Conduit for Non-Highmast Cables. Add the following after the second sentence: If depths greater than 24 inches are necessary for either situation listed previously, obtain the Engineer's approval and maintain the required conduit depths coming into the junction boxes.
Subsection: **Revision:**	716.03.04 Conduit Installation. Replace the first two sentences of the paragraph with the following: Provide rigid steel conduit encasement for all conductors except as specified in the Contract. Provide conduit that is listed on the Department's List of Approved Materials.
Subsection: **Part:** **Number:** **Revision:**	716.03.04 Conduit Installation. A) Conduit Requirements in Junction Boxes. 1) Highmast Ducted Cable. Replace the first two sentences with the following: Install conduit horizontally through the junction box. Conduit shall be 4 inches from the bottom and 4 inches from the side of the junction box.
Subsection: **Revision:**	716.03.04 Conduit Installation. Add the following to the Part to the Subsection: **G) Bore and Jack.** Construction methods shall be in accordance with Subsections 706.03.02, paragraphs 1, 2 and 4.
Subsection: **Revision:**	716.03.08 Splicing. Replace the last sentence of the paragraph with the following: Ensure the splices are of the correct size for the wire being used.
Subsection: **Revision:**	716.03.10 Junction Boxes. Replace subsection title with the following: Electrical Junction Box and replace the last sentence of the paragraph with the following: Any additional junction boxes shall be approved by the Engineer.
Subsection: **Revision:**	716.03.13 Temporary Lighting. Change subsection heading to the following: **716.03.13 Temporary/Maintain Lighting.**
Subsection: **Revision:**	716.03.13 Temporary /Maintain Lighting. Replace the entire section with the following: The Contractor shall furnish and install all materials necessary to temporarily light the proposed roadway to design standards in Subsection 716.03. The Contractor shall submit his proposed design of temporary lighting to the Division of Traffic Operations for approval at least 30 days before installation. Maintain all lighting elements impacted within or outside the project limits until new lighting elements are installed and a functional inspection has been performed on the new lighting elements. The Contractor shall submit a proposed design for maintaining lighting to the Division of Traffic Operations for approval at least 30 days before installation.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	716.03.14 Remove Lighting. Replace the section with the following: Remove all lighting equipment that is identified by the Engineer as no longer necessary including, but not limited to, the following: pole bases, poles, junction boxes, cabinets, and wood poles. Pole bases shall be removed a minimum of one foot below finished grade by chipping off or other method that is approved by the Engineer. Dispose of all removed concrete off right-of-way. Wood poles shall be removed a minimum of one foot below finished grade. Backfill holes with material approved by the Engineer. Conduit may be abandoned in the ground. All materials shall be removed from the project as directed by the Engineer. Transformers not owned by a utility shall be tested for PCB's and disposed of in accordance with state regulations.
Subsection: **Revision:**	716.03.15 Painting. Replace the first sentence with the following: Clean non-galvanized or damaged surfaces of exposed junction boxes, pull boxes, control panels, poles, and similar equipment, and apply one coat of an inhibiting paint and two coats of aluminum paint.
Subsection: **Revision:**	716.04.01. Poles. Change the subsection heading to 716.04.01 Pole and replace the last sentence of the subsection with the following: The Department will not measure anchor bolts, washers, nuts, anchor bolt covers, ground lugs, and any associated hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.02 High Mast Pole. Replace the second sentence with the following: The Department will not measure the lowering device, anchor bolts, head frame assembly, cables, winch unit, power cables, wiring, connectors, circuit breakers, grounding lugs, ground wire, ground rods, conduits, test plugs,, adjustment and calibration of the unit to provide the desired operation, and any associated hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.03 Bracket. Replace the second sentence with the following: The Department will not measure any associated hardware needed for attaching the bracket to the pole for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.04 Pole Base. Change the subsection heading to 716.04.04 Pole Bases and delete the paragraph.
Subsection: **Revision:**	716.04.04 Pole Bases. Insert the following: **A. Pole Base**. The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure excavation, concrete, conduits, fittings, ground rods, ground wires, ground lugs, reinforcing steel, restoring disturbed areas to the satisfaction of the Engineer, and any associated hardware for payment and will consider them incidental to this item of work. **B. Pole Base High Mast**. The Department will measure the quantity in cubic yards furnished and installed. The Department will not measure excavation, concrete, conduits, fittings, ground rods, ground wires, ground lugs, reinforcing steel, restoring disturbed areas to the satisfaction of the Engineer, and any associated hardware for payment and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	716.04.05 Pole Base in Median Wall.
Revision:	Replace the last sentence with the following: The Department will not measure conduits, fittings, junction boxes, additional reinforcing steel, ground rods, ground wire, ground lugs, and aluminum cover plates (if specified) for payment, and will consider them incidental to this item of work.
Subsection:	716.04.06 Transformer Base.
Revision:	Replace the last sentence with the following: The Department will not measure transformer door, ground lug, anchoring bolts, nuts, washers, and any associated hardware for payment and will consider them incidental to this item of work. The filling of any unused holes will also be considered incidental to this item of work.
Subsection:	716.04.07 Pole with Secondary Equipment.
Revision:	Replace the heading with the following: 716.04.07 Pole with Secondary Control Equipment.
Subsection:	716.04.07 Pole with Secondary Control Equipment.
Revision:	Replace the second and third sentence with the following: The Department will not measure mounting the cabinet to the pole, backfilling, restoration, any necessary hardware to anchor pole, electrical inspection fees, and required building fees involving utility secondary, and primary service for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breaker, contactor, manual switch, ground rods, ground lugs, and ground wires for payment and will consider them incidental to this item of work. The filling of unused holes will also be considered incidental to this item of work.
Subsection:	716.04.08 Lighting Control Equipment.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure the concrete base, excavation, backfilling, restoration, any necessary anchors, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, specified conduits, meter base, transformer, service panel, fused cutout, fuses, lighting arrestors, photoelectrical control, circuit breakers, contactor, manual switch, ground rods, ground lugs, and ground wires for payment and will consider them incidental to this item of work. The Department will not measure the filling of any unused holes with and will consider them incidental to this item of work.
Subsection:	716.04.09 Luminaire.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure lamps, starters, ballasts, drivers, surge protection, dimming modules, photo-control receptacle, specified shielding (if required), and any adjustments necessary to provide the desired lighting pattern for payment and will consider them incidental to this item of work.
Subsection:	716.04.10 Fused Connector Kits.
Revision:	Replace the heading with the following: 716.04.10 Fuse Connector Kits.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	716.04.10 Fuse Connector Kits. Replace the paragraph with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure fuses/lugs for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.11 Conduit. Replace the second sentence with the following: The Department will not measure installation in ground or on structures, conduit fittings, test plugs, expansion joints with bonding straps, grounding lugs, drill anchors, clamps, and any additional hardware required for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.12 Markers. Replace the section with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection: **Revision:**	716.04.13 Junction Box. Replace the subsection title with the following: Electrical Junction Box Type Various.
Subsection: **Revision:**	716.04.13 Electrical Junction Box Type Various. Replace the section with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure additional junction boxes for greater depths than those identified in Plans, #57 aggregate, backfilling, restoration of disturbed areas to the satisfaction of the Engineer, geotextile filter fabric, concrete, hot dipped galvanized cover, stainless steel screws, rubber gasket, and any associated hardware for payment , and will consider them incidental to this item of work.
Subsection: **Part:** **Revision:**	716.04.13 Junction Box. A) Junction Electrical. Delete Part A.
Subsection: **Revision:**	716.04.14 Trenching and Backfilling. Replace the section with the following: The Department will measure the quantity in linear feet. The Department will not measure excavation, backfilling, underground utility warning tape (if required), and the restoration of disturbed areas to original condition for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.15 Wire or Cable. Replace the section with the following: The Department will measure the quantity in linear feet furnished and installed. The Department will not measure installation within conduit, splice boots, and any other hardware required for installing cable for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.16 Ducted Cable. Replace the second sentence of the paragraph with the following: The Department will not measure installation within trench or conduit and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	716.04.17 Temporary Lighting Rename the subsection as follows: 716.04.17 Temporary Lighting/Maintain Lighting.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	716.04.17 Temporary Lighting/Maintain Lighting.
Revision:	Delete the paragraph and add the following parts: A) Temporary Lighting. The Department will measure the quantity by lump sum. The Department will not measure poles, luminaires, wire, conduit, trenching and backfilling, control equipment, all relocations and removal, design (if required), and any other necessary hardware to make a complete installation for payment and will consider them incidental to this item of work. B) Maintain Lighting. The Department will measure the quantity by lump sum. The Department will not measure maintenance of lighting elements and design (if required) for payment and will consider them incidental to this item of work.
Subsection:	716.04.18 Remove Lighting.
Revision:	Replace the paragraph with the following: The Department will measure the quantity by lump sum. The Department will not measure backfilling and the disposal or transportation of equipment and materials associated with any structural or electrical component of the lighting system including, but not limited to pole bases, poles, junction boxes, cabinets, and wood poles for payment and will consider them incidental to this item of work.
Subsection:	716.04.19 Remove Pole Base.
Revision:	Delete Subsection.
Subsection:	716.04.20 Bore and Jack Conduit.
Revision:	Renumber Subsection to 716.04.19 Bore and Jack Conduit.
Subsection:	716.04.19 Bore and Jack Conduit.
Revision:	Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway.
Subsection:	716.05 PAYMENT.
Revision:	Revise the following under Code, Pay Item, and Pay Unit with the following: Code — Pay Item — Pay Unit 04700-04701 — Pole(Various)Mtg Ht — Each 04710-04714 — Pole(Various)Mtg Ht High Mast — Each 04810-04811 — Electrical Junction Box (Various) — Each 20391NS835 — Electrical Junction Box Type A — Each 20392NS835 — Electrical Junction Box Type C — Each 04770-04773 — Luminaire (Various) — Each 04780 — Fuse Connector Kit — Each 20410ED — Maintain Lighting — Lump Sum ~~04941 — Remove Pole Base — Each~~
Subsection:	723.02.02 Paint.
Revision:	Replace sentence with the following: Conform to Section 821.
Subsection:	723.03 CONSTRUCTION.
Revision:	Replace bullet 5) with the following: 5) AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims,
Subsection:	723.03.02 Poles and Bases Installation.
Revision:	Replace the title with the following: 723.03.02 Pole and Base Installation.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	723.03.02 Pole and Base Installation. Replace the first paragraph with the following: Regardless of the station and offset noted, locate all poles/bases behind the guardrail a minimum of four feet from the front face of the guardrail to the front face of the pole base. Orient the handhole door away from traffic travel path. If pole base is installed within a sidewalk the top of the pole base shall be the same grade as the sidewalk.
Subsection: **Part:** **Revision:**	723.03.02 Poles and Bases Installation. A) Steel Strain and Mastarm Poles Installation Replace the title of Part A) Steel Strain and Mast Arm Pole Installation.
Subsection: **Part:** **Revision:**	723.03.02 Pole and Base Installation. A) Steel Strain and Mast Arm Pole Installation. Insert the following sentence at the beginning of the first paragraph: Install pole bases 4 to 6 inches above grade.
Subsection: **Part:** **Revision:**	723.03.02 Pole and Base Installation. A) Steel Strain and Mast Arm Pole Installation. Replace the second paragraph with the following: For concrete base installation, see Subsection 716.03.02 B), 2), Paragraphs 2-6. Drilled shaft depth shall be based on the soil conditions encountered during drilling and slope condition at the site. Refer to the design chart below:
Subsection: **Part:** **Revision:**	723.03.02 Pole and Base Installation. B) Pedestal or Pedestal Post Installation. Replace the second sentence with the following: If over 12 feet high the base shall have the minimum depth and diameter as Subsection 716.03.02 (A), paragraph 2.
Subsection: **Part:** **Revision:**	723.03.02 Poles and Bases Installation. B) Pedestal or Pedestal Post Installation. Replace the fourth sentence of the paragraph with the following: For breakaway supports, conform to Section 12 of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection: **Revision:**	723.03.03 Trenching. Replace the first sentence with the following: See Subsection 716.03.03 (B).
Subsection: **Part:** **Revision:**	723.03.03 Trenching. A) Under Roadway. Delete Part A) Under Roadway.
Subsection: **Revision:**	723.03.05 Conduit Requirements in Junction Boxes. Delete the Subsection and replace with the following: 723.03.05 Fuse Connector Kits. See Subsection 716.03.09.
Subsection: **Revision:**	723.03.06 Coupling Installation. Delete the Subsection and replace with the following: 723.03.06 Painting. See Subsection 716.03.15.
Subsection: **Revision:**	723.03.07 Bonding Requirements. Delete the Subsection and replace with the following: 723.03.07 Electrical Junction Boxes. See Subsection 716.03.10.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	723.03.08 Painting.
Revision:	Replace with 723.03.06 Painting. See Subsection 716.03.15.
Subsection:	723.03.09 Underground Warning Tape.
Revision:	Renumber Subsection to 723.03.08 Underground Warning Tape.
Subsection:	723.03.10 Backfilling and Disturbed Areas.
Revision:	Renumber Subsection to 723.03.09 Backfilling and Disturbed Areas.
Subsection:	723.03.11 Wiring Installation.
Revision:	Renumber Subsection to 723.03.10 Wiring Installation.
Subsection:	723.03.10 Wiring Installation.
Revision:	Add the following sentence between the fifth and sixth sentences: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection:	723.03.12 Loop Installation.
Revision:	Renumber Subsection to 723.03.11 Loop Installation.
Subsection:	723.03.11 Loop Installation.
Revision:	Replace the fourth sentence of the 2nd paragraph with the following: Provide an extra two feet of loop wire and lead-in past the installed conduit in poles, pedestals, and junction boxes.
Subsection:	723.03.13 Grounding Installation.
Revision:	Renumber Subsection to 723.03.12 Grounding Installation.
Subsection:	723.03.12 Grounding Installation.
Revision:	Replace the reference to "Standard Detail Sheets" in the first sentence with "Plans".
Subsection:	723.03.14 Splicing.
Revision:	Renumber Subsection to 723.03.13 Splicing.
Subsection:	723.03.13 Splicing.
Revision:	Delete the reference to (IMSA 19-2) from the 5th sentence of the paragraph.
Subsection:	723.03.15 Painting.
Revision:	Delete Subsection.
Subsection:	723.03.14 Splicing.
Revision:	Replace with new Subsection 723.03.14 Remove Signal Equipment.
Subsection:	723.03.14 Remove Signal Equipment.
Revision:	Insert the following for the new subsection: Remove all traffic signal equipment that is identified by the Engineer as no longer necessary including, but not limited to, the following: pole bases, poles, junction boxes, cabinets, wood poles, and advance warning flashers. Pole bases shall be removed a minimum of one foot below finished grade by chipping off or other method that is approved by the Engineer. Dispose of all removed concrete off right-of-way. Wood poles shall be removed a minimum of one foot below finished grade. Backfill holes with material approved by the Engineer. Conduit may be abandoned in the ground. Contact the district traffic Engineer to determine if any removed signal equipment needs to be returned to the district and to determine the location/time for such deliveries.
Subsection:	723.05.16 Drawings.
Revision:	Renumber the Subsection to 723.03.15 Drawings.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	723.03.15 Drawings.
Revision:	Replace Subsection with the following: Before final inspection of the traffic control device, provide a complete set of reproducible as-built drawings that show the arrangement and locations of all equipment including: junction boxes, conduits, spare conduits, etc. Keep a daily record of all conduits placed in trenches, showing the distance from the pavement edge, the depth, and the length of runs, and indicate this information on the as-built drawings.
Subsection:	723.03.17 Acceptance and Inspection Requirements.
Revision:	Renumber Subsection to 723.03.16 Acceptance and Inspection Requirements.
Subsection:	723.03.16 Acceptance and Inspection Requirements.
Revision:	Replace the first paragraph of the section with the following: See Subsection 105.12. In coordination with the District Traffic Engineer, energize traffic control device as soon as it is fully functional and ready for inspection. After the work has been completed, conduct an operational test demonstrating that the system operates in accordance with the Plans in the presence of the Engineer. The Department will also conduct its own tests with its own equipment before final acceptance. Ensure that the traffic control device remains operational until the Division of Traffic Operations has provided written acceptance of the electrical work.
Subsection:	723.04.01 Conduit.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure conduit fittings, ground lugs, test plugs, expansion joints, and clamps for payment and will consider them incidental to this item of work.
Subsection:	723.04.02 Junction Box.
Revision:	Replace subsection title with the following: Electrical Junction Box Type Various.
Subsection:	723.04.02 Electrical Junction Box Type Various.
Revision:	Replace the subsection with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure additional junction boxes for greater depths than those identified in Plans, Aggregate (#57), backfilling, restoration of disturbed areas to the satisfaction of the Engineer, geotextile fabric, concrete, hot dipped galvanized cover, stainless steel screws, rubber gasket, and any associated hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.03 Trenching and Backfilling.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape, and the restoration of disturbed areas to original condition for payment and will consider them incidental to this item of work.
Subsection:	723.04.04 Open Cut Roadway.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure concrete, reinforcing steel, and asphalt for payment and will consider them incidental to this item of work.
Subsection:	723.04.05 Loop Wire.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure splice boots, cable rings, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.06 Cable.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure splice boots, cable rings, and any other hardware for payment and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	723.04.07 Pole-Wooden.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, and restoring disturbed areas for payment and will consider them incidental to this item of work.
Subsection:	723.04.08 Steel Strain Pole.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, and restoring disturbed areas for payment and will consider them incidental to this item of work.
Subsection:	723.04.09 Mast Arm Pole.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure anchor bolts, arms, mounting brackets, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.10 Signal Pedestal.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure excavation, concrete, reinforcing steel, conduits, fittings, ground rods, ground wire, ground lugs, backfilling, restoring disturbed areas, and other necessary hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.11 Post.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, and restoring disturbed areas for payment and will consider them incidental to this item of work.
Subsection:	723.04.12 Anchor.
Revision:	Replace the second sentence of the subsection with the following: . The Department will not measure down-guy, messenger, clamps, guy guard, or insulators, and possible installation in various soil conditions for payment and will consider them incidental to this item of work.
Subsection:	723.04.13 Messenger.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure strand vises, bolts, washers, and other necessary hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.14 Install Signal LED.
Revision:	Revise subsection title to 723.04.14 Install Beacon Controller - 2 Circuit.
Subsection:	723.04.14 Install Beacon Controller - 2 Circuit.
Revision:	Replace the subsection with the following: The Department will measure the quantity as each individual unit furnished and installed. The Department will not measure the controller housing, mounting equipment, S5-1 school zone sign, time clock, nema flasher, ground rods, ground wires, ground lugs, metering disconnect hardware, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	723.04.15 Loop Saw Slot and Fill.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure sawing, cleaning, filling induction loop saw slot, loop sealant, backer rod, drilling hole for conduit, and grout for payment and will consider them incidental to this item of work.
Subsection:	723.04.16 Pedestrian Detector.
Revision:	Replace the subsection with the following: The Department will measure the quantity as each individual unit furnished, installed and connected to pole/pedestal. The Department will not measure installing R10-3e signs, detector housing, and installing mounting hardware for sign for payment and will consider them incidental to this item of work.
Subsection:	723.04.17 Signal.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure furnishing and installing LED modules, retroreflective tape, back plates, and any other hardware for payment and will consider them incidental to this item of work.
Subsection:	723.04.18 Signal Controller- Type 170.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure the concrete base, mounting the cabinet, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, electrical inspection fees, and building fees involving secondary/primary service for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and connecting the induction of loop amplifiers, pedestrian isolators, load switches, model 400 modem card, electrical service conductors, conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires, and ground lugs for payment and will consider them incidental to this item of work.
Subsection:	723.04.19 Beacon Controller - 2 Circuit.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure the controller housing, mounting equipment, S5-1 school zone sign, time clock, nema flasher, ground rods, ground wires, ground lugs, metering disconnect hardware, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work.
Subsection:	723.04.20 Install Signal Controller - Type 170.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure the concrete base, mounting the cabinet, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, electrical inspection fees, and required building fees involving utility secondary/primary service for payment and will consider them incidental to this item of work. The Department will also not measure connecting the induction loop amplifiers, pedestrian isolators, load switches, model 400 modem card for payment and will consider them incidental to this item of work. The Department will also not measure furnishing and installing electrical service conductors, conduits, anchors, meter base, fused cutout, fuses, ground rods, ground lugs, and ground wires for payment and will consider them incidental to this item of work.
Subsection:	723.04.21 Install Steel Strain Pole.
Revision:	Replace the second sentence of the subsection with the following: The Department will not measure any necessary clamp assemblies for payment and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	723.04.22 Remove Signal Equipment. Replace the paragraph with the following: The Department will measure the quantity by lump sum. The Department will not measure backfilling and the disposal or transportation of equipment and materials associated with any structural or electrical component of the signal system including, but not limited to pole bases, poles, junction boxes, cabinets, and wood poles for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.23 Install Span/Pole Mounted Sign. Replace the second sentence of the subsection with the following: The Department will not measure the hanger or any other hardware necessary to install the sign for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.24 Install Pedestrian Head LED. Insert the following sentence at the end of the paragraph: The Department will not measure the installation of LED modules and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.25 Install Signal LED. Insert the following sentence at the end of the paragraph: The Department will not measure the installation of LED modules, retroreflective tape, back plates, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.26 Install Coordinating Unit. Replace the subsection with the following: The Department will measure the quantity as each individual unit installed. The Department will not measure radio, modem, cable(s), antenna(s), router, repeater, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.27 Video Camera. Replace the second sentence of the subsection with the following: The Department will not measure video modules, mounting bracket, truss type arm, power cable, coaxial cable, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.28 Install Pedestrian Detector Audible. Replace the second sentence with the following: The Department will not measure installing R10-3e sign, detector housing, and installing mounting hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.29 Audible Pedestrian Detector. Replace the second sentence with the following: The Department will not measure furnishing and installing the R10-3e sign, detector housing, and installing mounting hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.30 Bore and Jack Conduit. Replace the paragraph with the following: The Department will measure the quantity in linear feet. This item shall include all work necessary for boring and installing conduit under an existing roadway.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	723.04.31 Install Pedestrian Detector. Replace the paragraph with the following: The Department will measure the quantity as each individual unit installed and connected to pole/pedestal. The Department will not measure installing R 10-3e sign, detector housing, and installing mounting hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.32 Install Mast Arm Pole. Replace the second sentence with the following: The Department will not measure installation of arms, signal mounting brackets, anchor bolts, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.33 Pedestal Post. Replace the second sentence with the following: The Department will not measure excavation, backfilling, restoration, furnishing and installing concrete, reinforcing steel, anchor bolts, conduit, fittings, ground rod, ground wire, ground lugs, or any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.34 Span Mounted Sign. Revise subsection title to 723.04.34 Span/Pole-Mounted Sign.
Subsection: **Revision:**	723.04.34 Span/Pole-Mounted Sign. Replace the second sentence of the subsection with the following: The Department will not measure the hanger, sign, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.35 Remove and Reinstall Coordinating Unit. Add the following sentence to the end of the subsection: The Department will not measure removing, storage, reinstalling, and connecting radio, modem, cable(s), antenna(s), router, repeater, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.36 Traffic Signal Pole Base. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, restoration, furnishing and installing reinforcing steel, anchor bolts, conduits, ground rods, ground wires, and ground lugs for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.37 Install Signal Pedestal. Replace the second sentence of the subsection with the following: . The Department will not measure excavation, backfilling, restoration, furnishing and installing concrete, reinforcing steel, conduits, fittings, ground rod, ground wire, ground lugs, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.38 Install Pedestal Post. Replace the second sentence of the subsection with the following: The Department will not measure excavation, backfilling, restoration, furnishing and installing concrete, reinforcing steel, conduit, fittings, ground rod, ground wire, ground lugs, and any other necessary hardware for payment and will consider them incidental to this item of work.
Subsection: **Revision:**	723.04.39 Install Antenna. Replace the second sentence of the subsection with the following: The Department will not measure any other materials necessary to complete the installation for payment and will consider them incidental to this item of work.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	723.05 PAYMENT. Replace items 04810-04811, 20391NS835, 20392NS835,23052NN and add item number 24526ED under Code, Pay Item, and Pay Unit with the following: Code — Pay Item — Pay Unit 04810 — Electrical Junction Box — Each 04811 — Electrical Junction Box Type B — Each 20391NS835 — Electrical Junction Box Type A — Each 20392NS835 — Electrical Junction Box Type C — Each 23052NN — Span/Pole-Mounted Sign — Each 24526ED — Install Beacon Controller 2 Cir — Each
Subsection: **Revision:**	801.01 REQUIREMENTS Replace first sentence in paragraph one with the following: Provide Portland cement *or blended hydraulic cement* from approved mills listed in the Department's List of Approved Materials.
Subsection: **Number:** **Revision:**	801.01 REQUIREMENTS 1) Replace first sentence with the following: Type I, II, III, and IV *Portland cement* conforms to ASTM C 150.
Subsection: **Number:** **Revision:**	801.01 REQUIREMENTS 3) Replace the first sentence with the following: Type IP (≤20), Portland-pozzolan cement, conforms to ASTM C595, and the following additional requirements to Type IP (≤20).
Subsection: **Number:** **Part:** **Revision:**	801.01 REQUIREMENTS 3) b) Delete part b)
Subsection: **Number:** **Part:** **Revision:**	801.01 REQUIREMENTS 3) c) Rename Part c) to Part b) and replace the text with the following: The cement manufacturer shall furnish to the Engineer reports showing the results of tests performed on the fly ash used in the manufacture of the Type IP(≤20) cement shipped to the project.
Subsection **Number:** **Part:** **Revision:**	801.01 REQUIREMENTS 3) d) Rename Part d) to Part c)
Subsection: **Number:** **Part:** **Revision:**	801.01 REQUIREMENTS 3) e) Rename Part e) to Part d) and replace the text with the following: Use only one brand of Type IP(≤20) cement throughout the project, unless the Engineer approved a change in brand in writing.
Subsection: **Number:** **Revision:**	801.01 REQUIREMENTS 4) Replace first sentence with the following: Type IS(≤30), Portland blast furnace slag cement, conforms to ASTM C 595 and the following requirements:

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	a)
Revision:	Replace part a) with the following: Use Grade 100 or 120 blast furnace slag cement conforming to the requirements of ASTM C 989.
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	b)
Revision:	Delete part b)
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	c)
Revision:	Rename Part c) to Part b) and replace the text with the following: The cement manufacturer shall furnish to the Engineer reports showing the results of the tests performed on the blast furnace slag cement used in the manufacturing of the Type IS(≤30) shipped to the project.
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	d)
Revision:	Rename Part d) to Part c)
Subsection:	801.01 REQUIREMENTS
Number:	4)
Part:	e)
Revision:	Rename Part e) to Part d) and replace the text with the following: Use only one brand of Type IS(≤30) cement throughout the project, unless the Engineer approves otherwise.
Subsection:	801.01 REQUIREMENTS
Number:	5)
Revision:	Insert part 5) as the following: Type IL(5-15), Portland-limestone cement, conforms to ASTM C 595 and the following additional requirements:
Subsection:	801.01 REQUIREMENTS
Number:	5)
Part:	a)
Revision:	Insert part a) as the following: The cement manufacturer shall furnish to the Engineer reports showing the results of test performed on the limestone used in the manufacture of the Type IL cement shipped to the project.
Subsection:	801.01 REQUIREMENTS
Number:	5)
Part:	b)
Revision:	Insert part b) as the following: Use only one brand of Type IL cement throughout the project, unless the Engineer approves a brand change in writing.
Subsection:	801.01 REQUIREMENTS
Number:	5)
Part:	c)
Revision:	Insert part c) as the following: The Type IL blended cement shall be an intimate and uniform blend produced by intergrinding of the Portland cement and limestone.
Subsection:	804.01.02 Crushed Sand.
Revision:	Delete last sentence of the section.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: 804.01.06 Slag.
Revision: Add subsection and following sentence.
Provide blast furnace slag sand where permitted. The Department will allow steel slag sand only in asphalt surface applications.

Subsection: 804.04 Asphalt Mixtures.
Revision: Replace the subsection with the following:
Provide natural, crushed, conglomerate, or blast furnace slag sand, with the addition of filler as necessary, to meet gradation requirements. The Department will allow any combination of natural, crushed, conglomerate or blast furnace slag sand when the combination is achieved using cold feeds at the plant. The Engineer may allow other fine aggregates.

Subsection: 806.03.01 General Requirements.
Revision: Replace the second sentence of the paragraph with the following:
Additionally, the material must have a minimum solubility of 99.0 percent when tested according to AASHTO T 44 and PG 76-22 must exhibit a minimum recovery of 60 percent, with a J_{NR} (non-recoverable creep compliance) between 0.1 and 0.5, when tested according to AASHTO TP 70.

Subsection: 806.03.01 General Requirements.
Table: PG Binder Requirements and Price Adjustment Schedule
Revision: Replace the Elastic Recovery, % [3] (AASHTO T301) and all corresponding values in the table with the following:

Test	Specification	100% Pay	90% Pay	80% Pay	70% Pay	50%Pay[1]
MSCR recovery, % [3] (AASHTO TP 70)	60 Min.	≥58	56	55	54	<53

Subsection: 806.03.01 General Requirements.
Table: PG Binder Requirements and Price Adjustment Schedule
Superscript: (3)
Revision: Replace [3] with the following:
Perform testing at 64°C.

Subsection: 808.07 Polypropylene Waterproofing Membrane.
Revision: Replace the paragraph and table with the following: Furnish a layered waterproofing membrane. The layers will consist of an internal puncture resistant woven polypropylene fabric sandwiched between two rubberized mastic layers. The mastic will have a heavy polyethylene membrane attached on the top and the bottom mastic layer will be covered by a protective release film.

Subsection: 808.09 Acceptance.
Revision: Replace the reference to "KMIMS" in the second paragraph with SiteManager.

Subsection: 811.10.04 Properties of the Coated Bar.
Part: B) Flexibility of Coating.
Revision: Replace the second sentence of the paragraph with the following: Ensure that the coated bars are capable of being bent to 180 degrees (after rebound) over a mandrel, without any visible evidence of cracking the coating.

Subsection: 813.04 Gray Iron Castings.
Revision: Replace the reference to "AASHTO M105" with "ASTM A48".

Subsection: 813.09.02 High Strength Steel Bolts, Nuts, and Washers.
Number: A) Bolts.
Revision: Delete first paragraph and "Hardness Number" Table. Replace with the following:
A) Bolts. Conform to ASTM A325 (AASHTO M164) or ASTM A490 (AASHTO 253) as applicable.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Third paragraph, replace the reference to "AWPA C14" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Replace the first sentence of the fourth paragraph with the following: Use any of the species of wood for round or square posts covered under AWPA U1.
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Fourth paragraph, replace the reference to "AWPA C2" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	814.04.02 Timber Guardrail Posts. Delete the second sentence of the fourth paragraph.
Subsection: **Revision:**	814.05.02 Composite Plastic. 1) Add the following to the beginning of the first paragraph: Select composite offset blocks conforming to this section and assure blocks are from a manufacturer included on the Department's List of Approved Materials. 2) Delete the last paragraph of the subsection.
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. First paragraph, replace the reference to "AWPA C5" with "AWPA U1, Section B, Paragraph 4.1".
Subsection: **Revision:**	816.07.02 Wood Posts and Braces. Delete the second sentence of the first paragraph.
Subsection: **Revision:**	818.07 Preservative Treatment. First paragraph, replace all references to "AWPA C14" with "AWPA U1, Section A".
Subsection: **Revision:**	833.01.02 Sheeting Signs. Replace the second sentence with the following: Provide a thickness of 125 mils if any single edge dimension of the sign exceeds 3 feet.
Subsection: **Revision:**	834.14 Lighting Poles. Replace the first sentence with the following: Lighting pole design shall be in accordance with loading and allowable stress requirements of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims, with the exception of the following: The Cabinet will waive the requirement stated in the first sentence of Section 5.14.6.2 – Reinforced Holes and Cutouts for high mast poles (only). The minimum diameter at the base of the pole shall be 22 inches for high mast poles (only).
Subsection **Revision:**	834.14.03 High Mast Poles. Remove the second and fourth sentence from the first paragraph.
Subsection **Revision:**	834.14.03 High Mast Poles. Replace the third paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	834.14.03 High Mast Poles.
Revision:	Replace paragraph six with the following: Provide a pole section that conforms to ASTM A 595 grade A with a minimum yield strength of 55 KSI or ASTM A 572 with a minimum yield strength of 55 KSI. Use tubes that are round or 16 sided with a four inch corner radius, have a constant linear taper of .144 in/ft and contain only one longitudinal seam weld. Circumferential welded tube butt splices and laminated tubes are not permitted. Provide pole sections that are telescopically slip fit assembled in the field to facilitate inspection of interior surface welds and the protective coating. The minimum length of the telescopic slip splices shall be 1.5 times the inside diameter of the exposed end of the female section. Use longitudinal seam welds as commended in Section 5.15 of the AASHTO 2013 Specifications. The thickness of the transverse base shall not be less than 2 inches. Plates shall be integrally welded to the tubes with a telescopic welded joint or a full penetration groove weld with backup bar. The handhole cover shall be removable from the handhole frame. One the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM A 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7-guage stainless steel to provide adjustability to insure weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube of the pole but needs to be at least 15 inches. Provide products that are hot-dip galvanized to the requirements of either ASTM A123 (fabricated products) or ASTM A 153 (hardware items).
Subsection:	834.16 ANCHOR BOLTS.
Revision:	Insert the following sentence at the beginning of the paragraph: The anchor bolt design shall follow the NCHRP Report 494 Section 2.4 and NCHRP 469 Appendix A Specifications.
Subsection:	834.17.01 Conventional.
Revision:	Add the following sentence after the second sentence: Provide a waterproof sticker mounted on the bottom of the housing that is legible from the ground and indicates the wattage of the fixture by providing the first two numbers of the wattage.
Subsection:	834.21.01 Waterproof Enclosures.
Revision:	Replace the last five sentences in the second paragraph with the following sentences: Provide a cabinet door with a louvered air vent, filter-retaining brackets and an easy to clean metal filter. Provide a cabinet door that is keyed with a factory installed standard no. 2 corbin traffic control key. Provide a light fixture with switch and bulb. Use a 120-volt fixture and utilize a L.E.D. bulb (equivalent to 60 watts minimum). Fixture shall be situated at or near the top of the cabinet and illuminate the contents of the cabinet. Provide a 120 VAC GFI duplex receptacle in the enclosure with a separate 20 amp breaker.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection:	835.07 Traffic Poles.
Revision:	Replace the first sentence of the first paragraph with the following: Pole diameter and wall thickness shall be calculated in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection:	835.07 Traffic Poles.
Revision:	*Replace the first sentence of the fourth paragraph with the following: Ensure transverse plates have a thickness ≥ 2 inches. *Add the following sentence to the end of the fourth paragraph: The bottom pole diameter shall not be less than 16.25 inches.
Subsection:	835.07 Traffic Poles.
Revision:	Replace the third sentence of the fifth paragraph with the following: For anchor bolt design, pole forces shall be positioned in such a manner to maximize the force on any individual anchor bolt regardless of the actual anchor bolt orientation with the pole.
Subsection:	835.07 Traffic Poles.
Revision:	Replace the first and second sentence of the sixth paragraph with the following: The pole handhole shall be 25 inches by 6.5 inches. The handhole cover shall be removable from the handhole frame. On the frame side opposite the hinge, provide a mechanism on the handhole cover/frame to place the Department's standard padlock as specified in Section 834.25. The handhole frame shall have two stainless studs installed opposite the hinge to secure the handhole cover to the frame which includes providing stainless steel wing nuts and washers. The handhole cover shall be manufactured from 0.25 inch thick galvanized steel (ASTM 153) and have a neoprene rubber gasket that is permanently secured to the handhole frame to insure weather-tight protection. The hinge shall be manufactured from 7 gauge stainless steel to provide adjustability to insure a weather-tight fit for the cover. The minimum clear distance between the transverse plate and the bottom opening of the handhole shall not be less than the diameter of the bottom tube but needs to be at least 12 inches.
Subsection:	835.07 Traffic Poles.
Revision:	*Replace the first sentence of the last paragraph with the following: Provide calculations and drawings that are stamped by a Professional Engineer licensed in the Commonwealth of Kentucky. *Replace the third sentence of the last paragraph with the following: All tables referenced in 835.07 are found in the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 2013-6th Edition with current interims.
Subsection:	835.07.01 Steel Strain Poles.
Revision:	Replace the second sentence of the second paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.
Subsection:	835.07.01 Steel Strain Poles.
Revision:	Replace number 7. after the second paragraph with the following: 7. Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.
Subsection:	835.07.02 Mast Arm Poles.
Revision:	Replace the second sentence of the fourth paragraph with the following: The detailed analysis shall be certified by a Professional Engineer licensed in the Commonwealth of Kentucky.

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: 835.07.02 Mast Arm Poles.
Revision: Replace number 7) after the fourth paragraph with the following: 7) Fatigue calculations should be shown for all fatigue related connections. Provide the corresponding detail, stress category and example from table 11.9.3.1-1.

Subsection: 835.07.03 Anchor Bolts.
Revision: Add the following to the end of the paragraph: There shall be two steel templates (one can be used for the headed part of the anchor bolt when designed in this manner) provided per pole. Templates shall be contained within a 26.5 inch diameter. All templates shall be fully galvanized (ASTM A 153).

Subsection: 835.16.05 Optical Units.
Revision: Replace the 3rd paragraph with the following:
The list of certified products can be found on the following website: http://www.intertek.com.

Subsection: 835.19.01 Pedestrian Detector Body.
Revision: Replace the first sentence with the following: Provide a four holed pole mounted aluminum rectangular housing that is compatible with the pedestrian detector.

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE I FABRIC GEOTEXTILES FOR SLOPE PROTECTION AND CHANNEL LINING
Revision: Add the following to the chart:

Property	Minimum Value[(1)]	Test Method
CBR Puncture (lbs)	494	ASTM D6241
Permittivity (1/s)	0.7	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE II FABRIC GEOTEXTILES FOR UNDERDRAINS
Revision: Add the following to the chart:

Property	Minimum Value[(1)]	Test Method
CBR Puncture (lbs)	210	ASTM D6241
Permittivity (1/s)	0.5	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE III FABRIC GEOTEXTILES FOR SUBGRADE OR EMBANKMENT STABILIZATION
Revision: Add the following to the chart:

Property	Minimum Value[(1)]	Test Method
CBR Puncture (lbs)	370	ASTM D6241
Permittivity (1/s)	0.05	ASTM D4491

Subsection: 843.01.01 Geotextile Fabric.
Table: TYPE IV FABRIC GEOTEXTILES FOR EMBANKMENT DRAINAGE BLANKETS AND PAVEMENT EDGE DRAINS
Revision: Add the following to the chart:

Property	Minimum Value[(1)]	Test Method
CBR Puncture (lbs)	309	ASTM D6241
Permittivity (1/s)	0.5	ASTM D4491

Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the April 29, 2016 Letting

Subsection: 843.01.01 Geotextile Fabric.

Table: TYPE V HIGH STRENGTH GEOTEXTILE FABRIC

Revision: Make the following changes to the chart:

Property	Minimum Value[(1)]	Test Method
CBR Puncture (lbs)	618	ASTM D6241
Apparent Opening Size	U.S. #40[(3)]	ASTM D4751

[(3)] Maximum average roll value.

1I

SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

2.0 MATERIALS.

2.1 General. Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
3) Provide a controller consisting of:
   a) Keyboard or keypad.
   b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
   c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
   d) Logic circuitry to control the sequence of messages and flash rate.
4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
11) Provide a photocell control to provide automatic dimming.

1I

12) Allow an on-off flashing sequence at an adjustable rate.
13) Provide a sight to aim the message.
14) Provide a LED display color of approximately 590 nm amber.
15) Provide a controller that is password protected.
16) Provide a security device that prevents unauthorized individuals from accessing the controller.
17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

/KEEP/RIGHT/⇒⇒⇒/
/KEEP/LEFT/⇐⇐⇐/
/LOOSE/GRAVEL/AHEAD/
/RD WORK/NEXT/**MILES/
/TWO WAY/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/
/REDUCE/SPEED/**MPH/
/BRIDGE/WORK/***0 FT/
/MAX/SPEED/**MPH/
/SURVEY/PARTY/AHEAD/
/MIN/SPEED/**MPH/
/ICY/BRIDGE/AHEAD/ /ONE LANE/BRIDGE/AHEAD/
/ROUGH/ROAD/AHEAD/
/MERGING/TRAFFIC/AHEAD/
/NEXT/***/MILES/
/HEAVY/TRAFFIC/AHEAD/
/SPEED/LIMIT/**MPH/
/BUMP/AHEAD/
/TWO/WAY/TRAFFIC/

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Power.

1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be

1I

the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

6U

SPECIAL NOTE FOR STRUCTURAL MASS CONCRETE

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 Special Note covers requirements for structural mass concrete placement. The Department considers mass concrete to be any concrete placement, excluding drilled shafts, with its least plan dimension being 6 feet or greater.

2.0 MATERIALS AND EQUIPMENT.

2.1 Cement. Conform to Section 801 or ASTM C595 for blended cements, Type IS or Type I(SM), except the slag constituent in Type IS is limited to 50 percent of the mass of the portland blast furnace slag.

2.2 Mineral Admixtures. Conform to Section 844 except the Department will permit fly ash Class F and Grade 100 ground granular blast furnace slag (GGBF) in addition to Grade 120.

2.3 Aggregate. Use coarse aggregate conforming to the freeze-thaw expansion requirements of Subsection 805.04.01 for use in all classes of structural mass concrete, excluding seal concrete.

2.4 Temperature Sensing Equipment. Use thermistor type temperature sensing devices, or an approved equal, capable of indicating temperatures over a range of 50 to 200 °F, with an accuracy of ± 1 °F and a precision of 1 °F. Connect the sensors to a device that continuously records and displays temperatures at intervals no greater than 4 hours, and produces a record that can be detached and filed.

3.0 CONSTRUCTION. When placing the mixture, do not allow its temperature to exceed 70 °F. Insulate the concrete until the thermal control is finished. Do not allow the concrete to exceed the maximum temperature of 160 °F at any time during the curing period.

3.1 Thermal Control Plan. Submit for approval a written Thermal Control Plan describing the procedures to be used to minimize temperature differentials within the concrete. Include all items required by this note, and other items deemed necessary or prudent.

Submit the Thermal Control Plan at least 30 calendar days before the first intended structural mass concrete placement. The Engineer will respond within 21 calendar days after receipt of the plan. Make any changes required by the Engineer and resubmit the plan. Continue this process until the Engineer approves the Thermal Control Plan.

Do not place structural mass concrete before receiving written approval of the Thermal Control Plan and having all equipment and materials necessary to facilitate the plan on the site and ready for use.

Approval of the Thermal Control Plan is independent of the submission of the trial mixtures.

The Department will allow the inclusion of the following items in the Thermal Control Plan.

6U

1) Reduction of the total cement content by the use of mineral admixtures. Mineral admixtures derived from blended cements, used as processing additions, or as ingredient materials will apply toward stated maximums.

    a. Substitution of Class F fly ash for cement at the rate of 25 to 30 percent, by mass, applying a substitution rate of 1.0 to 1.25 pounds of fly ash added.
    b. Substitution of GGBF for cement up to a maximum of 50 percent, by mass, applying a substitution rate of one pound of GGBF for each one pound of cement.
    c. Mixes with both GGBF and Class F fly ash, permit up to but no more than 20 percent of the 50 percent GGBF maximum as Class F fly ash.

2) Sprinkle the mixer trucks' drums for cooling.
3) Arrange with supplier to avoid delivery of hot cement.
4) Cooling of aggregate stockpiles.
5) Use of a nitrogen gas cooling system to cool the concrete mass before placement.
6) Use of shaved, flaked, or chipped ice as part of the mixing water.
7) Embedment in the structural mass concrete of a cooling system, approved by the Engineer, consisting of non-corrosive piping and circulating fresh water. Filling of the pipe with concrete or grout after its usefulness has ended is required.
8) Placing concrete during the coolest part of the day, or during cooler weather.
9) Use of special cements or additives that will reduce heat of hydration without affecting strength or durability.

3.2 Thermal Control.

3.2.1 Temperature Differential Restrictions. Ensure that the temperature differential between the geometric center of each placement and the geometric surface does not exceed 35 °F at any time. Maintain thermal control of each placement until the temperature at the center is within 35 °F of the average outside air temperature. Determine the average outside air temperature by averaging the daily high and low temperatures over the preceding 7 calendar days.

3.2.2 Temperature Sensing and Recording. For each placement of structural mass concrete, install 4 temperature sensors, 2 at separate locations near the geometric center of each concrete placement and 2 at the approximate center of the exterior face that has the least sun exposure with the longest distance to the interior sensors. Place the exterior side sensors two inches below the exterior surface. The Department requires 2 sensors at each location in order to have a primary and secondary backup.

3.2.3 Failure to Comply. If the temperature differential within any structural mass concrete placement exceeds 35 °F, take immediate corrective action, suspend future placement of structural mass concrete, and submit a revised Thermal Control Plan to the Engineer for approval. Do not resume placing mass concrete without written approval from the Engineer.

3.3 Trial Mixtures. At least 30 calendar days prior to concrete placement, for each class of concrete used in structural mass concrete, make trial batches according to Subsection 601.03.02 G).

6U

3.4 Seal Concrete. Conform to all requirements herein this note for underwater placement of concrete seals, with the following exceptions.

1) The Department will not require thermistor devices.
2) The Department will not require insulation.
3) The Department will not require monitoring of the differential between interior and exterior temperatures.
4) When placing the mixture, do not allow its temperature to exceed 60° F.
5) Ensure seal concrete has the following properties:

Cementitious Content	564 lbs/cy
Maximum Free Water	0.47 lb water/lb cement
Slump	4-8 inches
Air Content	0-5%
28-day Compressive Strength	3,500 psi

3.5 Acceptance Testing. Conform to the specified 28-day compressive strength requirements for each class of concrete. The Department will make extra cylinders at the rate of one set per 100 cubic yards, except seal concrete shall be one set per 200 cubic yards, and will test them at an age of 7 days. The Department will cure the extra cylinders, after the first 24 hours, at a temperature between 60 °F and 80 °F. The extra cylinders will be expected to achieve a minimum 7-day compressive strength of 2,600 psi. If the 2,600 psi is not consistently achieved, take corrective action on future pours.

4.0 MEASUREMENT. The Department will not measure the work required by this Special Note as a separate pay unit and will consider it incidental to the various concrete bid items.

5.0 PAYMENT. When the temperature differential exceeds 35 °F during the thermal control period, the Department will adjust payment for the concrete within the affected placement by multiplying the contract unit price by the appropriate factor in the following table:

Temperature Differential	Pay Factor
36 to 40 °F	0.96
41 to 45 °F	0.90
46 °F or higher	0.80

When the 35 °F differential is exceeded for more than one 24-hour period, the Department will apply the pay factor for the maximum differential that occurs. Begin measuring temperature differential 12 hours after the last concrete placement.

June 15, 2012

11C

SPECIAL NOTE FOR DRILLED SHAFTS

1.0 DESCRIPTION. Furnish all equipment, materials and labor necessary for constructing reinforced concrete drilled shafts in cylindrically excavated holes according to the details shown on the plans or as the Engineer directs. Construct the shaft to the lines and dimensions shown on the plans, or as the Engineer directs. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS.

2.1 Concrete. Use Class A Modified concrete unless otherwise shown on the plans. The slump at the time of placement shall be 6.5 to 9.5 inches, the coarse aggregate shall be size 67, 68, 78, 8 or 9M, and the water/cementitious material ratio shall not exceed 0.45. Include water reducing and retarding admixtures. Type F high range water reducers used in combination with retarding admixtures or Type G high range water reducers fully meeting trial batch requirements are permitted and Class F fly ash is permitted in conformance with Section 601. Design the mix such that the concrete slump exceeds 4 inches at 4 hours after batching. If the estimated concrete transport, plus time to complete placement, exceeds 4 hours, design the concrete to have a slump that exceeds 4 inches or more for the greater time after batching and demonstrate that the slump requirement can be achieved after the extended time period using a trial batch.

Perform trial batches prior to beginning drilled shaft construction in order to demonstrate the adequacy of the proposed concrete mix. Demonstrate that the mix to be used will meet the requirements for temperature, slump, air content, water/cementitious material ratio, and compressive strength. Use the ingredients, proportions and equipment (including batching, mixing, and delivery) to be used on the project. Make at least 2 independent consecutive trial batches of 3 cubic yards each using the same mix proportions and meeting all specification requirements for mix design approval. Submit a report containing these results for slump, air content, water/cement ratio, temperature, and compressive strength and mix proportions for each trial batch to the Engineer for review and approval. Failure to demonstrate the adequacy of the concrete mix, methods, or equipment to the Engineer is cause for the Engineer to require appropriate alterations in concrete mix, equipment, and/or method by the Contractor to eliminate unsatisfactory results. Perform additional trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment.

2.2 Steel Reinforcement. Provide Grade 60 deformed bars conforming to Section 811 of the Standard Specifications. Rail steel is permitted for straight bars only. Place according to Section 602 of the Standard Specifications, this Special Note, and the plans. Use non-corrosive centering devices and feet to maintain the specified reinforcement clearances.

2.3 Casings. Provide casing meeting the requirements of ASTM A 252 Grade 2 or better unless otherwise specified. Ensure casing is smooth, clean, watertight, true and straight, and of ample strength to withstand handling, installation, and extraction stresses and the pressure of both concrete and the surrounding earth materials. Ensure the outside diameter of casing is not less than the specified diameter of shaft.

Use only continuous casings. Cut off the casing at the prescribed elevation and trim to within tolerances prior to acceptance. Extend casing into bedrock a sufficient distance to stabilize the shaft excavation against collapse, excessive deformation, and/or flow of water if required and/or shown on the plans.

Install from the work platform continuous casing meeting the design thickness requirements, but not less than 3/8 inch, to the elevations shown on the plans. When drilled

shafts are located in open water areas, extend casings above the water elevation to the plan tip elevation to protect the shaft concrete from water action during concrete placement and curing. All casing is permanent unless temporary casing is specified in the contract drawings or documents. Permanent casing is incidental to the applicable drilled shaft unit bid price unless noted otherwise in the contract. Temporary casing may be required for drilled shafts not socketed into bedrock. If temporary surface casings are used, extend each casing up to the work platform. Remove all temporary surface casing prior to final acceptance unless otherwise permitted by the Central Office Construction Engineer.

Ensure casing splices have full penetration butt welds conforming to the current edition of AWS D1.1 with no exterior or interior splice plates and produce true and straight casing.

2.4 Slurry. When slurry is to be used for installation of the Drilled Shaft, submit a detailed plan for its use and disposal. The plan should include, but not be limited to the following:

1) Material properties
2) Mixing requirements and procedures
3) Testing requirements
4) Placement procedures
5) Disposal techniques

Obtain the Central Office Division of Construction's approval for the slurry use and disposal plan before installing drilled shafts.

2.5 Tremies. Provide tremies of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. Ensure the tremie diameter is least 6 times the maximum size coarse aggregate to be used in the concrete mix and no less than 10 inches. Provide adequate wall thickness to prevent crimping or sharp bends that restrict concrete placement. Support tremies used for depositing concrete in a dry drilled shaft excavation so that the free fall of the concrete does not cause the shaft excavation to cave or slough. Maintain a clean and smooth tremie surface to permit both flow of concrete and unimpeded withdrawal during concrete placement. Do not allow any aluminum parts to contact the concrete. Construct tremies used to deposit concrete for wet excavations so that they are watertight and will readily discharge concrete.

2.6 Concrete Pumps. Provide pump lines with a minimum diameter of 5 inches and watertight joints.

2.7 Drop Chutes. Do not use aluminum drop chutes.

3.0 CONSTRUCTION.

3.1 Preconstruction.

3.1.1 Prequalification. The Department will require prequalification by the Division of Construction Procurement before accepting a bid for the construction of Drilled Shafts.

3.1.2 Pre-Bid Inspection. Inspect both the project site and all subsurface information, including any soil or rock samples, prior to submitting a bid. Contact the Geotechnical Branch (502-564-2374) to schedule a viewing of the subsurface information. Failure to inspect the project site and view the

subsurface information will result in the forfeiture of the right to file a claim based on site conditions and may result in disqualification from the project.

3.1.3 Drilled Shaft Installation Plan. Upon request, the Department will review a Drilled Shaft Installation Plan. Submit the plan no later than 45 calendar days prior to constructing drilled shafts. Items covered in this plan should include, but not be limited to the following:

1) Name and experience record of jobsite drilled shaft superintendent and foremen in charge of drilled shaft operations for each shift.
2) List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, de-sanding equipment, slurry pumps, core sampling equipment, tremies or concrete pumps, casings, etc.
3) Details of overall construction operation sequence and the sequence of shaft construction in the bents or groups.
4) Details of shaft excavation methods including methods to over-ream or roughen shaft walls, if necessary.
5) Details of slurry when the use of slurry is anticipated. Include methods to mix, circulate, and de-sand the proposed slurry. Provide details of proposed testing, test methods, sampling methods, and test equipment.
6) Details of proposed methods to clean shaft and inside of casing after initial excavation.
7) Details of reinforcement handling, lifting, and placement including support and method to center in shaft. Also include rebar cage support during concrete placement and temporary casing removal.
8) Details of concrete placement including procedures for concrete tremie or pump. Include initial placement, raising during placement, and overfilling of the shaft to expel contaminated concrete.
9) Required submittals including shop drawings and concrete design mixes.
10) Other information shown in the plans or requested by the Engineer.
11) Special considerations for wet construction.
12) Details of environmental control procedures to protect the environment from discharge of excavation spoil, slurry (natural and mineral), and concrete over-pour.

The Division of Construction will review the submitted procedure and provide comments and recommendations. The Contractor is responsible for satisfactory construction and ultimate performance of the Drilled Shaft.

3.2 General Construction. Construct drilled shafts as indicated in the plans or described in this Special Note by either the dry or wet method. When the plans describe a particular method of construction, use this method unless the Engineer permits otherwise. When the plans do not describe a particular method, propose a method on the basis of its suitability to the site conditions. Approval of this proposed method is contingent upon the satisfactory results of the technique shaft.

The construction of the first drilled shaft or technique shaft will be used to determine if the methods and equipment used by the contractor are sufficient to produce a completed shaft meeting the requirements of the plans and specifications. Ability to control dimensions and alignment of excavations within tolerances; to seal the casing into impervious materials; to prevent caving or deterioration of subsurface materials by the use of slurry or other means; to

properly clean the completed shaft excavation; to construct excavations in open water areas when required by the plans; to establish methods for belling or over-reaming when required by the plans; to determine the elevation of ground water; to satisfactorily handle, lift, place, and support the reinforcement cage; to satisfactorily place concrete meeting the specifications within the prescribed time frame; and to satisfactorily execute any other necessary construction operations will be evaluated during construction of the first shaft(s). Revise the methods and equipment as necessary at any time during the construction of the first shaft when unable to satisfactorily carry out any of the necessary operations described above or unable to control the dimensions and alignment of the shaft excavation within tolerances. Accurately locate technique so they may be used in the finished structure unless directed otherwise in the contract document or by the Engineer.

If at any time the Contractor fails to satisfactorily demonstrate, to the satisfaction of the Engineer, the adequacy of methods or equipment and alterations are required, additional technique shafts will be required at no additional cost to the Department and with no extension of contract time. Additional technique shafts shall be located as near as possible to the proposed production shafts but in a location as not to interfere with other construction activities. Once approval has been given to construct production shafts, no changes will be permitted in the methods or equipment used to construct the satisfactory shaft without written approval of the Engineer.

Do not make a claim against the Department for costs of construction delays, or any materials, labor, or equipment that may be necessary due to the Contractor's failure to furnish drilled shafts of a length sufficient to obtain the required bearing values, or for variations in length due to subsurface conditions that may be encountered. Soundings, boring logs, soil profiles, or other subsurface data included in the Contract documents are used by the Department for design and making preliminary estimates of quantities and should be used only at the risk of the Contractor for determining equipment, materials, or labor necessary for drilling shafts as required by the contract.

When necessary, set temporary removable surface casing. Use surface casing of sufficient length to prevent caving of the surface soils and to aid in maintaining shaft position and alignment. Pre-drilling with slurry and/or over-reaming to the outside diameter of the casing may be required to install the surface casing at some sites.

Provide equipment capable of constructing shafts to the deepest shaft depth shown in the plans plus 15 feet, 20 percent greater than the longest shaft (measured from the ground or water surface to the tip of the shaft), or 3 times the shaft diameter, whichever is greater. Blasting excavation methods are not permitted.

Use permanent casing unless otherwise noted in the Contract. Place casing as shown on the plans before beginning excavation. If full penetration cannot be attained, the Engineer may direct that excavation through the casing be accomplished and the casing advanced until reaching the plan tip elevation. In some cases, over-reaming to the outside diameter of the casing may be required before placing the casing. Cut off the casing at the prescribed elevation and leave the remainder of the casing in place. Do not use vibratory hammers for casing installation within 50 feet of shafts that have been completed less than 24 hours.

3.2.1 Dry Construction Method. Use the dry construction method only at sites where the ground water table and soil conditions (generally stiff to hard clays or rock above the water table) make it feasible to construct the shaft in a relatively dry excavation and where the sides and bottom of the shaft are stable and may be visually inspected by the Engineer prior to placing the concrete. The dry construction method consists of drilling the shaft excavation, removing accumulated seepage water and loose material from the excavation, and placing the shaft concrete in a relatively dry excavation.

3.2.2 Wet Construction Method. Use the wet construction method at all sites where it is impractical to excavate by the dry method. The wet construction method consists of drilling the shaft excavation below the water table, keeping the shaft filled with water (including natural slurry formed during the drilling process) or slurry as defined in part 2.4 of this Special Note, desanding and cleaning the slurry as required, final cleaning of the excavation by means of a bailing bucket, air lift, submersible pump or other approved devices and placing the shaft concrete (with a tremie or concrete pump beginning at the shaft bottom) which displaces the water or slurry as concrete is placed.

Where drilled shafts are located in open water areas, construct the shafts by the wet method using casings extending from above water elevation to the plan casing tip elevation to protect the shaft concrete from water action during placement and curing. Install the casing in a manner that will produce a positive seal at the bottom of the casing.

3.3 Slurry. When the Contractor elects to use slurry, adjust construction operations so that the slurry is in contact with the bottom 5 feet of the shaft for less than 4 hours unless the Engineer approves otherwise. If the 4-hour limit is exceeded, over-ream the bottom 5 feet of shaft.

3.4 Cleaning. Over-reaming, cleaning, or wire brushing the sidewalls of the shaft excavation and permanent casings may be necessary to remove the depth of softening or to remove excessive slurry cake buildup as indicated by sidewall samples or other test methods employed by the Engineer. Over-ream around the perimeter of the excavation a minimum depth of 1/2 inch and maximum depth of 3 inches.

3.5 Subsurface Exploration. Take subsurface exploration borings when shown on the plans or as the Engineer directs to determine the character of the material that the shaft extends through and the material directly below the shaft excavation. Complete subsurface exploration borings prior to beginning excavation for any drilled shaft in a group. Unless directed otherwise, extend subsurface exploration borings a minimum depth of 3 shaft diameters but not less than 10 feet below the bottom of the anticipated tip of drilled shaft excavation as shown on the plans. For subsurface exploration borings where soil sampling is required use thin-wall tube samples and perform standard penetration tests according to the Department’s current Geotechnical Manual. When shafts extend into bedrock, soil samples are not required unless otherwise specified. Perform rock core drilling according to the Department’s Geotechnical Manual. When the Engineer directs, perform additional subsurface exploration borings prior to drilled shaft construction. Measure soil samples and/or rock cores and visually identify and describe them on the subsurface log according to the Department’s current Geotechnical Manual. Subsurface exploration borings must be performed by contractors/consultants prequalified by the Department’s Division of Professional Services for Geotechnical Drilling Services at the time that field work begins.

The Engineer or geotechnical branch representative may be on-site during the subsurface exploration process to evaluate the soil and/or rock core samples. The Engineer or geotechnical branch representative will determine the need to extend the borings to depths greater than the depths previously specified. Handle, label, identify, and store soil and/or rock samples according to the Department's current Geotechnical Manual and deliver them with the subsurface logs to the geotechnical branch’s rock core lab in Frankfort within 24-hours of completing the borings, unless directed otherwise.

The Engineer will inspect the soil samples and/or cores and determine the final depth of required excavation (final drilled shaft tip elevation) based on evaluation of the material's suitability. The Engineer will establish the final tip elevations for shaft locations, other than

those for which subsurface exploration borings have been performed, based on the results of the subsurface exploration. Within 15 calendar days after completion of the subsurface exploration borings, the Engineer will notify the contractor of the final tip elevations for shaft locations.

3.6 Excavations. The plans indicate the expected depths, the top of shaft elevations, and the estimated bottom of shaft elevations between which the drilled shaft are to be constructed. Drilled shafts may be extended deeper when the Engineer determines that the material encountered while drilling the shaft excavation is unsuitable and/or is not the same as anticipated in the design of the drilled shaft. Drilled shafts may be shortened when the Engineer determines the material encountered is better than that anticipated.

Begin drilled shaft excavation the excavation, excavation inspection, reinforcement placement, and concrete placement can be completed as one continuous operation. Do not construct new shafts within 24 hours adjacent to recently completed shafts if the center-to-center spacing is less than 3 shaft diameters.

Dispose of excavated material removed from the shaft according to the Standard Specifications or the contract documents.

Do not allow workmen to enter the shaft excavation for any reason unless both a suitable casing has been installed and adequate safety equipment and procedures have been provided to the workmen entering the excavation. Recommended Procedures for the Entry of Drilled Shaft Foundation Excavations, prepared by ADSC: The International Association of Foundation Drilling provides guideline recommendations for down-hole entry of drilled excavations.

3.7 Obstructions. Remove subsurface obstructions at drilled shaft locations. Such obstructions may include man-made materials such as old concrete foundations or natural materials such as boulders. Blasting is not permitted.

3.8 Inspections of Excavations. Provide equipment for checking the dimensions and alignment of each shaft excavation. Determine the dimensions and alignment of the shaft excavation under the observation and direction of the Engineer. Provide equipment necessary to verify shaft cleanliness for the method of inspection selected by the Engineer.

Measure final shaft depths with a weighted tape or other approved methods after final cleaning. Ensure the base of each shaft has less than ½ inch of sediment at the time of concrete placement. For dry excavations, do not allow the depth of water to exceed 3 inches for tremie or pump methods of concrete placement. Verify shaft cleanliness to the Engineer using direct visual inspection or other method the Engineers determines acceptable. Video camera or underwater inspection procedures may be used if specified in the plans. Inspect the side surfaces of rock sockets to ensure they are rough and of such condition to ensure bond between the shaft concrete and the rock. Calipers, bent rods, or other devices may be used to inspect the diameter and roughness of rock sockets. When the Engineer directs, mechanically roughen surfaces found to be smooth.

3.9 Reinforcing Steel Cage Fabrication and Placement. Assemble the reinforcing steel cage, consisting of longitudinal bars, ties, spirals, cage stiffener bars, spacers, centering devices, and other necessary appurtenances and place as a prefabricated unit immediately after the shaft excavation is inspected and accepted, and just prior to concrete placement.

Tie the reinforcing steel with 100 percent double-wire ties and provide support so that it will remain within allowable tolerances for position. Locate splices as shown on the plans. Splice no more than 50 percent of the longitudinal reinforcing within 2-lap splice lengths of any location or within 3 feet of the splice location if approved mechanical connectors are used. All splices are to be in accordance with plan details. Use bands, temporary cross ties,

etc. as required to provide a reinforcement cage of sufficient rigidity to prevent racking, permanent deformations, etc. during installation.

Use concrete centering devices or other approved non-corrosive centering devices at sufficient intervals along the length of the reinforcement cage to ensure concentric spacing for the entire cage length. As a minimum, provide a set of non-corrosive centering devices at intervals not exceeding 5 feet throughout the length of the shaft. When the size of the longitudinal reinforcement exceeds one inch in diameter the minimum spacing may be increased to 10 feet. As a minimum, provide a set of centering devices within 2 feet of the top and 2 feet of the bottom of the shaft. In addition provide one set of centering devices 2 feet above and 2 feet below each change in shaft diameter. Provide feet (bottom supports) at the bottom of the shaft on vertical bars. As a minimum, provide non-corrosive centering devices at 60 degree intervals around the circumference of the shaft to maintain the required reinforcement clearances. Ensure the centering devices maintain the specified annular clearance between the outside of the reinforcing cage and the side of the excavated hole or casing.

Concrete centering devices and feet will be constructed of concrete equal in quality and durability to the concrete specified for the shaft. Use epoxy coated centering devices fabricated from reinforcing steel. Use feet (bottom supports) of adequate size and number to assure the rebar cage is the proper distance above the bottom as determined by part 3.11 3) of this Special Note. The feet are not intended to support the weight of the cage. In the event that the shaft has been excavated below the anticipated tip elevation, extend the reinforcing cage at the tip (low) end by lap splices, mechanical connectors, or welded splices conforming to the Standard Specifications. In this instance, splices need not be staggered and 100 percent of the reinforcing bars may be spliced at a given location. The bottom 12 inches of the shaft may not be reinforced when below plan tip elevation.

During concrete placement, support the reinforcing cage at or near the top of shaft such that the concrete feet are positioned approximately one inch above the bottom of shaft excavation. Not sooner than 24 hours after the completion of concrete placement, remove temporary supports. Provide the needed equipment, including extra cranes if necessary, to provide this cage support.

Prior to placing the reinforcement cage, demonstrate to the satisfaction of the Engineer that the fabrication and handling methods to be used will result in a reinforcing cage placed in the proper position, with the proper clearances, and without permanent bending, squashing, or racking of the reinforcement cage. During this demonstration bring the cage to an upright position, lower into a shaft excavation, and support as if for concrete placement.

Check the elevation of the top of the reinforcing cage before and after the concrete is placed. If the reinforcing cage is not maintained within the specified tolerances, correct to the satisfaction of the Engineer. Do not construct additional shafts until the contractor has modified his reinforcing cage support to obtain the required tolerances.

3.10 Concrete Placement. Place concrete according to the applicable portions of the Standard Specifications and with the requirements set forth herein. Do not apply the provisions of the Special Note 6U for Structural Mass Concrete.

Place concrete as soon as practical after reinforcing steel placement but no later than 4 hours after completion of the shaft excavation. Place concrete continuously from the bottom to above the top elevation of the shaft. For shafts that extend above ground or water surface, place concrete continuously after the shaft is full until good quality concrete is evident at the top of the shaft. Form any portion of the shaft above ground with a removable form or other approved method to the dimensions shown on the plans.

For shafts constructed in the wet with the top of the shaft below the water surface and below top of casing, place concrete to approximately one shaft diameter but no less than 2 feet above the top of shaft elevation. Remove contaminated concrete and deleterious material, as

determined by the Engineer, accumulated above the top of shaft elevation immediately after completing concrete placement. Deleterious material and contaminated concrete may be airlifted under a head of water or slurry provided that the head is maintained at or near the exterior water surface elevation. Carefully remove any concrete remaining above plan top of shaft after curing and excess casing removal.

Place concrete either by free fall, through a tremie, or concrete pump. Use the free fall placement method in dry holes only. The maximum height of free fall placement is 20 feet. Do not allow concrete placed by free fall to contact either the reinforcing cage or hole sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

Place concrete in the shaft in one continuous operation. Maintain a minimum slump of 4 inches or more throughout the placement for 4 hours after batching. Adjust approved admixtures in the concrete mix for the conditions encountered on the job so that the concrete remains in a workable plastic state throughout the placement. Perform slump loss tests to demonstrate that the concrete will maintain a 4-inch or greater slump for a period of time equal to the estimated transport plus the 2-hour placement time, but not less than 4 hours.

When the Engineer determines the concrete placement methods and/or equipment during construction of any technique and/or production shafts to be inadequate, make appropriate alterations to eliminate unsatisfactory results.

Drilled shafts not meeting the concrete placement requirements of this Special Note or contract plans are unacceptable. Correct all unacceptable completed shafts to the satisfaction of the Engineer.

3.10.1 Tremie Placement. Tremies may be used for concrete placement in either wet or dry holes. Extend the tremie to the shaft base elevation before starting underwater placement. Valves, bottom plates, or plugs may be used only if concrete discharge can begin approximately 2 inches above the excavation bottom. Remove plugs from the excavation unless otherwise approved by the Engineer. Maintain tremie discharge at or near the bottom of excavation as long as practical during concrete placement. Immerse tremie discharge end as deep as practical in the concrete but not less than 10 feet.

If at any time during the concrete pour the tremie line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete surface, the entire drilled shaft is considered defective. In such case, remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or over-reaming as directed by the Engineer, and repour the shaft.

3.10.2 Pumped Concrete. Concrete pumps and lines may be used for concrete placement in either wet or dry excavations. Do not begin concrete placement until the pump line discharge orifice is at the shaft base elevation.

For wet excavations, use a plug or similar device to separate the concrete from the fluid in the hole until pumping begins. Remove the plug unless otherwise approved by the engineer.

Ensure the discharge orifice remains at least 10 feet below the surface of the fluid concrete. When lifting the pump line during concrete placement, reduce the line pressure until the orifice has been repositioned at a higher level in the excavation.

If at any time during the concrete pour the pump line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete level, the Department will consider the shaft defective. In such case, remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or over-reaming as the Engineer directs, and repour the shaft.

3.10.3 Drop Chutes. Drop chutes may be used to direct placement of free fall concrete in excavations where the maximum depth of water does not exceed one inch. Do not use the free fall method of placement in wet excavations. Concrete may be placed through either a hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. Reduce the height of free fall and/or reduce the rate of concrete flow into the excavation if the concrete placement causes the shaft excavation to cave or slough, or if the concrete strikes the reinforcing cage or sidewall. When the Engineer determines free fall placement cannot be accomplished satisfactorily, use either tremie or pumping to accomplish the pour.

3.11 Construction Tolerances. The following construction tolerances apply to drilled shafts unless otherwise stated in the contract document:

1) Construct drilled shaft within 3 inches of plan position in the horizontal plane at the top of the shaft.
2) Do not vary the vertical alignment of a shaft excavation from the plan alignment by more than 1/4 inch per foot of depth or 6 inches total.
3) Maintain the top of the reinforcing steel cage no more than 6 inches above and no more than 3 inches below plan position.
4) All casing diameters shown on the plans refer to O.D. (outside diameter) dimensions. The casing dimensions are subject to American Pipe Institute tolerances applicable to regular steel pipe. A casing larger in diameter than shown in the plans may be used, at no additional cost, with prior approval by the Department.
5) Maintain the top of shaft concrete within ± 3 inches from the plan top of shaft elevation, measured after excess shaft concrete has been removed.
6) Design excavation equipment and methods so that the completed shaft excavation will have a planar bottom. Maintain the cutting edges of excavation equipment normal to the vertical axis of the equipment within a tolerance of ± 3/8 inch per foot of diameter. The tip elevation of the shaft has a tolerance of ± 6 inches from final shaft tip elevation unless otherwise specified in the plans.

Drilled shaft excavations and completed shafts not constructed within the required tolerances are unacceptable. Correct all unacceptable shaft excavations and completed shafts to the satisfaction of the Engineer. When a shaft excavation is completed with unacceptable tolerances, present corrective measures designed by a registered Professional Engineer for approval.

4.0 MEASUREMENT.

4.1 Drilled Shafts. The Department will not measure for payment any trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment; concrete required to fill an oversized casing or oversized excavation; obstruction removal; over-reaming or sidewall cleaning; inspection work or inspection equipment; materials or work necessary, including engineering analyses and redesign, to alter unacceptable work methods or to complete corrections for unacceptable work; and will consider them incidental to the Drilled Shaft. Unless noted otherwise in the contract documents, casing is incidental to the drilled shaft.

4.1.1 Drilled Shaft, Common. The Department will measure the length, in linear feet, of drilled shaft above the top of rock elevation shown on the plans. The

Department will consider this quantity Drilled Shaft, Common regardless of the character of material actually encountered.

4.1.2 Drilled Shafts, Solid Rock. The Department will measure the length, in linear feet, of drilled shaft below the top of rock elevation shown on plans. The Department will consider this quantity Drilled Shafts, Solid Rock regardless of the character of material actually encountered during excavation.

4.2 Technique Shaft. The Department will pay for technique shaft at the contract unit price per each as detailed on the plans or as directed by the Engineer. This will constitute full compensation for all costs incurred during installation as described herein for 'Drilled Shaft' or in the contract documents. No additional compensation beyond the number of technique shafts allowed for in the plans will be permitted for additional technique shafts required because of failure to demonstrate adequacy of methods.

4.3 Rock Coring and Rock Sounding. The Department will measure Rock Sounding and Rock Coring shown on the plans, as specified in part 3.5 of this Special Note, and as the Engineer directs, in linear feet to the nearest 0.1-foot. If soil samples are specified in the contract documents they will be incidental to the unit price bid for Rock Sounding. The Department will not measure or pay for subsurface exploration performed deeper than the elevations indicated on the plans and/or in this Special Note, unless directed by the Engineer, and will consider it incidental to these items of work. Additionally, the Department will consider all mobilization, equipment, labor, incidental items, and operations necessary to complete the boring operations incidental to these items of work.

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

Code	Pay Item	Pay Unit
-----	Drilled Shaft, Diameter*, Common	Linear Foot
-----	Drilled Shaft, Diameter*, Solid Rock	Linear Foot
-----	Technique Shaft	Each
20745ED	Rock Sounding	Linear Foot
20746ED	Rock Coring	Linear Foot

* *See Plan Sheets for sizes of shafts.*

The Department will consider payment as full compensation for all work required in this note.

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.

11D

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

11E

SPECIAL NOTE FOR BORING AND JACKING STEEL PIPE WITHOUT CARRIER PIPE

This Special Note will apply where 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. Bore and jack steel pipe. Use this note when no carrier pipe will be encased.

2.0 MATERIALS.

2.1 Pipe. Provide plain end steel pipe with a specific minimum yield strength, SMYS, of at least 35,000 psi and tensile strength of 60,000 psi per API-5L grade B material. The steel pipe supplied shall be manufactured by the seamless, electric-weld, submerged-arc weld or gas metal-arc well process as specified in API –5L. Certification of 35,000 psi SMYS shall be furnished by the supplier through the Contractor to the Engineer to retain 3 copies.

MINIMUM WALL THICKNESS FOR STEEL PIPE	
Nominal Diameter (Inches)	Wall Thickness (Inches)
18 or less	0.375
24	0.500
30	0.500
36	0.532
42	0.625

2.2 Grout. Conform to Subsection 601.03.03.

2.3 High Grade Bentonite. Conform to the following:

API 13A Section 4		
Requirement	Specification	Result
Viscometer Dial Reading at 600 rpm	30, minimum	40
Yield Point/Plastic Viscosity Ratio	3, maximum	3.00 maximum
Filtrate Volume	15 cm3, maximum	14.50 maximum
Residue greater than 75 micrometers	4.0 wt percent maximum	1.0-1.5 %
Moisture	10.0 wt percent maximum	9.0-9.5%

3.0 CONSTRUCTION. Perform the following:

1. Locate a suitable pit and obtain the Engineer's approval.
2. Excavate the pit or trenches for the BORE AND JACK operation and for placing the end joints of pipe, when required. Securely sheet and brace the pits or trenches to prevent caving, where necessary.

3. When installing pipe under railroads, highways, streets, or other facilities by Bore and Jack, perform construction without interfering with the facility operation or weakening the roadbed or structure.
4. Place excavated material near the top of the working pit and dispose of it as required. Use water or other fluids with the boring operation to lubricate the cuttings. Do not perform jetting.
5. In unconsolidated soil formations, use a gel-forming collodial drilling fluid with at least 10 percent of high grade bentonite to consolidate excavated material, seal the walls of the hole, and lubricate subsequent removal of material and immediate pipe installation.
6. Ensure that the diameter of the excavation conforms to the outside diameter of the pipe as closely as possible.
7. Pressure grout voids that develop during the installation operation and that the Engineer determines are detrimental to the Work.
8. To force the pipe through the roadbed into the bored space, use a jack with a head constructed to apply uniform pressure around the ring of the pipe, which shall be square cut.
9. Set the pipe to be jacked on guides, braced together to properly support the pipe section and to direct it to the proper line and grade.
10. When the installation is made by concurrent boring and jacking, solidly weld all joints. Ensure the weld is strong enough to withstand the forces exerted from the boring and jacking operations as well as the vertical loading imposed on the pipe after installation and that it provides a smooth, non-obstructing joint in the interior of the pipe.
11. When the pipe is installed in open trench, bed and backfill according to Section 701.
12. The line and grade from the pipe's final position, as shown on plans, may vary no more than 2 percent in lateral alignment and one percent in vertical grade. Ensure that the final grade of the flow line is in the direction indicated on the Plans.
13. Use a cutting edge around the head end. Extend it a short distance beyond the pipe end with inside angles or lugs to keep the cutting edge from slipping back into the pipe.
14. Once the pipe installation begins, proceed with the operation without interruption to prevent the pipe from becoming firmly set in the embankment.
15. Remove and replace pipe damaged in jacking operations.
16. After completing the installation, backfill the excavated pits and trenches with flowable fill according to Section 601.03.03 B) 5 a) if the pit is in median area where it will have pavement over it.

4.0 MEASUREMENT. The Department will measure the completed length of Bore and Jacked pipe through the flowline from end to end in linear feet. The Department will not measure pressure grouting voids or removal and replacement of pipe damaged in jacking operations for payment and will consider it incidental to Bore and Jack. When abandoning a bore hole due to mechanical malfunction, improper alignment, or other problems due to construction operations, the Department will not measure the backfill and relocation for payment and will consider it incidental to this item of work. When abandoning a bore hole due to an unforeseen physical obstruction or situation, the Department will measure the work according to a negotiated supplemental agreement.

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

11E

Code	Pay Item	Pay Unit
----	Bore and Jack, Size Pipe	Linear Foot

The Department will consider payment as full compensation for all materials, earthwork, shoring, pipe and work required under this section.

June 15, 2012

11F

SPECIAL NOTE FOR TURF REINFORCING MAT

1.0 DESCRIPTION. Install turf reinforcement mat at locations specified in the Contract or as the Engineer directs. Section references herein are to the Department's 2012 Standard Specifications for Road and Bridge Construction.

2.0 MATERIALS.

2.1 Turf Reinforcement Mat (TRM). Use a Turf Reinforcement Mat defined as permanent rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh and/or other elements, processed into a three-dimensional matrix of sufficient thickness and from the Department's List of Approved Materials. Mats must be 100% UV stabilized materials. For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting exclusively. Ensure product labels clearly show the manufacturer or supplier name, style name, and roll number. Ensure labeling, shipment and storage follows ASTM D-4873. The Department will require manufacturer to provide TRMs that are machine constructed web of mechanically or melt bonded nondegradable fibers entangled to form a three dimensional matrix. The Department will require all long term performance property values in table below to be based on non degradable portion of the matting alone. Approved methods include polymer welding, thermal or polymer fusion, or placement of fibers between two high strength biaxially oriented nets mechanically bound by parallel stitching with polyolefin thread. Ensure that mats designated in the plans as Type 4 mats, are not to be manufactured from discontinuous or loosely held together by stitching or glued netting or composites. Type 4 mats shall be composed of geosynthetic matrix that exhibits a very high interlock and reinforcement capacities with both soil and root systems and with high tensile modulus. The Department will require manufacturer to use materials chemically and biologically inert to the natural soil environments conditions. Ensure the blanket is smolder resistant without the use of chemical additives. When stored, maintain the protective wrapping and elevate the mats off the ground to protect them from damage. The Department will not specify these materials for use in heavily acidic coal seam areas or other areas with soil problems that would severally limit vegetation growth.

A) Dimensions. Ensure TRMs are furnished in strips with a minimum width of 4 feet and length of 50 feet.
B) Weight. Ensure that all mat types have a minimum mass per unit area of 7 ounces per square yard according to ASTM D 6566.
C) Performance Testing: The Department will require AASHTO's NTPEP index testing. The Department will also require the manufacturer to perform internal MARV testing at a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory for tensile strength, tensile elongation, mass per unit area, and thickness once every 24,000 yds of production or whatever rate is required to ensure 97.7% confidence under ASTM D4439& 4354. The Department will require Full scale testing for slope and channel applications shear stress shall be done under ASTM D 6459, ASTM D 6460-07 procedures.

2.2 Classifications

The basis for selection of the type of mat required will be based on the long term shear stress level of the mat of the channel in question or the degree of slope to protect and will be designated in the contract. The Type 4 mats are to be used at structural backfills protecting critical

structures, utility cuts, areas where vehicles may be expected to traverse the mat, channels with large heavy drift, and where higher factors of safety, very steep slopes and/or durability concerns are needed as determined by project team and designer and will be specified in the plans by designer.

Turf Reinforcement Matting					
Properties[1]	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818[2]
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355[3] (1000-hr exposure)
Minimum thickness (inches)	0.25	0.25	0.25	0.40	ASTM D6525
Slopes applications	2H:1V or flatter	1.5H:1V or flatter	1H:1V or flatter	1 H: 1V or greater	
Shear stress lbs/ft^2 Channel applications	6.0[4]	8.0[4]	10.0[4]	12.0[4]	ASTM D6459 ASTM D6460-07

[1] For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.
[2]Minimum Average Roll Values for tensile strength of sample material machine direction.
[3]Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.
[4]Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

2.3 Quality Assurance Sampling, Testing, and Acceptance

A) Provide TRM listed on the Department's List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.

B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.

C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials.

2.4 Fasteners. When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

3.0 CONSTRUCTION. When requested by the Engineer, provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

3.1 Site Preparation. Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

3.2 Installation. Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface.

4.0 MEASUREMENT. The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer's Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

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

Code	Pay Item	Pay Unit
23274EN11F	Turf Reinforcement Mat 1	Square Yard
23275EN11F	Turf Reinforcement Mat 2	Square Yard
23276EN11F	Turf Reinforcement Mat 3	Square Yard
23277EN11F	Turf Reinforcement Mat 4	Square Yard

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).

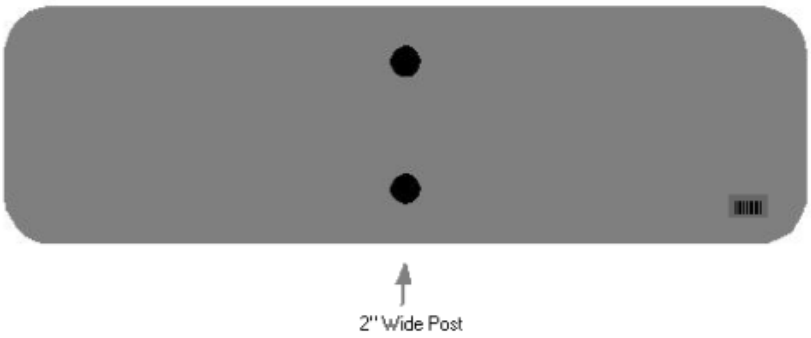
The installation of the permanent sign will be measured in accordance to Section 715.

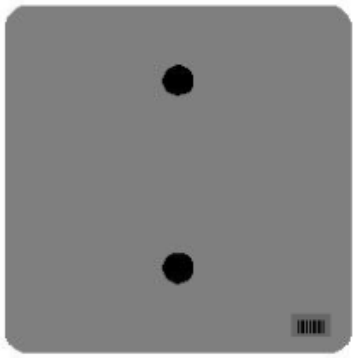
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24631EC	Barcode Sign Inventory	Each

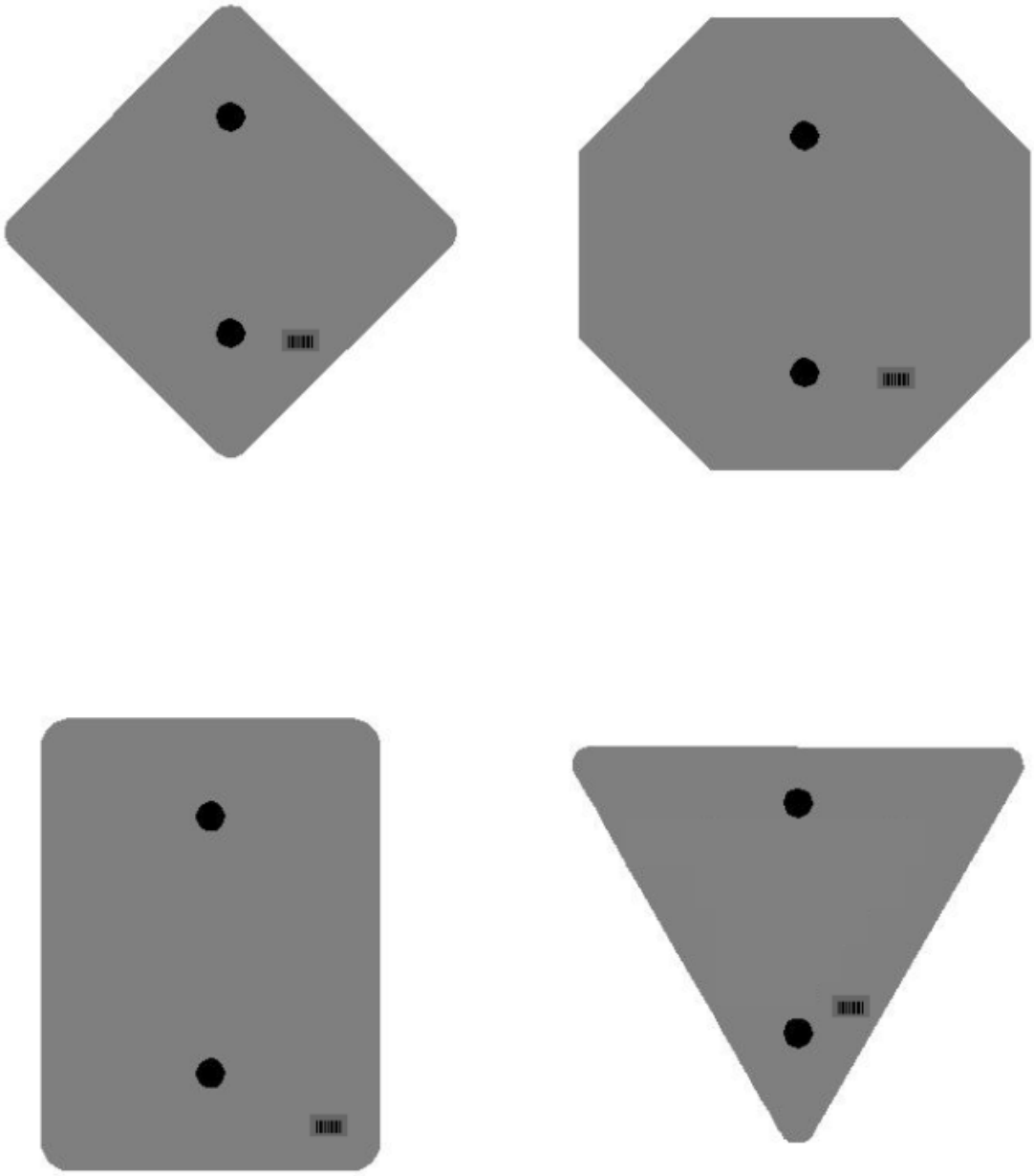
The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment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

One Sign Post

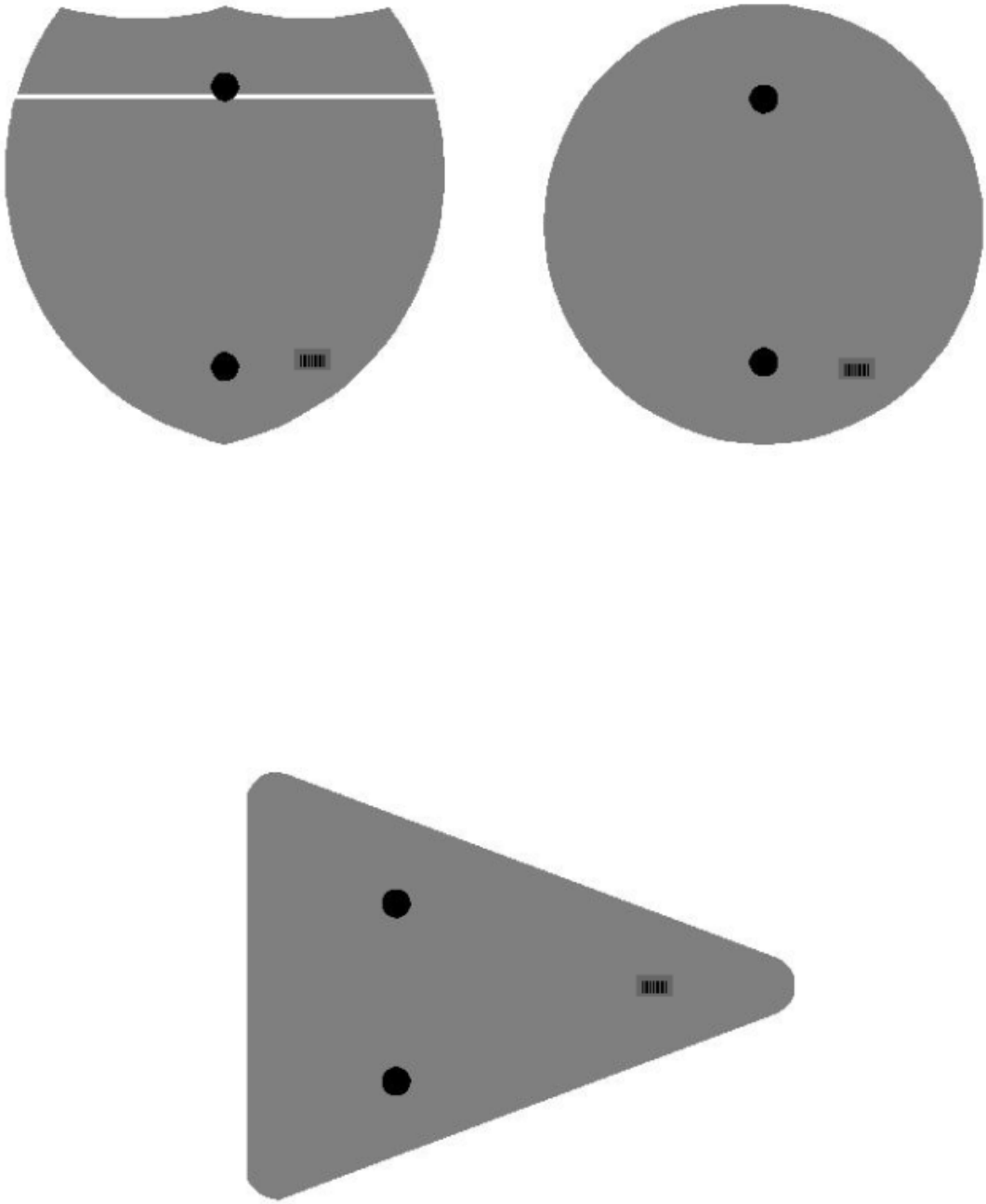




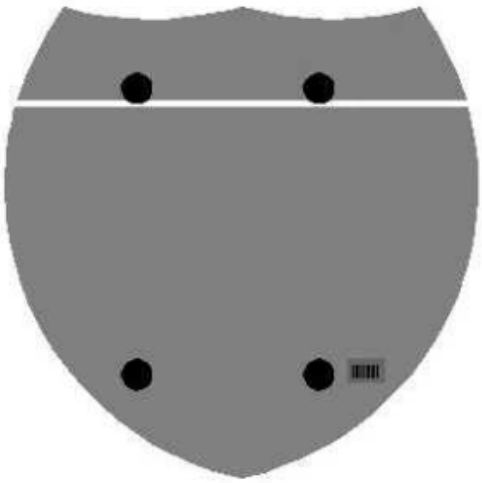
One Sign Post



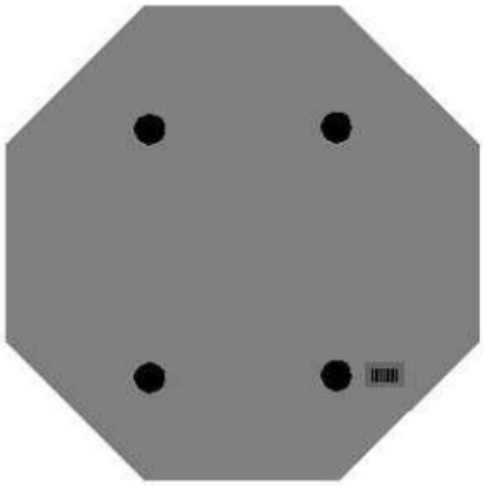
One Sign Post



Double Sign Post

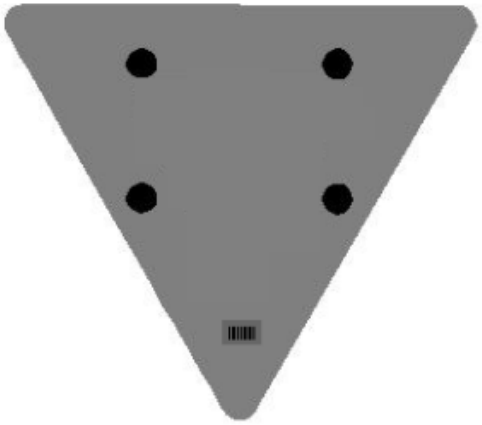


Interstate
Shield



48" Stop

2 Post Signs



11N

SPECIAL NOTE FOR LONGITUDINAL PAVEMENT JOINT ADHESIVE

1. DESCRIPTION. This specification covers the requirements and practices for applying an asphalt adhesive material to the longitudinal joint of the surface course of an asphalt pavement. Apply the adhesive to the face of longitudinal joint between driving lanes for the first lane paved. Then, place and compact the adjacent lane against the treated face to produce a strong, durable, waterproof longitudinal joint.

2. MATERIALS, EQUIPMENT, AND PERSONNEL.

2.1 Joint Adhesive. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide an adhesive conforming to the following requirements:

Property	Specification	Test Procedure
Viscosity, 400 ° F (Pa·s)	4.0 – 10.0	ASTM D 4402
Cone Penetration, 77 ° F	60 – 100	ASTM D 5329
Flow, 140 ° F (mm)	5.0 max.	ASTM D 5329
Resilience, 77 ° F (%)	30 min.	ASTM D 5329
Ductility, 77 ° F (cm)	30.0 min.	ASTM D 113
Ductility, 39 ° F (cm)	30.0 min.	ASTM D 113
Tensile Adhesion, 77 ° F (%)	500 min.	ASTM D 5329, Type II
Softening Point, ° F	171 min.	AASHTO T 53
Asphalt Compatibility	Pass	ASTM D 5329

Ensure the temperature of the pavement joint adhesive is between 380 and 410 °F when the material is extruded in a 0.125-inch-thick band over the entire face of the longitudinal joint.

2.2. Equipment.

2.2.1 Melter Kettle. Provide an oil-jacketed, double-boiler, melter kettle equipped with any needed agitation and recirculating systems.

2.2.2 Applicator System. Provide a pressure-feed-wand applicator system with an applicator shoe attached.

2.3 Personnel. Ensure a technical representative from the manufacturer of the pavement joint adhesive is present during the initial construction activities and available upon the request of the Engineer.

3. CONSTRUCTION.

3.1 Surface Preparation. Prior to the application of the pavement joint adhesive, ensure the face of the longitudinal joint is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the joint face by the use of compressed air.

11N

Ensure this preparation process occurs shortly before application to prevent the return of debris on the joint face.

3.2 Pavement Joint Adhesive Application. Ensure the ambient temperature is a minimum of 40 ^{o} F during the application of the pavement joint adhesive. Prior to applying the adhesive, demonstrate competence in applying the adhesive according to this note to the satisfaction of the Engineer. Heat the adhesive in the melter kettle to the specified temperature range. Pump the adhesive from the melter kettle through the wand onto the vertical face of the cold joint. Apply the adhesive in a continuous band over the entire face of the longitudinal joint. Do not use excessive material in either thickness or location. Ensure the edge of the extruded adhesive material is flush with the surface of the pavement. Then, place and compact the adjacent lane against the joint face. Remove any excessive material extruded from the joint after compaction (a small line of material may remain).

3.3 Pavement Joint Adhesive Certification. Furnish the joint adhesive's certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a random sample of pavement joint adhesive from each manufacturer's lot of material. Extrude two 5 lb. samples of the heated material and forward the sample to the Division of Materials for testing. Reynolds oven bags, turkey size, placed inside small cardboard boxes or cement cylinder molds have been found suitable. Ensure the product temperature is 400°F or below at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of Pavement Joint Adhesive in linear feet. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of Pavement Joint Adhesive, the cleaning of the joint face, or furnishing and placing the adhesive. The Department will consider all such items incidental to the Pavement Joint Adhesive.

5. PAYMENT. The Department will pay for the Pavement Joint Adhesive at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

11N

Pavement Joint Adhesive Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Joint Adhesive Referenced in Subsection 2.1.1						
Viscosity, 400 ° F (Pa•s)			3.0-3.4	2.5-2.9	2.0-2.4	≤1.9
ASTM D 3236	4.0-10.0	3.5-10.5	10.6-11.0	11.1-11.5	11.6-12.0	≥ 12.1
Cone Penetration, 77 ° F			54-56	51-53	48-50	≤ 47
ASTM D 5329	60-100	57-103	104-106	107-109	110-112	≥ 113
Flow, 140 ° F (mm) ASTM D 5329	≤ 5.0	≤ 5.5	5.6-6.0	6.1-6.5	6.6-7.0	≥ 7.1
Resilience, 77 ° F (%) ASTM D 5329	≥ 30	≥ 28	26-27	24-25	22-23	≤ 21
Tensile Adhesion, 77 ° F (%) ASTM D 5329	≥ 500	≥ 490	480-489	470-479	460-469	≤ 459
Softening Point, ° F AASHTO T 53	≥ 171	≥ 169	166-168	163-165	160-162	≤ 159
Ductility, 77 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9
Ductility, 39 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9

Code	Pay Item	Pay Unit
20071EC	Joint Adhesive	Linear Foot

May 7, 2014

69

SPECIAL PROVISION FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES

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

1.0 DESCRIPTION. Construct a soil, granular, or rock embankment with soil, granular or cohesive pile core and place structure granular backfill, as the Plans require. Construct the embankment according to the requirements of this Special Provision, the Plans, Standard Drawing RGX 100 and 105, and the Standard Specifications, Current Edition.

2.0 MATERIALS.

2.1 Granular Embankment. Conform to Subsection 805.10. When Granular Embankment materials are erodible or unstable according to Subsection 805.03.04, use the Special Construction Methods found in 3.2 of the Special Provision.

2.2 Rock Embankment. Provide durable rock from roadway excavation that consists principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone.

2.3 Pile Core. Provide a pile core in the area of the embankments where deep foundations are to be installed unless otherwise specified. The Pile Core is the zone indicated on Standard Drawings RGX 100 and 105 designated as Pile Core. Material control of the pile core area during embankment construction is always required. Proper Pile Core construction is required for installation of foundation elements such as drilled or driven piles or drilled shafts. The type of material used to construct the pile core is as directed in the plans or below. Typically, the pile core area will be constructed from the same material used to construct the surrounding embankment. Pile Core can be classified as one of three types:

A) Pile Core - Conform to Section 206 of the Standard Specifications. Provide pile core material consisting of the same material as the adjacent embankment except the material in the pile core area shall be free of boulders or particle sizes larger than 4 inches in any dimension or any other obstructions that may hinder pile driving operations. If the pile core material hinders pile driving operations, take the appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

B) Granular Pile Core. Granular pile core is required only when specified in the plans. Select a gradation of durable rock to facilitate pile driving that conforms to Subsection 805.11. If granular pile core material hinders pile driving operations, take appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

C) Cohesive Pile Core. Cohesive Pile Core is required only when specified in the plans. Conform to Section 206 of the Standard Specifications and use soil with at least 50 percent passing a No. 4 sieve having a minimum Plasticity Index (PI) of 10. In addition, keep the cohesive pile core free of boulders, larger than 4 inches in any dimension, or any other obstructions, which would interfere with drilling operations. If cohesive pile core material interferes with drilling operations, take appropriate means necessary to maintain

excavation stability, at no expense to the Department.

2.4 Structure Granular Backfill. Conform to Subsection 805.11

2.5 Geotextile Fabric. Conform to Type I or Type IV in Section 214 and 843.

3.0 CONSTRUCTION.

3.1 General. Construct roadway embankments at end bents according to Section 206 and in accordance with the Special Provision, the Plans, and Standard Drawings for the full embankment section. In some instances, granular or rock embankment will be required for embankment construction for stability purposes, but this special provision does not prevent the use of soil when appropriate. Refer to the plans for specific details regarding material requirements for embankment construction.

Place and compact the pile core and structure granular backfill according to the applicable density requirements for the project. If the embankment and pile core are dissimilar materials (i.e., a granular pile core is used with a soil embankment or a cohesive pile core is used with a granular embankment), a Geotextile Fabric, Type IV, will be required between the pile core and embankment in accordance with Sections 214 and 843 of the Standard Specifications.

When granular or rock embankment is required for embankment construction, conform to the general requirements of Subsection 206.03.02 B. In addition, place the material in no greater than 2-foot loose lifts and compact with a vibrating smooth wheel roller capable of producing a minimum centrifugal force of 15 tons. Apply these requirements to the full width of the embankment for a distance of half the embankment height or 50 feet, whichever is greater, as shown on Standard Drawing RGX-105.

When using granular pile core, install 8-inch perforated underdrain pipe at or near the elevation of the original ground in the approximate locations depicted on the standard drawing, and as the Engineer directs, to ensure positive drainage of the embankment. Wrap the perforated pipe with a fabric of a type recommended by the pipe manufacturer.

After constructing the embankment, excavate for the end bent cap, drive piling, install shafts or other foundation elements, place the mortar bed, construct the end bent, and complete the embankment to finish grade according to the construction sequence shown on the Plans or Standard Drawings and as specified hereinafter.

Certain projects may require widening of existing embankments and the removal of substructures. Construct embankment according to the plans. Substructure removal shall be completed according to the plans and Section 203. Excavation may be required at the existing embankment in order to place the structure granular backfill as shown in the Standard Drawings.

After piles are driven or shafts installed (see design drawings), slope the bottom of the excavation towards the ends of the trench as noted on the plans for drainage. Using a separate pour, place concrete mortar, or any class concrete, to provide a base for forming and placing the cap. Place side forms for the end bent after the mortar has set sufficiently to support workmen and forms without being disturbed.

Install 4-inch perforated pipe in accordance with the plans and Standard Drawings. In the event slope protection extends above the elevation of the perforated pipe, extend the pipe through the slope protection.

After placing the end bent cap and achieving required concrete cylinder strengths, remove adjacent forms and fill the excavation with compacted structure granular backfill material (maximum 1’ loose lifts) to the level of the berm prior to placing beams for the bridge. Place Type IV geotextile fabric between embankment material and structure granular backfill. After completing the end bent backwall, or after completing the span end

wall, place the compacted structure granular backfill (maximum 1' loose lifts) to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill (maximum 1' loose lifts) at no expense to the Department. Do not place backfill before removing adjacent form work. Place structure granular backfill material in trench ditches at the ends of the excavation. Place Geotextile Fabric, Type IV over the surface of the compacted structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means approved by the Engineer. Thoroughly compact the backfill under the overhanging portions of the structure to ensure that the backfill is in intimate contact with the sides of the structure.

Do not apply seeding, sodding, or other vegetation to the exposed granular embankment.

3.2 Special Construction Methods. Erodible or unstable materials may erode even when protected by riprap or channel lining; use the special construction method described below when using these materials.

Use fine aggregates or friable sandstone granular embankment at "dry land" structures only. Do not use them at stream crossings or locations subject to flood waters.

For erodible or unstable materials having 50 percent or more passing the No. 4 sieve, protect with geotextile fabric. Extend the fabric from the original ground to the top of slope over the entire area of the embankment slopes on each side of, and in front of, the end bent. Cover the fabric with at least 12 inches of non-erodible material.

For erodible or unstable materials having less than 50 percent passing a No. 4 sieve, cover with at least 12 inches of non-erodible material.

Where erodible or unstable granular embankment will be protected by riprap or channel lining, place Type IV geotextile fabric between the embankment and the specified slope protection.

4.0 MEASUREMENT.

4.1 Granular Embankment. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment any Granular Embankment that is not called for in the plans.

The Department will not measure for payment any special construction caused by using erodible or unstable materials and will consider it incidental to the Granular Embankment regardless of whether the erodible or unstable material was specified or permitted.

4.2 Rock Embankment. The Department will not measure for payment any rock embankment and will consider it incidental to roadway excavation or embankment in place, as applicable. Rock embankments will be constructed using granular embankment on projects where there is no available rock present within the excavation limits of the project.

4.3 Pile Core. Pile core will be measured and paid under roadway excavation or embankment in place, as applicable. The Department will not measure the pile core for separate payment. The Department will not measure for payment the 8-inch perforated underdrain pipe and will consider it incidental to the Pile Core.

4.4 Structure Granular Backfill. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure any additional material required for backfill outside the limits shown on the Plans and Standard Drawings for payment and will

consider it incidental to the work.

The Department will not measure for payment the 4-inch perforated underdrain pipe and will consider it incidental to the Structure Granular Backfill.

4.5 Geotextile Fabric. The Department will not measure the quantity of fabric used for separating dissimilar materials when constructing the embankment and pile core and will consider it incidental to embankment construction.

The Department will not measure for payment the Geotextile Fabric used to separate the Structure Granular Backfill from the embankment and aggregate base course and will consider it incidental to Structure Granular Backfill.

The Department will not measure for payment the Geotextile Fabric required for construction with erodible or unstable materials and will consider it incidental to embankment construction.

4.6 End Bent. The Department will measure the quantities according to the Contract. The Department will not measure furnishing and placing the 2-inch mortar or concrete bed for payment and will consider it incidental to the end bent construction.

4.7 Structure Excavation. The Department will not measure structure excavation on new embankments for payment and will consider it incidental to the Structure Granular Backfill or Concrete as applicable.

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

Code	Pay Item	Pay Unit
02223	Granular Embankment	Cubic Yards
02231	Structure Granular Backfill	Cubic Yards

The Department will consider payment as full compensation for all work required in this provision.

September 16, 2016

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

EMPLOYMENT REQUIREMENTS
RELATING TO
NONDISCRIMINATION OF EMPLOYEES
(APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)

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 (between forty and seventy); 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 (between forty and seventy). 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, disability or age (between forty and seventy), except that such notice or advertisement may indicate a preference, limitation, or specification based on religion, or national origin when religion, or national origin 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 (between forty and seventy), 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: 12-3-92

Standard Title VI/Non-Discrimination Assurances

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, **Federal Highway Administration**, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the **Federal Highway Administration** to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the **Federal Highway Administration**, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the **Federal Highway Administration** may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the **Federal Highway Administration** may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

Standard Title VI/Non-Discrimination Statutes and Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq*., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq*.), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq*.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq*.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 -- 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

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 (6) provides:

No present or former public servant shall, within six (6) months of 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 the state in matters in which he was directly involved during 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, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved 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.

KRS 11A.040 (8) states:

A former public servant shall not represent a person in a matter before a state agency in which the former public servant was directly involved, 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, Room 136, Capitol Building, 700 Capitol Avenue, Frankfort, Kentucky 40601; telephone (502) 564-7954.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled ``Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under these special provisions and in this contract is shown in “Special Notes Applicable to Project” in the bid proposal.

In the event that a contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction the contractor shall submit to the Kentucky Transportation Cabinet, Department of Highways for its approval, an acceptable training program on forms provided by the Cabinet indicating the number of trainees to be trained in each selected classification. Failure to provide the Cabinet with the proper documentation evidencing an acceptable training program prior to commencing construction shall cause the Cabinet to suspend the operations of the contractor with (if applicable) working days being charged as usual against the contract time or (if applicable), no additional contract time being granted for the suspension period. The Cabinet will not be liable for the payment of any work performed during the suspension period due to the failure of the contractor to provide an acceptable training program. Said suspension period shall be terminated when an acceptable training program is received by the Cabinet. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case. The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Kentucky Transportation Cabinet, Department of Highways and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed for each hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

1-1-93

General Decision Number: KY160187 01/08/2016 KY187

Superseded General Decision Number: KY20150187

State: Kentucky

Construction Type: Highway

Counties: Adair, Barren, Bell, Breathitt, Casey, Clay, Clinton, Cumberland, Estill, Floyd, Garrard, Green, Harlan, Hart, Jackson, Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lincoln, Magoffin, Martin, McCreary, Menifee, Metcalfe, Monroe, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Russell, Taylor, Wayne, Whitley and Wolfe Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016

SUKY2015-047 10/20/2015

	Rates	Fringes
BOILERMAKER	$ 24.65	12.94
BRICKLAYER		
Bricklayer	$ 22.90	8.50
Stone Mason	$ 21.50	8.50
CARPENTER		
Carpenter	$ 24.90	14.50
Piledriver	$ 24.55	14.50
CEMENT MASON	$ 21.25	8.50
ELECTRICIAN		
Electrician	$ 29.36	10.55
Equipment Operator	$ 26.90	10.31
Groundsman	$ 17.79	8.51
Lineman	$ 30.09	10.94

When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers,

structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.

IRONWORKER	$ 27.56	20.57

LABORER

Group 1	$ 21.80	12.36
Group 2	$ 22.05	12.36
Group 3	$ 22.10	12.36
Group 4	$ 22.70	12.36

GROUP 1: Aging and Curing of Concrete (Any Mode or Method), Asbestos Abatement Worker, Asphalt Plant Laborers, Asphalt Laborers, Batch Truck Dumpers, Carpenter Tenders, Cement Mason Tenders, Cleaning of Machines, Concrete Laborers, Demolition Laborers, Dredging Laborers, Drill Tender, Environmental Laborer - Nuclear, Radiation, Toxic and Hazardous Waste - Level D, Flagmen, Grade Checkers, All Hand Digging and Hand Back Filling, Highway Marker Placers, Landscaping Laborers, Mesh Handlers and Placers, Puddler, Railroad Laborers, Rip-rap and Grouters, Right of Way Laborers, Sign, Guard Rail and Fence Installers (All Types), Signalmen, Sound Barrier Installer, Storm and Sanitary Sewer Laborers, Swampers, Truck Spotters and Dumpers, Wrecking of Concrete Forms, General Cleanup

GROUP 2: Batter Board Men (Sanitary and Storm Sewer), Brickmason Tenders, Mortar Mixer Operator, Scaffold Builders, Burner and Welder, Bushammers, Chain Saw Operator, Concrete Saw Operators, Deckhand Scow Man, Dry Cement Handlers, Environmental Laborers - Nuclear, Radiation, Toxic and Hazardous Waste - Level C, Forklift Operators for Masonry, Form Setters, Green Concrete Cutting, Hand Operated Grouter and Grinder Machine Operator, Jack Hammers, Lead Paint Abatement, Pavement Breakers, Paving Joint Machine, Pipe Layers - Laser Operators (Non-metallic), Plastic Pipe Fusion, Power Driven Georgia Buggy and Wheel Barrow, Power Post Hole Diggers, Precast Manhole Setters, Walk-behind Tampers, Walk-behind Trenchers, Sand Blasters, Concrete Chippers, Surface Grinders, Vibrator Operators, Wagon Drillers

GROUP 3: Air Track Driller (All Types), Asphalt Luteman and Rakers, Gunnite Nozzleman, Gunnite Operators and Mixers, Grout Pump Operator, Powderman and Blaster, Side Rail Setters, Rail Paved Ditches, Screw Operators, Tunnel Laborers (Free Air), Water Blasters

GROUP 4: Caisson Workers (Free Air), Cement Finishers, Environmental Laborer - Nuclear, Radiation, Toxic and Hazardous Waste - Level A and B, miners and Drillers (Free Air), Tunnel Blasters, and Tunnel Mockers (Free Air), Directional and Horizontal Boring, Air Track Drillers (All Types), Powder Man and Blasters, Troxler and Concrete Tester if Laborer is Utilized

PAINTER		
All Excluding Bridges	$ 19.92	9.57
Bridges	$ 23.92	10.07

PLUMBER.....$ 22.52 7.80

POWER EQUIPMENT OPERATOR:
Group 1.....$ 29.95 14.40
Group 2.....$ 29.95 14.40
Group 3.....$ 27.26 14.40
Group 4.....$ 26.96 14.40

GROUP 1: Auto Patrol, Batcher Plant, Bituminous Paver, Cable-Way, Clamshell, Concrete Mixer (21 cu ft or over), Concrete Pump, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Engineer, Elevator (regardless of ownership when used for hoisting any building material), Elevating Grader and all types of Loaders, Hoe-type Machine, Hoisting Engine, Locomotive, LeTourneau or Carry-all Scoop, Bulldozer, Mechanic, Orangepeel Bucket, Piledriver, Power Blade, Roller (Bituminous), Roller (Earth), Roller (Rock), Scarifier, Shovel, Tractor Shovel, Truck Crane, Well Point, Winch Truck, Push Dozer, Grout Pump, High Lift, Fork Lift (regardless of lift height), all types of Boom Cats, Multiple Operator, Core Drill, Tow or Push Boat, A-Frame Winch Truck, Concrete Paver, Grade-All, Hoist, Hyster, Material Pump, Pumpcrete, Ross Carrier, Sheepfoot, Sideboom, Throttle-Valve Man, Rotary Drill, Power Generator, Mucking Machine, Rock Spreader attached to Equipment, Scoopmobile, KeCal Loader, Tower Cranes,(French, German and other types), Hydrocrane, Tugger, Backfiller Gurries, Self-propelled Compactor, Self-Contained Hydraulic Percussion Drill

GROUP 2: All Air Compressors (200 cu ft/min or greater), Bituminous Mixer, Concrete Mixer (21 cu. ft. or over), Welding Machine, Form Grader, Tractor (50 hp and over), Bull Float, Finish Machine, Outboard Motor Boat, Brakeman, Mechanic Tender, Whirly Oiler, Tract-air, Road Widening Trencher, Articulating Trucks

GROUP 3: Greaser on Grease Facilities servicing Heavy Equipment

GROUP 4: Bituminous Distributor, Cement Gun, Conveyor, Mud Jack, Paving Joint Machine, Pump, Tamping Machine, Tractor (under 50 hp), Vibrator, Oiler, Air Compressor (under 200 cu ft per minute), Concrete Saw, Burlap and Curing Machine, Hydro Seeder, Power Form Handling Equipment, Deckhand Oiler, Hydraulic Post Driver

SHEET METAL WORKER.....$ 20.40 7.80

TRUCK DRIVER
Driver (3 Tons and Over),
Driver (Truck Mounted
Rotary Drill).....$ 23.74 14.50
Driver (3 Tons and Under),
Tire Changer and Truck
Mechanic Tender.....$ 23.53 14.50
Driver (Semi-Trailer or
Pole Trailer), Driver
(Dump Truck, Tandem Axle),
Driver of Distributor.....$ 23.40 14.50
Driver on Mixer Trucks

(All Types).....	$ 23.45	14.50
Driver on Pavement Breakers.	$ 23.55	14.50
Driver, Euclid and Other Heavy Earth Moving Equipment and Low Boy.....	$ 24.31	14.50
Driver, Winch Truck and A-Frame when used in Transporting Materials.....	$ 23.30	14.50
Greaser on Greasing Facilities.....	$ 24.40	14.50
Truck Mechanic.....	$ 23.50	14.50
Truck Tender and Warehouseman.....	$ 23.20	14.50

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal

process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

These rates are listed pursuant to the Kentucky Determination No. CR-16-II- HWY dated July 1, 2016.

NOTE: Both Kentucky Determination No. CR-16-II-HWY and Federal Decision No. KY150187 apply to this project. Both sets of wage rates are included. If there is a difference in the two wages for the same classification, the Contractor is required to pay the higher of the two listed wages.

No laborer, workman or mechanic shall be paid at a rate less than that of a Journeyman except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Director
Division of Construction Procurement
Frankfort, Kentucky 40622
502-564-3500

KENTUCKY LABOR CABINET
PREVAILING WAGE DETERMINATION
CURRENT REVISION
HIGHWAY CONSTRUCTION LOCALITY NO. II

Determination No. CR-16-II-HWY

Project No.
Highway

Date of Determination: July 1, 2016

This schedule of the prevailing rate of wages for Locality No. II including the counties of ADAIR, BARREN, BELL, BREATHITT, CASEY, CLAY, CLINTON, CUMBERLAND, ESTILL, FLOYD, GARRARD, GREEN, HARLAN, HART, JACKSON, JOHNSON, KNOTT, KNOX, LAUREL, LAWRENCE, LEE, LESLIE, LETCHER, LINCOLN, MCCREARY, MAGOFFIN, MARTIN, MENIFEE, METCALFE, MONROE, MORGAN, OWSLEY, PERRY, PIKE, POWELL, PULASKI, ROCKCASTLE, RUSSELL, TAYLOR, WAYNE, WHITLEY, and WOLFE has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination No. CR-15-II-HWY.

The following schedule of rates is to be used for highway construction projects advertised or awarded by the Kentucky Transportation Cabinet. This includes any contracts for the relocation of any utilities or other incidental construction projects advertised or awarded by public authorities as a result of the highway construction project.

Apprentices or trainees shall be permitted to work in accordance with Administrative Regulations. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) hours per day, or in excess of forty (40) hours per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one calendar day, but not more than ten (10) hours worked in any one calendar day, if such written agreement is prior to the over eight (8) hours in a calendar day actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked. Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

Ervin Dimeny, Commissioner
Department of Workplace Standards

CLASSIFICATIONS	RATE AND FRINGE BENEFITS	
BOILERMAKERS:	BASE RATE	$24.65
	FRINGE BENEFIT	12.94
BRICKLAYERS:		
Bricklayers:	BASE RATE	$22.90
	FRINGE BENEFITS	8.50
Stone Mason:	BASE RATE	$21.50
	FRINGE BENEFITS	8.50
CARPENTERS:		
Carpenters:	BASE RATE	$24.90
	FRINGE BENEFITS	14.50
Piledrivers:	BASE RATE	$24.55
	FRINGE BENEFITS	14.50
CEMENT MASONS:	BASE RATE	$21.25
	FRINGE BENEFITS	8.50
ELECTRICIANS:	*BASE RATE	$29.36
	FRINGE BENEFITS	10.55

*When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T.V. towers, structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to a direct fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.

LINEMAN:	*BASE RATE	$30.09
	FRINGE BENEFITS	10.94
EQUIPMENT OPERATOR:	*BASE RATE	$26.90
	FRINGE BENEFITS	10.31
GROUNDSMAN:	*BASE RATE	$17.79
	FRINGE BENEFITS	8.51
IRONWORKERS:	BASE RATE	$ 27.91
	FRINGE BENEFITS	22.00

CLASSIFICATIONS RATE AND FRINGE BENEFITS

LABORERS:

GROUP 1: Aging and curing of concrete (any mode or method), asbestos abatement worker, asphalt plant laborers, asphalt laborers; batch truck dumpers; carpenter tenders, cement mason tenders, cleaning of machines, concrete laborers, demolition laborers, dredging laborers, drill helper, environmental laborer - nuclear, radiation, toxic and hazardous waste – Level D, flagmen, grade checkers, all hand digging and hand back filling, highway marker placers, landscaping laborers, mesh handlers and placers, puddler, railroad laborers, rip-rap and grouters, right of way laborers, sign, guard rail and fence installers (all types), signalmen, sound barrier installer, storm and sanitary sewer laborers, swampers, truck spotters and dumpers, wrecking of concrete forms, general cleanup, tending of setting precast concrete products, applying sealer, epoxies, coating, curing compounds, cure and seal products and preparation on all services of concrete wall expansion materials:

BASE RATE	$22.75
FRINGE BENEFITS	12.00

GROUP 2: Batter board men (sanitary and storm sewer), brickmason tenders, mortar mixer operator, scaffold builders, burner and welder, bushammers, chain saw operator, concrete saw operators, deckhand scow man, dry cement handlers, environmental laborers – nuclear, radiation, toxic and hazardous waste – Level C, forklift operators for masonry, form setters, green concrete cutting, hand operated grouter and grinder machine operator, jack hammers, lead paint abatement, pavement breakers, paving joint machine, pipe layers – laser operators (non-metallic), plastic pipe fusion, power driven Georgia buggy and wheel barrow, power post hole diggers, precast manhole setters, walk-behind tampers, walk-behind trenchers, sand blasters, concrete chippers, surface grinders, vibrator operators, wagon drillers:

BASE RATE	$23.00
FRINGE BENEFITS	12.00

GROUP 3: Air track driller (all types), asphalt luteman and rakersm gunnite nozzleman, gunnite operators and mixers, grout pump operator, powderman and blaster, side rail setters, rail paved ditches, screw operators, tunnel laborers (free air), and water blasters, remote control compactors, air lifting, dewatering, water pumps and asphalt sealer applicator:

BASE RATE	$23.05
FRINGE BENEFITS	12.00

GROUP 4: Caisson workers (free air), cement finishers, environmental laborer – nuclear, radiation, toxic and hazardous waste – Level A and B, miners and drillers (free air), tunnel blasters, and tunnel mockers (free air), directional and horizontal boring, air track drillers (all types), powder man and blasters, troxler and concrete tester if laborer is utilized, concrete vibrator, tv inspection, cleaning tech, GPS tech if performed by a laborer:

BASE RATE	$23.65
FRINGE BENEFITS	12.00

CLASSIFICATIONS RATE AND FRINGE BENEFITS

OPERATING ENGINEERS:

CLASS A-1:
NCCCO or OECP Certified or US Coast Guard approved Boat Pilot License; Crane, dragline, hoist (1 drum when used for stack or chimney construction or repair), hoisting engineer (2 or more drums), orangepeel, overhead crane, piledriver, truck crane, tower crane, hydraulic crane, cableway, carry deck, cherry picker, clamshell, derrick, derrick boat, hydraulic boom truck, licensed boat pilot, rough terrain crane, tower cranes (French, German & other types), truck crane:

BASE RATE	$32.21
FRINGE BENEFITS	15.00

CLASS A:
A-Frame winch truck, auto patrol, backfiller, batcher plant, bituminous paver, bituminous transfer machine, all types of boom cats, bulldozer, cableway, carry-all scoop, carry deck crane, central compressor plant operator, cherry picker, clamshell, concrete mixer (21 cu. Ft. or over), concrete paver, truck mounted concrete pump, core drills, crane, crusher plant, derrick, derrick boat, ditching and trenching machine, dragline, dredge operator, dredge engineer, earth movers, elevating grader and all types of loaders, grade-all gurries, heavy equipment robotics operator/mechanic, high lift, hoe type machine, hoist (2 drums or more), hoisting engine, (2 or more drums), horizontal directional drill, hydraulic boom truck, hydrocrane, hyster, KeCal loader, Letourneau, locomotive, mechanic, mechanically operated laser screed, mechanic welder, mucking machine, motor scraper, orange-peel bucket, overhead crane, piledriver, power blade, pumpcrete, push dozer, rock spreader attached to equipment, all rotary drills, roller (bituminous), rough terrain crane, scarifier, scoopmobile, shovel, side boom, subgrader, tailboom, telescoping type forklift, tow or push boat, tower cranes (French, German and other types), tractor shovel and truck crane, tunnel mining machines including moles, shields or similar types of tunnel mining equipment, self-propelled modular transporter, hydro excavator, micro pile machine, remote controlled demolition equipment, milling machine, track hoe, rubber tire back hoe, reclaimer/stabilizer:

BASE RATE	$31.05
FRINGE BENEFITS	15.00

Group B:
All air compressors (over 900 cu. ft. per min), bituminous mixer, boom type tamping machine, bull float, concrete mixer (under 21 cu ft), dredge engineer, electric vibrator compactor/self-propelled compactor, elevator (on drum or buck hoist), finish machine, firemen, flexplane, forklift (regardless of lift height), form grader, hoist (one drum), joint sealing machine, mechanic helper, outboard motor boat, power sweeper (riding type), roller (rock), ross carrier, skid mounted or trailer mounted concrete pumps, skid steer machine with all attachments, switchman or b5rakeman, throttle valve man, tract air and road widening trencher, tractor (50 hp and over), truck crane oiler, tugger, welding machine, well points, whirley oiler, water pull/water pull/water truck when used for compacting:

BASE RATE	$28.28
FRINGE BENEFITS	15.00

Group B2:
Greaser on grease facilities servicing heavy equipment, all off road material handling equipment, including articulating dump trucks:

BASE RATE	$28.71
FRINGE BENEFITS	15.00

CLASSIFICATIONS RATE AND FRINGE BENEFITS

BENEFITS

OPERATING ENGINEERS (CONTINUED):

Group C:
Bituminous distributor, cement gun, conveyor, mud jack, paving joint machine, pump, tamping machine, tractors (under 50 H.P.), vibrator, oiler, air compressors (under 200 cu. ft. per min. capacity), concrete saw,

burlap and curing machine, hydro seeder, power form handling equipment, deckhand oiler, hydraulic post driver, caisson drill and core drill helper (track or skid mounted), concrete saw, paving joint machine, roller (earth), steermen, tractors (under 50 hp):

BASE RATE $27.97
FRINGE BENEFITS 15.00

Operators on cranes with booms 150 ft. and over including jib shall receive $1.00 above Class A-1 or Class A rate; 250 ft. and over including jib shall receive $1.00 above Class A-1 or Class A rate. All cranes with the length of the boom in combination with length of the piling leads equals or exceeds 150 ft. shall receive $1.00 above Class A-1 or Class A.

PAINTERS:

Brush & Roller:
BASE RATE $24.74
FRINGE BENEFITS 9.54

Spray:
BASE RATE $25.24
FRINGE BENEFITS 9.54

Sand Blasting & Hopper Tender:
BASE RATE $24.49
FRINGE BENEFITS 9.54

Bridges (when highest point of clearance is 60 feet or more):
BASE RATE $24.99
FRINGE BENEFITS 9.54

Sand Blasting, Hopper Tender (bridges when highest point of clearance is 60 feet or more):
BASE RATE $25.49
FRINGE BENEFITS 9.54

Bridge/Equipment Tender and or Containment Builder:
BASE RATE $21.33
FRINGE BENEFITS 9.54

Bridge Quality Control:
BASE RATE $16.45
FRINGE BENEFITS 9.54

Lead Abatement:
BASE RATE $24.99
FRINGE BENEFITS 9.54

PLUMBERS:
BASE RATE $22.52
FRINGE BENEFITS 7.80

SHEET METAL:
BASE RATE $20.40

FRINGE BENEFITS 7.80

CLASSIFICATIONS	RATE AND FRINGE BENEFITS	
TRUCK DRIVERS:		
Truck helper and warehouseman:	BASE RATE	$23.20
	FRINGE BENEFITS	14.50
Driver, winch truck and A-Frame when used in transporting materials:	BASE RATE	$23.30
	FRINGE BENEFITS	14.50
Driver, (semi-trailer or pole trailer), driver (dump truck, tandem axle), driver of distributor:	BASE RATE	$23.40
	FRINGE BENEFITS	14.50
Driver on mixer trucks (all types):	BASE RATE	$23.45
	FRINGE BENEFITS	14.50
Truck mechanic:	BASE RATE	$23.50
	FRINGE BENEFITS	14.50
Driver (3 tons and under), tire changer and truck mechanic helper:	BASE RATE	$23.53
	FRINGE BENEFITS	14.50
Driver on pavement breakers:	BASE RATE	$23.55
	FRINGE BENEFITS	14.50
Driver (over 3 tons), driver (truck mounted rotary drill):	BASE RATE	$23.74
	FRINGE BENEFITS	14.50
Driver, Euclid and other heavy earth moving equipment and Low Boy:	BASE RATE	$24.31
	FRINGE BENEFITS	14.50
Greaser on greasing facilities:	BASE RATE	$24.40
	FRINGE BENEFITS	14.50

END OF DOCUMENT

Kentucky Determination No. CR-16-II-HWY dated July 1, 2016

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices registered with the Kentucky State Apprenticeship Supervisor unless otherwise specified in this schedule of wage rates.

These rates are listed pursuant to the Kentucky Determination No. CR-16-II-HWY dated July 1, 2016. Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contract or shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the numbers of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wage. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or to the undersigned.

Director
Division of Construction Procurement
Frankfort, Kentucky 40622
502-564-3500

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
7.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Magoffin County.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
7.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Morgan County.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
7.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Wolfe County.

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

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	183,154.00	TON		$	
0020	00020		TRAFFIC BOUND BASE	416.00	TON		$	
0030	00078		CRUSHED AGGREGATE SIZE NO 2	250.00	TON		$	
0040	00100		ASPHALT SEAL AGGREGATE	3,101.10	TON		$	
0050	00103		ASPHALT SEAL COAT	370.90	TON		$	
0060	00190		LEVELING & WEDGING PG64-22	11,217.00	TON		$	
0070	00212		CL2 ASPH BASE 1.00D PG64-22	22,407.00	TON		$	
0080	00214		CL3 ASPH BASE 1.00D PG64-22	127,698.00	TON		$	
0090	00301		CL2 ASPH SURF 0.38D PG64-22	5,175.00	TON		$	
0100	00307		CL2 ASPH SURF 0.38B PG64-22	3,140.00	TON		$	
0110	00388		CL3 ASPH SURF 0.38B PG64-22	19,922.00	TON		$	
0120	02081		JPC PAVEMENT-8 IN SHLD	537.00	SQYD		$	
0130	02676		MOBILIZATION FOR MILL & TEXT (MAGOFFIN 10-126.50)	1.00	LS		$	
0140	02676		MOBILIZATION FOR MILL & TEXT (MORGAN 10-126.70)	1.00	LS		$	
0150	02676		MOBILIZATION FOR MILL & TEXT (WOLFE 10-126.70)	1.00	LS		$	
0160	02677		ASPHALT PAVE MILLING & TEXTURING	4,396.00	TON		$	
0170	20071EC		JOINT ADHESIVE	67,072.00	LF		$	
0180	20430ED		SAW CUT	4,751.00	LF		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1660	00001		DGA BASE (6-IN)	3,699.00	TON		$	
1670	00021		DRAINAGE BLANKET-EMBANKMENT	15,349.00	CUYD		$	
1680	00071		CRUSHED AGGREGATE SIZE NO 57	1,648.00	TON		$	
1690	00078		CRUSHED AGGREGATE SIZE NO 2	2,220.00	TON		$	
1700	00212		CL2 ASPH BASE 1.00D PG64-22 (3-IN)	1,728.00	TON		$	
1710	00307		CL2 ASPH SURF 0.38B PG64-22 (1.25-IN)	704.00	TON		$	
1720	01000		PERFORATED PIPE-4 IN	1,712.00	LF		$	
1730	01001		PERFORATED PIPE-6 IN	310.00	LF		$	
1740	01002		PERFORATED PIPE-8 IN	500.00	LF		$	
1750	01010		NON-PERFORATED PIPE-4 IN	439.00	LF		$	
1760	01015		INSPECT & CERTIFY EDGE DRAIN SYSTEM (MAGOFFIN 10-126-50)	1.00	LS		$	
1770	01020		PERF PIPE HEADWALL TY 1-4 IN	8.00	EACH		$	
1780	01028		PERF PIPE HEADWALL TY 3-4 IN	1.00	EACH		$	
1790	01310		REMOVE PIPE	243.00	LF		$	
1800	01741		CORED HOLE DRAINAGE BOX CON-6 IN	31.00	EACH		$	
1810	01825		ISLAND CURB AND GUTTER	1,142.70	LF		$	
1820	01845		ISLAND INTEGRAL CURB	138.00	LF		$	
1830	01891		ISLAND HEADER CURB TYPE 2	182.75	LF		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1840	01982		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL WHITE	766.00	EACH		$	
1850	01983		DELINEATOR FOR GUARDRAIL MONO DIRECTIONAL YELLOW	127.00	EACH		$	
1860	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	36.00	EACH		$	
1870	01990		DELINEATOR FOR BARRIER WALL-B/W	243.00	EACH		$	
1880	02003		RELOCATE TEMP CONC BARRIER	2,950.00	LF		$	
1890	02014		BARRICADE-TYPE III	14.00	EACH		$	
1900	02091		REMOVE PAVEMENT	15,518.00	SQYD		$	
1910	02159		TEMP DITCH	29,927.00	LF		$	
1920	02160		CLEAN TEMP DITCH	14,968.00	LF		$	
1930	02200		ROADWAY EXCAVATION	5,864,491.00	CUYD		$	
1940	02203		STRUCTURE EXCAV-UNCLASSIFIED	427.00	CUYD		$	
1950	02223		GRANULAR EMBANKMENT	1,250.00	CUYD		$	
1960	02231		STRUCTURE GRANULAR BACKFILL	990.00	CUYD		$	
1970	02242		WATER	694.00	MGAL		$	
1980	02242		WATER (FOR DUST CONTROL)	7,441.00	MGAL		$	
1990	02262		FENCE-WOVEN WIRE TYPE 1	64,742.00	LF		$	
2000	02265		REMOVE FENCE	10,960.00	LF		$	
2010	02268		REMOVE & REPLACE FENCE	20,445.00	LF		$	
2020	02347		WATER GATE TYPE 1	2.00	EACH		$	
2030	02351		GUARDRAIL-STEEL W BEAM-S FACE	50,839.30	LF		$	
2040	02352		GUARDRAIL-STEEL W BEAM-D FACE	1,950.00	LF		$	
2050	02360		GUARDRAIL TERMINAL SECTION NO 1	27.00	EACH		$	
2060	02363		GUARDRAIL CONNECTOR TO BRIDGE END TY A	53.00	EACH		$	
2070	02365		CRASH CUSHION TYPE IX-A	6.00	EACH		$	
2080	02367		GUARDRAIL END TREATMENT TYPE 1	33.00	EACH		$	
2090	02369		GUARDRAIL END TREATMENT TYPE 2A	14.00	EACH		$	
2100	02371		GUARDRAIL END TREATMENT TYPE 7	8.00	EACH		$	
2110	02373		GUARDRAIL END TREATMENT TYPE 3	3.00	EACH		$	
2120	02381		REMOVE GUARDRAIL	55,543.50	LF		$	
2130	02387		GUARDRAIL CONNECTOR TO BRIDGE END TY A-1	14.00	EACH		$	
2140	02391		GUARDRAIL END TREATMENT TYPE 4A	18.00	EACH		$	
2150	02396		REMOVE GUARDRAIL END TREATMENT	3.00	EACH		$	
2160	02397		TEMP GUARDRAIL	3,550.50	LF		$	
2170	02399		EXTRA LENGTH GUARDRAIL POST	688.00	EACH		$	
2180	02403		REMOVE CONCRETE MASONRY	3.20	CUYD		$	
2190	02429		RIGHT-OF-WAY MONUMENT TYPE 1	133.00	EACH		$	
2200	02432		WITNESS POST	26.00	EACH		$	
2210	02475		PLUG WATER WELL	1.00	EACH		$	
2220	02488		CHANNEL LINING CLASS IV	28,526.00	CUYD		$	
2230	02545		CLEARING AND GRUBBING (APPROXIMATELY 102.50 ACRES, MORGAN 10-126.60)	1.00	LS		$	
2240	02545		CLEARING AND GRUBBING (APPROXIMATELY 31.6 ACRES, MORGAN 10-126.50)	1.00	LS		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2250	02545		CLEARING AND GRUBBING (APPROXIMATELY 68 ACRES, MORGAN 126.70)	1.00	LS		$	
2260	02545		CLEARING AND GRUBBING (APPROXIMATELY 85.4 ACRES, MAGOFFIN 10-126.50)	1.00	LS		$	
2270	02545		CLEARING AND GRUBBING (APPROXIMATELY 86 ACRES, WOLFE 10-126.70)	1.00	LS		$	
2280	02555		CONCRETE-CLASS B	493.56	CUYD		$	
2290	02562		TEMPORARY SIGNS	2,638.75	SQFT		$	
2300	02565		OBJECT MARKER TYPE 2	14.00	EACH		$	
2310	02585		EDGE KEY	112.00	LF		$	
2320	02596		FABRIC-GEOTEXTILE TYPE I	20,238.00	SQYD		$	
2330	02599		FABRIC-GEOTEXTILE TYPE IV	583,702.00	SQYD		$	
2340	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	28,244.00	SQYD	$2.00	$	$56,488.00
2350	02610		RETAINING WALL-GABION	49.00	CUYD		$	
2360	02625		REMOVE HEADWALL	16.00	EACH		$	
2370	02650		MAINTAIN & CONTROL TRAFFIC (MAGOFFIN 10-126.50)	1.00	LS		$	
2380	02650		MAINTAIN & CONTROL TRAFFIC (MORGAN 10-126.50)	1.00	LS		$	
2390	02650		MAINTAIN & CONTROL TRAFFIC (MORGAN 10-126.60)	1.00	LS		$	
2400	02650		MAINTAIN & CONTROL TRAFFIC (MORGAN 126.70)	1.00	LS		$	
2410	02650		MAINTAIN & CONTROL TRAFFIC WOLFE	1.00	LS		$	
2420	02651		DIVERSIONS (BY-PASS DETOURS) (KY-205, WOLFE 10-126.70)	1.00	LS		$	
2430	02651		DIVERSIONS (BY-PASS DETOURS) (NO. 1, MORGAN 10-126.60)	1.00	LS		$	
2440	02651		DIVERSIONS (BY-PASS DETOURS) (NO. 2, MORGAN 10-126.60)	1.00	LS		$	
2450	02651		DIVERSIONS (BY-PASS DETOURS) (PHASE I, WOLFE 10-126.70)	1.00	LS		$	
2460	02651		DIVERSIONS (BY-PASS DETOURS) (PHASE III KY-205, WOLFE 10-126.70)	1.00	LS		$	
2470	02651		DIVERSIONS (BY-PASS DETOURS) (PHASE III, WOLFE 10-126.70)	1.00	LS		$	
2480	02651		DIVERSIONS (BY-PASS DETOURS) (TEMP RAMP B, WOLFE 10-126.70)	1.00	LS		$	
2490	02655		CROSSOVER (NO. 1, WEST, MORGAN 10-126.60)	1.00	LS		$	
2500	02655		CROSSOVER (NO. 2, EAST, MORGAN 10-126.60)	1.00	LS		$	
2510	02655		CROSSOVER (PHASE II, WOLFE 10-126.70)	1.00	LS		$	
2520	02655		CROSSOVER (PHASE III, WOLFE 10-126.70)	1.00	LS		$	
2530	02655		CROSSOVER (PHASE IV, WOLFE 10-126.70)	1.00	LS		$	
2540	02655		CROSSOVER (TEMP ALTERNATE EAST END TIE-IN, MORGAN 126.70)	1.00	LS		$	

PROPOSAL BID ITEMS

161268

Page 4 of 19

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2550	02655		CROSSOVER (TEMP RAMP C, WOLFE 10-126.70)	1.00	LS		$	
2560	02671		PORTABLE CHANGEABLE MESSAGE SIGN	12.00	EACH		$	
2570	02676		MOBILIZATION FOR MILL & TEXT (MORGAN 10-126.60)	1.00	LS		$	
2580	02690		SAFELOADING	228.30	CUYD		$	
2590	02696		SHOULDER RUMBLE STRIPS-SAWED	197,226.00	LF		$	
2600	02701		TEMP SILT FENCE	29,927.00	LF		$	
2610	02703		SILT TRAP TYPE A	331.00	EACH		$	
2620	02704		SILT TRAP TYPE B	434.00	EACH		$	
2630	02705		SILT TRAP TYPE C	434.00	EACH		$	
2640	02706		CLEAN SILT TRAP TYPE A	331.00	EACH		$	
2650	02707		CLEAN SILT TRAP TYPE B	434.00	EACH		$	
2660	02708		CLEAN SILT TRAP TYPE C	434.00	EACH		$	
2670	02726		STAKING (MAGOFFIN 10-126.50)	1.00	LS		$	
2680	02726		STAKING (MORGAN 10-126.50)	1.00	LS		$	
2690	02726		STAKING (MORGAN 10-126.60)	1.00	LS		$	
2700	02726		STAKING (MORGAN 126.70)	1.00	LS		$	
2710	02726		STAKING (WOLFE 10-126.70)	1.00	LS		$	
2720	02731		REMOVE STRUCTURE (12-FT X 6-FT RCBC - STA. 3098+50, MORGAN 10-126.60)	1.00	LS		$	
2730	02731		REMOVE STRUCTURE (KY 205 BRIDGE OVER STATE ROAD FORK, WOLFE 10-126.70)	1.00	LS		$	
2740	02731		REMOVE STRUCTURE (MT PKWY BRIDGE OVER KY 205, WOLFE 10-126.70)	1.00	LS		$	
2750	02731		REMOVE STRUCTURE (MT PKWY BRIDGE OVER RED RIVER, WOLFE 10-126.70)	1.00	LS		$	
2760	02731		REMOVE STRUCTURE (P504, MAGOFFIN 10-126.50)	1.00	LS		$	
2770	02731		REMOVE STRUCTURE (P506, MAGOFFIN 10-126.50)	1.00	LS		$	
2780	02731		REMOVE STRUCTURE (RCDG BRIDGE - STA. 3135+03, MORGAN 10-126.60)	1.00	LS		$	
2790	02731		REMOVE STRUCTURE (RCDG BRIDGE - STA. 3224+88,MORGAN 10-126.60)	1.00	LS		$	
2800	02731		REMOVE STRUCTURE (STA. 3351+00, MAGOFFIN 10-126.50)	1.00	LS		$	
2810	02731		REMOVE STRUCTURE (STA.3271+01, MORGAN 10-126.50)	1.00	LS		$	
2820	02731		REMOVE STRUCTURE (WAGON BOX - STA. 3072+55,MORGAN 10-126.60)	1.00	LS		$	
2830	02731		REMOVE STRUCTURE PARCEL 26(WELL HOUSE)	1.00	LS		$	
2840	02775		ARROW PANEL	4.00	EACH		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2850	02898		RELOCATE CRASH CUSHION	10.00	EACH		$	
2860	02898		RELOCATE CRASH CUSHION (PERM)	1.00	EACH		$	
2870	02929		CRASH CUSHION TYPE IX	8.00	EACH		$	
2880	03145		CONC MEDIAN BARRIER TYPE 9C2	162.00	LF		$	
2890	03171		CONCRETE BARRIER WALL TYPE 9T	24,490.00	LF		$	
2900	03225		TUBULAR MARKERS	40.00	EACH		$	
2910	03262		CLEAN PIPE STRUCTURE	1.00	EACH		$	
2920	04934		TEMP SIGNAL MULTI PHASE	1.00	EACH		$	
2930	05950		EROSION CONTROL BLANKET	68,683.00	SQYD		$	
2940	05952		TEMP MULCH	1,311,715.00	SQYD		$	
2950	05953		TEMP SEEDING AND PROTECTION	1,043,693.00	SQYD		$	
2960	05963		INITIAL FERTILIZER	65.20	TON		$	
2970	05964		20-10-10 FERTILIZER	91.30	TON		$	
2980	05985		SEEDING AND PROTECTION	1,872,904.00	SQYD		$	
2990	05992		AGRICULTURAL LIMESTONE	961.90	TON		$	
3000	06401		FLEXIBLE DELINEATOR POST-M/W	545.00	EACH		$	
3010	06403		FLEXIBLE DELINEATOR POST-B/W	72.00	EACH		$	
3020	06404		FLEXIBLE DELINEATOR POST-M/Y	50.00	EACH		$	
3030	06510		PAVE STRIPING-TEMP PAINT-4 IN	20,702.00	LF		$	
3040	06511		PAVE STRIPING-TEMP PAINT-6 IN	319,475.00	LF		$	
3050	06513		PAVE STRIPING-TEMP PAINT-12 IN	163.00	LF		$	
3060	06514		PAVE STRIPING-PERM PAINT-4 IN	11,275.00	LF		$	
3070	06515		PAVE STRIPING-PERM PAINT-6 IN	137,523.00	LF		$	
3080	06517		PAVE STRIPING-PERM PAINT-12 IN	3,775.00	LF		$	
3090	06531		PAVE STRIPING REMOVAL-6 IN	9,769.00	LF		$	
3100	06533		PAVE STRIPING REMOVAL-12 IN	163.00	LF		$	
3110	06549		PAVE STRIPING-TEMP REM TAPE-B	500.00	LF		$	
3120	06550		PAVE STRIPING-TEMP REM TAPE-W	6,900.00	LF		$	
3130	06551		PAVE STRIPING-TEMP REM TAPE-Y	6,900.00	LF		$	
3140	06570		PAVE MARKING-PAINT CROSS-HATCH	11,933.00	SQFT		$	
3150	06572		PAVE MARKING-DOTTED LANE EXTEN	4,405.00	LF		$	
3160	06574		PAVE MARKING-THERMO CURV ARROW	1.00	EACH		$	
3170	06578		PAVE MARKING-THERMO MERGE ARROW	15.00	EACH		$	
3180	06586		PAVEMENT MARKER TY IVA-MY TEMP	134.00	EACH		$	
3190	06588		PAVEMENT MARKER TY IVA-BY TEMP	2,307.00	EACH		$	
3200	08018		RETAINING WALL	1,756.50	SQFT		$	
3210	08100		CONCRETE-CLASS A	111.46	CUYD		$	
3220	08150		STEEL REINFORCEMENT	392.00	LB		$	
3230	08900		CRASH CUSHION TY VI CLASS B TL2	9.00	EACH		$	
3240	08901		CRASH CUSHION TY VI CLASS BT TL2	7.00	EACH		$	
3250	08903		CRASH CUSHION TY VI CLASS BT TL3	10.00	EACH		$	
3260	08907		CRASH CUSHION TY VII CLASS B TL3	1.00	EACH		$	
3270	10020NS		FUEL ADJUSTMENT	1,836,925.00	DOLL	$1.00	$	$1,836,925.00
3280	10030NS		ASPHALT ADJUSTMENT	732,518.00	DOLL	$1.00	$	$732,518.00
3290	20071EC		JOINT ADHESIVE	26,210.00	LF		$	
3300	20166ES810		TEMPORARY PIPE	44.00	LF		$	
3310	20191ED		OBJECT MARKER TY 3	13.00	EACH		$	
3320	20318ES508		RELOCATE CONC BARRIER WALL	1,740.00	LF		$	
3330	20318ES508		RELOCATE CONC BARRIER WALL (PERM)	780.00	LF		$	

PROPOSAL BID ITEMS

161268

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3340	20418ED		REMOVE & RELOCATE SIGNS	5.00	EACH		$	
3350	20454NS835		TEMPORARY LIGHTING (WOLFE 10-126.70)	1.00	LS		$	
3360	20667ED		PNEUMATIC BACKSTOWING	120.00	TON		$	
3370	21289ED		LONGITUDINAL EDGE KEY	8,064.00	LF		$	
3380	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	475.00	LF		$	
3390	22664EN		WATER BLASTING EXISTING STRIPE	6,200.00	LF		$	
3400	23274EN11F		TURF REINFORCEMENT MAT 1	2,231.00	SQYD		$	
3410	23791EC		PAVE STRIPING-CHEVRON MARKINGS	16,400.00	SQFT		$	
3420	24489EC		INLAID PAVEMENT MARKER	952.00	EACH		$	
3430	24530ED		LONGITUDINAL SAW CUT 8 IN	5,400.00	LF		$	
3440	24543EC		CLEAN CLEAN (CHANNEL CHANGE)	4,857.00	LF		$	
3450	24640ED		OBJECT MARKER TYPE 1	9.00	EACH		$	
3460	24814EC		PIPELINE INSPECTION	8,377.00	LF		$	
3470	24814EC		PIPELINE INSPECTION (PIPELINE VIDEO INSPECTION)	776.00	LF		$	
3480	24866ED		MOT TEMPORARY TIE (NO. 1, MORGAN 10-126.50)	1.00	L S		$	
3490	24866ED		MOT TEMPORARY TIE (NO. 2. MAGOFFIN 10-126.50)	1.00	L S		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4520	00078		CRUSHED AGGREGATE SIZE NO 2	844.00	TON		$	
4530	00440		ENTRANCE PIPE-15 IN	60.00	LF		$	
4540	00441		ENTRANCE PIPE-18 IN	35.00	LF		$	
4550	00443		ENTRANCE PIPE-24 IN	214.00	LF		$	
4560	00445		ENTRANCE PIPE-30 IN	30.00	LF		$	
4570	00462		CULVERT PIPE-18 IN	2,185.00	LF		$	
4580	00462		CULVERT PIPE-18 IN (RCP)	27.00	LF		$	
4590	00464		CULVERT PIPE-24 IN	1,178.00	LF		$	
4600	00464		CULVERT PIPE-24 IN (RCP)	29.00	LF		$	
4610	00465		CULVERT PIPE-27 IN	129.00	LF		$	
4620	00466		CULVERT PIPE-30 IN	537.00	LF		$	
4630	00468		CULVERT PIPE-36 IN	1,008.00	LF		$	
4640	00468		CULVERT PIPE-36 IN (RCP)	18.00	LF		$	
4650	00469		CULVERT PIPE-42 IN	443.00	LF		$	
4660	00469		CULVERT PIPE-42 IN (RCP)	4.00	LF		$	
4670	00470		CULVERT PIPE-48 IN	87.00	LF		$	
4680	00471		CULVERT PIPE-54 IN	355.00	LF		$	
4690	00471		CULVERT PIPE-54 IN (RCP)	57.00	LF		$	
4700	00491		CULVERT PIPE-18 IN EQUIV	186.00	LF		$	
4710	00521		STORM SEWER PIPE-15 IN	709.00	LF		$	
4720	00522		STORM SEWER PIPE-18 IN	3,677.00	LF		$	

PROPOSAL BID ITEMS

161268

Page 7 of 19

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4730	00522		STORM SEWER PIPE-18 IN (RCP, NO ALT)	28.00	LF		$	
4740	00524		STORM SEWER PIPE-24 IN	1,491.00	LF		$	
4750	00524		STORM SEWER PIPE-24 IN (RCP, NO ALT)	23.00	LF		$	
4760	00526		STORM SEWER PIPE-30 IN	822.00	LF		$	
4770	00528		STORM SEWER PIPE-36 IN	131.00	LF		$	
4780	00528		STORM SEWER PIPE-36 IN (RCP, NO ALT)	14.00	LF		$	
4790	00529		STORM SEWER PIPE-42 IN	65.00	LF		$	
4800	00529		STORM SEWER PIPE-42 IN (CMP, NO ALT)	4.00	LF		$	
4810	00529		STORM SEWER PIPE-42 IN (RCP, NO ALT)	31.00	LF		$	
4820	01000		PERFORATED PIPE-4 IN	10,336.00	LF		$	
4830	01001		PERFORATED PIPE-6 IN	792.00	LF		$	
4840	01002		PERFORATED PIPE-8 IN	2,650.00	LF		$	
4850	01010		NON-PERFORATED PIPE-4 IN	1,523.00	LF		$	
4860	01011		NON-PERFORATED PIPE-6 IN	91.00	LF		$	
4870	01020		PERF PIPE HEADWALL TY 1-4 IN	30.00	EACH		$	
4880	01021		PERF PIPE HEADWALL TY 1-6 IN	4.00	EACH		$	
4890	01024		PERF PIPE HEADWALL TY 2-4 IN	2.00	EACH		$	
4900	01028		PERF PIPE HEADWALL TY 3-4 IN	9.00	EACH		$	
4910	01032		PERF PIPE HEADWALL TY 4-4 IN	34.00	EACH		$	
4920	01033		PERF PIPE HEADWALL TY 4-6 IN	1.00	EACH		$	
4930	01204		PIPE CULVERT HEADWALL-18 IN	5.00	EACH		$	
4940	01204		PIPE CULVERT HEADWALL-18 IN	8.00	EACH		$	
4950	01204		PIPE CULVERT HEADWALL-18 IN	9.00	EACH		$	
4960	01204		PIPE CULVERT HEADWALL-18 IN	17.00	EACH		$	
4970	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		$	
4980	01208		PIPE CULVERT HEADWALL-24 IN	1.00	EACH		$	
4990	01208		PIPE CULVERT HEADWALL-24 IN	4.00	EACH		$	
5000	01208		PIPE CULVERT HEADWALL-24 IN	5.00	EACH		$	
5010	01208		PIPE CULVERT HEADWALL-24 IN	8.00	EACH		$	
5020	01210		PIPE CULVERT HEADWALL-30 IN	3.00	EACH		$	
5030	01210		PIPE CULVERT HEADWALL-30 IN	2.00	EACH		$	
5040	01210		PIPE CULVERT HEADWALL-30 IN	1.00	EACH		$	
5050	01210		PIPE CULVERT HEADWALL-30 IN	3.00	EACH		$	
5060	01212		PIPE CULVERT HEADWALL-36 IN	9.00	EACH		$	
5070	01212		PIPE CULVERT HEADWALL-36 IN	1.00	EACH		$	
5080	01212		PIPE CULVERT HEADWALL-36 IN	1.00	EACH		$	
5090	01214		PIPE CULVERT HEADWALL-42 IN	3.00	EACH		$	
5100	01214		PIPE CULVERT HEADWALL-42 IN	1.00	EACH		$	
5110	01214		PIPE CULVERT HEADWALL-42 IN	2.00	EACH		$	
5120	01216		PIPE CULVERT HEADWALL-48 IN	2.00	EACH		$	
5130	01223		PIPE CULVERT HEADWALL-27 IN	2.00	EACH		$	
5140	01433		SLOPED BOX OUTLET TYPE 1-18 IN	8.00	EACH		$	
5150	01434		SLOPED BOX OUTLET TYPE 1-24 IN	1.00	EACH		$	
5160	01450		S & F BOX INLET-OUTLET-18 IN	9.00	EACH		$	
5170	01451		S & F BOX INLET-OUTLET-24 IN	5.00	EACH		$	
5180	01452		S & F BOX INLET-OUTLET-30 IN	3.00	EACH		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5190	01453		S & F BOX INLET-OUTLET-36 IN	3.00	EACH		$	
5200	01480		CURB BOX INLET TYPE B	25.00	EACH		$	
5210	01490		DROP BOX INLET TYPE 1	29.00	EACH		$	
5220	01493		DROP BOX INLET TYPE 2	13.00	EACH		$	
5230	01502		DROP BOX INLET TYPE 5A	1.00	EACH		$	
5240	01505		DROP BOX INLET TYPE 5B	30.00	EACH		$	
5250	01506		DROP BOX INLET TYPE 5B MOD	2.00	EACH		$	
5260	01517		DROP BOX INLET TYPE 5F	26.00	EACH		$	
5270	01538		DROP BOX INLET TYPE 7	2.00	EACH		$	
5280	01541		DROP BOX INLET TYPE 10	1.00	EACH		$	
5290	01544		DROP BOX INLET TYPE 11	2.00	EACH		$	
5300	01642		JUNCTION BOX-18 IN	5.00	EACH		$	
5310	01643		JUNCTION BOX-24 IN	5.00	EACH		$	
5320	01644		JUNCTION BOX-30 IN	2.00	EACH		$	
5330	01645		JUNCTION BOX-36 IN	1.00	EACH		$	
5340	01648		JUNCTION BOX-54 IN	1.00	EACH		$	
5350	01650		JUNCTION BOX	1.00	EACH		$	
5360	01653		JUNCTION BOX-SPECIAL	7.00	EACH		$	
5370	01741		CORED HOLE DRAINAGE BOX CON-6 IN	1.00	EACH		$	
5380	01742		CORED HOLE DRAINAGE BOX CON-8 IN	6.00	EACH		$	
5390	01767		MANHOLE TYPE C	1.00	EACH		$	
5400	02482		CHANNEL LINING CLASS IA	1,656.00	TON		$	
5410	08100		CONCRETE-CLASS A	4.22	CUYD		$	
5420	21799EN		BORE AND JACK PIPE-24 IN	68.00	LF		$	
5430	21800EN		BORE AND JACK PIPE-30 IN	156.00	LF		$	
5440	23126EN		BORE AND JACK PIPE-18 IN	241.00	LF		$	
5450	24026EC		PIPE CULVERT HEADWALL-54 IN	4.00	EACH		$	

Section: 0004 - BRIDGE - JOHNSON CREEK TRIBUTARY - DWG. 27566

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5770	02223		GRANULAR EMBANKMENT	50.00	CUYD		$	
5780	08002		STRUCTURE EXCAV-SOLID ROCK	146.00	CUYD		$	
5790	08003		FOUNDATION PREPARATION	1.00	LS		$	
5800	08100		CONCRETE-CLASS A	64.00	CUYD		$	
5810	08150		STEEL REINFORCEMENT	4,140.00	LB		$	

Section: 0005 - BRIDGE - WHEELRIM ROAD & PRATER BRANCH - DWG. 27473

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5820	02231		STRUCTURE GRANULAR BACKFILL	920.00	CUYD		$	
5830	02555		CONCRETE-CLASS B	20.50	CUYD		$	
5840	02998		MASONRY COATING	4,690.00	SQYD		$	
5850	03299		ARMORED EDGE FOR CONCRETE	197.10	LF		$	
5860	08002		STRUCTURE EXCAV-SOLID ROCK	166.00	CUYD		$	
5870	08019		CYCLOPEAN STONE RIP RAP	3,500.00	TON		$	
5880	08020		CRUSHED AGGREGATE SLOPE PROT	1,300.00	TON		$	
5890	08033		TEST PILES	160.00	LF		$	

PROPOSAL BID ITEMS

161268

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5900	08046		PILES-STEEL HP12X53	1,312.00	LF		$	
5910	08094		PILE POINTS-12 IN	21.00	EACH		$	
5920	08100		CONCRETE-CLASS A	953.50	CUYD		$	
5930	08104		CONCRETE-CLASS AA	1,208.20	CUYD		$	
5940	08137		MECHANICAL REINF COUPLER #14	72.00	EACH		$	
5950	08150		STEEL REINFORCEMENT	170,085.00	LB		$	
5960	08151		STEEL REINFORCEMENT-EPOXY COATED	350,720.00	LB		$	
5970	08634		PRECAST PC I BEAM TYPE 4	3,786.40	LF		$	
5980	20637ED		DRILLED SHAFT-ROCK 48 IN	42.00	LF		$	
5990	20745ED		ROCK SOUNDINGS	237.00	LF		$	
6000	20746ED		ROCK CORINGS	524.00	LF		$	
6010	21532ED		RAIL SYSTEM TYPE III	1,536.00	LF		$	
6020	22417EN		DRILLED SHAFT-54 IN-COMMON	80.00	LF		$	
6030	22885EN		DRILLED SHAFT-72 IN-ROCK	40.00	LF		$	
6040	23000EX		DRILLED SHAFT-66 IN (ROCK)	72.00	LF		$	
6050	23249EC		DRILLED SHAFT-72 IN COMMON	182.00	LF		$	
6060	24001EC		DRILLED SHAFT-78 IN COMMON	38.00	LF		$	

Section: 0006 - BRIDGE - KY 134 CONNECTOR- DWG. 27512

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
6070	02231		STRUCTURE GRANULAR BACKFILL	91.00	CUYD		$	
6080	02998		MASONRY COATING	920.00	SQYD		$	
6090	03299		ARMORED EDGE FOR CONCRETE	60.00	LF		$	
6100	08002		STRUCTURE EXCAV-SOLID ROCK	70.00	CUYD		$	
6110	08016		REINF CONC SLOPE WALL-6 IN	160.00	SQYD		$	
6120	08020		CRUSHED AGGREGATE SLOPE PROT	63.00	TON		$	
6130	08046		PILES-STEEL HP12X53	140.00	LF		$	
6140	08094		PILE POINTS-12 IN	4.00	EACH		$	
6150	08100		CONCRETE-CLASS A	98.10	CUYD		$	
6160	08104		CONCRETE-CLASS AA	225.60	CUYD		$	
6170	08150		STEEL REINFORCEMENT	11,346.00	LB		$	
6180	08151		STEEL REINFORCEMENT-EPOXY COATED	59,460.00	LB		$	
6190	08634		PRECAST PC I BEAM TYPE 4	844.70	LF		$	
6200	21532ED		RAIL SYSTEM TYPE III	426.00	LF		$	

Section: 0007 - BRIDGE - TIM BRANCH - DWG. 27567

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
6210	02223		GRANULAR EMBANKMENT	180.00	CUYD		$	
6220	08003		FOUNDATION PREPARATION	1.00	LS		$	
6230	08100		CONCRETE-CLASS A	109.80	CUYD		$	
6240	08150		STEEL REINFORCEMENT	11,700.00	LB		$	

Section: 0008 - BRIDGE - PARKWAY ROAD (CR 1226) - DWG. 27530

PROPOSAL BID ITEMS

161268

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
6250	02231		STRUCTURE GRANULAR BACKFILL	334.00	CUYD		$	
6260	02998		MASONRY COATING	1,484.00	SQYD		$	
6270	03299		ARMORED EDGE FOR CONCRETE	196.00	LF		$	
6280	08001		STRUCTURE EXCAVATION-COMMON	348.00	CUYD		$	
6290	08002		STRUCTURE EXCAV-SOLID ROCK	240.00	CUYD		$	
6300	08020		CRUSHED AGGREGATE SLOPE PROT	570.00	TON		$	
6310	08039		PRE-DRILLING FOR PILES	480.00	LF		$	
6320	08046		PILES-STEEL HP12X53	552.00	LF		$	
6330	08094		PILE POINTS-12 IN	24.00	EACH		$	
6340	08100		CONCRETE-CLASS A	343.80	CUYD		$	
6350	08104		CONCRETE-CLASS AA	387.40	CUYD		$	
6360	08150		STEEL REINFORCEMENT	50,836.00	LB		$	
6370	08151		STEEL REINFORCEMENT-EPOXY COATED	131,662.00	LB		$	
6380	08668		PRECAST PC BOX BEAM SB17	1,427.70	LF		$	
6390	21532ED		RAIL SYSTEM TYPE III	584.00	LF		$	

Section: 0009 - BRIDGE- CULVERT - DWG. 27086

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
6400	02223		GRANULAR EMBANKMENT	149.00	CUYD		$	
6410	02403		REMOVE CONCRETE MASONRY	3.00	CUYD		$	
6420	08002		STRUCTURE EXCAV-SOLID ROCK	6.00	CUYD		$	
6430	08003		FOUNDATION PREPARATION MORGAN	1.00	LS		$	
6440	08100		CONCRETE-CLASS A	207.00	CUYD		$	
6450	08150		STEEL REINFORCEMENT	12,349.00	LB		$	

Section: 0010 - BRIDGE - KY 205 - DWG. 27077

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0190	02231		STRUCTURE GRANULAR BACKFILL	482.00	CUYD		$	
0200	02998		MASONRY COATING	3,293.00	SQYD		$	
0210	03299		ARMORED EDGE FOR CONCRETE	164.00	LF		$	
0220	08001		STRUCTURE EXCAVATION-COMMON	402.00	CUYD		$	
0230	08020		CRUSHED AGGREGATE SLOPE PROT	504.00	TON		$	
0240	08033		TEST PILES	418.00	LF		$	
0250	08046		PILES-STEEL HP12X53	4,137.00	LF		$	
0260	08094		PILE POINTS-12 IN	136.00	EACH		$	
0270	08100		CONCRETE-CLASS A	639.50	CUYD		$	
0280	08104		CONCRETE-CLASS AA	819.70	CUYD		$	
0290	08150		STEEL REINFORCEMENT	98,090.00	LB		$	
0300	08151		STEEL REINFORCEMENT-EPOXY COATED	196,855.00	LB		$	
0310	21532ED		RAIL SYSTEM TYPE III	973.00	LF		$	
0320	24098EC		PPC I-BEAM TYPE HN 66-49	2,393.50	LF		$	

Section: 0011 - BRIDGE - PURCELL BRANCH - DWG. 27568

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0330	02223		GRANULAR EMBANKMENT	150.00	CUYD		$	
0340	08003		FOUNDATION PREPARATION	1.00	LS		$	
0350	08100		CONCRETE-CLASS A	94.40	CUYD		$	
0360	08150		STEEL REINFORCEMENT	6,890.00	LB		$	

Section: 0012 - BRIDGE - KY 134W (EASTBOUND) - DWG. 27602

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0370	02231		STRUCTURE GRANULAR BACKFILL	433.00	CUYD		$	
0380	02998		MASONRY COATING	1,348.00	SQYD		$	
0390	03299		ARMORED EDGE FOR CONCRETE	183.20	LF		$	
0400	08001		STRUCTURE EXCAVATION-COMMON	608.00	CUYD		$	
0410	08002		STRUCTURE EXCAV-SOLID ROCK	191.00	CUYD		$	
0420	08020		CRUSHED AGGREGATE SLOPE PROT	393.00	TON		$	
0430	08046		PILES-STEEL HP12X53	514.00	LF		$	
0440	08094		PILE POINTS-12 IN	22.00	EACH		$	
0450	08100		CONCRETE-CLASS A	356.30	CUYD		$	
0460	08104		CONCRETE-CLASS AA	500.70	CUYD		$	
0470	08150		STEEL REINFORCEMENT	51,591.00	LB		$	
0480	08151		STEEL REINFORCEMENT-EPOXY COATED	116,084.00	LB		$	
0490	08634		PRECAST PC I BEAM TYPE 4	1,301.00	LF		$	
0500	21532ED		RAIL SYSTEM TYPE III	491.00	LF		$	

Section: 0013 - BRIDGE - RED RIVER - DWG. 27079

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0510	02231		STRUCTURE GRANULAR BACKFILL	662.00	CUYD		$	
0520	02998		MASONRY COATING	4,195.00	SQYD		$	
0530	03299		ARMORED EDGE FOR CONCRETE	213.00	LF		$	
0540	08001		STRUCTURE EXCAVATION-COMMON	131.00	CUYD		$	
0550	08019		CYCLOPEAN STONE RIP RAP	2,358.00	TON		$	
0560	08033		TEST PILES	184.00	LF		$	
0570	08039		PRE-DRILLING FOR PILES	67.00	LF		$	
0580	08046		PILES-STEEL HP12X53	780.00	LF		$	
0590	08094		PILE POINTS-12 IN	28.00	EACH		$	
0600	08100		CONCRETE-CLASS A	678.50	CUYD		$	
0610	08104		CONCRETE-CLASS AA	1,110.00	CUYD		$	
0620	08150		STEEL REINFORCEMENT	93,448.00	LB		$	
0630	08151		STEEL REINFORCEMENT-EPOXY COATED	330,263.00	LB		$	
0640	20745ED		ROCK SOUNDINGS	248.00	LF		$	
0650	20746ED		ROCK CORINGS	276.00	LF		$	
0660	21420ED		DRILLED SHAFT-66 IN (COMMON)	248.00	LF		$	
0670	21421ED		DRILLED SHAFT-60 IN (SOLID ROCK)	96.00	LF		$	
0680	21532ED		RAIL SYSTEM TYPE III	1,238.00	LF		$	
0690	24098EC		PPC I-BEAM TYPE HN 66-49	3,033.80	LF		$	

Section: 0014 - BRIDGE - LONG BRANCH - DWG. 27560

PROPOSAL BID ITEMS

161268

Report Date 11/18/16

Section: 0014 - BRIDGE - LONG BRANCH - DWG. 27569

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0700	02231		STRUCTURE GRANULAR BACKFILL	456.00	CUYD		$	
0710	02998		MASONRY COATING	2,113.00	SQYD		$	
0720	03299		ARMORED EDGE FOR CONCRETE	186.00	LF		$	
0730	08001		STRUCTURE EXCAVATION-COMMON	72.00	CUYD		$	
0740	08019		CYCLOPEAN STONE RIP RAP	2,330.00	TON		$	
0750	08020		CRUSHED AGGREGATE SLOPE PROT	590.00	TON		$	
0760	08033		TEST PILES	202.00	LF		$	
0770	08039		PRE-DRILLING FOR PILES	723.00	LF		$	
0780	08046		PILES-STEEL HP12X53	1,446.00	LF		$	
0790	08094		PILE POINTS-12 IN 27569	40.00	EACH		$	
0800	08100		CONCRETE-CLASS A	296.00	CUYD		$	
0810	08104		CONCRETE-CLASS AA	624.00	CUYD		$	
0820	08150		STEEL REINFORCEMENT	65,533.00	LB		$	
0830	08151		STEEL REINFORCEMENT-EPOXY COATED	182,760.00	LB		$	
0840	20743ED		DRILLED SHAFT 54 IN-SOLID ROCK	42.00	LF		$	
0850	20744ED		DRILLED SHAFT 60 IN-COMMON	115.80	LF		$	
0860	20745ED		ROCK SOUNDINGS	110.00	LF		$	
0870	20746ED		ROCK CORINGS	130.00	LF		$	
0880	21532ED		RAIL SYSTEM TYPE III	762.00	LF		$	
0890	24520EC		PPC I-BEAM HN 48-49	1,489.40	LF		$	

Section: 0015 - BRIDGE - KY 134W (WESTBOUND) - DWG. 27603

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0900	02231		STRUCTURE GRANULAR BACKFILL	203.00	CUYD		$	
0910	02998		MASONRY COATING	952.00	SQYD		$	
0920	03299		ARMORED EDGE FOR CONCRETE	118.00	LF		$	
0930	08001		STRUCTURE EXCAVATION-COMMON	491.00	CUYD		$	
0940	08002		STRUCTURE EXCAV-SOLID ROCK	44.00	CUYD		$	
0950	08020		CRUSHED AGGREGATE SLOPE PROT	291.00	TON		$	
0960	08039		PRE-DRILLING FOR PILES	111.00	LF		$	
0970	08046		PILES-STEEL HP12X53	408.00	LF		$	
0980	08094		PILE POINTS-12 IN	18.00	EACH		$	
0990	08100		CONCRETE-CLASS A	223.00	CUYD		$	
1000	08104		CONCRETE-CLASS AA	299.90	CUYD		$	
1010	08150		STEEL REINFORCEMENT	29,439.00	LB		$	
1020	08151		STEEL REINFORCEMENT-EPOXY COATED	78,813.00	LB		$	
1030	08632		PRECAST PC I BEAM TYPE 2	943.20	LF		$	
1040	21532ED		RAIL SYSTEM TYPE III	434.00	LF		$	

Section: 0016 - BRIDGE - RED RIVER RAMP A - DWG. 27081

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1050	02231		STRUCTURE GRANULAR BACKFILL	140.00	CUYD		$	
1060	02998		MASONRY COATING	1,030.00	SQYD		$	
1070	03299		ARMORED EDGE FOR CONCRETE	58.00	LF		$	

PROPOSAL BID ITEMS

161268

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1080	08001		STRUCTURE EXCAVATION-COMMON	150.00	CUYD		$	
1090	08002		STRUCTURE EXCAV-SOLID ROCK	4.00	CUYD		$	
1100	08019		CYCLOPEAN STONE RIP RAP	1,005.00	TON		$	
1110	08033		TEST PILES	75.00	LF		$	
1120	08039		PRE-DRILLING FOR PILES	60.00	LF		$	
1130	08046		PILES-STEEL HP12X53	228.00	LF		$	
1140	08094		PILE POINTS-12 IN	12.00	EACH		$	
1150	08100		CONCRETE-CLASS A	134.20	CUYD		$	
1160	08104		CONCRETE-CLASS AA	249.90	CUYD		$	
1170	08150		STEEL REINFORCEMENT	17,979.00	LB		$	
1180	08151		STEEL REINFORCEMENT-EPOXY COATED	57,338.00	LB		$	
1190	08634		PRECAST PC I BEAM TYPE 4	922.50	LF		$	
1200	20745ED		ROCK SOUNDINGS	87.00	LF		$	
1210	20746ED		ROCK CORINGS	92.00	LF		$	
1220	21420ED		DRILLED SHAFT-66 IN (COMMON)	87.00	LF		$	
1230	21421ED		DRILLED SHAFT-60 IN (SOLID ROCK)	32.00	LF		$	
1240	21532ED		RAIL SYSTEM TYPE III	470.00	LF		$	

Section: 0017 - BRIDGE - KY 134 EAST- DWG. 27604

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1250	02231		STRUCTURE GRANULAR BACKFILL	753.00	CUYD		$	
1260	02998		MASONRY COATING	1,896.00	SQYD		$	
1270	03299		ARMORED EDGE FOR CONCRETE	161.20	LF		$	
1280	08001		STRUCTURE EXCAVATION-COMMON	454.00	CUYD		$	
1290	08002		STRUCTURE EXCAV-SOLID ROCK	58.00	CUYD		$	
1300	08019		CYCLOPEAN STONE RIP RAP	372.00	TON		$	
1310	08020		CRUSHED AGGREGATE SLOPE PROT	581.00	TON		$	
1320	08039		PRE-DRILLING FOR PILES	315.00	LF		$	
1330	08046		PILES-STEEL HP12X53	963.00	LF		$	
1340	08094		PILE POINTS-12 IN	36.00	EACH		$	
1350	08100		CONCRETE-CLASS A	316.40	CUYD		$	
1360	08104		CONCRETE-CLASS AA	574.20	CUYD		$	
1370	08150		STEEL REINFORCEMENT	34,958.00	LB		$	
1380	08151		STEEL REINFORCEMENT-EPOXY COATED	147,610.00	LB		$	
1390	08634		PRECAST PC I BEAM TYPE 4	2,008.10	LF		$	
1400	21532ED		RAIL SYSTEM TYPE III	812.00	LF		$	

Section: 0018 - BRIDGE - RED RIVER RAMP D. DWG. 27082

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1410	02231		STRUCTURE GRANULAR BACKFILL	146.00	CUYD		$	
1420	02998		MASONRY COATING	783.00	SQYD		$	
1430	03299		ARMORED EDGE FOR CONCRETE	61.00	LF		$	
1440	08001		STRUCTURE EXCAVATION-COMMON	214.00	CUYD		$	
1450	08019		CYCLOPEAN STONE RIP RAP	1,438.00	TON		$	
1460	08033		TEST PILES	89.00	LF		$	
1470	08046		PILES-STEEL HP12X53	293.00	LF		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1480	08094		PILE POINTS-12 IN	12.00	EACH		$	
1490	08100		CONCRETE-CLASS A	133.60	CUYD		$	
1500	08104		CONCRETE-CLASS AA	197.30	CUYD		$	
1510	08150		STEEL REINFORCEMENT	14,904.00	LB		$	
1520	08151		STEEL REINFORCEMENT-EPOXY COATED	48,351.00	LB		$	
1530	08634		PRECAST PC I BEAM TYPE 4	642.50	LF		$	
1540	20745ED		ROCK SOUNDINGS	75.00	LF		$	
1550	20746ED		ROCK CORINGS	92.00	LF		$	
1560	21420ED		DRILLED SHAFT-66 IN (COMMON)	75.00	LF		$	
1570	21421ED		DRILLED SHAFT-60 IN (SOLID ROCK)	32.00	LF		$	
1580	21532ED		RAIL SYSTEM TYPE III	331.00	LF		$	
1590	23813EC		DECK DRAIN	5.00	EACH		$	

Section: 0019 - BRIDGE - CULVERT #1 -STA. 3111+46.70 - DWG. 27509

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1600	02223		GRANULAR EMBANKMENT	45.00	CUYD		$	
1610	02403		REMOVE CONCRETE MASONRY	8.50	CUYD		$	
1620	08002		STRUCTURE EXCAV-SOLID ROCK	6.00	CUYD		$	
1630	08003		FOUNDATION PREPARATION	1.00	LS		$	
1640	08100		CONCRETE-CLASS A	129.70	CUYD		$	
1650	08150		STEEL REINFORCEMENT	10,149.00	LB		$	

Section: 0020 - BRIDGE - KY 205 OVER STATE ROAD FORK - DWG. 27083

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3500	02231		STRUCTURE GRANULAR BACKFILL	277.00	CUYD		$	
3510	02998		MASONRY COATING	417.00	SQYD		$	
3520	03299		ARMORED EDGE FOR CONCRETE	111.00	LF		$	
3530	08019		CYCLOPEAN STONE RIP RAP	849.00	TON		$	
3540	08033		TEST PILES	93.00	LF		$	
3550	08046		PILES-STEEL HP12X53	535.00	LF		$	
3560	08094		PILE POINTS-12 IN	18.00	EACH		$	
3570	08100		CONCRETE-CLASS A	69.10	CUYD		$	
3580	08104		CONCRETE-CLASS AA	215.00	CUYD		$	
3590	08151		STEEL REINFORCEMENT-EPOXY COATED	42,336.00	LB		$	
3600	08633		PRECAST PC I BEAM TYPE 3	1,026.50	LF		$	
3610	21532ED		RAIL SYSTEM TYPE III	211.00	LF		$	

Section: 0021 - BRIDGE - CULVERT #2 - STA.3133+16.85 - DWG. 27510

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3620	02223		GRANULAR EMBANKMENT	91.00	CUYD		$	
3630	02403		REMOVE CONCRETE MASONRY	44.30	CUYD		$	
3640	08003		FOUNDATION PREPARATION	1.00	LS		$	
3650	08100		CONCRETE-CLASS A	235.40	CUYD		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3660	08150		STEEL REINFORCEMENT	29,450.00	LB		$	

Section: 0022 - BRIDGE- CULVERT - DWG. 27084

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3670	02223		GRANULAR EMBANKMENT	302.00	CUYD		$	
3680	02403		REMOVE CONCRETE MASONRY	28.00	CUYD		$	
3690	08003		FOUNDATION PREPARATION	1.00	LS		$	
3700	08100		CONCRETE-CLASS A	398.00	CUYD		$	
3710	08150		STEEL REINFORCEMENT	45,590.00	LB		$	

Section: 0023 - BRIDGE - CULVERT #3 - STA. 47+00 - DWG. 27511

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3720	02223		GRANULAR EMBANKMENT	19.00	CUYD		$	
3730	08002		STRUCTURE EXCAV-SOLID ROCK	83.00	CUYD		$	
3740	08003		FOUNDATION PREPARATION	1.00	LS		$	
3750	08100		CONCRETE-CLASS A	204.30	CUYD		$	
3760	08150		STEEL REINFORCEMENT	18,185.00	LB		$	

Section: 0024 - BRIDGE- CULVERT - DWG. 27085

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3770	02403		REMOVE CONCRETE MASONRY	6.00	CUYD		$	
3780	08002		STRUCTURE EXCAV-SOLID ROCK	9.00	CUYD		$	
3790	08003		FOUNDATION PREPARATION	1.00	LS		$	
3800	08100		CONCRETE-CLASS A	47.70	CUYD		$	
3810	08150		STEEL REINFORCEMENT	3,228.00	LB		$	

Section: 0025 - SIGNING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3820	06400		GMSS GALV STEEL TYPE A	3,714.00	LB		$	
3830	06401		FLEXIBLE DELINEATOR POST-M/W	207.00	EACH		$	
3840	06403		FLEXIBLE DELINEATOR POST-B/W	74.00	EACH		$	
3850	06404		FLEXIBLE DELINEATOR POST-M/Y	87.00	EACH		$	
3860	06405		SBM ALUMINUM PANEL SIGNS	2,138.50	SQFT		$	
3870	06406		SBM ALUM SHEET SIGNS .080 IN	152.50	SQFT		$	
3880	06407		SBM ALUM SHEET SIGNS .125 IN	1,720.85	SQFT		$	
3890	06410		STEEL POST TYPE 1	3,705.00	LF		$	
3900	06411		STEEL POST TYPE 2	480.00	LF		$	
3910	06412		STEEL POST MILE MARKERS	12.00	EACH		$	
3920	06441		GMSS GALV STEEL TYPE C	10,681.50	LB		$	
3930	06451		REMOVE SIGN SUPPORT BEAM	6.00	EACH		$	
3940	06490		CLASS A CONCRETE FOR SIGNS	54.78	CUYD		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3950	06491		STEEL REINFORCEMENT FOR SIGNS	1,918.00	LB		$	
3960	06514		PAVE STRIPING-PERM PAINT-4 IN	12,720.00	LF		$	
3970	06515		PAVE STRIPING-PERM PAINT-6 IN	79,622.00	LF		$	
3980	06517		PAVE STRIPING-PERM PAINT-12 IN	2,258.00	LF		$	
3990	06574		PAVE MARKING-THERMO CURV ARROW	8.00	EACH		$	
4000	20205EC		PAVE MARK STOP BAR-24 IN PAINT	60.00	LF		$	
4010	20418ED		REMOVE & RELOCATE SIGNS	4.00	EACH		$	
4020	20419ND		ROADWAY CROSS SECTION	10.00	EACH		$	
4030	21373ND		REMOVE SIGN	3.00	EACH		$	
4040	21596ND		GMSS TYPE D	61.00	EACH		$	
4050	24489EC		INLAID PAVEMENT MARKER	729.00	EACH		$	
4060	24631EC		BARCODE SIGN INVENTORY	222.00	EACH		$	
4070	30012		MILE MARKER	6.00	EACH		$	

Section: 0026 - LIGHTING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4080	04701		POLE 40 FT MTG HT	11.00	EACH		$	
4090	04724		BRACKET 12 FT	11.00	EACH		$	
4100	04740		POLE BASE	11.00	EACH		$	
4110	04750		TRANSFORMER BASE	11.00	EACH		$	
4120	04761		LIGHTING CONTROL EQUIPMENT	1.00	EACH		$	
4130	04780		FUSED CONNECTOR KIT	22.00	EACH		$	
4140	04797		CONDUIT-3 IN	745.00	LF		$	
4150	04820		TRENCHING AND BACKFILLING	1,965.00	LF		$	
4160	04832		WIRE-NO. 12	1,320.00	LF		$	
4170	04860		CABLE-NO. 8/3C DUCTED	1,965.00	LF		$	
4180	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	14.00	EACH		$	
4190	24589ED		LED LUMINAIRE	11.00	EACH		$	

Section: 0027 - WATERLINE - MORGAN 10-126.50

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4200	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3	490.00	LF		$	
4210	14019		W FIRE HYDRANT ASSEMBLY	1.00	EACH		$	
4220	14069		W PIPE POLYETHYLENE/PLASTIC 06 INCH (DR-9)	560.00	LF		$	
4230	14101		W TIE-IN SPECIAL	2.00	EACH		$	

Section: 0028 - WATERLINE - MORGAN 10-126.70

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4240	14003		W CAP EXISTING MAIN 3 IN CUT AND CAP	1.00	EACH		$	
4250	14004		W DIRECTIONAL BORE 8 IN HDPE CASING PIPE	325.00	LF		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4260	14004		W DIRECTIONAL BORE CREEK CROSSING	40.00	LF		$	
4270	14008		W ENCASEMENT STEEL BORED RANGE 3 10 IN STEEL	95.00	LF		$	
4280	14013		W ENCASEMENT STEEL OPEN CUT RANGE 2 8 IN STEEL	310.00	LF		$	
4290	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3 10 IN STEEL	20.00	LF		$	
4300	14019		W FIRE HYDRANT ASSEMBLY 3 INCH NOZZLE BLOWOFF	1.00	EACH		$	
4310	14023		W FLUSHING ASSEMBLY 3 INCH BLOWOFF	1.00	EACH		$	
4320	14028		W METER 3/4 INCH	1.00	EACH		$	
4330	14029		W METER ADJUST RECONNECT TO EXIST SERVICE	2.00	EACH		$	
4340	14036		W PIPE DUCTILE IRON 06 INCH	400.00	LF		$	
4350	14057		W PIPE PVC 03 INCH SDR - 17	2,930.00	LF		$	
4360	14059		W PIPE PVC 06 INCH SDR - 17	2,640.00	LF		$	
4370	14067		W PIPE POLYETHYLENE/PLASTIC 03 INCH HDPE DR 9	440.00	LF		$	
4380	14101		W TIE-IN SPECIAL VARIOUS TYPES	3.00	EACH		$	
4390	14131		W METER SPECIAL (SALVAGE)	1.00	EACH		$	
4400	14571		W SERV PE/PLST SHORT SIDE 3/4 IN INST (APPROXIMATELY 150 LF)	1.00	EACH		$	
4410	21233ED		ASPHALT PAVING REPLACEMENT 140 LF	140.00	LF		$	
4420	24441EC		GRAVEL REPLACEMENT DRIVEWAYS 40 LF	40.00	LF		$	

Section: 0029 - WATERLINE - MAGOFFIN (10-126.50)

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
4430	14003		W CAP EXISTING MAIN	2.00	EACH		$	
4440	14007		W ENCASEMENT STEEL BORED RANGE 2	150.00	LF		$	
4450	14013		W ENCASEMENT STEEL OPEN CUT RANGE 2	145.00	LF		$	
4460	14023		W FLUSHING ASSEMBLY	1.00	EACH		$	
4470	14028		W METER 3/4 INCH	1.00	EACH		$	
4480	14046		W PIPE DCTL IRON RSTRND JOINT 04 IN	260.00	LF		$	
4490	14058		W PIPE PVC 04 INCH	465.00	LF		$	
4500	14080		W SERV PE/PLST LONG SIDE 3/4 IN	1.00	EACH		$	
4510	14089		W TAPPING SLEEVE AND VALVE SIZE 1	2.00	EACH		$	

Section: 0030 - WATERLINE - (CITY OF CAMPTON, WOLFE 10-126.70)

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5460	14001		W AIR RELEASE VALVE 3/4 INCH	2.00	EACH		$	
5470	14003		W CAP EXISTING MAIN	7.00	EACH		$	

161268

PROPOSAL BID ITEMS

Report Date 11/18/16

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5480	14004		W DIRECTIONAL BORE	240.00	LF		$	
5490	14008		W ENCASEMENT STEEL BORED RANGE 3	889.00	LF		$	
5500	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3	60.00	LF		$	
5510	14022		W FLUSH HYDRANT ASSEMBLY	3.00	EACH		$	
5520	14028		W METER 3/4 INCH	2.00	EACH		$	
5530	14030		W METER RELOCATE	2.00	EACH		$	
5540	14057		W PIPE PVC 03 INCH	912.00	LF		$	
5550	14059		W PIPE PVC 06 INCH	5,348.00	LF		$	
5560	14092		W TIE-IN 03 INCH	1.00	EACH		$	
5570	14094		W TIE-IN 06 INCH	6.00	EACH		$	
5580	14103		W VALVE 03 INCH	1.00	EACH		$	
5590	14105		W VALVE 06 INCH	11.00	EACH		$	
5600	14144		W LINE MARKER	6.00	EACH		$	

Section: 0031 - WATERLINE - MORGAN 10-126.60

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5610	14004		W DIRECTIONAL BORE (12 IN HDPE CASING PIPE)	600.00	LF		$	
5620	14004		W DIRECTIONAL BORE (CREEK CROSSING)	240.00	LF		$	
5630	14008		W ENCASEMENT STEEL BORED RANGE 3 (10 IN CASING PIPE)	50.00	LF		$	
5640	14019		W FIRE HYDRANT ASSEMBLY (3 NOZZLE BLOWOFF)	2.00	EACH		$	
5650	14059		W PIPE PVC 06 INCH (SDR - 17)	1,395.00	LF		$	
5660	14069		W PIPE POLYETHYLENE/PLASTIC 06 INCH (HDPE DR-9)	620.00	LF		$	
5670	14101		W TIE-IN SPECIAL (CONNECTION TO EXISTING WATER LINE - ALL SIZES AND TYPES)	4.00	EACH		$	

Section: 0032 - TRAINEES

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5680	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	
5690	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	
5700	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	
5710	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	
5720	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	
5730	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	
5740	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOUR		$	

PROPOSAL BID ITEMS

161268

Report Date 11/18/16

Section: 0033 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
5750	02568		MOBILIZATION	1.00	LS		$	
5760	02569		DEMOBILIZATION	1.00	LS		$	