



CALL NO. 109

CONTRACT ID. 151273

PERRY COUNTY

FED/STATE PROJECT NUMBER NHPP 0151 (78)

DESCRIPTION HAZARD TO JACKSON ROAD (KY 15)

WORK TYPE GRADE & DRAIN WITH ASPHALT SURFACE

PRIMARY COMPLETION DATE 480 WORKING DAYS

LETTING DATE: November 20,2015

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME November 20,2015. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

PLANS AVAILABLE FOR THIS PROJECT.

DBE CERTIFICATION REQUIRED - 7.50%

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

TABLE OF CONTENTS

PART I	SCOPE OF WORK
	<ul style="list-style-type: none">• 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• HOLD AWARD• SPECIAL NOTE(S) APPLICABLE TO PROJECT• LIQUIDATED DAMAGES• 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• SEWER STANDARD UTILITY BID ITEMS• DEPT OF ARMY - NATIONWIDE PERMIT• KPDES STORM WATER PERMIT, BMP AND NOI• COMMUNICATING ALL PROMISES
PART II	SPECIFICATIONS AND STANDARD DRAWINGS
	<ul style="list-style-type: none">• SPECIFICATIONS REFERENCE• SUPPLEMENTAL SPECIFICATION• PORTABLE CHANGEABLE SIGNS• ROCK BLASTING• TURF REINFORCEMENT MAT• [SN-11M] SPECIAL NOTE FOR BARCODES ON PERMANENT SIGNS• [SN-11N] SPECIAL NOTE FOR LONGITUDINAL PAVEMENT JOINT ADHESIVE• EMBANKMENT AT BRIDGE END BENT STRUCTURES
PART III	EMPLOYMENT, WAGE AND RECORD REQUIREMENTS
	<ul style="list-style-type: none">• 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 PERRY
PART IV	INSURANCE
PART V	BID ITEMS

PART I
SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 10

CONTRACT ID - 151273

NHPP 0151 (78)

COUNTY - PERRY

PCN - DE09700151573

NHPP 0151 (78)

HAZARD TO JACKSON ROAD (KY 15) (MP 14.486) IMPROVE SAFETY, UPGRADE GEOMETRICS AND CAPACITY ISSUES FOR KY 15 FROM MORTON BOULEVARD TO BONNYMAN (MP 16.800), A DISTANCE OF 02.32 MILES.GRADE & DRAIN WITH ASPHALT SURFACE SYP NO. 10-00269.10.

GEOGRAPHIC COORDINATES LATITUDE 37:17:00.00 LONGITUDE 83:17:00.00

COMPLETION DATE(S):

480 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 is advised that the Underground Facility Damage Protection Act of 1994, became law January 1, 1995. It is the contractor's responsibility to determine the impact of the act regarding this project, and take all steps necessary to be in compliance with the provision of the act.

SPECIAL NOTE FOR COMPOSITE OFFSET BLOCKS

Contrary to the Standard Drawings (2012 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. (See attachment)

10/29/12



Steven L. Beshear
Governor

Commonwealth of Kentucky
Finance and Administration Cabinet
OFFICE OF THE SECRETARY
Room 383, Capitol Annex
702 Capital Avenue
Frankfort, KY 40601-3462
(502) 564-4240
Fax (502) 564-6785

Lori H. Flanery
Secretary

SECRETARY'S ORDER 11-004

FINANCE AND ADMINISTRATION CABINET

Vendor Document Disclosure

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary to conduct a review of the records of a private vendor that holds a contract to provide goods and/or services to the Commonwealth; and

WHEREAS, in order to promote accountability and transparency in governmental operations, the Finance and Administration Cabinet believes that a mechanism should be created which would provide for review and assistance to an Executive Branch agency if said agency cannot obtain access to documents that it deems necessary during the course of an audit, investigation or any other inquiry by an Executive Branch agency that involves the review of documents; and

WHEREAS, KRS 42.014 and KRS 12.270 authorizes the Secretary of the Finance and Administration Cabinet to establish the internal organization and assignment of functions which are not established by statute relating to the Finance and Administration Cabinet; further, KRS Chapter 45A.050 and 45A.230 authorizes the Secretary of the Finance and Administration Cabinet to procure, manage and control all supplies and services that are procured by the Commonwealth and to intervene in controversies among vendors and state agencies; and

NOW, THEREFORE, pursuant to the authority vested in me by KRS 42.014, KRS 12.270, KRS 45A.050, and 45A.230, I, Lori H. Flanery, Secretary of the Finance and Administration Cabinet, do hereby order and direct the following:

- I. Upon the request of an Executive Branch agency, the Finance and Administration Cabinet ("FAC") shall formally review any dispute arising where the agency has requested documents from a private vendor that holds a state contract and the vendor has refused access to said documents under a claim that said documents are not directly pertinent or relevant to the agency's inquiry upon which the document request was predicated.
- II. Upon the request of an Executive Branch agency, the FAC shall formally review any situation where the agency has requested documents that the agency deems necessary to

conduct audits, investigations or any other formal inquiry where a dispute has arisen as to what documents are necessary to conclude the inquiry.

- III. Upon receipt of a request by a state agency pursuant to Sections I & II, the FAC shall consider the request from the Executive Branch agency and the position of the vendor or party opposing the disclosure of the documents, applying any and all relevant law to the facts and circumstances of the matter in controversy. After FAC's review is complete, FAC shall issue a Determination which sets out FAC's position as to what documents and/or records, if any, should be disclosed to the requesting agency. The Determination shall be issued within 30 days of receipt of the request from the agency. This time period may be extended for good cause.
- IV. If the Determination concludes that documents are being wrongfully withheld by the private vendor or other party opposing the disclosure from the state agency, the private vendor shall immediately comply with the FAC's Determination. Should the private vendor or other party refuse to comply with FAC's Determination, then the FAC, in concert with the requesting agency, shall effectuate any and all options that it possesses to obtain the documents in question, including, but not limited to, jointly initiating an action in the appropriate court for relief.
- V. Any provisions of any prior Order that conflicts with the provisions of this Order shall be deemed null and void.

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
102.08 Irregular Proposals 102.14 Disqualification of Bidders
102.09 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 certainty 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 out 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 submit certified reports on monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. **These reports must be submitted within 14 days of payment made to the DBE contractor.**

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 form to be submitted 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.

04/29/2015

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.

Perry County
KY 15 Safety Improvements
10-269.10
SPECIAL NOTE FOR AWARD OF CONTRACT

Due to pending Environmental Permit in accordance 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 sixty (60) calendar days from the date of letting.

SPECIAL NOTE

For Tree Removal

**Perry County
KY 15 Improvements
Item No. 10-269.10**

NO CLEARING OF TREES 3 INCHES OR GREATER (DIAMETER BREST
HEIGHT) FROM APRIL 1 – AUGUST 15.

**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
GUARDRAIL END TREATMENT TYPE 1**

Contrary to KYTC Standard Drawing RBR-020-05 the guardrail end treatment ET-Plus manufactured by Trinity Industries will not be permitted as an option for bid item "Guardrail End Treatment Type 1".

**SPECIAL NOTE FOR
ACCESS TO UTILITY POLE
Sta. 180+44, 128' RT**

THIS UTILITY POLE IS OWNED AND OPERATED BY WINDSTREAM. THE CONTRACTOR WILL LEAVE DRIVING ACCESS TO THIS POLE DURING AND AFTER CONSTRUCTION. THE PERMANENT ACCESS WILL BE OFF KY 267 CONNECTOR NORTH AND NOT FROM KY 15.

**SPECIAL NOTE
CONCERNING
EXCAVATION FROM STA. 185+00 TO STA. 187+00**

THIS NOTE SHALL SERVE AS NOTICE TO THE CONTRACTOR THAT AMERICAN ELECTRIC POWER (AEP) HAS POWER TRANSMISSION LINES IN THIS AREA. AS PART OF THE ENCROACHMENT PERMIT #T10-2013-00088, AEP IS GRANTING THE OPTION OF DE-ENERGIZING THE TRANSMISSION LINE UP TO 8 HOURS PER DAY FOR A PERIOD OF NOT MORE THAN 20 DAYS TO FACILITATE ROADWAY EXCAVATION WORK IN THIS AREA.

THE LETTER FROM AEP CONCERNING THIS IS ATTACHED.

FOR QUESTIONS ABOUT THIS PLEASE CONTACT FRED HOGREFE AT (540)562-7063
FVHOGREFE@AEP.COM

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 36 inches 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:

$$\% \text{ Deflection} = [(AASHTO \text{ Nominal Diameter} - D2) / AASHTO \text{ Nominal Diameter}] \times 100\%$$

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:

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



American Electric Power
P O Box 2021
Roanoke, VA 24022-2121
aep.com

Monday, September 09, 2013

Jeremy Carty
Kentucky Dept. of Highways
KY Hwy 460
Jackson, KY. 41472

Re: Perry County Highway Crossing Permit

Jeremy,

Per our phone conversation on June 13, 2013, here is the pdf with our final 4 crossings for the Bonnyman – Soft Shell project.

The following documents are included in this package: Encroachment Permit, General Location Map, Crossing Drawing and a typical Traffic Control Plan. We will be using a local traffic control contract company for this project and they may file a plan as well.

At the request of the Kentucky Transportation Cabinet, we are granting the option of de-energizing the subject line up to 8 hours a day for a period of not more than 20 days to facilitate highway work in the area of our KY 15 crossing. Note that this agreement is subject to available line outages and highway work may need to be scheduled accordingly.

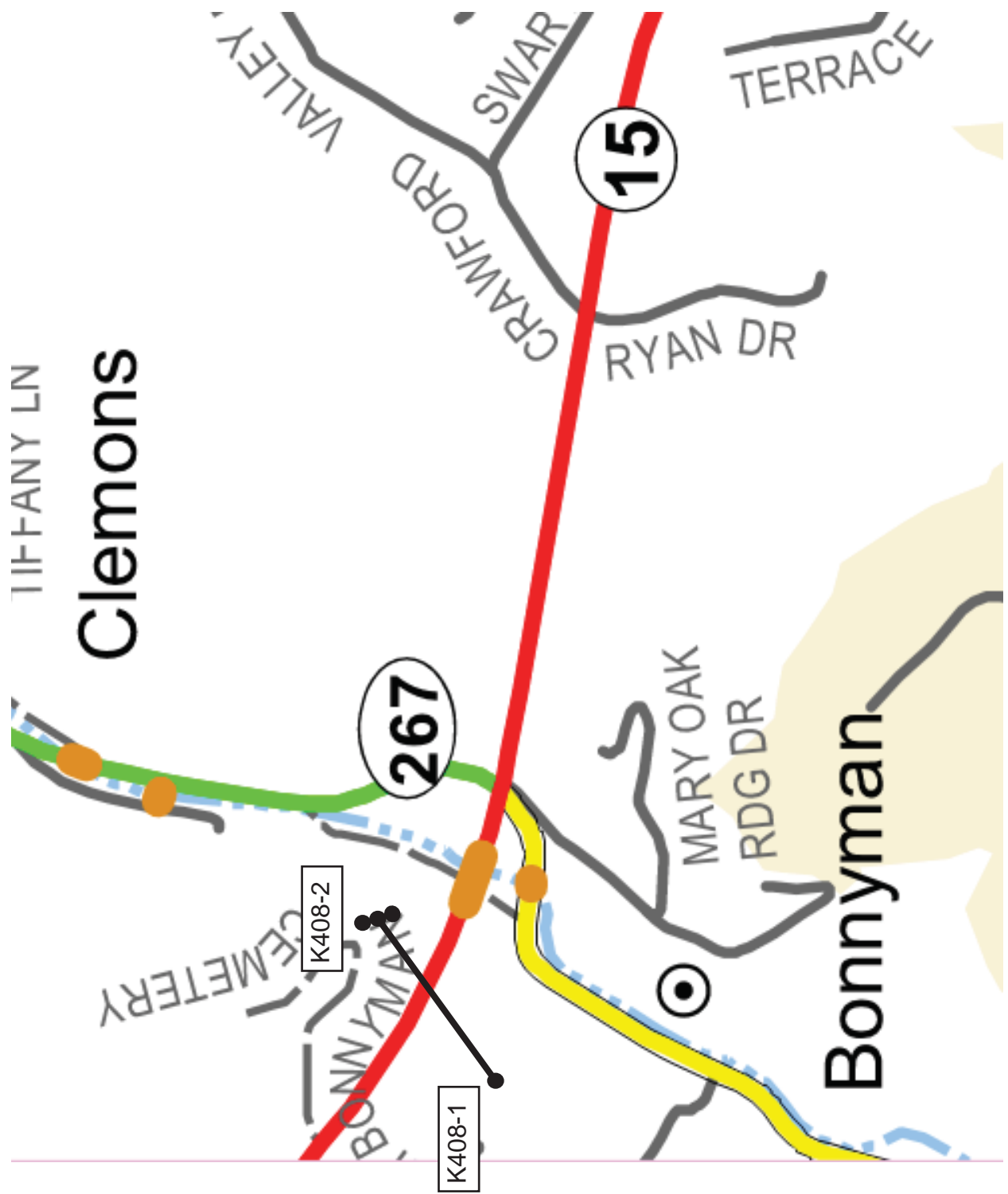
If you have any questions or need any additional items please do not hesitate to contact me at 540-562-7063.

Sincerely,

A handwritten signature in red ink, appearing to read 'F V Hogrefe', is written over a white background.

Fred Hogrefe
Graphics Technician I
AEP, Transmission Line Engineering

540.562.7063
fvhogrefe@aep.com



**SPECIAL NOTE FOR
EXCESS MATERIAL SITES**

**PERRY COUNTY
RECONSTRUCT KY 15
ITEM 10-269.10**

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 Kentucky Division of Water (DOW) rules and regulations pertaining to discharges into U.S. Waters.

PART A: PERMITTED SITES

The Kentucky Transportation Cabinet (KYTC) has PENDING Section 404 & 401 permits for two (A and B) excess material site that the contractor can use for this KYTC project.

Mitigation requirements resulting from the use of these excess material sites 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. **The KYTC has not acquired fee simple ownership or purchased an easement to these excess material sites.** The contractor is responsible for securing permission to place excess material at the site from the property owner(s). The KYTC has not secured access rights to the proposed excess material sites. The contractor must secure any haul roads or accesses through other properties by agreements with property owners or other governmental agencies (ie. County roads, private roads, etc.). The KYTC is not responsible for damages or repairs to sites or accesses to sites located outside of state right of way. The contractor must notify the KYTC prior to tree clearing in the excess material sites. The location of the excess material sites and the pending permitted limits of each site are identified in the attached map. The following information is the property owner contact information:

Excess Material Site A:

Dale Ridge Development, LLC
162 Crawford Valley Dr.
Hazard, KY 41701
(606)487-8255
(606)216-0671
Contact: Dale Williams / Michael Dean Fugate

Carl & Lois Smith
PO Box 135
Hazard, KY 41702
(606)439-3640

Roy Campbell Estate
(606)233-1367 or (606)438-4221
Contact: June Ison

Excess Material Site B:

ACIN, LLC
(606)436-3868
Contact: Paul Sebastian

John & Lenora Burgett
(606)436-6942

Phillip K. (Jabo) Clemons
(606)439-3823

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

PART B: UNPERMITTED SITES

Additionally, KYTC has identified two (C & D) other excess material sites that were believed not to require Section 404 & 401, or floodplain permits. If either or both of these sites are utilized, the contractor will obtain an evaluation from the Army Corps of Engineers, Kentucky Division of Water, and/or FEMA, of the sites to confirm that the sites do not require permits from any agency. If permits are required for either of these sites, it will be the responsibility of the contractor to acquire the necessary permits and certifications prior to tree clearing. Any fees associated with these sites will be the responsibility of the contractor. 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 or payment will be allowed for this process.

The KYTC has not acquired fee simple ownership or purchased an easement to these excess material sites. The contractor is responsible for securing permission to place excess material at the site from the property owner(s). The KYTC has not secured access rights to the proposed excess material sites. The contractor must secure any haul roads or accesses through other properties by agreements with property owners or other governmental agencies (ie. County roads, private roads, etc.). The KYTC is not responsible for damages or repairs to sites or accesses to sites located outside of state right of way. The contractor must notify the KYTC prior to tree clearing in the excess material sites. The location of the excess material sites are identified in the attached map. The following information is the property owner contact information:

Excess Material Site C:

Sherman Neace
245 White Rock Ln.
Bonnyman, KY 41719
(606)435-0271
(606)436-2957

Barbara Fugate
(606)439-3237

Excess Material Site D:

Glenn Baker
717 Kentucky Blvd.
Hazard, KY 41701
(859)293-6244
(606)439-4444
(606)589-2646

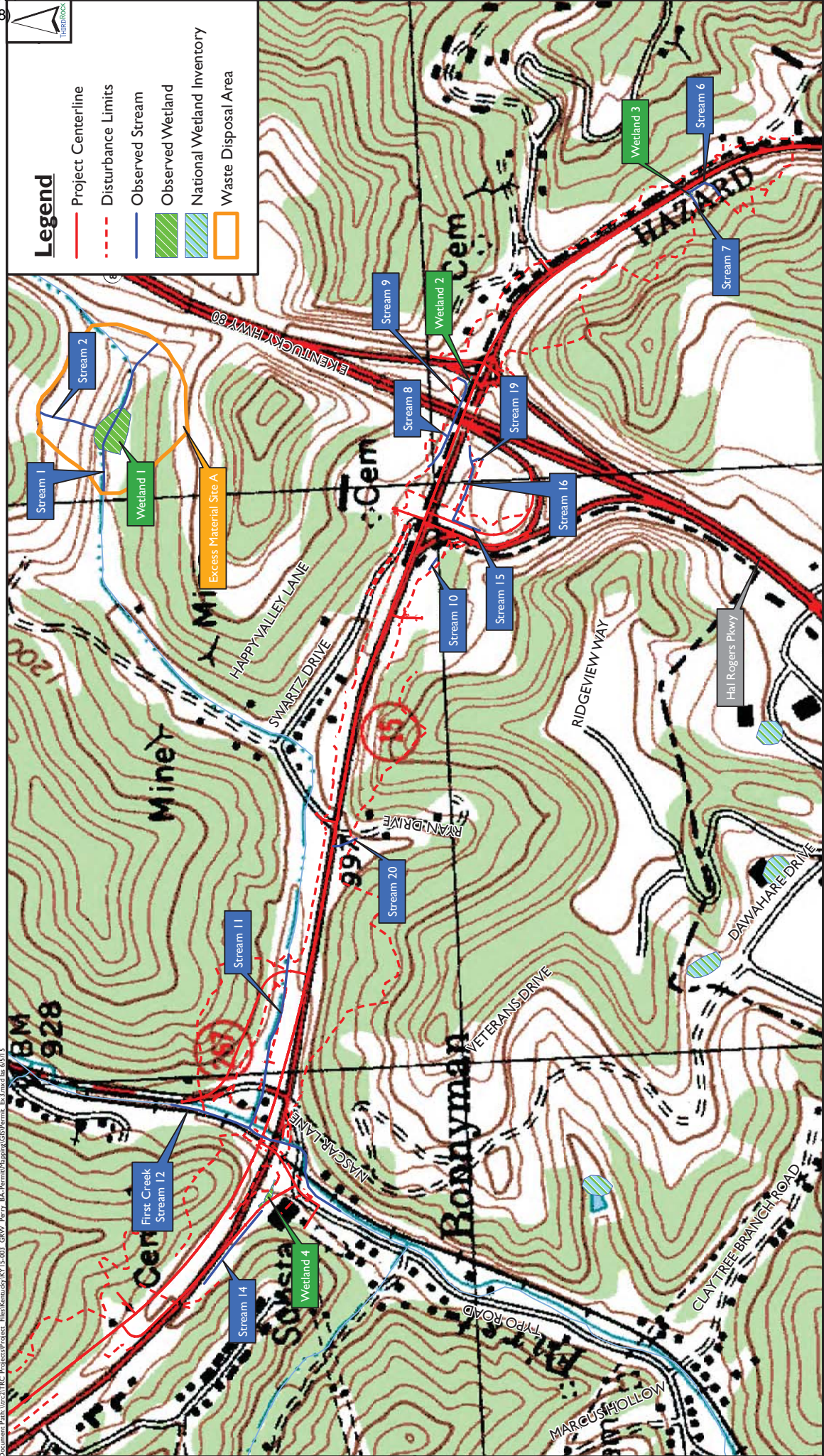
PART C: INFORMATION FOR ALL PERMITTED/UNPERMITTED SITES

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 (including pipes, culverts, etc.).

The contractor shall abide by Section 205.04 in the Standard Specifications for Road and Bridge Construction Manual for excess material disposal.

If the contractor chooses to use other excess material site(s) (rather than or in addition to) the KYTC's identified excess material sites, or modify the identified excess material sites, 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 or payment 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.



Legend

- Project Centerline
- - - Disturbance Limits
- Observed Stream
- Observed Wetland
- National Wetland Inventory
- Waste Disposal Area

Exhibit 3
Stream and Wetland Impacts
(Topographic)

KY 15 Improvements
KYTC Item No. 10-269.01
Perry County, Kentucky

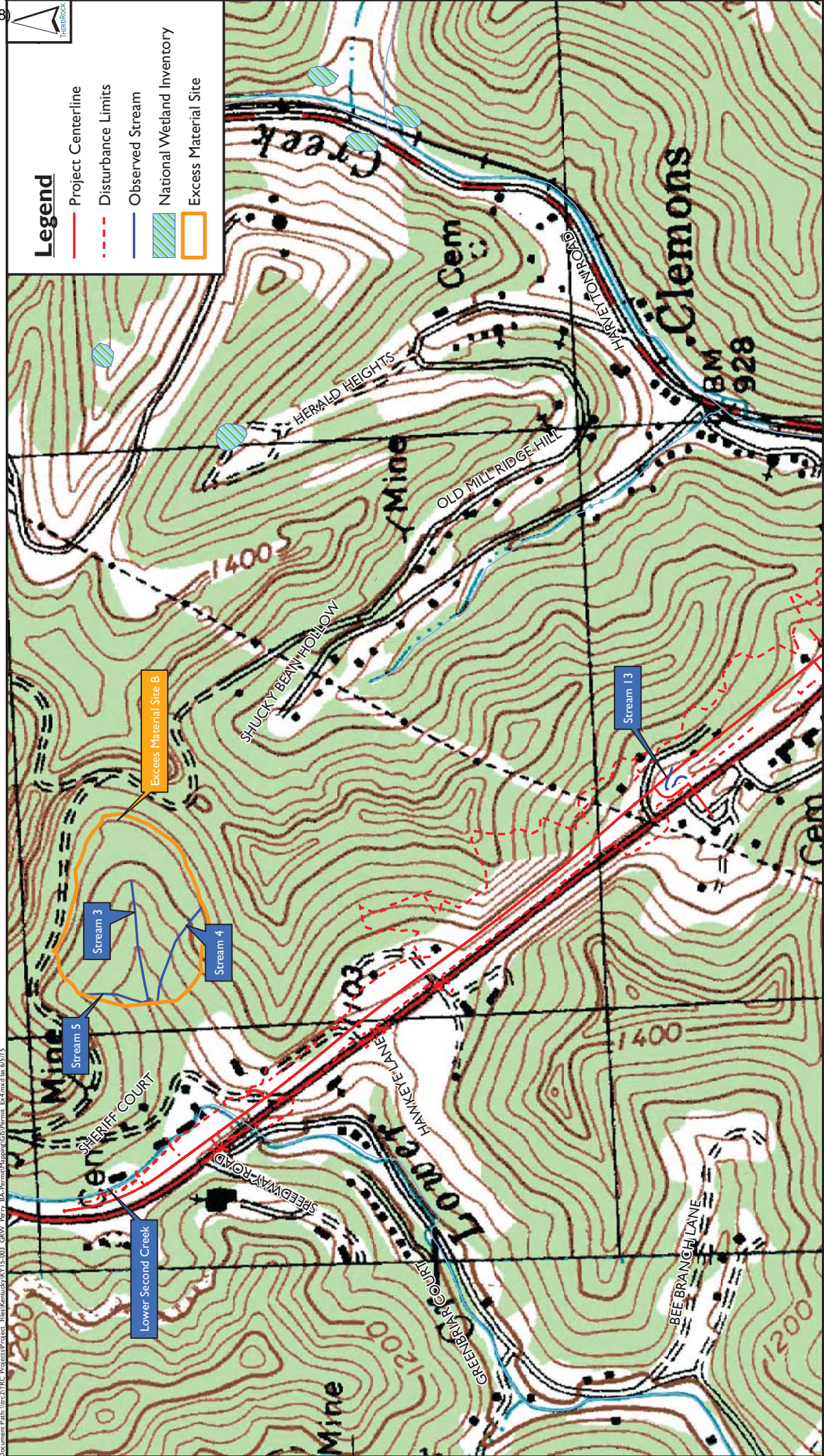
Notes
- Design mapping was received from GRW on October 14, 2014
- Streams from National hydrography dataset and base data from the Kentucky GeoNet.

Prepared by:
Third Rock Consultants, LLC
2526 Regency Road, Suite 180
Lexington, Kentucky 40503

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Legend

- Project Centerline
- Disturbance Limits
- Observed Stream
- National Wetland Inventory
- Excess Material Site



Notes

- Design mapping was received from GRW on October 14, 2014
- Streams from National hydrography dataset and base data from the Kentucky GeoNet.

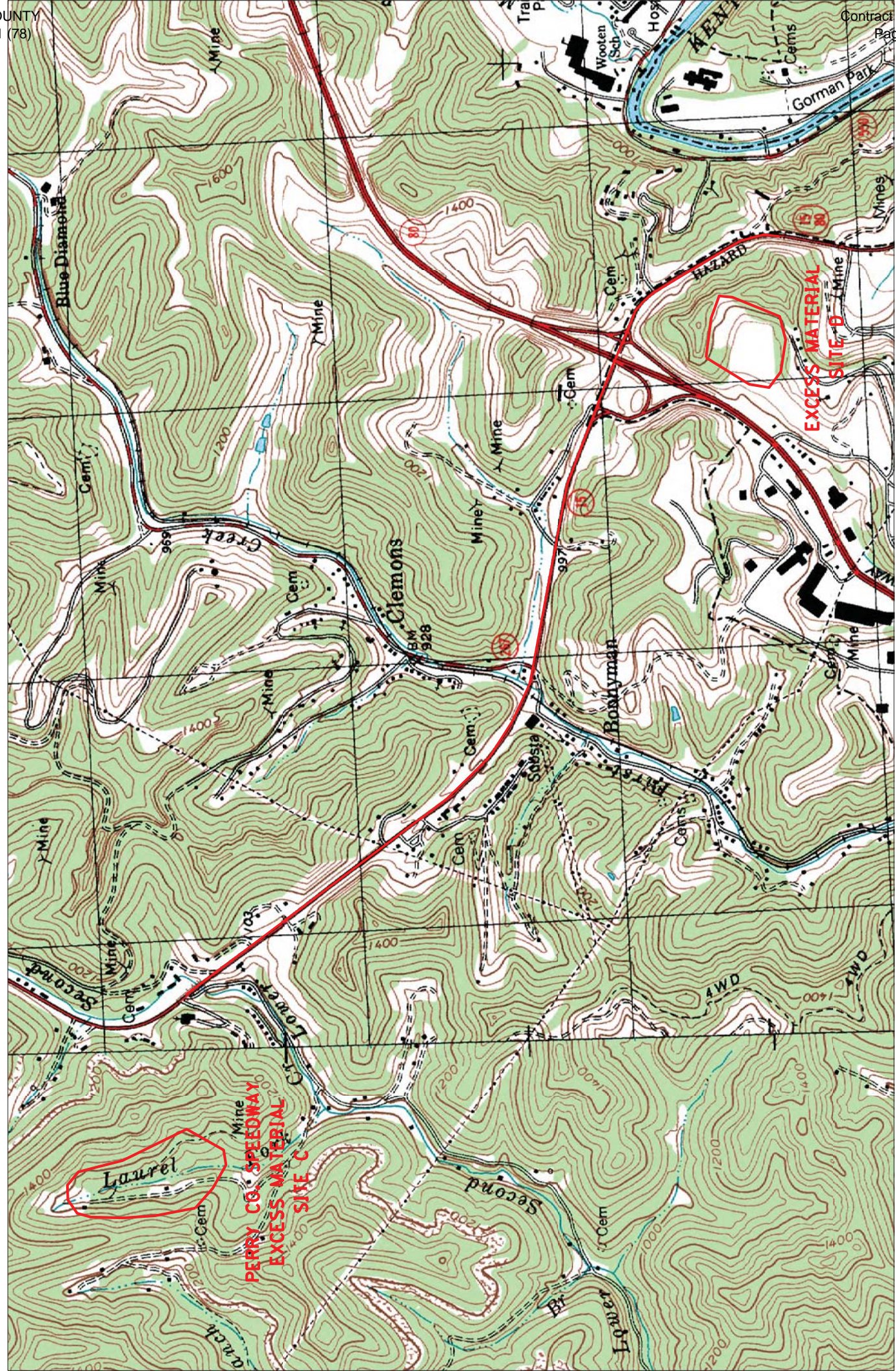
Exhibit 4
Stream and Wetland Impacts
(Topographic)

Prepared by:
Third Rock Consultants, LLC
2526 Regency Road, Suite 180
Lexington, Kentucky 40503

KY 15 Improvements
KYTC Item No. 10-269.01
Perry County, Kentucky



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**EXCESS MATERIAL
SITE D**

**PERRY CO. SPEEDWAY
EXCESS MATERIAL
SITE C**

Laurel

Blue Diamond

Clemmons

Boonhyman

HAZARD

Gorman Park

Woolen Sch. Hos

Laurel

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SPECIAL NOTE FOR INLAID PAVEMENT MARKERS

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Department's Standard and Supplemental Specifications and applicable Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. This work shall consist of:

- (1) Maintain and Control Traffic; and (2) Furnish and install Inlaid Pavement Markers (IPMs) in recessed grooves; and (3) Any other work as specified by these notes and the Contract.

II. MATERIALS

The Department will sample all materials in accordance with the Department's Sampling Manual. Make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Markers. Provide reflective lenses with depth control breakaway positioning tabs. Before furnishing the markers, provide to the Engineer the manufacturer's current recommendations for adhesives and installation procedures. Use one brand and design throughout the project. Use markers meeting the specifications in the table below.

SPECIFICATIONS FOR HOUSING AND REFLECTOR	
Material:	Polycarbonate Plastic
Weight:	Housing 2.00 oz.
	Reflector 2.00oz.
Housing Size:	5.00" x 3.00" x 0.70" high
Specific Intensity of Reflectivity at 0.2° Observation Angle	
White:	3.0 at 0°entrance angle
	1.2 at 20°entrance angle
Yellow:	60% of white values
Red:	25% of white values

C. Adhesives. Use adhesives that conform to the manufacturer's recommendations.

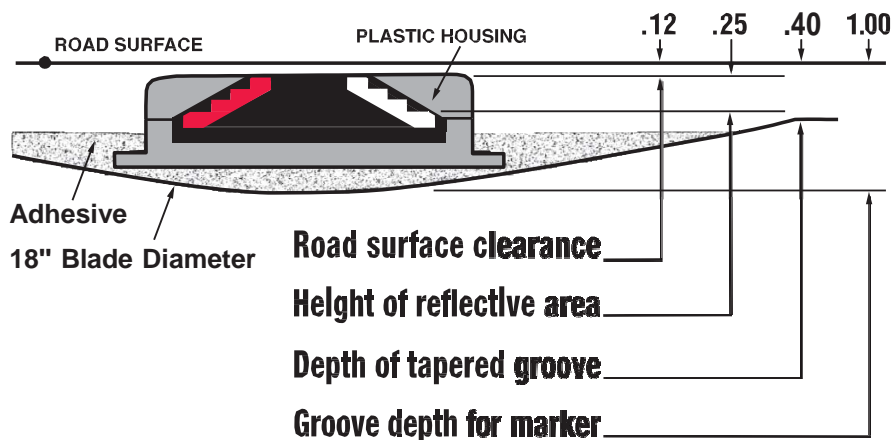
III. CONSTRUCTION

A. Experimental Evaluation. The University of Kentucky Transportation Center will be evaluating this installation of IPMs. Notify the Engineer a minimum of 14 calendar days prior to beginning work. The Engineer will coordinate the University's activities with the Contractor's work.

B. Maintain and Control Traffic. See Traffic Control Plan.

C. Installation. Install IPMs in recessed grooves cut into the final course of asphalt pavement according to the manufacturer's recommendations. Do not cut the grooves until the pavement has cured sufficiently to prevent tearing or raveling. Cut installation grooves using diamond blades on saws that accurately control groove dimensions. Remove all dirt, grease, oil, loose or unsound layers, and any other material from the marker area which would reduce the bond of the adhesive. Maintain pavement surfaces in a clean condition until placing markers.

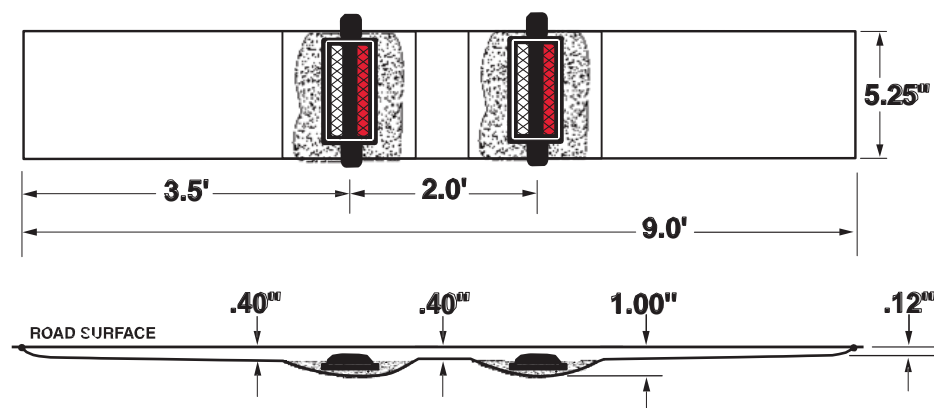
Prepare the pavement surfaces, and install the markers in the recessed groove according to the drawing below. Use an approved snowplowable epoxy adhesive. Ensure that the adhesive bed area is equal to the bottom area of the marker, and apply adhesive in sufficient quantity to force excess out around the entire perimeter of the marker. Use materials, equipment, and construction procedures that ensure proper adhesion of the markers to the pavement surface according to the manufacturer's recommendations. Remove all excess adhesive from in front of the reflective faces. If any adhesive or foreign matter cannot be removed from the reflective faces, or if any marker fails to properly adhere to the pavement surface, remove and replace the marker at no additional cost to the Department.



D. Location and Spacing. Install the markers in the pattern for high reflectivity with two (2) IPMs per groove. Locate and space markers as shown in the current standard drawings or sepias (note: use Inlaid Pavement Markers wherever Type V Pavement Markers are called for). Do not install markers on bridge decks. Do not install a marker

Inlaid Pavement Markers
Page 3 of 4

on top of a pavement joint or crack. Offset the recessed groove a minimum of 2 inches from any longitudinal pavement joint or crack and at least one inch from the painted stripe, ensuring that the finished line of markers is straight with minimal lateral deviation. Give preference to maintaining the 2-inch offset between recessed groove and joint as opposed to keeping the line of markers straight.



Place inlaid markers as much in line with existing pavement striping as possible. Place markers installed along an edge line or channelizing line so that the near edge of the plastic housing is no more than one inch from the near edge of the line. Place markers installed along a lane line between and in line with the dashes. Do not place markers over the lines except where the lines deviate visibly from their correct alignment, and then only after obtaining the Engineer's prior approval of the location.

If conflicts between recessed groove placement in relation to pavement joint and striping cannot be resolved, obtain the Engineer's approval to eliminate the marker or revise the alignment.

E. Disposal of Waste. Dispose of all removed asphalt pavement, debris, and other waste at sites off the right of way obtained by the Contractor at no additional cost to the Department. See Special Note for waste and Borrow.

F. Restoration. Be responsible for all damage to public and/or private property resulting from the work. Restore all damaged features in like kind materials and design at no additional cost to the Department.

G. On-Site Inspection. Make a thorough inspection of the site prior to submitting a bid and be thoroughly familiar with existing conditions so that the work can be expeditiously performed after a contract is awarded. The Department will consider submission of a bid as evidence of this inspection having been made and will not honor any claims for money or grant Contract time extensions resulting from site conditions.

H. Caution. Do not take information shown on the drawings and in this proposal and the types and quantities of work listed as an accurate or complete evaluation of the

Inlaid Pavement Markers
Page 4 of 4

material and conditions to be encountered during construction, but consider the types and quantities of work listed as approximate only. The bidder must draw his own conclusion as to the conditions encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation or extension of Contract time if the conditions encountered are not in accordance with the information shown.

IV. MEASUREMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. "INLAID PAYMENT MARKER" shall be measured as each. One (1) installation of "INLAID PAVEMENT MARKER" will consist of grooving the pavement, removing asphalt cuttings and debris, preheating pavement to remove moisture, adhesives, and installation of two (2) markers with all lenses in accordance with this note.

Note: Each pay item of Inlaid Pavement Marker will require two markers.

V. PAYMENT

A. Maintain and Control Traffic. See Traffic Control Plan.

B. Inlaid Pavement Markers. The Department will make payment for the completed and accepted quantity of completely installed "INLAID PAVEMENT MARKERS" at the Contract unit price, each. Accept payment as full compensation for all labor, equipment, materials, and incidentals to accomplish this work to the satisfaction of the Engineer. A system of one (1) groove and two (2) markers shall be paid as one "INLAID PAVEMENT MARKER". The bid item "INLAID PAVEMENT MARKER" shall be used regardless of the color and type of lenses required.

SPECIAL NOTE FOR MECHANICALLY STABILIZED EARTH RETAINING WALLS PERRY COUNTY KENTUCKY 10-269.10

1.0 DESCRIPTION

1.01 General and Experience Requirements:

The work under this section consists of designing, furnishing all materials and constructing Mechanically Stabilized Earth (MSE) retaining walls in accordance with the current Standard Specifications, this Special Note, in compliance with the lines and grades, dimensions and details shown on the project plans, and as directed by the Engineer.

The Contractor shall provide the MSE wall designer with a complete set of project plans and specifications and shall ensure that the wall design is compatible with all other project features that can impact the design and construction of the wall. The following terms are used in this specification for identification of various entities for which the Contractor shall be fully responsible:

Term	Entity
Wall Manufacturer	The entity contractually retained by the contractor to provide materials and construction services for an accepted MSE wall system as identified in Subsection 1.02.
Wall Designer	The entity contractually retained by the contractor to provide design of an accepted MSE wall system as identified in Subsection 1.02. The wall designer may be a representative of the wall manufacturer.
Department / Engineer	Refers to the Kentucky Transportation Cabinet representative and/or a designated consultant acting on behalf of KYTC.

1.02 Accepted Systems:

The contractor shall provide an MSE Wall System that uses inextensible reinforcement and reinforced concrete panels or modular block and is one of the pre-approved systems below. Inclusion of a system on this list does not relieve the Contractor and/or wall manufacturer of the contractual responsibility to satisfy all specific requirements herein and/or elsewhere in the contract documents.

- Reinforced Earth (Reinforced Earth and Retained Earth)
- Hilfiker RSE
- Tricon Retained Soil Wall System
- ISOGRID Retaining Wall System
- Keystone Keysystem I
- Sine Wall MSE Panel System
- Sanders Pre-Cast Concrete Systems

Heights and lengths of earth retaining walls may vary from, but shall not be less than, those shown on the plans. The height and length to be used for any system shall be the minimum for that system that will effectively retain the earth behind the wall for the loading conditions and the contours, profile, or slope lines shown on the plans, or on the approved working drawings, and in accordance with all relevant

internal and external stability design criteria, but not more than the pre-approved height for the particular MSE wall system selected.

1.03 MSE Wall Design Engineer:

Requirements for the Wall Designer's **MSE Wall Design Engineer** (who may be employed by the wall manufacturer or may be a consultant) are:

- Licensed Professional Engineer in the Commonwealth of Kentucky with a minimum of 5 years of geotechnical and/or structural engineering experience.
- Design and/or construction experience on at least five (5) MSE Walls and a minimum of 50,000 square feet of MSE Wall completed in the past five (5) years. Experience on a Reinforced Soil Slope may be substituted for one wall and up to 10,000 square feet.
- Design experience on at least three (3) MSE Walls and a minimum of 30,000 square feet of MSE Wall on highway infrastructure projects using the wall system that will be used on this project completed in the past five (5) years.
- Completion of at least 15 Professional Development Hours related to the design and/or construction of MSE Walls in the past five (5) years. This training may consist of attendance at a related short course, conference, seminar, workshop, or college course. Include documentation of this training with the submittal of the Design Engineer's credentials.

1.04 Wall Aesthetics:

Wall aesthetics shall be as specified in the project documents and request for proposals.

1.05 Certifications:

- (A) Certification of Design Parameters: See Subsection 2.01 herein specified.
- (B) Certification of Materials: See Subsections 3.04, 3.07, 3.09 & 3.10 herein specified.

1.5 QUALITY CONTROL:

The Department will perform construction inspection for the MSE Walls. However, the Contractor will be required to proactively implement the quality control procedures described herein. All costs associated with MSE Wall Quality Control will be incidental to the cost of the wall.

1.51 MSE Wall Quality Coordinator:

The Contractor shall designate a MSE Wall Quality Coordinator who shall:

- have a minimum of 3 years of construction field experience,
- be responsible for ensuring that the Contractor's quality control procedures are implemented including maintaining and submitting the checklists required in Section 1.57, (but may have other duties and/or responsibilities),
- have sufficient authority to carry out quality coordinator responsibilities, and
- be in the field during MSE Wall construction.

1.52 Mandatory MSE Wall Construction Training:

The MSE Wall Designer or an approved appointee will provide training related to proper MSE Wall construction for Contractor and Department personnel. This training should occur after the contractor has selected the MSE Wall system and the Department has confirmed that the MSE Wall Design Engineer and Manufacturer's Technical Field Representative meet the specified requirements. The

training will be conducted in the District by the Manufacturer's Technical Field Representative or an outside consultant meeting the experience requirements of the Manufacturer's Technical Field Representative. The MSE Wall Construction Training is expected to last one full day. Department personnel who will attend will include project inspection personnel and may include other district and central office personnel. The following contractor personnel are required to attend:

- On-Site Supervisor in charge of MSE Wall construction
- MSE Wall Quality Coordinator
- At least one office management level person representing the MSE Wall contractor
- If the MSE Wall is to be constructed by a subcontractor, at least one management level representative (field or office) of the Prime Contractor
- Manufacturer's Technical Field Representative referenced in Section 1.55 herein

At least one week before the training begins, the Contractor shall submit a list of specific persons who plan to attend.

1.53 Quality Control Plan:

The contractor shall submit a Quality Control Plan to the Engineer for review and acceptance which details measurements and documentation (including daily documentation checklists) that will be maintained by the Contractor during construction to assure consistency in meeting specification requirements. The Contractor shall coordinate the development of the Quality Control Plan with the MSE Wall System Manufacturer and the MSE Wall Design Engineer. The Quality Control Plan shall be submitted to the Engineer for acceptance at least four weeks before beginning MSE wall construction.

1.54 MSE Pre-Activity Meeting:

A pre-activity meeting will be scheduled and shall occur after the Quality Control Plan has been submitted and accepted by the Engineer and no later than two (2) weeks prior to commencement of MSE wall construction activity. As a minimum, this meeting shall be attended by representatives of the Contractor and MSE Wall Sub-Contractor (including wall construction crew chiefs and MSE Wall Quality Coordinator), MSE Wall Manufacturer's Technical Field Representative, Department District personnel as designated by the Branch Manager for Project Delivery and Preservation, Central Office Construction, and Geotechnical Branch. No wall construction activity shall be performed until the contractor's final submittals have been approved as having satisfactorily resolved all review comments and the pre-activity meeting has been held.

1.55 Manufacturer's Technical Field Representative:

The MSE Wall System Manufacturer shall provide a technical field representative to provide assistance to the MSE Wall Contractor. The requirements for the **Manufacturer's Technical Field Representative** are:

- At minimum, an associate's or bachelor's degree with a major in a technical or scientific field such as engineering, engineering or construction technology, geology, physics, mathematics, etc.
- A minimum of five (5) years of technical experience related to engineering and/or construction.
- Construction experience on at least five (5) MSE Walls and a minimum of 50,000 square feet of MSE Wall completed in the past five (5) years. Experience on a Reinforced Soil Slope may be substituted for one wall and up to 10,000 square feet.

- Construction experience on at least three (3) MSE Walls and a minimum of 30,000 square feet of MSE Wall on highway infrastructure projects using the wall system that will be used on this project completed in the past five (5) years.
- Completion of at least ten (10) Professional Development Hours related to the design and/or construction of MSE Walls in the past five (5) years. This training may consist of attendance at a related short course, conference, seminar, workshop, or college course. Include documentation of this training with the submittal of the Technical Field Representative's credentials.

At least four weeks before beginning MSE wall construction, the Contractor shall submit documentation that the Technical Field Representative meets the above requirements.

The minimum required duties of the Manufacturer's Technical Field Representative are:

- Participate in the mandatory training referenced in Section 1.52 herein.
- Participate in the preparation of the Quality Control Plan referenced in Section 1.53 herein.
- Attend the MSE Pre-Activity Meeting referenced in Section 1.54 herein.
- Ensure that the contractor obtains all "Certificates of Analysis" required in Section 3.0 (Materials Requirements) of this Special Note.
- Review all "Certificates of Analysis" and supporting documentation and provide written documentation to the Contractor and Engineer that the reviews have been completed and that all materials meet the specified requirements.
- Review all Supervisor Checklists described in Section 1.57 herein.
- Be present at a minimum, during construction of the initial 10-foot height of the full length of wall for each wall system. Additionally the representative shall be present for the initial 10-foot height of the full length of wall for each wall system as constructed by each additional contractor, and as called upon thereafter by the Engineer, to assist the contractor and Engineer at no additional cost to the Agency.
- After each on-site visit, the Contractor is required to submit a letter to the Engineer written by the Manufacturer's Technical Field Representative documenting the observations of each visit with documentation that the MSE Wall Design Engineer has reviewed the letter.
- The manufacturer's technical field representative may recommend field changes subject to the approval of the MSE Wall Design Engineer and the Department. Any such changes shall be documented in writing within 24 hours of the approved changes. This written document shall be sealed by the MSE Wall Design Engineer prior to implementation of the changes.
- The Department reserves the right to discuss matters pertaining to this project directly with the technical field representative and to require the Contractor to call the technical field representative to the site for assistance at no additional cost to the Department if, in the opinion of the Engineer, the Contractor is not satisfactorily complying with the plans and specifications.

1.56 Certificates of Analysis:

The Contractor will be responsible for performing and/or subcontracting all testing required to produce the Certificates of Analysis required in Section 3.0 (Materials Requirements) of this Special Note and for submitting the Certificates to the Engineer as required.

1.57 Checklists:

The Contractor's MSE Wall On-Site Supervisor and MSE Wall Quality Coordinator shall complete and both sign the checklists below and submit them to the Engineer with copies to the Manufacturer's Technical Field Representative. The first three of these checklists can be found in FHWA Publication No. FHWA-NHI-10-025 "*Design and Construction of Mechanically Stabilized Earth Walls and*

Reinforced Soil Slopes – Volume II”, dated November 2009 (these tables are located in the appendix of this document).

Checklists	
Checklist Title	Submittal Requirements
Checklist for Drawing Review (FHWA Table 11-2)	At least two weeks before starting MSE wall construction
Checklist for Specification Compliance (FHWA Table 11-3)	Weekly
Checklist for Construction (FHWA Table 11-5)	Weekly
Quality Control Documentation (Quality Control Plan)	Daily

1.58 MSE Wall Design Engineer:

The MSE Wall Design Engineer will be required to play an active role in the construction of the MSE walls and to be available to answer any questions that may arise during construction. Specifically, the MSE Wall Design Engineer is required to:

- Assist the Contractor and Manufacturer’s Technical Field Representative with preparing the Quality Control Plan referenced in Section 1.53 herein.
- Make at least one site visit (4 hour minimum) while the Contractor is installing panels and reinforced fill material during the first 10 working days of panel and reinforced fill installation
- Review documentation of the Manufacturer’s Technical Field Representative’s site visits.

Additionally, the Design Engineer is required to attend the MSE Wall Construction Training and MSE Pre-Activity Meeting.

2.0 DESIGN SUBMITTALS (WORKING DRAWINGS AND DESIGN CALCULATIONS):

2.01 Submittals:

(A) General:

Design calculations and working drawings clearly showing conformance with the current Standard Specifications; AASHTO LRFD Bridge Design Specifications, current edition; KYTC Geotechnical Manual and project requirements shall be submitted for review. The format for the working drawings shall be in accordance with the Division of Structural Design's Guidance Manual. The first sheet shall be a title sheet.

Working drawings and design calculations shall be sealed by a licensed Professional Engineer in the Commonwealth of Kentucky. The MSE wall designer/supplier shall document on the working drawings all assumptions made in the design. The following statement shall be included near the P.E. seal on the first sheet of the working drawings: “All design assumptions are validated through notes or details on these drawings.”

The Department assumes no responsibility for errors or omissions in the working drawings. Acceptance of the final working drawings submitted by the contractor shall not relieve the contractor of any responsibility under the contract for the successful completion of the work. Construction of the wall

shall not commence until the contractor receives a written Notification to Begin MSE Wall Construction from the Engineer which will be issued once the complete wall package (drawings, calculations and construction procedures) is accepted. Fabrication of any of the wall components before the written Notification to Begin MSE Wall Construction shall be at the sole risk of the Contractor.

A Certificate of Analysis for the Reinforced Fill Material (See Sections 3.05 and 3.07 herein) may be required prior to final acceptance of the MSE Wall design.

(B) Review Submittals:

All review submittals shall be submitted electronically in pdf format through the Contractor to the Project Resident Engineer. The Project Resident Engineer shall forward the plans, calculations, and working drawings to the Department. Submittals may be directly emailed to applicable reviewers with the permission of the Contractor and Resident Engineer provided that the Contractor and Resident Engineer receive email copies of the submittals. Contact the Department before beginning any work on the wall designs and construction plans.

The submittals required shall include working drawings, the Contractor's and MSE Wall supplier's construction procedures, supporting design calculations, verification of experience, and a transmittal letter. The transmittal letter shall only list the documents included in the submittal. No technical information shall be included in the transmittal letter.

Working drawings, design calculations and MSE supplier's construction procedures modified as necessary by the contractor and Wall Designer for site-specific conditions shall be submitted to the Engineer for review. The Engineer shall have 30 calendar days after receiving the six complete sets to finish a review. The revised package shall be resubmitted to the Engineer for review. The Engineer shall have 15 calendar days to complete this review. This review process shall be repeated until the entire submittal is accepted by the Engineer. Additional time required by the Department to review resubmissions shall not be cause for increasing the number of contract working days. The additional work required by the contractor to provide resubmissions shall be at no cost to the Department.

The Department reserves the right to require the contractor to verify that the Reinforced Wall Fill Material meets all applicable requirement before final acceptance of the design.

(C) Final Submittals:

All final wall tracings, with drawing number, shall be submitted on 3 mil, or thicker, 22" X 36" mylar film. The final mylar tracings of the accepted working drawings submitted to the Division of Structural Design shall be dated, sealed, and signed on Sheet 1 by the licensed Professional Engineer performing the work. Nine copies of the accepted working drawings shall be submitted.

2.02 Working Drawings:

The contractor shall submit complete working drawings and specifications for each installation of the system. Working drawings shall include the following at a minimum:

- (1) Layout of the wall including plan and elevation views;
- (2) All design parameters and assumptions including design life;
- (3) Existing ground elevations and utilities impacted by the wall, and those that should be field verified by the contractor, for each location;
- (4) Complete details of all elements and component parts required for the proper construction of the system at each location and any required accommodations for drainage systems, foundation subgrades or other facilities shown on the contract documents;

- (5) The working drawing submittal shall clearly detail any special design requirements, if applicable. These special design requirements may include, but are not limited to: structural frames to place reinforcements around obstructions such as deep foundations and storm drain crossings, drainage systems, placement sequence of drainage and unit core fill with respect to reinforced (structure) fill behind a wall face using modular block facing units, guardrail post installation, scour protection, foundation subgrade modification, all corner details (acute, obtuse and 90 degrees), slip joints, joint details of MSE walls with other cast-in-place structures, wedges, shims and other devices such as clamps and bracing to establish and maintain vertical and horizontal wall facing alignments;
- (6) A complete listing of components and materials specifications; and
- (7) Other site-specific or project specific information required by the contract.

2.03 MSE Wall Design:

(A) General:

The working drawings shall be supplemented with all design calculations for the particular installation as required herein. Installations that deviate from the accepted design (by the Contractor's MSE Wall Design Engineer) shall be accompanied by supporting stability (internal; external; and global/overall and/or compound if required in the project documents) calculations of the proposed structure as well as supporting calculations for all special details not contained in the accepted design. The MSE wall designer/supplier shall note all deviations of the proposed wall design from the accepted design.

The proposed design shall satisfy the design parameters shown on the project plans and listed in this Special Note, and comply with the design requirements of AASHTO LRFD Bridge Design Specifications, current edition and the KYTC Geotechnical and Bridge Design Guidance Manuals. Unless otherwise specified in the contract, all structures shall be designed to conform to the requirements shown in Table 1 and other requirements specified herein.

If the designer uses software other than MSEW, a minimum of one analysis corresponding to the most critical design case for each MSE wall shall be submitted using MSEW software. Sample hand calculations containing a sketch, all external analysis for the design case, and internal analyses for a minimum of three reinforcement levels shall also be submitted for the most critical design case for each MSE wall.

Table 1 - MSE Wall Design Criteria and Parameters

Design Life	100 years
Friction angle of granular retained backfill (<u>where required</u>)	36°
Friction angle of MSE reinforced fill material	34° *
Total Unit weight of granular retained backfill	120 pcf
Total Unit weight of MSE reinforced fill material	120 pcf **
Minimum reinforcement length	Greater of 8 ft. or 0.7 times effective height
Friction angle for sliding calculation (through reinforced fill)	34° *
Resistance factor for sliding	As specified in AASHTO LRFD Bridge Design Specifications
Wall Eccentricity	Verify as specified in AASHTO LRFD Bridge Design Specifications, current edition
Bearing Resistance Factor	As specified in AASHTO LRFD Bridge Design Specifications
Surcharge Loading (due to vehicle loading behind the walls)	As specified in AASHTO LRFD Bridge Design Specifications
Minimum top of leveling pad embedment	2 ft. below final grade or as specified by the Geotechnical Report
<p>* For internally reinforced fill material, a minimum friction angle of 34 degrees shall be substantiated by laboratory tests discussed in Subsection 3.05(D). If the measured friction angle in laboratory tests as per Subsection 3.05(D) is greater than 34 degrees and the fill material is well-graded according to the Unified Soil Classification System (USCS), then the design friction angle may be increased up to a maximum of <u>38</u> degrees. See Table 5.</p> <p>** The Total Unit Weight of the reinforced fill material shall be substantiated by laboratory tests discussed in Subsection 3.05(F). If the Total Unit Weight (i.e. SSD Bulk Density) obtained from laboratory tests as per Subsection 3.05(F) varies by more than +/- 5.0 pcf from the design value, then the design must be adjusted accordingly or reinforced fill material falling within this range must be used. See Table 5.</p>	
<p>“H” is the design height of the wall and is defined as the difference in elevation from the finished grade at the top of wall and the top of leveling pad. The length of reinforcement, “L”, is measured from the backface of the wall facing unit. If applicable, the length of grid type reinforcement is measured from the backface of the wall to the last full transverse member. “H’ “ is the effective height of the wall and is defined as: the design height “H” + (strap length “L” – distance from the wall face to the toe of slope) * tan (slope angle of backfill). In the case of horizontal backfill design height “H” equals effective height “H’ “.The top of the leveling pad shall always be below the minimum embedment reference line as indicated on the plans for that location. If applicable, the total base length for modular block facing units, BT, as measured from the front face of the wall is the length L as defined above plus the width of the modular block unit (the horizontal dimension of the block unit measured perpendicular to the wall face).</p>	

(B) Subsurface Drainage Systems:

Walls shall be provided with subsurface drainage measures as shown on the project plans and specifications. As a minimum, an underdrain system shall be provided for leading subsurface and surface water away from the reinforced fill material and outside the limits of the wall. Geocomposite drains, if used for subsurface drainage, shall be in accordance with Section 845 of the current Standard Specifications.

(C) Obstructions in Reinforced Fill:

(1) General:

Where obstructions, such as deep foundations or storm drains crossings, are located in the reinforced fill material zone, cutting of reinforcements to avoid obstructions shall not be permitted. A minimum offset of one diameter but not less than three (3) feet shall be maintained between the face of any pipe crossings and the back face of retaining wall panels. A minimum clearance of three (3) feet shall be maintained between the face of any other obstruction and the back face of retaining wall panels.

(2) Horizontal Deflection of Reinforcements:

In the horizontal plane at a reinforcing level, a deviation up to fifteen (15) degrees from the normal to the face of the wall may be allowed for strip reinforcement and bolted connection. This deviation is herein referred to as the splay angle. Grid reinforcements may not be splayed, unless connection has been specifically fabricated to accommodate a splay and connection detail has been approved by the Department. If used, the splay in grid reinforcement is limited to fifteen (15) degrees. For obstructions that cannot be accommodated with splayed reinforcement, structural frames and connections shall be required, and shall be designed in accordance with the AASHTO LRFD Bridge Design Specifications, current edition. The structural frame design shall be such that bending moments are not generated in the fill reinforcement or the connection at the wall face. The design, along with supporting calculations, shall be included in the working drawings.

(3) Vertical Deflection of Reinforcements:

Vertical deflection of the reinforcement to avoid obstructions such as utilities along the wall face shall be limited to a maximum of 15 degrees from normal to face of wall. Bends in the reinforcement shall be smooth and gradual to ensure that galvanization remains intact.

(D) Hydrostatic Pressures:

As determined by the Designer and/or as noted on the plans, for walls potentially subject to inundation, such as those located adjacent to rivers, canals, detention basins or retention basins. Effective unit weights shall be used in the calculations for internal and external stability beginning at levels just below the equivalent surface of the pressure head line. Where the wall is influenced by water fluctuations, the wall shall be designed for rapid drawdown conditions which could result in differential hydrostatic pressure.

(E) Acute Angle Corners:

Wall corners with an included angle of less than 70 degrees shall be designed for bin-type lateral pressures for the extent of the wall where the full length of the reinforcement cannot be installed without encountering a wall face. Acute angle corner structures shall not be stand-alone separate structures. Computations shall be provided that demonstrate deformation compatibility between the acute angle corner structure and the rest of the MSE wall. Full-height vertical slip joints shall be provided at the acute angle corner and after the last column of panels where full length of the reinforcements can be placed. The soil reinforcement attached to the slip joints shall be oriented perpendicular to the slip joint panels and shall be the full design length. Special connection and compaction details shall be provided on the working drawings.

(F) Spacing of Metallic Reinforcement for Flexible Face Wall Systems:

Permanent Flexible Face Wall Systems are not allowed.

(G) Fill Reinforcement for Modular Block Wall Systems:

The reinforcement lengths and percent coverage at a given reinforcement level shall be in accordance with the plans. All reinforcement shall be positively connected to the modular block facing units that is capable of resisting 100% of the maximum tension in the reinforcements at any level within the wall. Detailed documentation for connection strength shall be submitted as noted in Subsection 3.10. The vertical spacing of the reinforcement for walls with modular block facing units shall be as follows:

1. The first (bottom) layer of reinforcement shall be no further than 16 inches above the top of the leveling pad.
2. The last (top) layer of reinforcement shall be no further than 20 inches on the average below the top of the uppermost MBW unit.
3. The maximum vertical spacing between layers of adjacent reinforcement shall not exceed 32 inches. For walls deriving any part of their connection capacity by friction the maximum vertical spacing of the reinforcement should be limited to two times the block depth (front face to back face) to assure construction and long-term stability. The top row of reinforcement should be one-half the vertical spacing.

(H) Initial Batter of Wall:

The initial batter of the wall, both during construction and upon completion, shall be within the vertical and horizontal alignment tolerances included in this Special Note. The initial batter of the wall panels at the start of construction and the means and methods necessary to achieve the batter shall be provided on the working drawings. Subject to Engineer's approval, the initial batter of the wall panels may be modified at the start of construction by the manufacturer's field representative based on the evaluation of the reinforced fill material selected by the contractor. Any such changes shall be documented in writing within 24 hours of the approved changes. This written document shall be sealed by the manufacturer's design engineer who is a licensed Professional Engineer in the Commonwealth of Kentucky. Details of the wedges or shims or other devices, such as clamps and external bracing used to achieve or maintain the wall batter, and the details for removal of temporary wedges or shims shall be as shown on the working drawings and/or accompanying construction manual. Permanent shims shall comply with the design life criteria, and shall maintain the design stress levels required for the walls.

(I) Bridge Abutment Design Considerations:

Shallow Bridge Foundations supported by MSE wall systems are not allowed. All bridge loads must be supported by deep foundations.

3.0 MATERIAL REQUIREMENTS:

The contractor shall furnish the Engineer with Certificates of Analysis documenting that all materials meet the requirements herein.

3.01 Precast Concrete Elements:

Precast concrete shall attain a minimum 28-day compressive strength of 4,000 psi unless a higher strength is specified by the wall supplier. The concrete shall be air entrained containing $5.5 \pm 1.5\%$ entrained air at the time the concrete is placed in the forms. A proposed mix design shall be submitted. Prior to casting, all embedded components shall be set in place to the dimensions and tolerances designated in the plans and specifications. Wall aesthetics shall be in accordance with project plans, special notes, and/or other applicable contract documents.

(A) Concrete Testing and Inspection:

Precast concrete elements shall be subjected to compressive strength testing and inspected for dimensional tolerances and surface conditions. Panels delivered to the site without Department approval will be rejected.

(B) Casting:

Precast concrete face panels shall be cast on a horizontal surface with the front face of the panel at the bottom of the form. Connection hardware shall be set in the rear face. The concrete in each precast concrete panel shall be placed without interruption and shall be consolidated by deploying an approved vibrator, supplemented by such hand tamping as may be necessary to force the concrete into the corner of the forms, and to eliminate the formation of stone pockets or cleavage planes. Form release agents shall be used on all form faces for all casting operations.

The contractor shall advise the Engineer of the starting date for concrete panel casting at least 14 calendar days prior to beginning the operation if the casting operation is within the State, or 21 calendar days if the casting operation is outside the State.

(C) Finish:

(1) Non-Exposed Surfaces:

Rear faces of precast concrete panels shall be a face floated surface finish and screeded to eliminate open pockets of aggregate and surface distortions in excess of $\frac{1}{4}$ inch.

(2) Exposed Surfaces:

The type of finish required on exposed surfaces shall be as shown in the plans.

(a) Exposed Aggregate Finish:

- (1) Prior to placing concrete, a set retardant shall be applied to the casting forms in accordance with the manufacturer's instructions.
- (2) After removal from the forms and after the concrete has set sufficiently to prevent its dislodging, the aggregate shall be exposed by a combination of brushing and washing with clear water. The depth of exposure shall be between 3/8 inch and 1/2 inch.
- (3) An acrylic resin sealer consisting of 80 percent thinner and 20 percent acrylic solids by weight shall be applied to the exposed aggregate surface at a rate of one (1) gallon per 250 square feet.

(b) Concrete Panel Finish:

Concrete panel finish shall be in accordance with the plans and specifications. A sample of the proposed finish consisting of four full-sized panels shall be fabricated for inspection by the Engineer. Fabrication of the remaining panels is not authorized until the Engineer has inspected the sample panels and approved the finish as acceptable.

(D) Tolerances:

Connection device placement shall be within ± 1 inch of the dimensions shown on the drawings. Panel squareness as determined by the difference between the two diagonals shall not exceed 1/2 inch.

(E) Identification and Markings:

The date of manufacture, the production lot number, and the piece mark shall be inscribed on a non-exposed surface of each element.

(F) Handling, Storage and Shipping:

All panels shall be handled, stored, and shipped in such a manner to eliminate the dangers of chipping, discoloration, cracks, fractures, and excessive bending stresses. Panels in storage shall be supported in firm blocking to protect panel connection devices and the exposed exterior finish. Storing and shipping shall be in accordance with the manufacturer's recommendations.

(G) Compressive Strength:

Precast concrete elements shall not be shipped or placed in the wall until a compressive strength of 3,400 pounds per square inch has been attained. The facing elements shall be cast on a flat and level area and shall be fully supported until a compressive strength of 1,000 pounds per square inch has been attained.

(H) Precast Concrete Panel Joints:

(1) General:

Where the wall wraps around an inside corner, a corner block panel shall be provided with flange extensions that will allow for differential movement without exposing the panel joints. The back face of vertical and horizontal joints shall be covered with geotextile filter. Joint filler, bearing pads, and geotextile filter shall be as recommended by the wall manufacturer and shall meet the requirements shown on the approved working drawings.

If required, as indicated on the plans, flexible open-cell polyurethane foam strips shall be used for filler for vertical joints between panels, and in horizontal joints where pads are used.

All joints between panels on the back side of the wall shall be covered with a Type IV geotextile fabric meeting the requirements of Section 843 of the current Standard Specifications. The minimum width shall be one (1) foot.

(2) Bearing Pads:

All horizontal and diagonal joints between panels shall include bearing pads. Bearing pads shall meet or exceed the following material requirements:

- Preformed EPDM (Ethylene Propylene Diene Monomer) rubber pads conforming to ASTM D 2000 Grade 2, Type A, Class A with a Durometer Hardness of 70.
- Preformed HDPE (High Density Polyethylene) pads with a minimum density of 0.946 grams per cubic centimeter in accordance with ASTM D 1505.

The stiffness (axial and lateral), size, and number of bearing pads shall be determined such that the final joint opening shall be $\frac{3}{4} \pm \frac{1}{8}$ inch unless otherwise shown on the plans. The MSE wall designer shall submit substantiating calculations verifying the stiffness (axial and lateral), size, and number of bearing pads assuming, as a minimum, a vertical loading at a given joint equal to 2 times the weight of facing panels directly above that level. As part of the substantiating calculations, the MSE wall designer shall submit results of certified laboratory tests in the form of vertical load-vertical strain and vertical load-lateral strain curves for the specific bearing pads proposed by the MSE wall designer. The vertical load-vertical strain curve should extend beyond the first yield point of the proposed bearing pad.

3.02 Steel Components:

(A) Galvanization:

Fill reinforcement steel shall be hot-dip galvanized in accordance with AASHTO M 111 (ASTM A123). Connection hardware steel can be galvanized by hot-dipping or other means, provided the method satisfies the requirements of AASHTO M 111 (ASTM A123). A minimum galvanization coating of 2.0 oz/ft² (605 g/m²) or 3.4 mils (85 μm) thickness is required. Fill reinforcement steel shall be adequately supported while lifting and placing such that the galvanization remains intact. Steel members with damaged (peeled) galvanization shall be repaired according to ASTM A780 and as specified in approved working drawings, at no additional cost to the Department.

(B) Metallic Reinforcing Strips and Tie Strips:

Reinforcing strips shall be hot-rolled from bars to the required shape and dimensions. The strips' physical and mechanical properties shall conform to the requirements of ASTM A572, Grade 65 minimum.

Tie strips shall be shop fabricated of hot-rolled steel conforming to the requirements of ASTM A1101, Grade 50 minimum. The minimum bending radius of the tie strips shall be $\frac{3}{8}$ inch. Galvanization shall be applied after the strips are fabricated, inclusive of punch holes for bolts as shown on approved drawings.

(C) Metallic Reinforcing Mesh:

Reinforcing mesh shall be shop fabricated of cold-drawn steel wire conforming to the requirements of AASHTO M 32, and shall be welded into the finished mesh fabric in accordance with AASHTO M 55. Galvanization shall be applied after the mesh is fabricated. A minimum galvanization coating of 2.0 oz/ft² (605 g/m²) or 3.4 mils (85 μm) thickness is required.

(D) Connector Pins:

Connector pins and mat bars shall be fabricated and connected to the fill reinforcement mats as shown in the approved working drawings. Connector bars shall be fabricated of cold drawn steel wire conforming to the requirements of AASHTO M 32.

(E) Welded Wire Fabric:

All welded wire fabric shall conform to the requirements of AASHTO M 32, AASHTO M 55, and the approved working drawings. Welded wire fabric shall be galvanized in conformance with the requirements of ASTM A123.

(F) Fasteners:

Connection hardware shall conform to the requirements shown in the approved working drawings. Connection hardware shall be cast in the precast concrete panels such that all connectors are in alignment and able to transfer full and even load to the fill reinforcement. Once the reinforcement is connected to the panel, the amount of slack shall not exceed $\frac{1}{8}$ inch between the connector and the reinforcement during field installation. (If wedges are to be used to remove slack, the size, shape, and installation procedure with illustrations shall be included on the drawings and in the construction procedures.) Fasteners shall be galvanized and conform to the requirements of AASHTO M 164 or equivalent.

3.03 Geosynthetic Reinforcement:

Geosynthetic fill reinforcement is not allowed.

3.04 Certificate of Analysis for Fill Reinforcements:

For metallic wall reinforcement, a mill test report containing the ultimate tensile strength for the fill reinforcement shall be included in the certification. For metallic wall reinforcement, a mill test report containing the galvanization coverage shall be included in the certification. For metallic mesh wall reinforcement, a mill test report containing the ultimate weld strength for the fill reinforcement shall be included in the certification.

3.05 Reinforced Wall Fill Material:

Provide internally reinforced wall fill material consisting of quarry-processed limestone from a Department-approved quarry meeting all applicable general requirements of Section 805 of the Standard Specifications, current edition, and requirements herein. Provide material meeting the specific requirements for "Reinforced Fill Material" in Section 805 of the Standard Specifications, current edition, defined as "Non-Erodible" according to Section 805, and meeting all other requirements herein. Approval of the material source by the Department is required prior to beginning MSE wall construction.

(A) General:

Reinforced wall fill material shall be free of shale, organic matter, mica, gypsum, smectite, montmorillonite, or other soft poor durability particles. No salvaged material, such as asphaltic concrete millings or Portland Cement Concrete rubble, etc., will be allowed.

(B) Soundness and Shale:

The reinforced fill material shall have a soundness loss of 30 percent or less when tested in accordance

with AASHTO T104 using a magnesium sulfate solution with a test duration of four cycles. Alternatively, the material shall have a soundness loss of 15 percent or less when tested in accordance with AASHTO T104 using a sodium sulfate solution with a test duration of five cycles. A maximum of 2.0% shale is permitted as determined by KM 64-604.

(C) Gradation:

Gradations will be determined per AASTHO T27 and shall be in accordance with Table 2, unless otherwise specified.

Table 2 REINFORCED FILL GRADATION REQUIREMENTS	
Sieve Size	Percent Passing
4 inch	100
2 inch	40 – 90
No. 4	0 - 10
No. 200	0 – 5
This is the same gradation as required in Section 805.11 of the Standard Specifications except the requirement for the 2 inch sieve has been added.	
Size # 23 in the Standard Specifications falls within these gradation limits.	

(D) Internal Friction Angle Requirement:

The reinforced wall fill material shall exhibit an effective (drained) angle of internal friction of not less than 34 degrees, as determined by performing a Direct Shear Test in accordance with AASHTO T236 or ASTM D3080. A minimum of three (3) points (i.e. three normal stresses) is required to constitute a complete test.

The direct shear test shall be performed on the portion finer than the 1-inch sieve. In order to comply with the test method, a minimum 12-inch diameter circular box or minimum 12-inch square box is required. The sample shall be compacted directly in the shear device at the saturated surface dry (SSD) condition and in general accordance with the rodding procedure in AASHTO T-19.

(E) Electrochemical Requirements:

The reinforced wall fill material shall meet the electrochemical requirements of Table 3.

Table 3 ELECTROCHEMICAL REQUIREMENTS FOR METALLIC REINFORCEMENTS		
Characteristic	Requirement	Test Method
Resistivity	> 3,000 ohm-cm	AASHTO T-288
pH	5.0 to 10.0	AASHTO T-289
Chlorides	< 200 ppm	ASTM D4327
Sulfates	< 1000 ppm	ASTM D4327
Organic Content	< 1.0 %	AASHTO T-267
* If the resistivity is greater or equal to 5,000 ohm-cm, the chloride and sulfate requirements may be waived.		

Table 4 – VACANT

(F) Saturated Surface Dry (SSD) Bulk Density:

The Bulk Density of the Reinforced Fill Material shall be obtained in accordance with AASHTO T19. The Bulk Density at the oven-dry condition shall then be corrected using the Absorption determined according to AASHTO T-85 to determine the SSD Bulk Density, which shall be within +/- 5.0 pcf of the design total unit weight of MSE reinforced fill material or the design shall be adjusted. (See Table 1.)

(G) Limits of Reinforced Wall Fill Material:

The reinforced fill material shall extend to at least one (1) foot beyond the free end of the reinforcement. If applicable, back-to-back walls wherein the free ends of the reinforcement of the two walls are spaced apart less than or equal to one-half the design height of the taller wall, reinforced wall fill material shall be used for the space between the free ends of the reinforcements as well. The design height of the wall is defined as the difference in elevation between finished grade at top of wall and the top of leveling pad. The top of the leveling pad shall always be below the minimum embedment reference line as indicated on the plans for the location under consideration.

3.06 Granular Embankment for Foundation and Retained Backfill:

Provide granular foundation material and granular external retained backfill consisting of “Granular Embankment” meeting the material requirements of Section 805 in the current edition of the Standard Specifications and defined as “Non-Erodible” according to Section 805. If required by design, the extent of the granular foundation material and granular external retained backfill shall be shown in the Geotechnical Notes. Contrary to the Standard Specifications, no natural sand is permitted. Also contrary to the Standard Specifications, the maximum size limit for “Granular Embankment” is 4 inches where shown in the Geotechnical Sheets. Approval of the material source by the Department is required prior to beginning placement of this material.

3.07 Sampling & Testing of Reinforced Wall Fill and Granular Embankment Materials

(A) Reinforced Wall Fill:

To obtain source approval, the contractor shall furnish the Engineer with an 80-pound representative sample of the reinforced wall fill material and a Certificate of Analysis containing results of all tests referenced in Table 5 at least four weeks prior to beginning construction of the MSE wall. During construction, the reinforced fill material shall be sampled and tested by the Engineer for acceptance and quality control testing. A new sample and Certificate of Analysis shall be provided any time the material and/or source changes.

Table 5 - Sampling Frequency for Reinforced Wall Fill Material

Function	Tests	Frequency
Source Approval	Soundness (AASHTO T104)* % Shale (KM 64-604)* Gradation (AASHTO T27)*	At least four (4) weeks prior to beginning MSE wall construction and once per material change and/or change in source.
Testing by Contractor and/or its Consultant(s)	Direct Shear (AASHTO T236 or ASTM D3080)* Organic Content (AASHTO T267)* SSD Bulk Density (AASHTO T19 & T85)* Resistivity (AASHTO T288)** pH (AASHTO T289)** Chlorides and Sulfates (ASTM D4327)**	Except for Direct Shear, one test is valid for up to 10,000 ft ² of MSE wall area if there is no material change or change in source. **** Generally, only one Direct Shear test is required unless there is a change in material, source, or gradation.
Acceptance and Quality Control	Gradation (AASHTO T27) % Shale (KM 64-304) At the discretion of the Engineer.	One per 2,000 cubic yards at job site. (A change of more than +/- 5.0 percent passing any sieve size <u>will</u> require additional SSD Bulk Density testing and <u>may</u> require additional Direct Shear testing, both by the Contractor.)
Testing by Department	Any other applicable requirements of Section 805 of the current Standard Specifications	As required by the current Materials Field Sampling and Testing Manual, Standard Specifications, and/or other Department policy.
<p>* The laboratory performing these tests must be accredited by the AASHTO Materials Reference Laboratory (AMRL) for the tests they perform. AMRL accreditation for AASHTO T104 & T27 is required to perform KM 64-604.</p> <p>** Although accreditation for the specific test methods may not be available, the laboratory performing these tests must be accredited or certified by one of the organizations below. A laboratory's accreditation or certification status does not relieve the laboratory of its responsibility to perform the tests in accordance with the specified methods.</p> <ul style="list-style-type: none"> • AMRL - Soil and/or Aggregate (Resistivity and pH only) • American Association for Laboratory Accreditation (A2LA) - Chemical and/or Environmental • Kentucky Division of Water - Drinking Water Chemical Analyses <p>The Contractor may consult the Geotechnical Branch to ensure that a lab is accredited or certified.</p> <p>**** e.g. 1 to 10,000 ft² of wall requires 1 test, 10,001 to 20,000 ft² requires 2 tests, etc.</p>		

(B) Granular Embankment Material for Foundation and Retained Backfill:

To obtain source approval, the contractor shall furnish the Engineer with an 80-pound representative sample of the Granular Embankment material and a Certificate of Analysis at least four weeks prior to beginning Granular Embankment construction.

Table 6	
Sampling Frequency for Granular Embankment for Foundation and Retained Backfill	
Function	Frequency

Source Approval	At least four weeks prior to beginning granular embankment construction and once per material change and/or change in source.
Acceptance and Quality Control	In accordance with standard procedures for “Granular Embankment”.

3.08 Cast-in-Place Concrete:

Cast-in-place concrete shall be Class A, except that the leveling pads shall be Class B, both in accordance with the current Standard Specifications.

3.09 Modular Block (Segmental) Facing Units:

This section covers dry-cast hollow and solid concrete masonry structural retaining wall units, machine made from Portland cement, water, and suitable mineral aggregates. The units are intended for use as facing units in the construction of mortarless, modular block walls (MBW) also known as segmental retaining walls (SRW). Metallic reinforcement specified in Section 3.02 shall be used as reinforcement in the reinforced (structure) wall fill zone.

(A) Casting:

Cementitious material in the modular block facing unit shall be Portland cement conforming to the requirements of ASTM C 150. If fly ash is used it shall not exceed 20% by weight of the total cement content and shall conform to ASTM C 618. Aggregates used in concrete blocks shall conform to ASTM C 33 for normal weight concrete aggregate. Efflorescence control agent shall be used in concrete mix design to prevent efflorescence on the block.

The contractor shall advise the Engineer of the starting date for concrete panel casting at least 14 calendar days prior to beginning the operation if the casting operation is within the State, or 21 calendar days if the casting operation is outside the State.

(B) Physical Requirements:

At the time of delivery to the work site, the modular block facing units shall conform to the following physical requirements:

- 1) Minimum required compressive strength of 4,000 psi (average 3 coupons)
- 2) Minimum required compressive strength of 3,500 psi (individual coupon)
- 3) Minimum oven dry unit weight of 125 pcf
- 4) Maximum water absorption of 5 % after 24 hours
- 5) Maximum number of blocks per lot of 2,000. Tests on blocks shall be submitted at the frequency of one set per lot.

Acceptance of the concrete block, with respect to compressive strength, water absorption and unit weight, will be determined on a lot basis. The lot shall be randomly sampled and tested in accordance with ASTM C140. As no additional expense to the Department, the manufacturer shall perform the tests at a Department approved laboratory and submit the results to the Engineer for approval. Compressive strength test specimens shall be cored or shall conform to the saw-cut coupon provisions of ASTM C 140. Block lots represented by test coupons that do not reach an average compressive strength of 4,000 psi will be rejected.

(C) Freeze-Thaw Durability:

In areas where repeated freezing and thawing under saturated conditions occur, the units shall be tested

to demonstrate freeze-thaw durability in accordance with Test Method ASTM C1262. Freeze thaw durability shall be based on tests from five specimens made with the same materials, concrete mix design, manufacturing process, and curing method, conducted not more than 18 months prior to delivery. Specimens used for absorption testing shall not subsequently be used for freeze-thaw testing. Specimens shall comply with either or both of the following acceptance criteria depending on the severity of the project location as determined by the Department:

- 1) The weight loss of four out of five specimens at the conclusion of 150 cycles shall not exceed 1% of its initial weight when tested in water.
- 2) The weight loss of each of four out of the five test specimens at the conclusion of 50 cycles shall not exceed 1.5% of its initial mass when tested in a saline (3% sodium chloride by weight) solution.

(D) Tolerances for Modular Block Dimensions:

Modular blocks shall be manufactured within the following tolerances:

- 1) The length and width of each individual block shall be within $\pm 1/8$ inch of the specified dimension. Hollow units shall have a minimum wall thickness of $1\frac{1}{4}$ inches.
- 2) The height of each individual block shall be within $\pm 1/16$ inch of the specified dimension.
- 3) When a broken (split) face finish is required, the dimension of the front face shall be within ± 1.0 inch of the theoretical dimension of the unit.

(E) Finish and Appearance:

Units that indicate imperfect molding, honeycomb or open texture concrete and color variation on front face of block due to excess form oil or other reasons shall be rejected. All units shall be visually efflorescence free. All units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the construction. Minor cracks (e.g. no greater than $1/50$ inch in width and no longer than 25% of the unit height) incidental to the usual method of manufacture or minor chipping resulting from shipment and delivery, are not grounds for rejection.

The exposed faces shall be free of chips, cracks or other imperfections when viewed from a distance of 30 feet under diffused lighting. Up to five (5) percent of a shipment may contain slight cracks or small chips not larger than 1.0 inch.

Color and finish shall be as shown on the plans and shall be erected with a running bond configuration.

(F) Pins:

If pins are required to align modular block facing units, they shall consist of a non-degrading polymer or hot-dipped galvanized steel and be made for the express use with the modular block units supplied. Connecting pins supporting the reinforcement shall be hot-dipped galvanized steel and be capable of holding the reinforcement in the proper design position during backfilling.

(G) Cap Units and Adhesive:

The cap unit connection to the block unit immediately under it shall be of a positive interlocking type and not frictional. Cap units shall be cast to or attached to the top of modular block facing units in strict accordance with the requirements of the manufacturer of the blocks and the adhesive. The surface of the block units under the cap units shall be clear of all debris and standing water before the approved adhesive is placed. Contractor shall provide a written 10-year warranty, acceptable to Owner, that the

integrity of the materials used to attach the cap blocks will preclude separation and displacement of the cap blocks for the warranty period.

(H) Unit (Core) Fill:

Unit (core) fill is defined as free-draining, coarse grained material that is placed within the empty cores of the modular block facing units. Unit (core) fill shall be a well graded crushed stone or granular fill meeting the gradation shown in Table 7. Gradation for unit fill shall be tested at the frequency of 1 test per 50 yd³ at the job site and for every change in the material source.

**Table 7
Gradation for Unit (Core) Fill**

U.S. Sieve Size	Percent Passing
1½-inch	100
1-inch	75-100
¾-inch	50-75
No. 4	0-60
No. 40	0-50
No. 200	0-5

3.10 Certificate of Analysis for Modular Block Connection:

For modular block facing units, a certification shall be provided with detailed calculations according to AASHTO and the results of laboratory test results performed in accordance with Section C.3 in Appendix B of FHWA NHI-10-025, dated 2009 (“Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume II”). Such certification shall demonstrate that all connections, including block-to-reinforcement and block-to-block connections, and all related components meet or exceed the current AASHTO 100 year design life requirements and are capable of resisting 100% of the maximum tension in the soil reinforcements at any level within the wall. Long-term connection testing for extensible reinforcements is also required. The effect of wall batter and normal pressures representative of the full range of wall configurations and heights shall be incorporated in the tests.

4.0 CONSTRUCTION REQUIREMENTS:

Construction of MSE walls may be subject to special requirements as specified in the Geotechnical Report and Geotechnical MSE Wall Note Sheets developed by the Design Build Team. These requirements may include but are not limited to: monitoring devices (refer to section 4.5), phased panel and reinforced fill construction, waiting period intervals and foundation modification.

4.01 Excavation:

The contractor shall ensure that temporary slopes are safe during the period of wall construction, and shall adhere to all applicable local, state and federal regulations. During construction of the MSE walls, the contractor shall design, construct, maintain and, when called for, remove temporary excavation support systems (shoring). Temporary excavation support systems may be left in place if approved by the Engineer. The back slope of the excavation shall be benched. Where shoring is required, the contractor shall submit the shoring design, and a plan outlining construction and removal procedures, to the Engineer for review and approval prior to proceeding with the work. Shoring plans shall be prepared and submitted as part of the working drawings and shall bear the seal and signature of a licensed Professional Engineer in the Commonwealth of Kentucky. All shoring design shall include appropriate input and review by a geotechnical engineer.

4.02 Foundation Preparation:

(A) General:

If required, specific ground improvement requirements shall be outlined in the Geotechnical Report and the Geotechnical Note Sheets.

In general the following applies:

The foundation for the reinforced wall fill and retained backfill shall be graded level for the entire area of the base of such backfills, plus an additional 12 inches on all sides, or to the limits shown in the plans. If soil reinforcement components are to be positioned on native soil, the top one (1) foot of native soil shall meet the requirements of the reinforced backfill material specified in Subsection 3.05.

Foundation replacement material shall consist of "Granular Embankment" meeting the requirements of Section 3.06 herein. The material shall be compacted in accordance with Section 206 of the current Standard Specifications except that the maximum loose lift thickness (prior to compaction) is 12 inches. Type IV Geotextile Fabric shall be placed between the existing embankment material and the proposed "Granular Embankment" in accordance with Sections 214 and 843 of the Standard Specifications.

(B) Proof-Rolling:

The contractor shall perform proof-rolling to evaluate the stability and uniformity of the subgrades on which the MSE structure will be constructed. Proof rolling shall be performed on the entire areas at the following locations:

- 1) At the bottom of the overexcavation and recompaction zones.
- 2) At the bottom of the overexcavation and replacement zones.
- 3) At the base of all walls.
- 4) At the top of native soil layers and/or existing fill material that has been scarified, moisture-conditioned, and recompacted (if different from the bottom of the overexcavation and recompaction zones, or overexcavation and replacement zones).

Proof-rolling shall be done immediately after subgrade compaction while the moisture content of the subgrade soil is near optimum, or at the moisture content that was used to achieve the required compaction. Proof-rolling shall be performed again within one day prior to beginning MSE Wall construction.

If proof-rolling is performed after installation of pipe underdrains, the proof-roller shall not be used within 1½ feet of the underdrains.

Proof-rolling shall be performed with a pneumatic-tired tandem axle roller with at least three wheels on each axle, a gross weight of 25 tons (50,000 pounds), a minimum tire pressure of 75 pounds per square inch, and a minimum rolling width of 75 inches. A Caterpillar PS-300B (or PF-300B), Ingersoll-Rand PT-240R, BOMAG BW24R, Dynapac CP271, or equipment with equivalent capabilities shall be used for proof-rolling.

Proof-rolling equipment shall be operated at a speed between 1.5 and 3 miles per hour, or slower as required by the Engineer to permit measurements and/or observations of the deformations, ruts and/or pumping.

Proof-rolling shall be carried out in two directions at right angles to each other with no more than 24 inches between tire tracks of adjacent passes. The contractor shall operate the proof-roller in a pattern that readily allows for the recording of deformation data and complete coverage of the subgrade.

The following actions shall be taken based on the results of the proof-rolling activity:

- 1) Rutting (i.e. deformation that does not rebound) less than ¼-inch – The grade is acceptable.
- 2) Rutting greater than ¼-inch and less than 1½ inches – The grade shall be scarified and re-compacted.
- 3) Rutting greater than 1½ inches – The compacted area shall be removed and reconstructed.
- 4) Pumping (i.e. deformation that rebounds, or materials that are squeezed out of a wheel's path) greater than one (1) inch – The area shall be remediated as directed by the Engineer.

The contractor shall be responsible for maintaining the condition of the approved proof-rolled soils throughout the duration of the retaining wall construction. Wall construction shall not commence until the foundation subgrade has been approved by the Engineer.

4.03 Concrete Leveling Pad:

Leveling pads shall be constructed of unreinforced Class B concrete meeting the requirements of Section 601 of the current Standard Specifications as shown on the working drawings. Gravel leveling pads shall not be allowed. The elevation of the top of leveling pad shall be within ⅛ inch from the design elevation when measured by a straightedge over any 10-foot run of the leveling pad.

The minimum width of the leveling pad shall be the width of the facing unit plus 8-inches. The centerline of the leveling pad shall be within 1 inch from design location. When the facing units are centered on the leveling pad, the leveling pad shall extend approximately 4-inches beyond the limits of the facing unit as measured in the direction perpendicular to the face of the wall.

Cast-in-place leveling pads shall be cured for a minimum of 48 hours before placement of wall facing units. A geotextile shall be applied over the back of the area of any openings greater than ¼ inch between the facing units and leveling pad steps. The geotextile shall extend a minimum of six (6) inches beyond the edges of the opening. The opening shall be filled with Class B concrete, or shall be concurrently backfilled on both sides with soil.

4.04 Subsurface Drainage:

Prior to wall erection, the contractor shall install a subsurface drainage system as shown on the working drawings.

4.05 Wall Erection:

(A) General:

Walls shall be erected in accordance with the approved manufacturer's written construction procedures. The contractor shall be responsible for ensuring that a field representative from the manufacturer is available at the site during construction of the **initial 10-foot height of the full length of wall for each wall system. Additionally the representative shall be present for the initial 10-foot height of the full length of wall for each wall system as constructed by each additional contractor,** and as called upon thereafter by the Engineer, to assist the contractor and Engineer at no additional cost to the Department. All temporary construction aids (e.g., wedges, clamps, etc.) shall be in accordance with the manufacturer's recommendations.

(B) Placement Tolerances for Walls with Precast Facing:

For walls with rigid facing, such as precast concrete panels, the panels shall be placed such that their final position is vertical or battered as shown on the working drawings. As wall fill material is placed, the panels shall be maintained in the correct vertical alignment by means of temporary wedges, clamps, or bracing as recommended by the manufacturer. A minimum of two, but not more than three, rows of panel wedges shall remain in place at all times during wall erection. Wedges shall be removed from lower rows as panel erection progresses, so as to prevent chipping or cracking of concrete panels. The

contractor shall repair any damage to erected concrete panels as directed by the Engineer and to the Engineer's satisfaction. No external wedges in front of the wall shall remain in place when the wall is complete.

Erection of walls with panel facing shall be in accordance with the following tolerances:

- Vertical and horizontal alignment of the wall face shall not vary by more than 3/4 inch when measured along a 10-foot straightedge.
- The overall vertical tolerance (plumbness) of the finished wall shall not exceed 1/2 inch per 10 feet of wall height. Negative (outward leaning) batter is not acceptable.
- The maximum permissible out of plane offset at any panel joint shall not exceed 3/8 inch.
- The final horizontal and vertical joint gaps between adjacent facing panel units shall be within 1/8 inch and 1/4 inch, respectively, of the design final joint opening per the approved calculations required in Subsection 3.01(H).

Wall sections not conforming to these tolerances shall be reconstructed at no additional cost to the Department.

(C) Placement Tolerances for Permanent Walls with Flexible Facing:

Permanent Flexible Facing is not allowed.

(D) Placement Tolerances for Modular Block Units:

Erection of walls with Modular Block Units shall be as per the following requirements:

- Vertical and horizontal alignment of the wall face shall not vary by more than 3/4-inch when measured along a 10-foot straightedge.
- Overall vertical tolerance (plumbness) of the wall shall not exceed 1/4-inch per 10-ft of wall height from the final wall batter. Negative (outward leaning) batter is not acceptable.
- The first row of units shall be level from unit-to-unit and from front-to-back. Use the tail of the units for alignment and measurement.
- All units shall be laid snugly together and parallel to the straight or curved line of the wall face.
- Unless otherwise noted, all blocks shall be dry-stacked and placed with each block evenly spanning the joint in the row below (running bond). Shimming or grinding shall control the elevations of any two adjacent blocks within 1/16 inch.
- The top of blocks shall be checked with a minimum length of 3-foot long straight edge bubble level. Any high points identified by the straight edge shall be ground flat. Block front to back tilting shall be checked frequently, however correction by shimming shall be done no later than 3 completed courses.
- Wall sections not conforming to these tolerances shall be reconstructed at no additional cost to the Department.

(E) Placement of Metallic Reinforcement Elements:

Metallic reinforcement elements shall be placed normal (perpendicular) to the face of the wall, unless otherwise shown on the approved plans. All reinforcement shall be structurally connected to the wall face.

At each level of the reinforcement, the reinforced wall fill material shall be roughly leveled and compacted before placing the next layer of reinforcement. The reinforcement shall bear uniformly on

the compacted reinforced fill from the connection to the wall to the free end of the reinforcing elements. The reinforcement placement elevation shall be at the connection elevation to two (2) inches higher than the connection elevation.

Where overlapping of reinforcing may occur, such as at corners, reinforcing connections to panels shall be adjusted to maintain at least three (3) inches of vertical separation between overlapping reinforcement.

(F) Placement of Geotextile:

All joints between precast concrete panels shall be covered with geotextile on the backside of the wall. Adhesive shall be applied to panels only. Adhesive shall not be applied to geotextile fabric or within two (2) inches of a joint. The contractor shall provide geotextile having a minimum width of 12 inches, and shall overlap fabric a minimum of four (4) inches. If applicable, the placement of the geotextile fabric for modular block walls shall be in accordance with the plans.

(G) Joint Pads and Fillers:

The contractor shall install joint pads and fillers as shown on the working drawings.

(H) Placement of Geosynthetic Reinforcement:

Geosynthetic reinforcement is not allowed.

4.06 Reinforced Wall Fill Placement:

(A) General:

Reinforced wall fill material shall be compacted using a static-weighted or vibratory roller. Sheeps-foot or grid-type rollers shall not be used for compacting material within the limits of the fill reinforcement. Compaction within three (3) feet of the wall facing shall be achieved by a lightweight mechanical tamper or roller system.

Reinforced wall fill placement shall closely follow erection of each course of facing panels. Reinforced fill material shall be placed in such a manner to avoid damage or disturbance of the wall materials, misalignment of facing panels, or damage to fill reinforcement or facing members. The contractor shall place fill material to the level of the connection and in such a manner as to ensure that no voids exist directly beneath reinforcing elements.

If applicable, the fill material for walls with modular block facing units shall not be advanced more than the height of a modular block unit until the drainage fill, core fill and all fill in all openings within the blocks at that level have been placed. The filled units shall be swept clean of all debris before installing the next level of units and/or placing the geogrid materials

The maximum compacted lift thickness shall not exceed eight (8) inches. The contractor shall decrease this lift thickness, if necessary, to obtain the specified density.

For metallic reinforcements, the fill shall be spread by moving the machinery parallel to or away from the wall facing and in such a manner that the steel reinforcement remains normal to the face of the wall. Construction equipment shall not operate directly on the steel reinforcement. A minimum fill thickness of three (3) inches over the steel reinforcement shall be required prior to operation of vehicles. Sudden braking and sharp turning shall be avoided.

Wall materials which are damaged during reinforced fill material placement shall be removed and replaced by the contractor, at no additional cost to the Department. The contractor may submit alternative corrective procedures to the Engineer for consideration. Proposed alternative corrective procedures shall have the concurrence of the MSE wall supplier and designer, in writing, prior to submission to the Engineer for consideration. All corrective actions shall be at no additional cost to the Department.

(B) Compaction Criteria:

Trial fill sections shall be constructed with Department personnel present to determine appropriate criteria to achieve adequate compaction. The trial fill sections shall be performed as follows:

- One trial fill section is valid for up to 10,000 ft² of MSE wall area (e.g. 1 to 10,000 ft² of wall requires 1 trial fill section, 10,001 to 20,000 ft² requires 2, etc.) and for no more than one individual MSE wall.
- The minimum dimensions of the test pad shall be 15 ft. wide by 50 ft. long.
- The lift thickness shall not exceed eight (8) inches after compaction.
- Compaction shall be determined by using a level to measure the settlement of the trial section at a number of points after each pass (e.g., a minimum of 5 points measured at the center of a 1 ft square metal plate or other method approved by the Engineer).
- A thickness of approximately 2.5 feet shall be constructed to determine the appropriate number of passes, which will maximize compaction without excessively crushing the rock at the surface.
- The number of passes to achieve at least 80 percent of the maximum settlement will be required for production work.
- Only those methods used to establish compaction compliance in the trial fill section shall be used for production work.
- A material change, change in source, a difference of more than +/- 5.0 percent passing any sieve size, and/or change in the approved equipment shall require the contractor to conduct a new trial fill section and obtain re-approval by the Engineer of the minimum number of passes and rolling pattern.
- The Department reserves the right to use other test methods to evaluate the adequacy of the compaction criteria.
- The trial fill sections are incidental to the bid price for Retaining Wall.

Within three (3) feet of the wall facing, compaction criteria shall be determined using test pad sections with Department personnel present to determine appropriate criteria to achieve adequate compaction. The test pad sections shall be performed as follows:

- The minimum dimensions of the test pad shall be 5 ft. wide by 15 ft. long.
- The lift thickness shall not exceed eight (8) inches after compaction.
- Compaction shall be determined by using a level to measure the settlement of the test pad section at a number of points after each pass (e.g., a minimum of 3 points measured at the center of a 1 ft square plate or other method approved by the Engineer).
- A thickness of approximately 2.5 feet shall be constructed to determine the minimum number of passes of a lightweight mechanical tamper or roller system.
- The number of passes to achieve at least 80 percent of the maximum settlement will be required for production work.
- Only those methods used to establish compaction compliance in the test pad section shall be used for production work.

- A material change, change in source, a difference of more than +/- 5.0 percent passing any sieve size, and/or change in the approved equipment shall require the contractor to conduct a new test pad section.
- The test pad sections are incidental to the bid price for Retaining Wall.

(C) Moisture Control:

The free moisture content of the reinforced fill material, as determined by KM 64-306, shall not exceed 2.0% during compaction.

(D) Protection of the Work:

The contractor shall not allow surface runoff from adjacent areas to enter the wall construction site at any time during construction operations. In addition, at the end of each day's operation, the contractor shall slope the last lift of fill material away from the wall facing so that runoff is directed away from the structure. If the subgrade is damaged due to water or otherwise, such that it does not meet the requirements of Subsection 4.02, then as directed by the Engineer, the contractor shall rework and repair the damaged subgrade at no additional expense to the Department. The criteria in Subsection 4.02 shall be used to judge the adequacy of the repair. Rework and repair shall extend to a depth where undamaged work is encountered.

4.07 Retained Backfill Placement:

As required by the Geotechnical Report and plan notes the retained backfill (i.e. external backfill outside of the reinforced volume) may consist of either soil or "Granular Embankment" meeting the requirements of Section 3.06 herein. The material shall be compacted in accordance with Section 206 of the current Standard Specifications except that the maximum loose lift thickness (prior to compaction) is 12 inches. Type IV Geotextile Fabric shall be placed between the existing embankment material and the proposed "Granular Embankment" in accordance with Sections 214 and 843 of the Standard Specifications.

4.5 MONITORING:

4.51 Monitoring Devices:

The Geotechnical Report may require devices to monitor vertical and horizontal displacement both during and after construction. The Contractor will be responsible for providing labor and materials and for cooperating with, and providing, any required assistance to Department personnel with implementation of monitoring activities. The cost of all labor and materials required to support the monitoring program will be incidental to the cost of the.

The approximate locations of any monitoring devices shall be shown in the Working Drawings prepared by the MSE Wall Designer.

4.52 Monitoring Schedule:

The monitoring schedule for any required monitoring device shall be as agreed upon in the Geotechnical Report for the structure.

5.0 METHOD OF MEASUREMENT:

5.01 MSE Retaining Wall:

Mechanically Stabilized Earth (MSE) retaining walls will be measured by the square foot of Retaining Wall. The vertical height will be taken as the difference in elevation measured from the top of wall to the top of the leveling pad. No field measurement will be made. The final quantity will be the contract plan quantity increased or decreased by authorized changes.

The MSE Wall supplier's design may require additional excavation and MSE Wall materials to satisfy their design. The design MSE earth reinforcement lengths shall be equal to or greater than the length shown on the plans or as required by the AASHTO Specifications for the height of the wall plus live load surcharge. The lengths of the MSE Reinforcement shall be constant from the bottom to the top of the section. Extension of the plan limits to accommodate the wall design, configuration of pre-fabricated concrete units, or lengths of earth reinforcement for MSE Walls shall not be cause for changing the plan pay quantities. Additional quantities of excavation, MSE Reinforcement, MSE volume, excavation for foundation replacement, granular embankment, and labor necessary to satisfy the MSE Wall supplier's design shall be incidental to the Retaining Wall.

The MSE volume that extends twelve inches, minimum, beyond the ends of the reinforced volume for MSE Walls shall be incidental to the Retaining Wall.

All work associated with providing the design, details and construction for the coping, moment slab, barrier and pre-cast aesthetic panel shall be incidental to the Retaining Wall.

All materials, equipment, and labor necessary to provide and install the geotextile fabric immediately surrounding the reinforced fill volume shall be incidental to the Retaining Wall.

5.02 Embankment:

The quantity of embankment for external retained backfill behind the MSE Walls and, if required, granular foundation beneath the walls shall be measured according to Section 206 of the current Standard Specifications. The final quantities shall be based on field measurements.

5.03 Geotextile Fabric:

All materials, equipment, and labor necessary to provide and install the geotextile fabric placed between existing fill material and Granular Embankment shall be measured according to Section 214 of the current Standard Specifications. The final quantities shall be based on field measurements.

| [Appendix:](#)

SPECIAL NOTE FOR DISINCENTIVE FEES

Liquidated Damages for KY 15

Traffic should be halted for no more than 20 minutes in an hour for construction operations during the times of day specified. If traffic is halted for more than this allowable time, a disincentive fee of \$250 will be charged for the first 15 minutes past the 20 minutes allowed. If traffic is halted for more than this time, the contractor will be charged disincentive fees at a higher rate. The disincentive fee will be \$500 per each 30 minutes after the time above. There is no maximum disincentive fee and it will begin accumulating after the first allowable 20 minutes of stoppage and keep accumulating until traffic flow is restored. There shall be no traffic stoppage between the hours of 6:30AM and 8:30AM or 2:30PM and 4:30PM to allow for school traffic.

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.

Chain of Custody Record

Kentucky Transportation Cabinet

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



craig.craig@ky.gov

O'Dail Lawson odail.lawson@ky.gov Client Information KY TRANS CABINET
 KYTC Results Code:
 Address: 200 Mero Street ND = None Detected
 Frankfort KY FTD = Filter Tampering or Damaged
 Phone: 502-564-7250 Fax: 502-564-5655 N/A = Not Applicable
 PO#:

Project or Subject Reference: *KY 15 over Jimmy Durrell Way* Samplers (signature): *Craig Craig*

Sample ID	Sample Description	Collected		Analysis Requested	Grab/Comp.	No. of Cont.	Cont. Type	Preservative
		Date	Time					
1	<i>black joint cpd.</i>	<i>10/5</i>	<i>12:05</i>	<i>asbestos</i>	<i>Gr</i>	<i>1</i>	<i>bas</i>	N/A
2	<i>grey handrail patty</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>	

Relinquished By: *Craig Craig* Date/Time:

Received By: *Michael Nevez* Date/Time: *10/05/15*

Relinquished By: _____ Date/Time:

Received at Lab By: _____ Date/Time:

RUSA

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

332 West Broadway, Suite 613
Louisville, Kentucky 40202

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

Client:	<u>KY Transportation Cabinet</u>	Project No:	<u>210064 B</u>
Address:	<u>200 Mero Street</u>	Sample ID:	<u># 1</u>
	<u>Frankfort, KY</u>	Sampled:	<u>5-Oct-15</u>
	<u>40601</u>	Received:	<u>5-Oct-15</u>
	<u>Attention O'Dail Lawson</u>	Analyzed:	<u>6-Oct-15 - Point Count -</u>

Bulk Sample Analysis

Sampled by: O'Dail Lawson

Facility/Location: Perry County - KY 15 Over Jimmy Darrell Way


Field Description: Black Joinbt Compound

Laboratory Description:
Black Material

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

Non-asbestos Fibrous Materials & Matrix Materials:
Binders 99.75 %

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



KENTUCKY TRANSPORTATION CABINET
Department of Highways
DIVISION OF RIGHT OF WAY & UTILITIES

RIGHT OF WAY CERTIFICATION

ITEM #	COUNTY	PROJECT #	FEDERAL PROJECT #
10-269.10	Perry	12FO-FD52-097-4829101R	NHPP-0151 (073)
PROJECT DESCRIPTION Reconstruction of KY 15 from Morton Blvd to Bonnyman in Perry County			
<input type="checkbox"/> 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 with FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional rights of way or relocation assistance were required for this project.			
<input type="checkbox"/> ADDITIONAL RIGHT OF WAY REQUIRED AND CLEARED			
TOTAL NUMBER OF PARCELS ON PROJECT		32	IMPROVEMENTS
NUMBER OF PARCELS THAT HAVE BEEN ACQUIRED BY:			
Signed Deed	28	<input type="checkbox"/>	There were no improvements within the required right of way
Condemnation	4	<input type="checkbox"/>	All improvements have been removed from the required right of way
Signed Right of Entry Agreement			
RELOCATION ASSISTANCE			
Relocation Assistance was not required for this project	<input type="checkbox"/>	<input type="checkbox"/>	Improvements are currently being removed and it is anticipated that right of way will be cleared prior to the letting date
All parties have been relocated in accordance with FHWA regulations	<input type="checkbox"/>	<input type="checkbox"/>	Improvement removal will be included in the construction contract
<input checked="" type="checkbox"/> ADDITIONAL RIGHT OF WAY REQUIRED WITH EXCEPTION			
TOTAL NUMBER OF PARCELS ON PROJECT		32	
Number of parcels acquired by Deed, Condemnation or Signed Right of Entry Agreement		28	
EXCEPTION(S)	ANTICIPATED DATE OF POSSESSION	IMPROVEMENTS	
40	10/25/15	<input type="checkbox"/>	There were no improvements within the required right of way
55	10/25/15	<input type="checkbox"/>	All improvements have been removed from the required right of way
72	10/25/15	<input type="checkbox"/>	Improvements are currently being removed and it is anticipated that right of way will be cleared prior to the letting date
108	12/15/15	<input type="checkbox"/>	Improvement removal will be included in the construction contract
RELOCATION ASSISTANCE			
Relocation assistance was not required for this project			<input type="checkbox"/>
All parties have been relocated in accordance with FHWA regulations			<input type="checkbox"/>
Notes/Comments: All displaced persons and/or businesses, are in the process of moving to replacement housing and/or business sites; Contract(s) for removal and/or demolition of improvements on this project will begin upon the properties becoming vacant and able to be tested as required prior to demolition contract advertisement for bid proposals; Parcel No. 108 may be cleared (via condemnation, i.e. IOJ/ROE process) earlier than anticipated but to date, property owners have been very uncooperative.			
LPA		Right of Way Director	
Printed Name		Printed Name	
Signature		Signature	
Date		Date	
Right of Way Supervisor		FHWA	
Printed Name	Bruce K. Napier	Printed Name	
Signature	<i>[Signature]</i>	Signature	
Date	9/25/15	Date	

UTILITIES AND RAIL CERTIFICATION NOTE

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

GENERAL PROJECT NOTE ON UTILITY PROTECTION

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

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

The City of Hazard Water Line Relocation plans implemented in Roadway Contract.

AEP projected Installation Impact/ Do not Disturb:

(Installation) 55' Rt. CL. Sta. 116 + 75 to 75' Rt. CL. Sta. 120 + 00 to 65' Rt. CL. Sta. 122 + 00. 75' Rt. CL. Sta. 130 + 75 to 210' Rt. CL. Sta. 131 + 75 to 200' Rt. CL. Sta. 132 + 00 to 155' Rt. CL. Sta. 132 + 74 to 145 Rt. CL. Sta. 134 + 00 to 170' Rt. CL. Sta. 135 + 75 to 295' Rt. CL. Sta. 137 +00 to 230' Rt. CL. Sta. 139 + 50 to 150' Lft. CL. Sta. 139 + 00 to 170' Lft. CL. Sta. 139 +25 to 445' Lft. CL. Sta. 140 + 00 to 400' Lft. CL. Sta. 142 + 00 to 335' Lft. CL. Sta. 144 + 50 to 300' Lft. CL. Sta. 146 + 00 to 240' Lft CL. Sta. 148 + 00 to 215' Lft. CL. Sta. 149 + 25 to 290' Lft. CL. Sta. 151 + 00 to 200' Lft. CL. Sta. 153 + 00 to 120' Lft. CL. Sta. 154 + 25 to 80' Rt. CL. Sta. 156 + 25. 198' Lft. CL. Sta. 165 + 75 to 85' Lft. CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25. 65' Rt. CL. Sta. 171 + 50 to 85' Rt. CL. Sta. 173 + 25 to 105' Rt. CL. Sta. 175 + 50 to 115' Rt. CL. Sta. 177 + 75 to 170' Rt. CL. Sta. 178 + 75 to 125' Rt. CL. Sta. 180 + 50 to 145' Lft. CL. Sta. 181 + 00 to 180' Lft. CL. Sta. 181 + 75 to 165' Lft. CL. Sta 183 + 75. 180' Lft. CL. Sta. 181 + 75 to 265' Lft. CL. Sta. 184 + 75 to 315' Lft. CL. Sta 186 + 00 to 28' Lft. CL. Sta. 187 + 50 to 260' Lft. CL. Sta. 189 + 00 to 235' Lft. CL. Sta. 190 + 75 to 215 Lft. CL. Sta. 192 + 50 to 145' Lft. CL. Sta. 194 + 25. 170' Lft. CL. Sta. 206 = 50 to 160' Lft. CL. Sta. 208 + 50 to 225' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50. 170' Lft. CL. Sta. 221 + 25 to 255' Rt. CL. Sta. 221 +25 to 400' Rt. CL. Sta. 222 + 00. 135' Rt. CL. Sta. 231 + 00 to 90' Lft. CL. Sta 232 + 00 to 105' Lft. CL. Sta. 233 + 25 to 115' Lft. CL. Sta. 234 + 00 to 125' Lft. CL. Sta. 234 + 00 to 150' Lft. CL. Sta. 236 + 25 to 205' Lft. CL. Sta. 239 + 75. 90' Lft. CL. Sta. 232 + 00 to 90' Lft. CL. Sta. 234 + 25 to 90' Lft. CL. Sta. 235 + 00 to 65' Lft. CL. Sta. 233 + 25 to 50' Rt. CL. Sta. 237 + 00 to 80' Rt. CL. Sta. 237 + 50 to 115' Rt. CL. Sta. 236 + 25.

(Removal) 55' Rt. CL. Sta. 116 + 75 to 65' Rt. CL. Sta. 119 + 75 to 65' Rt. CL. Sta. 122 + 00. 200' Rt. CL. Sta. 132 + 25 to 155' Rt. CL. Sta. 133+00 to 140 Rt. CL. Sta. 134 + 00. 75' Rt. CL. Sta. 130 + 75 Rt. CL. Sta. 131 + 00 to 80' Rt. CL. Sta. 132 + 00 to 75' Rt. CL. Sta. 135 + 00 to 230' Rt. CL. Sta. 139 + 50. 125' Rt. CL. Sta. 142 + 75 to 65' Rt. CL. Sta. 145 +00 to 70' Rt. CL. Sta. 147 + 00 to 70' Rt. CL. Sta. 149 + 75 to 75' Rt. CL. Sta. 152 + 50 to 120' Lft. CL. Sta. 154 + 25 to 160' Lft. CL. Sta. 153 + 00 to 180' Lft. CL. Sta. 152 + 50 to 200 Lft. CL. Sta. 152 + 25. 75' Rt. CL. Sta. 152 + 50 to 75' Rt. CL. Sta. 154 + 75 to 80' Rt. CL. Sta. 156 + 25. 195' Lft. CL. Sta. 165 +75 to CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25.65' Rt. CL. Sta. 171 + 00 to 65' Rt. CL. Sta. 172 + 25 to 50' Rt. CL. Sta. 175 + 25 to 170' Lft. CL. Sta. 176 + 00 to 240' Lft. CL. Sta. 176 + 25. 170' Lft. CL. Sta. 176 + 00 to 160' Lft. CL. Sta. 177 + 50. 50' Rt. CL. Sta. 175 +25 to 28' Rt. CL. Sta. 178 + 25 to 25' Rt. CL. Sta. 180 + 25 to 25' Rt. CL. Sta. 181 + 25 to 125' Rt. CL. Sta. 180 + 50. 25' Rt. CL. Sta. 181 + 25 to 180' Lft. CL.

UTILITIES AND RAIL CERTIFICATION NOTE

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

Sta. 181 + 75. 25' Rt. CL. Sta. 181 + 25 to 55' Lft. CL. Sta. 182 + 00 to 160' Lft. CL. Sta. 183 + 75 to 150' Lft. CL. Sta. 186 + 00 to 130' Lft. CL. Sta. 187 + 00 to 115' Lft. CL. Sta. 190 + 25 to 120' Lft. CL. Sta. 191 + 50 to 150' Lft. CL. Sta. 194 + 00 to 150' Rt. CL. Sta. 194 + 75. 150' Lft. CL. Sta. 194 + 00 to 145' Lft. CL. Sta. 195 + 75 to 155' Lft. CL. Sta. 196 + 75 to 30' Rt. CL. Sta. 197 + 75. 110' Rt. CL. Sta. 205 + 25 to 200' Rt. CL. Sta. 208 + 25 to 30' Rt. CL. Sta. 207 + 25 to 170" Lft. CL. Sta. 206 + 50 to 175' Lft. CL. Sta. 210 +75 to 220' Lft. CL. Sta. 210 + 50. 175' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 +50.

AEP estimated/ projected relocation August 30, 2016

The City of Hazard Water Line Relocation plans implemented in Roadway Contract.

AEP projected Installation Impact/ Do not Disturb:

(Installation) 55' Rt. CL. Sta. 116 + 75 to 75' Rt. CL. Sta. 120 + 00 to 65' Rt. CL. Sta. 122 + 00. 75' Rt. CL. Sta. 130 + 75 to 210' Rt. CL. Sta. 131 + 75 to 200' Rt. CL. Sta. 132 + 00 to 155' Rt. CL. Sta. 132 + 74 to 145 Rt. CL. Sta. 134 + 00 to 170' Rt. CL. Sta. 135 + 75 to 295' Rt. CL. Sta. 137 +00 to 230' Rt. CL. Sta. 139 + 50 to 150' Lft. CL. Sta. 139 + 00 to 170' Lft. CL. Sta. 139 +25 to 445' Lft. CL. Sta. 140 + 00 to 400' Lft. CL. Sta. 142 + 00 to 335' Lft. CL. Sta. 144 + 50 to 300' Lft. CL. Sta. 146 + 00 to 240' Lft CL. Sta. 148 + 00 to 215' Lft. CL. Sta. 149 + 25 to 290' Lft. CL. Sta. 151 + 00 to 200' Lft. CL. Sta. 153 + 00 to 120' Lft. CL. Sta. 154 + 25 to 80' Rt. CL. Sta. 156 + 25. 198' Lft. CL. Sta. 165 + 75 to 85' Lft. CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25. 65' Rt. CL. Sta. 171 + 50 to 85' Rt. CL. Sta. 173 + 25 to 105' Rt. CL. Sta. 175 + 50 to 115' Rt. CL. Sta. 177 + 75 to 170' Rt. CL. Sta. 178 + 75 to 125' Rt. CL. Sta. 180 + 50 to 145' Lft. CL. Sta. 181 + 00 to 180' Lft. CL. Sta. 181 + 75 to 165' Lft. CL. Sta 183 + 75. 180' Lft. CL. Sta. 181 + 75 to 265' Lft. CL. Sta. 184 + 75 to 315' Lft. CL. Sta 186 + 00 to 28' Lft. CL. Sta. 187 + 50 to 260' Lft. CL. Sta. 189 + 00 to 235' Lft. CL. Sta. 190 + 75 to 215 Lft. CL. Sta. 192 + 50 to 145' Lft. CL. Sta. 194 + 25. 170' Lft. CL. Sta. 206 = 50 to 160' Lft. CL. Sta. 208 + 50 to 225' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50. 170' Lft. CL. Sta. 221 + 25 to 255' Rt. CL. Sta. 221 +25 to 400' Rt. CL. Sta. 222 + 00. 135' Rt. CL. Sta. 231 + 00 to 90' Lft. CL. Sta 232 + 00 to 105' Lft. CL. Sta. 233 + 25 to 115' Lft. CL. Sta. 234 + 00 to 125' Lft. CL. Sta. 234 + 00 to 150' Lft. CL. Sta. 236 + 25 to 205' Lft. CL. Sta. 239 + 75. 90' Lft. CL. Sta. 232 + 00 to 90' Lft. CL. Sta. 234 + 25 to 90' Lft. CL. Sta. 235 + 00 to 65' Lft. CL. Sta. 233 + 25 to 50' Rt. CL. Sta. 237 + 00 to 80' Rt. CL. Sta. 237 + 50 to 115' Rt. CL. Sta. 236 + 25.

(Removal) 55' Rt. CL. Sta. 116 + 75 to 65' Rt. CL. Sta. 119 + 75 to 65' Rt. CL. Sta. 122 + 00. 200' Rt. CL. Sta. 132 + 25 to 155' Rt. CL. Sta. 133+00 to 140 Rt. CL. Sta. 134 + 00. 75' Rt. CL. Sta. 130 + 75 Rt. CL. Sta. 131 + 00 to 80' Rt. CL. Sta. 132 + 00 to 75' Rt. CL. Sta. 135 + 00 to 230' Rt. CL. Sta. 139 + 50. 125' Rt. CL. Sta. 142 + 75 to 65' Rt. CL. Sta. 145 +00 to 70' Rt. CL. Sta. 147 + 00 to 70' Rt. CL. Sta. 149 + 75 to 75' Rt. CL. Sta. 152 + 50 to 120' Lft. CL. Sta. 154 + 25 to 160' Lft. CL. Sta. 153 + 00 to 180' Lft. CL. Sta. 152 + 50 to 200 Lft. CL. Sta. 152 + 25. 75' Rt. CL. Sta. 152 + 50 to 75' Rt. CL. Sta. 154 + 75 to 80' Rt. CL. Sta. 156 + 25. 195' Lft. CL. Sta. 165 +75 to CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25.

UTILITIES AND RAIL CERTIFICATION NOTE

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

65' Rt. CL. Sta. 171 + 00 to 65' Rt. CL. Sta. 172 + 25 to 50' Rt. CL. Sta. 175 + 25 to 170' Lft. CL. Sta. 176 + 00 to 240' Lft. CL. Sta. 176 + 25. 170' Lft. CL. Sta. 176 + 00 to 160' Lft. CL. Sta. 177 + 50. 50' Rt. CL. Sta. 175 + 25 to 28' Rt. CL. Sta. 178 + 25 to 25' Rt. CL. Sta. 180 + 25 to 25' Rt. CL. Sta. 181 + 25 to 125' Rt. CL. Sta. 180 + 50. 25' Rt. CL. Sta. 181 + 25 to 180' Lft. CL. Sta. 181 + 75. 25' Rt. CL. Sta. 181 + 25 to 55' Lft. CL. Sta. 182 + 00 to 160' Lft. CL. Sta. 183 + 75 to 150' Lft. CL. Sta. 186 + 00 to 130' Lft. CL. Sta. 187 + 00 to 115' Lft. CL. Sta. 190 + 25 to 120' Lft. CL. Sta. 191 + 50 to 150' Lft.

CL. Sta. 194 + 00 to 150' Rt. CL. Sta. 194 + 75. 150' Lft. CL. Sta. 194 + 00 to 145' Lft. CL. Sta. 195 + 75 to 155' Lft. CL. Sta. 196 + 75 to 30' Rt. CL. Sta. 197 + 75. 110' Rt. CL. Sta. 205 + 25 to 200' Rt. CL. Sta. 208 + 25 to 30' Rt. CL. Sta. 207 + 25 to 170" Lft. CL. Sta. 206 + 50 to 175' Lft. CL. Sta. 210 + 75 to 220' Lft. CL. Sta. 210 + 50. 175' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50.

AEP estimated/ projected relocation August 30, 2016

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

UTILITIES AND RAIL CERTIFICATION NOTE

PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10

Windstream projected Installation Impact/ Do not Disturb:

(Installation) 55' Rt. CL. Sta. 116 + 75 to 75' Rt. CL. Sta. 120 + 00 to 65' Rt. CL. Sta. 122 + 00. 75' Rt. CL. Sta. 130 + 75 to 210' Rt. CL. Sta. 131 + 75 to 200' Rt. CL. Sta. 132 + 00. 60' RT. CL. Sta. 134.00. 200' Rt. CL. Sta. 132 + 00 to 155' Rt. CL. Sta. 132 + 74 to 145 Rt. CL. Sta. 134 + 00 to 170' Rt. CL. Sta. 135 + 75 to 295' Rt. CL. Sta. 137 +00 to 230' Rt. CL. Sta. 139 + 50. 120' Rt. CL. Sta. 137 + 00. 230' Rt. CL. Sta. to 150' Lft. CL. Sta. 139 + 00 to 170' Lft. CL. Sta. 139 +25 to 445' Lft. CL. Sta. 140 + 00 to 400' Lft. CL. Sta. 142 + 00 to 335' Lft. CL. Sta. 144 + 50. 172' Lft. CL. Sta. 144 + 50. 335' Lft. CL. Sta. 144 + 50. to 300' Lft. CL. Sta. 146 + 00 to 240' Lft CL. Sta. 148 + 00 to 215' Lft. CL. Sta. 149 + 25 to 290' Lft. CL. Sta. 151 + 00 to 200' Lft. CL. Sta. 153 + 00 to 120' Lft. CL. Sta. 154 + 25 to 80' Rt. CL. Sta. 156 + 25. 198' Lft. CL. Sta. 165 + 75 to 85' Lft. CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25. 65' Rt. CL. Sta. 171 + 50 to 85' Rt. CL. Sta. 173 + 25 to 105' Rt. CL. Sta. 175 + 50 to 115' Rt. CL. Sta. 177 + 75 to 170' Rt. CL. Sta. 178 + 75 to 125' Rt. CL. Sta. 180 + 50. (Windstream to be able access Structure Box 130') Rt. CL. 180 + 40. 128' Rt. CL. Sta. 180 + 50. 125' Rt. CL. Sta. 180 + 50 to 145' Lft. CL. Sta. 181 + 00 to 180' Lft. CL. Sta. 181 + 75 to 165' Lft. CL. Sta 183 + 75. 180' Lft. CL. Sta. 181 + 75 to 265' Lft. CL. Sta. 184 + 75 to 315' Lft. CL. Sta 186 + 00 to 28' Lft. CL. Sta. 187 + 50 to 260' Lft. CL. Sta. 189 + 00 to 235' Lft. CL. Sta. 190 + 75 to 215 Lft. CL. Sta. 192 + 50 to 145' Lft. CL. Sta. 194 + 25. 170' Lft. CL. Sta. 206 = 50 to 160' Lft. CL. Sta. 208 + 50 to 225' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50. 170' Lft. CL. Sta. 221 + 25 to 255' Rt. CL. Sta. 221 +25 to 400' Rt. CL. Sta. 222 + 00. 135' Rt. CL. Sta. 231 + 00 to 90' Lft. CL. Sta 232 + 00 to 105' Lft. CL. Sta. 233 + 25 to 115' Lft. CL. Sta. 234 + 00 to 125' Lft. CL. Sta. 234 + 00 to 150' Lft. CL. Sta. 236 + 25 to 205' Lft. CL. Sta. 239 + 75. 90' Lft. CL. Sta. 232 + 00 to 90' Lft. CL. Sta. 234 + 25 to 90' Lft. CL. Sta. 235 + 00 to 65' Lft. CL. Sta. 233 + 25 to 50' Rt. CL. Sta. 237 + 00 to 80' Rt. CL. Sta. 237 + 50 to 115' Rt. CL. Sta. 236 + 25. 40' Rt. CL. Sta. 248 + 50.

(Removal) 55' Rt. CL. Sta. 116 + 75 to 65' Rt. CL. Sta. 119 + 75 to 65' Rt. CL. Sta. 122 + 00. 200' Rt. CL. Sta. 132 + 25 to 155' Rt. CL. Sta. 133+00 to 140 Rt. CL. Sta. 134 + 00. 75' Rt. CL. Sta. 130 + 75 Rt. CL. Sta. 131 + 00 to 80' Rt. CL. Sta. 132 + 00. 60' Rt. CL. Sta 134 + 90. 80' Rt. CL. Sta. 132 + 00 to 75' Rt. CL. Sta. 135 + 00. 72' Rt. CL. Sta. 136 + 60. 75' Rt. CL. Sta. 135 + 00 to 230' Rt. CL. Sta. 139 + 50. 125' Rt. CL. Sta. 142 + 75. 144' Rt. CL. Sta. 144 + 50. 125' Rt. CL. Sta. 142 + 75. to 65' Rt. CL. Sta. 145 +00 to 70' Rt. CL. Sta. 147 + 00 to 70' Rt. CL. Sta. 149 + 75 to 75' Rt. CL. Sta. 152 + 50 to 120' Lft. CL. Sta. 154 + 25 to 160' Lft. CL. Sta. 153 + 00 to 180' Lft. CL. Sta. 152 + 50 to 200 Lft. CL. Sta. 152 + 25. 75' Rt. CL. Sta. 152 + 50 to 75' Rt. CL. Sta. 154 + 75 to 80' Rt. CL. Sta. 156 + 25. 195' Lft. CL. Sta. 165 +75 to CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25.

65' Rt. CL. Sta. 171 + 00 to 65' Rt. CL. Sta. 172 + 25 to 50' Rt. CL. Sta. 175 + 25 to 170' Lft. CL. Sta. 176 + 00 to 240' Lft. CL. Sta. 176 + 25. 170' Lft. CL. Sta. 176 + 00 to 160' Lft. CL. Sta. 177 + 50. 50' Rt. CL. Sta. 175 +25 to 28' Rt. CL. Sta. 178 + 25 to 25' Rt. CL. Sta. 180 + 25 to 25' Rt. CL. Sta. 181 + 25 to 125' Rt. CL. Sta. 180 + 50. 146' Lft. CL. Sta. 180 + 70. 25' Rt. CL. Sta. 181 + 25 to 180' Lft. CL. Sta. 181 + 75. 25' Rt. CL. Sta. 181 + 25 to 55' Lft. CL. Sta. 182 + 00 to 160' Lft. CL. Sta. 183 + 75 to 150' Lft. CL. Sta. 186 + 00 to 130' Lft. CL. Sta. 187 + 00 to 115' Lft. CL. Sta. 190 + 25 to 120' Lft. CL. Sta. 191 + 50 to 150' Lft. CL. Sta. 194 + 00 to 150' Rt. CL. Sta. 194 + 75. 150' Lft. CL. Sta. 194 + 00 to 145' Lft. CL. Sta. 195 + 75 to 155' Lft. CL. Sta. 196 +

UTILITIES AND RAIL CERTIFICATION NOTE

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

75 to 30' Rt. CL. Sta. 197 + 75. 110' Rt. CL. Sta. 205 + 25 to 200' Rt. CL. Sta.

208 + 25 to 30' Rt. CL. Sta. 207 + 25 to 170' Lft. CL. Sta. 206 + 50 to 175' Lft. CL. Sta. 210 + 75 to 220' Lft.
CL. Sta. 210 + 50. 175' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50. 40' Rt. CL. Sta. 248 + 50.

Windstream estimated / projected relocation December 30, 2016

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

TVS projected Installation Impact/ Do not Disturb:

(Installation) 55' Rt. CL. Sta. 116 + 75 to 75' Rt. CL. Sta. 120 + 00 to 65' Rt. CL. Sta. 122 + 00. 75' Rt. CL. Sta. 130 + 75 to 210' Rt. CL. Sta. 131 + 75 to 200' Rt. CL. Sta. 132 + 00 to 155' Rt. CL. Sta. 132 + 74 to 145 Rt. CL. Sta. 134 + 00 to 170' Rt. CL. Sta. 135 + 75 to 295' Rt. CL. Sta. 137 + 00 to 230' Rt. CL. Sta. 139 + 50 to 150' Lft. CL. Sta. 139 + 00 to 170' Lft. CL. Sta. 139 + 25 to 445' Lft. CL. Sta. 140 + 00 to 400' Lft. CL. Sta. 142 + 00 to 335' Lft. CL. Sta. 144 + 50 to 300' Lft. CL. Sta. 146 + 00 to 240' Lft. CL. Sta. 148 + 00 to 215' Lft. CL. Sta. 149 + 25 to 290' Lft. CL. Sta. 151 + 00 to 200' Lft. CL. Sta. 153 + 00 to 120' Lft. CL. Sta. 154 + 25 to 80' Rt. CL. Sta. 156 + 25. 198' Lft. CL. Sta. 165 + 75 to 85' Lft. CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25. 65' Rt. CL. Sta. 171 + 50 to 85' Rt. CL. Sta. 173 + 25 to 105' Rt. CL. Sta. 175 + 50 to 115' Rt. CL. Sta. 177 + 75 to 170' Rt. CL. Sta. 178 + 75 to 125' Rt. CL. Sta. 180 + 50 to 145' Lft. CL. Sta. 181 + 00 to 180' Lft. CL. Sta. 181 + 75 to 165' Lft. CL. Sta. 183 + 75. 180' Lft. CL. Sta. 181 + 75 to 265' Lft. CL. Sta. 184 + 75 to 315' Lft. CL. Sta. 186 + 00 to 28' Lft. CL. Sta. 187 + 50 to 260' Lft. CL. Sta. 189 + 00 to 235' Lft. CL. Sta. 190 + 75 to 215 Lft. CL. Sta. 192 + 50 to 145' Lft. CL. Sta. 194 + 25. 170' Lft. CL. Sta. 206 = 50 to 160' Lft. CL. Sta. 208 + 50 to 225' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50. 170' Lft. CL. Sta. 221 + 25 to 255' Rt. CL. Sta. 221 + 25 to 400' Rt. CL. Sta. 222 + 00. 135' Rt. CL. Sta. 231 + 00 to 90' Lft. CL. Sta. 232 + 00 to 105' Lft. CL. Sta. 233 + 25 to 115' Lft. CL. Sta. 234 + 00 to 125' Lft. CL. Sta. 234 + 00 to 150' Lft. CL. Sta. 236 + 25 to 205' Lft. CL. Sta. 239 + 75. 90' Lft. CL. Sta. 232 + 00 to 90' Lft. CL. Sta. 234 + 25 to 90' Lft. CL. Sta. 235 + 00 to 65' Lft. CL. Sta. 233 + 25 to 50' Rt. CL. Sta. 237 + 00 to 80' Rt. CL. Sta. 237 + 50 to 115' Rt. CL. Sta. 236 + 25.

(Removal) 55' Rt. CL. Sta. 116 + 75 to 65' Rt. CL. Sta. 119 + 75 to 65' Rt. CL. Sta. 122 + 00. 200' Rt. CL. Sta. 132 + 25 to 155' Rt. CL. Sta. 133 + 00 to 140 Rt. CL. Sta. 134 + 00. 75' Rt. CL. Sta. 130 + 75 Rt. CL. Sta. 131 + 00 to 80' Rt. CL. Sta. 132 + 00 to 75' Rt. CL. Sta. 135 + 00 to 230' Rt. CL. Sta. 139 + 50. 125' Rt. CL. Sta. 142 + 75 to 65' Rt. CL. Sta. 145 + 00 to 70' Rt. CL. Sta. 147 + 00 to 70' Rt. CL. Sta. 149 + 75 to 75' Rt. CL. Sta. 152 + 50 to 120' Lft. CL. Sta. 154 + 25 to 160' Lft. CL. Sta. 153 + 00 to 180' Lft. CL. Sta. 152 + 50 to 200 Lft. CL. Sta. 152 + 25. 75' Rt. CL. Sta. 152 + 50 to 75' Rt. CL. Sta. 154 + 75 to 80' Rt. CL. Sta. 156 + 25. 195' Lft. CL. Sta. 165 + 75 to CL. Sta. 166 + 75 to 70' Rt. CL. Sta. 167 + 25. 65' Rt. CL. Sta. 171 + 00 to 65' Rt. CL. Sta. 172 + 25 to 50' Rt. CL. Sta. 175 + 25 to 170' Lft. CL. Sta. 176 + 00

UTILITIES AND RAIL CERTIFICATION NOTE

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

to 240' Lft. CL. Sta. 176 + 25. 170' Lft. CL. Sta. 176 + 00 to 160' Lft. CL. Sta. 177 + 50. 50' Rt. CL. Sta. 175 + 25 to 28' Rt. CL. Sta. 178 + 25 to 25' Rt. CL. Sta. 180 + 25 to 25' Rt. CL. Sta. 181 + 25 to 125' Rt. CL. Sta. 180 + 50. 25' Rt. CL. Sta. 181 + 25 to 180' Lft. CL. Sta. 181 + 75. 25' Rt. CL. Sta. 181 + 25 to 55' Lft. CL. Sta. 182 + 00 to 160' Lft. CL. Sta. 183 + 75 to 150' Lft. CL. Sta. 186 + 00 to 130' Lft. CL. Sta. 187 + 00 to 115' Lft. CL. Sta. 190 + 25 to 120' Lft. CL. Sta. 191 + 50 to 150' Lft. CL. Sta. 194 + 00 to 150' Rt. CL. Sta. 194 + 75. 150' Lft. CL. Sta. 194 + 00 to 145' Lft. CL. Sta. 195 + 75 to 155' Lft. CL. Sta. 196 + 75 to 30' Rt. CL. Sta. 197 + 75. 110' Rt. CL. Sta. 205 + 25 to 200' Rt. CL. Sta. 208 + 25 to 30' Rt. CL. Sta. 207 + 25 to 170" Lft. CL. Sta. 206 + 50 to 175' Lft. CL. Sta. 210 + 75 to 220' Lft. CL. Sta. 210 + 50. 175' Lft. CL. Sta. 210 + 75 to 185' Lft. CL. Sta. 212 + 50.

TVS estimated relocation March 30, 2017

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

Not Associated

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

Not Associated

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

The **City of Hazard** Municipal Relocation Plans, Specifications, Bid Item Codes and final Construction Cost uploaded on Project Wise. The **City of Hazard** Water Municipal Relocation will be implemented in Roadway Contract.

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

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

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

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.

BEFORE YOU DIG

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

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

**PERRY COUNTY, NHPP 0151 (074)
FD52 097 48291 01U
HAZARD-JACKSON ROAD (KY 15)
ITEM NO. 10-269.10**

AREA UTILITIES CONTACT LIST

<u>Utility Company/Agency</u>	<u>Contact Name</u>	<u>Contact Information</u>
<u>AEP</u>	<u>Doug Christian</u>	<u>(606) 436-1332</u>
<u>Windstream</u>	<u>Tim Williams</u>	<u>(606) 878-3260</u>
<u>TVS</u>	<u>Kenny Salmons</u>	<u>(606) 438-2479</u>
<u>City of Hazard</u>	<u>Grady Varney (Hank Spaulding)</u>	<u>(606) 438-6534 (606) 436-2151</u>

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

The contractor should be aware the following utility notes and KYTC Utility Bid Item Descriptions shall supersede, replace and take precedence over any and all conflicting information that may be contained in utility owner supplied specifications contained in the contract, on plans supplied by the utility owner, or any utility owner specifications or information externally referenced in this contract.

Where information may have been omitted from these notes, bid item descriptions, utility owner supplied specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

PROTECTION OF EXISTING UTILITIES

The existing utilities shown on the plans are shown as best known at the time the plans were developed and are to be used as a guide only by the Contractor. The Contractor shall use all means at his disposal to accurately locate all existing utilities, whether shown on the plans or not, prior to excavation. The contractor shall protect these utilities during construction. Any damage to existing utilities during construction that are shown or not shown on the plans shall be repaired at the Contractor's expense.

PREQUALIFIED UTILITY CONTRACTORS

Some utility owners may require contractors that perform relocation work on their respective facilities as a part of the road contract be prequalified or preapproved by the utility owner. Those utility owners with a prequalification or preapproval requirement are as follows:

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 look for a list of preapproved or prequalified contractors at the end of these general notes as identified above before bidding. Only contractors shown to be prequalified or preapproved by the utility owner on the following list(s) will be allowed to work on that utility as a part of this contract.

Any utility contractor that is not listed as prequalified or preapproved when the project is advertised for bid and wishes to be added must make request through the KYTC Contract Procurement website. The request should be made at least one week prior to the bidding deadline to allow for review and posting on

the KYTC Contract Procurement website. A contractor is only considered prequalified or preapproved when published on the KYTC Contract Procurement website. Contractors that contact the utility owner directly for preapproval or prequalification without contacting KYTC will not be considered for preapproval or prequalification for this contract. Contractors that are not prequalified or preapproved through KYTC before the bidding deadline will not be considered for prequalification or preapproval after bidding.

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.

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 ENCASUREMENT 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 ENCASUREMENT 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 ENCASUREMENT 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 complete 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 complete 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 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 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, 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 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 where 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.

KENTUCKY 15 SANITARY SEWER & WATER RELOCATION **INDEX FOR TECHNICAL SPECIFICATIONS**

<u>NO.</u>	<u>TITLE</u>	<u>PAGE</u>
1.	SPECIAL NOTES	TS-1 - TS-3
2.	SPECIAL SURFACE RESTORATION NOTE	TS-3
3.	INSTALLATION.....	TS-4
	Trenching	TS-4 - TS-7
	Backfilling Trenches	TS-7
4.	CLEANING UP AND REPAIRING DAMAGE	TS-7 – TS-8
5.	HAULING AND STORAGE	TS-8
6.	GENERAL SPECIFICATIONS ON MATERIALS.....	TS-8 – TS-9
7.	LAYING NON-PRESSURE PIPE – GENERAL	TS-9
	A. General	TS-9 – TS-10
	B. Pipe Bedding.....	TS-10
	C. Testing – General	TS-10 – TS-11
	D. Air Testing.....	TS-11
	E. Infiltration Testing.....	TS-11 – TS-12
8.	TESTING OF WATERLINES	TS-12 – TS-13
9.	LAYING PIPE IN COMMON DITCH	TS-13
	A. General	TS-13
10.	PRESSURE PIPE INSTALLATION	TS-13
	A. General	TS-13 – TS-14
	B. Pressure Pipe Laying	TS-14
	C. Testing Pressure Pipe.....	TS-14 – TS-15

MATERIALS & BID ITEMS:

11.	DUCTILE IRON GRAVITY SANITARY SEWER	TS-16
12.	PVC PIPE AND FITTINGS (GRAVITY SEWER).....	TS-16 – TS-17
13.	CL250 PVC PIPE AND FITTINGS (FORCE MAIN).....	TS-17
14.	HORIZONTAL DIRECTIONAL DRILLING (HDD), SAN. & WAT.....	TS-17 – TS-18
15.	POLYETHYLENE (PE) PIPE (WATER & SAN. SEWER)	TS-18
16.	LINER PIPE, SANITARY SEWER & WATER	TS-18 – TS-19
17.	SEWAGE COMBINATION AIR/VACUUM VALVE	TS-19
18.	MANHOLES	TS-19 – TS-21
19.	TIE @ EXISTING MANHOLE	TS-21
20.	TYPE III BLOWOFF	TS-21
21.	STANDARD 4" CLEANOUT	TS-21
22.	ALL S.S. TIES	TS-21 – TS-22

KENTUCKY 15 SANITARY SEWER & WATER RELOCATION INDEX FOR TECHNICAL SPECIFICATIONS (Cont'd)

<u>NO.</u>	<u>TITLE</u>	<u>PAGE</u>
23.	MANHOLE GRADE ADJUSTMENT	TS-22
24.	SAN. SEWER UTILITY CONFLICT	TS-22
25.	CRUSHED STONE MATERIALS	TS-22
26.	CONCRETE WORK	TS-22 – TS-25
27.	PAVEMENT REPLACEMENT	TS-25 – TS-26
28.	FLOWABLE FILL.....	TS-26 – TS-27
29.	DRAIN CROSSINGS.....	TS-27
30.	SIMPLEX GRINDER LIFT STATION	TS-28 – TS-37
31.	SURVEY REQUIREMENTS.....	TS-37
32.	PVC PIPE FOR WATER – CLASS 250	TS-37
33.	DUCTILE IRON PIPE FOR WATER	TS-37 – TS-38
34.	POLYETHYLENE (PE) PIPE (WATER)	TS-38
35.	VALVES (WATER & SANITARY).....	TS-38 – TS-39
36.	VALVES, 14" & LARGER	TS-39
37.	VALVE BOXES	TS-39
38.	TYPE I, 3" BLOW-OFF.....	TS-40
39.	TYPE II, 3" BLOW-OFF.....	TS-40
40.	WATER AIR RELEASE VALVES.....	TS-40
41.	WATER ARV BOX AND COVER	TS-40
42.	SMALL RIVER TEST STATION.....	TS-40 – TS-41
43.	CAPS OR PLUGS, 2" THROUGH 12"	TS-41
44.	HYDRANT REMOVAL.....	TS-41
45.	REMOVE/RELOCATE HYDRANT	TS-41
46.	ALL WATER TIES COMPLETE	TS-41 – TS-42
47.	SERVICE BORE.....	TS-42
48.	TRAFFIC CAPABLE VAULT	TS-43
49.	TAPPING SLEEVES & TAPPING VALVES	TS-43
50.	MAG METERS	TS-44
51.	PRESSURE REDUCING VALVE VAULTS	TS-44 – TS-45
52.	SERVICE OR METER RETIES.....	TS-45
53.	STANDARD METER SETTING EQUIPMENT	TS-45
54.	METERS, STANDARD.....	TS-45 – TS-46
55.	1" WATER METER.....	TS-46
56.	REMOVE/RELOCATE WATER METERS.....	TS-46
57.	GEOTEXTILE.....	TS-46 – TS-47
58.	FIELD LOCK GASKETS.....	TS-47 – TS-48
59.	LINE AND VALVE MARKERS.....	TS-48
60.	ONE YEAR GUARANTEE.....	TS-48

1. SPECIAL NOTES:

- A. Crushed stone for backfilling and bedding of pipe is a Pay Item. This reduction in cost should be reflected in your Unit Price for sewer and water piping. Additionally, unless specifically noted otherwise, all crushed stone used at PRV's or other locations as noted on the plans will be paid at your Bid Unit Price.
- B. All concrete general in the job, with the exception of items shown within 'Pay Limits' (for example at a PRV) is a Pay Item, including concrete kickers, all patches, and drain crossing concrete, and is payable at your Unit Price for that bid item. General concrete can include un-formed concrete w/ reinforcement up to a maximum of #5's @ 8" each way, maximum of two mats. Reinforced formed concrete is not anticipated on the project but shall be negotiated with the Contractor if required.
- C. Special attention should be afforded all areas that are marked with 'Pay Limits'. Notes as they appear on the drawings will be strictly adhered to concerning pay items.
- D. Contractors should note the placement of No. 12 copper wire in the location of all plastic force main and water pipe. Substitutes (for tracing) such as line marking tape will not be accepted. Smaller diameter wire will not be accepted. Also note the requirement in all force main areas for marking tape labeled "Sanitary Sewer".
- E. Use extreme caution in areas where other utilities are shown. All utility locations as shown on the drawings shall be considered approximate. All known utility crossings (after this determination by the utility) shall be flagged by the appropriate agency. These crossings may require hand digging for discovery and/or clearance.
- F. Contractor shall contact all utilities and arrange for flagging of all existing lines. Contractor shall be responsible for contact and initiation of work with Kentucky 811.
- G. Valve collars shall be required at all valves and cost shall be included in the unit price for the valve and box.
- H. All "TIES" which are bid items shall include all necessary materials required to make the same; see breakdown of "Ties" in these specifications.
- I. The plans serve as the guide to the final line location. The Contractor, because of his extensive knowledge obtained from line installation and roadway work, shall immediately contact the Engineer should construction appear unreasonable, dangerous, or liable to generate property damage in any location. This notification shall include likely areas of slip, slide, or other ground movement. The Contractor is responsible for all construction activities and any detrimental result of his construction. The Contractor, in accepting any portion of this Contract, assumes all associated responsibility for any and all construction activity. Additionally, the

Contractor shall contact the Engineer if any construction is not practical without producing extended service outage or unreasonable conflict with roadway construction.

- J. Cooperation is critical for this utility relocation to be completed effectively. The drawings note contacts with the City of Hazard Water & Sewer Departments and these people should be contacted as directed or as needed.
- K. The general intent of vertical manhole top placement is to have all manhole tops flush with any existing road surface and be 0.2' higher than any existing open ground surface with a slight regrade up to this new elevation.
- L. The Contractor shall work both plans sheets and profile sheets as a unit. What is shown on one shall be considered to be shown on both.
- M. **Contractor is responsible for all Surveying on the Project.** In all areas Contractor shall be required to survey or resurvey both horizontal and vertical locations for manholes, pipes, etc., determine any possible profile related conflicts, and compare planned horizontal and vertical locations with surveyed. Should a conflict or discrepancy exist, the Contractor shall immediately report this to the Engineer. Contractor shall do no work in any line segment before this is complete.
- N. **A digital camera shall be used to photograph all valves, or valve groupings** (if valves lay within 5' radius of each other). Each valve or valve grouping photograph shall be named with a descriptive title. For example, if a valve grouping is at the intersection of KY 80 and KY 15, it shall be named "KY 80 KY 15.JPG". Each photograph shall be descriptive in and of itself with background information sufficient for subsequent location of the valve grouping by Water and Sanitary Sewer Department personnel. Two (2) compact disks (CD's) shall be provided to the Engineer after project completion showing all valve or valve groupings. Final payment will not be made until these CD's are submitted. The Contractor shall work with the Relo. Engineer to ensure that correct titles are transferred to "AS-BUILT" drawings.
- O. Sequence of construction is absolutely critical to this project. The Contractor shall complete work in the sequences noted on the drawings or as determined in the field so to limit or eliminate service outage. The Utility Relocation Engineer has made his best effort to show work which can be reasonably completed as the roadway portion is constructed without significant service outage, but certainly does not warrant that this is the case. Changes to sequence, type, layout, etc. may be required to achieve this goal.
- P. Unless noted, all waterline fittings are Mechanical Joint. All mechanical joint fittings (for both water and force main) shall use Grip Rings on every branch, inlet or outlet for pipe 12" and smaller. Water pipe over 12" dia. shall use retainer glands for all

- fittings and on every branch, inlet or outlet. Unless noted otherwise, all waterline piping on the job is Compression Joint. All polyethylene fittings are butt fusion.
- Q. Shop Drawing submission to the Water and Sanitary Sewer Relocation Engineer is required of the Contractor for review and approval. Items which require Shop Drawing approval include:

- All Pipe, all types, both Water & Sanitary Sewer
- All Fittings, both Water & Sanitary Sewer
- Liner Pipes, Casing Spacers, & End Seals
- Valves
- ARV's, both Water & Sanitary Sewer
- Mag Meters, Boxes, Vaults, Etc.
- All Blowoffs
- PRV's including Vault & all materials
- All Water Meters including radio Read Equip.
- All Manholes including Frames/Lids, Pre-Cast Concrete, H₂S Protection

The Utility Relocation Engineer's address is:

H. A. Spalding Engineers, Inc.
651 Skyline Drive
Hazard, KY 41701-1664
(606) 436-2151
Project Engineer, Hank A. Spaulding

Submission shall be complete and shall be in an adequate number to allow the Engineer to keep two (2) complete sets while allowing the Contractor any required sets for his use.

2. SPECIAL SURFACE RESTORATION NOTE:

The Contractor should understand that returning all surface work areas to their original condition is one of the most important phases of this project. The Contractor will be working in many cases in yard or other sensitive areas. The Contractor shall make every effort to avoid cutting of any trees, shrubs, and other items which are not absolutely required for the construction process (other than the Clear & Grub area). The Engineer will allow for, and in fact will encourage, the Contractor to adjust alignments to miss sensitive structures such as large trees, etc. However, all changes in alignment must be approved before any work is done to insure compliance with project requirements such as allowable grade, angles, etc. Contractor shall utilize mobile drop hammers, or other suitable equipment (other than walk behind tampers), which will compact the trench in all yard, road, and other areas which are considered sensitive. The Contractor shall also use similar compaction equipment and effort around all manholes. The Contractor shall satisfy the Engineer and KYTC with their yard restoration work. KYTC satisfaction with compaction and re-vegetation efforts shall be considered under your one year warranty.

3. INSTALLATION:

Trenching - Trenching shall be done in a true straight line at all times and fittings shall be used only at the direction of the RESIDENT ENGINEER.

Trenching shall include all clearing and grubbing (Clear and Grub is a Unit Price Bid Item for the waterline areas shown on the plans), including all weeds, briars, trees, and stumps encountered in the trenching. The CONTRACTOR shall dispose of any such material by burning, burial, or hauling away, at no extra cost to the KYTC. All material shall be disposed of by methods which meet all KYTC requirements, local fire officials, and all local, state, and federal requirements. Outside of the clear & grub area, Shrubs, hedges, and small trees (3" in dia.) shall be removed and replanted, at no extra cost to the KYTC. Trenching also includes such items as 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.

All material encountered in excavation shall be Unclassified. In areas where rock is encountered, a min. of 2" of crushed stone shall be placed in the bottom of the trench before installation of the pipe. Extra payment will be made for the installation of the crushed stone at your submitted unit price for crushed stone. The price for the pipe in place shall also include hauling off of all excavated material.

The CONTRACTOR shall determine, as far as possible in advance, the location of all existing sewer, culvert, drain, water, electric, and gas pipes and other subsurface structures and avoid disturbing same in opening his trenches. In case of sewer, water, and gas services, and other facilities easily damaged by machine trenching, same shall be uncovered without damage ahead of trenching, and restored immediately after trenching machine has passed, without extra cost to the KYTC except as noted in the bid item Utility Conflicts. The CONTRACTOR shall protect such existing facilities, including power and telephone poles and guy wires, against danger or damage due to settlement of his backfill. It shall be the responsibility of the CONTRACTOR to inform customers of utilities of disruption of service as soon as it is known that it has or will be cut off.

The CONTRACTOR shall at all times during trenching operations on the streets or other areas, carry a stock of pipe and fittings likely to be needed for replacement of water, gas, sewage, or drain pipes to facilitate immediate repair.

Construction equipment will not be approved for use where treads are injurious to paving encountered. Curbs, sidewalks, and other structures shall be protected by the CONTRACTOR from damage by his construction equipment.

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 structure will be in as good condition and serve its purpose as completely as before and such restoration and repair shall be done without extra charge,

except as set forth under the provisions of the General Conditions. Where there is the possibility of damage to existing utility lines by trenching machine, the ENGINEER may order hand search excavation ahead of machine trenching to uncover same, at no extra cost to the KYTC.

All trenches must be dug neatly to lines. Hand trenching may be required by the ENGINEER, at no extra payment, where undue damage would be caused by existing structures and facilities by machine trenching. Trenches in earth shall be dug to just above grade by machine and shall be finished down to grade by hand, unless otherwise specified.

Where trenching is cut through paving, which does not crumble on edges, trench edge shall be cut to at least two (2") inches deep to straight and neat edges before excavation is started, and care taken to preserve edge to facilitate neat repaving as shown on the Drawings.

All excavation shall be open trenches, except where otherwise called for on the Plans or by special permission of the ENGINEER, for boring or jacking under railroads, sidewalks, and the highway.

When working along the highway the CONTRACTOR shall furnish, install and maintain necessary signs, lights or other warning devices as prescribed by the Kentucky Department of Transportation and shall furnish and employ sufficient flagmen to direct traffic in the construction area all as directed by the Department of Transportation. All signs, devices, flagmen, etc. shall be as prescribed in the "Manual on Uniform Traffic Control Devices, Part VI," latest revision.

The CONTRACTOR shall so coordinate his work as to produce a minimum of interference with normal traffic on highways and streets. He may, with the approval of the ENGINEER and governing agency, close a street to traffic for such length of time considered necessary by the ENGINEER, provided persons occupying property abutting the streets have an alternate route of access to the property which is suitable for their needs during the time closure. It shall be the responsibility of the CONTRACTOR to give 24 hours advance notice to Fire and Police Departments and to occupants of a street which will be closed in a manner approved by the ENGINEER.

The opening of more than 500 feet of trench ahead of the pipe laying and more than 500 feet of open ditch left behind pipe laying before backfilling, will not be permitted except upon written consent of the KYTC or verbal consent from KYTC directly to the Engineer. No trench shall be left open or work stopped on same for a considerable length of time. If such is necessary, trench shall be refilled according to backfill specifications. In crossing a road or street a temporary bridge must be placed over the excavation if traffic conditions require its use before backfilling. Where required or when directed by the ENGINEER, road or street crossings will be limited to one-half of travel width before placing temporary bridge over the excavated side. Whenever trenching is performed on public ways, the CONTRACTOR shall furnish and maintain barricades, lanterns, warning sign and signals

as far as one block ahead or at locations directed by the governing agency as required for public safety. All such necessary bridges, barricades, lanterns, signs and signals shall be provided by and at the expense of the CONTRACTOR. The CONTRACTOR shall maintain road crossings in a passable condition for traffic until the final acceptance of the work at no cost to the KYTC.

Where pipelines run through wooded terrain, cutting of trees within limits of maximum permissible trench width, plus 4' on each side of this trench centerline, will be permitted. However, cutting of additional trees on each side of this 8' total width to accommodate operation of trenching machine will not be permitted. The CONTRACTOR shall obtain specific permission of the OWNER before cutting any tree larger than six (6") inches in diameter.

Sheeting and shoring of trench will be required of this CONTRACTOR where necessary to protect life, property, or any structure from damage or to maintain maximum permissible trench widths at top of pipe. Sheeting, sheet piling, trench jacks, braces, shores, and stringers shall be used to hold trench walls. These shall be withdrawn as the trenches are being backfilled, after backfill has been placed over pipe at least 18". If their removal, before backfill is completed to surface, endangers adjacent structures such as pipelines, street paving, sidewalk and buildings, then they shall be left in place until such danger has passed and then pulled if possible. Voids caused by sheeting withdrawal shall be backfilled and tamped with thin rammers designed for the purpose so as not to form an obstruction at the ground level. Dewatering of the trenches shall be considered a part of trenching at no extra cost to the OWNER. Dewatering of trenches shall include ground water and storm or sanitary sewage. Suitable pumping and other dewatering equipment is to be provided by the CONTRACTOR to insure the installation of the pipeline structure in a dewatered trench and under the proper conditions. Dewatering shall include all practical means available for prevention of surface runoff into trenches and scouring against newly laid pipe.

Piles of excavated material shall be trenched or temporarily piped to prevent, as far as practical, blockage of drainage ditches and gutters and resultant water carriage of excavated materials over street surfaces.

Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusive of dewatering normally required for construction and instability caused by neglect of the CONTRACTOR, it shall be paid for at unit prices set up in the Contract such as extra excavation, crushed rock for pipe bedding, concrete cradle, or piling.

The location of pipe and their appurtenances, as shown, are those intended for the final construction. However, conditions may present themselves before construction of any line is started, that would indicate desirable changes in location. Also, development of property traversed may require location changes. In such cases, the KYTC reserves that right to make reasonable changes in line and structure location without extra cost except as may be determined by the application of the unit prices bid to the quantities actually involved.

The OWNER is under no obligation to locate pipelines, so they may be excavated by machine.

The work of uncovering and backfilling required for locating existing sewers, waterlines and other existing facilities for connection of improvements, or avoidance in location of proposed pipeline, where such uncovering and backfilling is not within trench for improvements, shall be at the CONTRACTOR's expense.

The CONTRACTOR will be required to test all pipelines (as described in other areas of these Specifications) before backfilling. Backfilling before testing will be allowed at the discretion of the ENGINEER at points where danger to the public, or other hazards, demand that such be done immediately after pipe is laid. All leakage apparent or other problems after testing must be repaired before backfilling.

Backfilling Trenches:

Backfilling must be started as soon as practicable after pipe has been laid. Packing of earth across and around pipe at six (6') foot intervals and between joints shall be the usual procedure as the laying proceeds. This is in order to avoid danger of mis-alignment from slide, flooding or other causes. The ENGINEER shall be given a maximum of 24 hours for inspection before backfilling. Only earth, or rock less than 2-1/2" size, shall be used as backfill materials up to six (6") inches above top of pipe. No stones or other hard or heavy substances may be thrown directly upon the pipes or into the trench until the above named cover of earth is obtained. Above the 6 or 12 inches above pipe, rock may be used in the backfill to an extent not greater than one-half of the total 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 in the rock may be filled with earth. Where noted on the Plans and within the shoulder of the Kentucky Highways, the CONTRACTOR shall backfill to finish highway grade with DGA. The DGA shall be tamped in six (6") inch layers in accordance with Department of Transportation Specifications. In these areas (if any) DGA will be a pay item. All material hauled away shall be placed at no cost and at a location specified by the KYTC.

No extra charge shall be made for supplying outside materials for backfill or removing excess excavation material from the site of the work.

Extra cost of compaction of backfill on street and driveway crossings and tunnels shall be included in price bid for pipe.

Where highway slopes, thin grass, or cover crops are destroyed by trenching, laying, or backfilling operations, and access to them, surface shall be prepared by disking, fertilizing 5 lbs. of 5-10-5 or 6-8-6 per 1,000 square feet and seeding 21 lbs. of Italian Rye Grass per 1,000 square feet, light harrowing, then reseeding with crop destroyed or one part Red Top, three parts certified Kentucky Bluegrass seed mixed together at the rate of 2 lbs. per 1,000 square feet of surface. This shall be included in the price for trenching and

backfilling. Requirement of the KYTC, for reseeding shall take precedence over these specifications.

4. CLEANING UP AND REPAIRING DAMAGE:

The Contract will not be considered complete until all construction structures and equipment and rubbish from construction are cleaned from the site of the work.

All damage to existing grounds and structures caused by construction operations must be repaired or the KYTC compensated for such damage before contract will be considered complete. This does not include replacement of sod, but does include required shaping of ground for sodding or planting of grass and the removal and disposition of all rock from blasting three (3") inches or over in size.

5. HAULING AND STORAGE:

The CONTRACTOR will be required to deliver all pipe, fittings, valves and valve boxes and other materials and place same as and where required for laying.

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 of 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 special castings may be distributed at places that will not interfere with other building operations as unloaded or yard and distributed as required, as the CONTRACTOR may elect.

Valves, valve boxes, jointing materials, meter box covers, castings, fabricated metal, reinforced steel, etc. shall be yarded or housed in some convenient location by the CONTRACTOR and delivered on the ground, as required.

The cost of all hauling, handling, and storage shall be included in the price bid for equipment and materials in place.

The KYTC takes no risk or responsibility for fire, theft, flood, or damage until after the final acceptance of the work.

6. GENERAL SPECIFICATIONS ON MATERIALS:

All materials specified or planned shall be furnished by the Contractor. Approval of manufacturer's plans of materials and equipment shall not mean final acceptance but they shall be subject to inspection and test on delivery and installation.

The Contractor shall repair, replace or adjust any material or equipment found defective or not operating properly due to improper materials, workmanship and adjustment on his part, for a period of one (1) year after completion and acceptance of his work.

Inclusion of a certain make or type of material or equipment in the Contractor's bid or estimate shall not obligate the KYTC to accept such materials or equipment if it does not meet with requirements of these Plans and Specifications.

The burden of proof of equal quality or service shall be on the Contractor. Proof of inequality is not implied by these specifications and is not a burden of the Engineer. His duty shall be to properly weigh the proven facts of equality in fairness to all parties involved.

7. LAYING NON-PRESSURE PIPE – GENERAL:

A. General

1. All pipe shall be tested for uniform diameter, straightness and defects before laying and rejected pipe shall be removed from the project.
2. All pipe after being inspected and accepted shall be laid to the lines and grades shown on the Drawings. The Contractor shall furnish all labor and materials for staking out lines and grades. All gravity pipelines shall be laid to constant grades between invert elevations shown on the Drawings. Grades shown on drawings are invert of pipe, unless specifically noted otherwise. The pipe lengths shall be fitted together and matched to form a smooth and uniform invert.
3. Subgrade, undercut, bedding and backfilling under, around and over the pipe shall all be in accordance with the details shown on the Drawings. No pipe shall be laid until the subgrade is properly in place.
4. Unnecessary walking upon the completed pipelines shall be avoided until trench has been backfilled to over the top of the pipe.
5. The interior of the pipe shall be cleaned of all dirt, jointing materials and superfluous materials of every description. When laying of pipe is stopped, the end of the pipe shall be securely plugged or capped. Care should be taken to prevent flotation of the pipe in the event the trench should flood. The Contractor will be responsible for relaying and/or relocating pipe if the pipe is laid before trenching has progressed far enough to eliminate the possibility of grade conflicts or realignment on account of existing structures, pipelines, or conduits.
6. In trench conditions where pipe is in danger of sinking below grade or floated

out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe shall be weighted or secured permanently in place.

7. Trench excavation and pipe bedding shall conform with provisions contained elsewhere in Detailed Specifications.
8. Pipes shall be laid free from all structures other than those planned. Openings in and joints to contact walls shall be constructed as shown on the Drawings.
9. Non-pressure pipes entering structures underground and unsupported by original earth for a distance of more than 3', shall be supported by Class "B" concrete, where depth of such support does not exceed 3'. All pipes entering buildings or basins, below original ground, which are higher than 3' depth above subgrade, span more than 3' between wall and original earth, and with more than 24" of cover or under a roadway, shall be supported by concrete beams with piers at 6' intervals between structural wall and edge of excavation for the structure, in order to prevent breakage from settlement of backfill about the structure. Concrete and reinforcing steel for these supports shall be in the lump sum portion of the contract; and no extra payment will be allowed. Pipe entering structures shall have flexible joint within 18" of exterior of structure or from point of leaving concrete support.
10. No backfilling, except for securing pipe in place, shall be done until the Engineer has inspected the joints, alignment, and grade in the section laid. Such inspection, however, does not relieve the Contractor of liability in case of defective joints. Joints that show leakage will not be accepted. If after backfilling and inspection, any joints are found that are allowing groundwater to enter the sewer, such joints shall be sealed by the Contractor.

B. Pipe Bedding

1. Pipe bedding for gravity sewers shall be as shown on the Drawings. Crushed stone used for bedding shall be size shown, and shall comply with State Highway Department Standards.

C. Testing - General

1. On completion of sewer lines, all sewers and manholes will be inspected for foreign matter, including sand brought in by infiltration, and any such matter shall be removed before final acceptance of the lines.
 - a. Testing of the pipe as specified shall be carried out after all appurtenances have been installed. All pipelines shall be tested for

compliance with the Specifications. If leaks are discovered, they shall be repaired by the Contractor as part of the work of laying this pipe and appurtenances and as approved by the Engineer. The Contractor shall supply all labor, equipment, material, gauges, pumps, etc., required to conduct the tests.

- b. All equipment, pipe and appurtenances shall be repaired or replaced and the tests repeated at the Contractor's expense until the pipe, appurtenances and equipment are in satisfactory compliance with these Contract Documents, in the judgment of the Engineer

D. Air Testing

1. Air testing shall be required on all gravity sewer lines.
2. All lines shall be flushed and cleared of debris prior to air testing. The maximum length of line to be air tested at any one time shall be from manhole to manhole.
3. Air shall be slowly supplied to the plugged pipe until the internal pressure reaches 5.0 pounds per square inch (PSI) greater than the average back pressure of any groundwater that may be above the pipe. Two minutes shall be allowed for a stabilization period before proceeding further.
4. The acceptance of the pressure test shall be determined by measuring the time required for the internal pressure to decrease from 0.5 PSI to 1.5 PSI below test pressure. The time for this one PSI loss of air pressure must not be less than 6 minutes per foot of nominal pipe diameter.
5. Tees and service laterals shall be considered as part of the line being tested. All plugs shall be firmly blocked to insure that they will not be displaced during testing. Descriptive literature for all equipment and procedures to be used in air testing must be submitted to the Engineer for acceptance.
6. All defective work, as so proven by the air test, shall be immediately repaired and retested until proven to be satisfactory.
7. Inspection in pipe laying and air testing shall in no way relieve the Contractor of the responsibility for passing subsequent test for infiltration or correcting poor workmanship.

E. Infiltration Testing

1. Before putting new sewer lines into service, weir tests shall be made of flow

of water in the sewers from manhole to manhole or up to a maximum of 3,000 foot sections at a time. These tests shall be made when in the Engineer's judgment groundwater level is equal to the highest groundwater condition in a normal year.

2. Maximum allowable infiltration shall not exceed 6,000 gallons per day per mile of pipe for pipe 24 inch diameter or larger, and 250 gallons per day per inch diameter per mile for pipes smaller than 24 inch diameter.

8. TESTING OF WATERLINES:

On all projects involving the installation of water pipeline, the finished work shall comply with the provisions listed below, or similar requirements which will insure equal or better results.

.a. All water mains shall be given a hydrostatic test to 150 psi (or 1.5 times the service pressure, contact the Engineer), under which leakage shall not exceed the limits established in Section 4 of AWWA Standard Specifications C600.

.b. Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 3,000 feet.

.c. Duration of test shall be not less than two hours.

.d. Where leaks are evident on the surface where joints are covered, the joints shall be re-caulked, re-poured, bolts retightened or re-laid, and leakage minimized regardless of total leakage as shown by test.

.e. All appurtenances shall be connected and made ready for ultimate service before the pressure test. Specifically, all meter boxes, yokes, and appurtenances (with sole exception of meter unit) shall be installed prior to the pressure test. Additionally, all meter yokes shall be "flowed" to insure that the corp stop has been connected and is in the open position. This flow shall be witnessed by the ENGINEER'S Representative and documented on the project mapping with a date when the flow was observed. All pipe, fittings and other materials found to be defective under test shall be removed and replaced.

.f. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with.

.g. The CONTRACTOR shall furnish a recording gauge and clock used during leakage test and recording pressure charts during duration of test. Recording pressure charts shall remain the property of the ENGINEER at conclusion of test. The new potable waterlines shall not be placed in service, either temporarily or permanently, until they have been thoroughly disinfected in accordance with the following requirements and to the satisfaction of the ENGINEER.

.h. The CONTRACTOR, in consultation with the Resident Engineer, shall keep, maintain, and update, a color coded project map which shows what lines have been pressure tested, date of test, and result. See below for additional requirements.

After successful pressure testing, a solution of hypochlorite using HTH, or equal, shall be introduced into the section of the line being disinfected sufficient to insure a chlorine dosage of at least 50 ppm in the main. While the solution is being applied the water should be allowed to escape at the ends of the line until tests indicate that a dosage of at least 50 ppm has been obtained throughout the pipe. Open and close all valves and cocks while chlorinating agent is in the piping system. The Chlorinated water shall be allowed to remain in the pipe for 24 hours, after which a residual of at least 25 ppm shall be obtained. The disinfection shall be repeated until 25 ppm is obtained, after which time the main shall be thoroughly flushed until the residual chlorine content is not greater than 1.0 ppm.

Following disinfection of the line, bacteriological samples shall be collected and analyzed in accordance with the requirements of Kentucky Department of Natural Resources and Environmental Protection. When the samples have been approved, the new line then may be connected to the system. On the map noted above, the Contractor, in consultant with the Resident Engineer, shall keep, maintain, and update the color coded map showing dates samples were collected, and dates where samples were approved.

9. LAYING PIPE IN COMMON DITCH:

A. General

1. 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.

10. PRESSURE PIPE INSTALLATION:

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. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped.
2. Fittings 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. The means to do this shall be thoroughly wrapping the fitting with suitable plastic to the Engineer's satisfaction.

3. 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.
4. Pressure pipe, 4 inch diameter or larger, entering a structure below original earth level, unsupported by original earth for a distance of more than 3 feet shall be supported by Class "3000" 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. Class "3000" 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 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.
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 insure 36" 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.
5. 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. The Contractor shall furnish all necessary equipment for pressure testing.

2. Inspection of pipe laying shall in no way relieve the Contractor of the responsibility for passing tests, stopping leakage, or correcting poor workmanship.
3. 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 for use on closed pipe system for any purpose.
4. The pipe shall be tested with water to the pressure class of the pipe for 24 hours with pressure recorder. The drop in pressure shall not exceed 5% of the test pressure.

MATERIAL & BID ITEMS:

11. DUCTILE IRON GRAVITY SANITARY SEWER (if required):

All ductile iron pipe intended for the project shall be designed for use in sanitary sewer applications. This requirement includes all pipe for both gravity applications and force main applications. The pipe in all cases shall conform to ANSI/AWWA C151/821.51 and ASTM A 746. The thickness of the pipe shall in all cases be no less than Thickness Class 50 w/ a pressure rating of 350 psi. In cases where flanged fittings require a heavier wall it shall be used. The outside pipe coating shall be a minimum of one mil bituminous paint according to ANSI/AWWA C151/821.51 Section 51-8.1. Cement lining (for the Base Bid, see Option below) shall be provided for the pipe interior. This lining shall conform to ANSI/AWWA C104/A21.4 and shall be that normally & customarily provided by the pipe manufacturer. Cracks, other than closed hairline cracks and/or fine crazing, shall not be acceptable. Loose areas of cement lining are not allowable. Fittings (if used) shall be Ductile Iron of appropriate class and in accordance with the requirements of either ANSI/AWWA C153/A21.53 or ANSI/AWWA C110/A21.10. Mechanical joints shall conform to ANSI/AWWA C111/A21.11. All fittings (if used) anticipated for line work are Mechanical Joint. All ductile iron pipe shall be U.S. Pipe, Griffin Pipe Products, Clow, or approved equal. The Contractor shall follow all manufacturers literature for pipe installation and field cut ends and all other requirements as stated in the printed literature.

12. PVC PIPE AND FITTINGS (GRAVITY SEWER):

PVC pipe used for gravity sewer applications shall meet all requirements of ASTM Specification D-3034, latest revision for pipe sized 4" thru 15". Pipe and fittings shall meet the extra strength minimum of SDR-26 of that specification and thickness of that dimension ratio. The reason for using SDR-26 for all gravity sewer vs. the lesser strength SDR-35 is the related nearby roadway construction.

All pipe and fittings shall be inspected at the factory and on the job site. Testing of PVC pipe and fittings shall be accomplished in conformance with the latest revision of ASTM D3034, ASTM F477 and ASTM D3212. The manufacturer shall submit five (5) copies of certification of test for each lot of material represented by shipment to the job site.

The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform in color as commercially practical. PVC 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.

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 shall not be stored outside where subject to sunlight.

Jointing of PVC pipe shall be by a natural rubber ring inserted into the belled end of the pipe or double hub joints. Solvent weld joints are not acceptable.

The PVC pipe manufacturer shall provide special fittings, acceptable to the Engineer to make water-tight connections to manholes and for all (if any) service connections.

The pipe shall be equal in all respects to that manufactured by CertainTeed Corporation, Valley Forge, PA.

13. CL250 PVC PIPE AND FITTINGS (FORCE MAIN):

All pipe designated as PVC shall be PVC type pressure pipe designed ASTM Class 250 of the Integral Bell Joint type. The pipe shall conform to ASTM 2241 for Standard Dimension Ratios, SDR 17 for pressure characteristics. The pipe shall be extruded from clean, virgin, approved class 12454-A PVC compound conforming to ASTM resin Specification D1784. Rubber rings shall conform to ASTM D 1869. This pipe shall be CertainTeed Fluid-Tite PVC Pressure pipe or approved equal. Laying radius of pipe shall in all cases be equal to, or greater than, that listed by the manufacturer of the pipe. All tees, elbows, and bends shall be Mechanical Joint unless noted on the Plans. All mechanical joint fittings shall be equipped with grip rings. All pipe and fittings shall be inspected at the factory and on the job site. Testing of PVC pipe and fittings shall be accomplished in conformance with the latest revision of ASTM D3034, ASTM F679 T-1, ASTM D2444, ASTM 2412, and ASTM D2152. The manufacturer shall submit five (5) copies of certification of test for each lot of material represented by shipment to the job site. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform in color as commercially practical. PVC 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. 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 shall not be stored outside where subject to sunlight. Jointing of PVC pipe shall be by a natural rubber ring inserted into the belled end of the pipe or double hub joints. Solvent weld joints are not acceptable. The PVC pipe manufacturer shall provide special fittings, acceptable to the Engineer to make water-tight connections to manholes and for all service connections. The pipe shall be equal in all respects to that manufactured by CertainTeed Corporation, Valley Forge, PA. All PVC force main shall be marked w/ tape as shown on the drawings to differentiate it from potable water lines.

14. HORIZONTAL DIRECTIONAL DRILLING (HDD), SANITARY & WATER:

All areas designated on the Plans as Horizontal Directional Drilling (HDD) shall be completed using equipment designed for the size and type of pipe noted. All HDD shall be completed using PE 4710 high density polyethylene, DR 9, having a minimum pressure

rating of 252 psi, except where noted otherwise on the plans, and in these locations the pipe shall be DR 7, having a minimum pressure rating of 335 psi. **The Unit Price of HDD includes the cost of the pipe itself**, and all else required for a complete and finished installation.

The Contractor shall have experience in this type of work (HDD) suitable to the Engineer.

15. POLYETHYLENE (PE) PIPE (WATER & SAN. SEWER):

Polyethylene Pipe shall be manufactured in accordance with AWWA CD01 for sizes 1/2" through 3" and in accordance with AWWA C906 for sizes 4" through 54". All Copper Tubing Size (C.T.S.) PE pipe shall be high density polyethylene (PE 4710) intended for the transportation of potable water. All PE pipe smaller than two inch shall have a minimum pressure rating of 200 psi and have a dimension ratio (DR) of 9 and be copper tubing size (CTS). All PE pipe larger than 2" shall be Iron Pipe Size (I.P.S.) and shall be high density polyethylene PE 4710, have a minimum pressure rating of 252 psi, and shall have a dimension ratio of 9, except where noted otherwise on the plans, and in these locations the pipe shall be DR 7, having a minimum pressure rating of 335 psi, DR 11, having a minimum pressure rating of 200 psi, or DR 13.5, having a minimum pressure rating of 160 psi. For the force main, for hydraulic reasons, the Contractor shall not use a heavier wall pipe than that shown on the plans. All PE pipe fittings shall be butt fusion welded per the manufacturer's requirements of the same DR as the pipe it connects. All joints between plain ends of polyethylene pipe shall be made by butt fusion. The Contractor shall follow all requirements in the pipe manufacturer's printed literature for butt fusion welds including test weld requirements and shall use personnel adequately trained and experienced in this work. All transitions from PE pipe to other pipe types shall use the appropriate adapter as detailed on the plans and the concrete restraint/s shall be installed as indicated. All PE pipe shall be Plexco, Driscopipe, or approved equal.

16. LINER PIPE, SANITARY SEWER & WATER:

Liner Pipe of the size and location, as shown on the Plans, shall be installed. The pipe shall be a high quality Wrought Steel Schedule and weights as listed below, with the same properties as determined by the American National Standard for welded and seamless wrought steel pipe. Used pipe will not be accepted unless it is delivered to the job site in as-new condition as determined by the Engineer. The unit price for liner pipe includes the cost of purchasing and installing the casing spacers as detailed on the drawings for multi pipe installations or using Phillips Engineering Model PE-MS 500 plastic casing insulators (or approved equal) for single carrier pipe installations. All casing spacers shall be spaced at a maximum of 8' on center and at each end approximately 2'-0" from the end. Unit price for liner pipe shall also include the placement of casing end seals. End seals may be pre-manufactured models correctly sized or "End Seal Tape" may be used. Where multiple carrier pipes go thru one liner pipe the casing spacers shall be as designated on the drawings, or other approved spacers by the Engineer. The spacing of the casing spacers shall be equal to the casing spacer spacing as shown within the manufacturers submittals or as directed by the Engineer, but in no case shall the spacing exceed 8'-0" on center.

Liner Pipe Table

<u>Pipe Size</u>	<u>Sch. #</u>	<u>Wall (In.)</u>	<u>#/Foot</u>
4"	40 (Std.)	.237	10.8
6"	40 (Std.)	.250	19.0
8"	40 (Std.)	.250	28.6
10"	40 (Std.)	.250	40.5
12"	(Std.)	.250	49.6
14"	30 (Std.)	.250	54.6
16"	30 (Std.)	.383	62.6
18"	(Std.)	.383	70.6
20"	20 (Std.)	.383	78.6
24"	20 (Std.)	.383	94.6
30"	20 (Std.)	.383	

The Liner Pipe shall be either bored & jacked with appropriate equipment or Open Cut as designated on the Plans. The casing pipe sizes shown on the plans are believed to be adequately sized to allow the placement of the carrier pipe/s and associated spacers, but this must be confirmed by the Contractor. Use larger casing (liner) pipe if required by your combination of carrier pipe/casing spacers than shown at no extra cost to the KYTC.

17. SEWAGE COMBINATION AIR/VACUUM VALVE:

At the locations shown on the Drawings the Contractor shall install new combination air/vacuum sewage valves. This valve shall be an A.R.I D-025 (or Engr. Approved eq.) 2" valve, nylon body, and specifically designed for wastewater. The valve shall be installed in the boxes as shown on the drawings. The valve shall be equipped with a 2" bronze body ball valve with stainless steel ball and Teflon seat as detailed on the Drawings. Service saddle shall be a Smith Blair 317 double strap, equipped with spring washers, or approved equal. The valve shall be supported inside the box as recommended by the manufacturer. The box shall be 24" diameter, length as req. for proper fit-up. Install a Ford MC-24 Monitor Cover with locking lid.

18. MANHOLES:

Only pre-cast or cast-in-place concrete manholes are acceptable. If the Contractor intends to use cast-in-place manholes, reinforcement plans and schedules must be submitted to the Engineer for approval. Pre Cast manholes of acceptable type are shown on the Drawings. Developed base manholes may be used in locations where applicable. All manhole joints shall be fitted with one (1) run of Conseal Mastic or other acceptable material, installed as detailed in the manufacturers printed literature. All standard manholes shall have Eccentric Conicals. All manholes, unless noted, are 48" min. I.D. as noted in the Schedule. All Pre Cast manholes shall be fitted with PSX or Dura-Seal Gaskets for all lines entering or leaving the manhole. All manhole inverts whether pre-developed or developed

in place shall have a one-half to two-thirds pipe diameter flow channel with smooth transition throughout. Specifications and shop drawings for the proposed grout to be used for sealing pipes inside and out and for transition shall be submitted to the Engineer. Shop drawings showing reinforcement of manhole base sections, intermediate sections, conicals, and top slabs shall be submitted for approval on all manhole types. All manholes shall be waterproofed on the outside. Contractor shall provide one coat of Koppers Bitumastic No. 50 (or eq.) from manhole base to 1" above finished grade.

Type 1 manholes shall be equipped with a top slab versus the eccentric conical for the standard manhole. The top slab shall be equal to Oldcastle Precast EMM4DTOPSLAB W/G and shall be equipped with lid as described below.

CASTINGS:

A. Frames and lids -

Standard manhole castings shall consist of cast iron frames and 22-3/8" dia. clear opening weighing not less than 415 lbs. per frame and cover, dimensioned as shown on the Plans. Manhole lids must be set neatly in the rings, with contact edges machined for even bearing and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness and be marked in large letters, "SANITARY SEWER". Lids shall have two pick holes about 1-1/2" wide and 3/4" deep with 3/8" undercut all around. Lids on sanitary sewer manholes must not be perforated. They shall be Neehan Foundry Company No. R 1736-A or approved equal. Manhole frames which do not utilize an extended lip as detailed on the drawings to prevent sliding of frame **shall not be accepted**. The Contractor shall consider these clearance requirements for conical casting.

Type 1 manholes shall be equipped with Neehan R-6050 cover and frame, 310#, marked Sanitary Sewer, or approved equal.

B. Steps -

No steps are used in any manhole for this project.

C. H₂S Protection –

Where indicated on the Manhole Schedule on the drawings, manholes shall be provided with hydrogen sulfide protection. The selected method of doing this is to batch the concrete for these manholes using XYPEX Admix C-500 (or C-1000 if indicated) and to provide a finish coating of CCI Spectrum, Inc. Spectrashield, or Engineer approved equal. The concrete batch plant shall provide certification (if requested) that the XYPEX Admix C-500 was dosed and applied as recommended by the manufacturer. The Spectrashield shall be installed after the manhole has been placed in its final planned location, and shall be applied by a Manufacturer pre-qualified Applicator. Spectrashield shall be installed in

complete conformance with the Manufacturer’s written specification dated 2014 or later. The coating shall be warranted by Manufacturer and Applicator against failure for a period of 10 years as described in the Manufacturer’s written specification.

19. TIE @ EXISTING MANHOLE:

The drawings detail the work that is required at existing manhole tie-ins. The tie-ins shall consist of carefully removing the existing pipe and grout and reinserting the new pipe and re-grouting to form a water tight seal. Carefully smooth the entrance with new grout to prevent having rough edges which may collect debris. Install a new NPC Kor-N-Seal II, or approved equal, at each inlet. Review the drawings for time limitations for all tie-ins. Before beginning work for making ties, contact City of Hazard officials so they can notify customers of possible service disruptions.

20. TYPE III BLOWOFF:

This bid item pays for the work as detailed on the plans required at blowoffs which are required (only) for system startup. This work includes, but is not limited to: fabricated tee sized per mainline, PE to PVC adapter, PVC pipe and elbow as detailed, and threaded PVC cap; other work as may be required. The valve required and crushed stone used will be paid at their separate bid unit prices.

21. STANDARD 4” CLEANOUT:

This bid item pays for all work and materials as detailed on the drawings. The 4” valve and box and crushed stone will be paid at their bid unit prices. Materials to be provided and installed include a F.M. size x 4” wye and 45° elbow, both fabricated fusion welded if used on PE F.M. or M.J with grip rings if used on PVC, PE to PVC adapter if used on a PE F.M., glued PVC as shown on the plans, and box (same as ARV box) with threaded PVC cap as shown.

22. ALL S.S. TIES:

The drawings indicate where tie-ins to existing force mains or gravity lines are to be made, and should give an indication of the work and materials involved to make the same. These ties are listed below. On this form below, the Contractor should insert a Price for each tie, sum, and show the **average Bid Unit Price** in his Bid Proposal as KYTC requires that these items be bid as “each”:

Tie #1, 6” & 8” PE F.M., Fittings as req.	\$ _____
Tie #2, 8” Gravity line tie-in, Terrace View Ln.	\$ _____
Tie #3, (2) ea. 6” & 8” PE F.M., Fittings as req.	\$ _____
Tie #4, 6” & 8” PE F.M., Fittings as req.	\$ _____
Tie #5, 8” Gravity line tie-in @ Wetwell	\$ _____

courses for highway and street paving, thrust blocks, creek crossings, and valve pads.

Class "A" concrete is to be proportioned one 94 lb. sack of Portland Cement, 195 lbs. of sand, 270 lbs. of coarse aggregate, and no admixture. These proportions may be varied by the Engineer after the materials supplied have been tested and proportions for the greatest density and workability determined, provided that no more than 7.25 nor less than 6.50 bags of cement per cubic yard of concrete will be required. Class "A" concrete shall have a minimum compressive strength of 4,000 lbs. per square inch in 28 days. Where instructed by the Engineer, the Contractor shall place reinforcement as outlined in special notes of these specifications.

Class "C" concrete shall have a minimum compressive strength of 3,000 lbs. per square inch and shall contain not less than 5.5 sacks of cement per cubic yard of concrete. The relative amounts of fine and admixture will not be required.

The water used in mixing must be a minimum required for a plastic mix. No water will be permitted to be used for purpose of hastening mixing and reducing of tamping and vibration.

The water content allowed will be at all times subject to regulations by the Engineer. In the case of Class "A" concrete, not more than five and one-half gallons of water to the bag of cement will be allowed in mixing concrete (or proportionately less when slump is about 4" and/or mix is wet), except in cases where, in the judgement of the Engineer, additional water is necessary to obtain proper results.

Batching equipment shall include scales for weighing contents of wheelbarrows and a device for accurately measuring water by the gallon, to be used for proportioning each batch.

In case of ready-mixed concrete, specifications for proportioning of mixes shall be the same, except that from the manufacturer's experience with his own aggregates, he shall vary proportions of sand and coarse aggregate for the greatest density and workability of mix. Prior to actual delivery of concrete, and at any change of proportioning, the manufacturer shall furnish a statement to the Engineer giving the proportion by weight (dry) of cement and of fine and coarse aggregates that will be used in the manufacture of each mix ordered. Proportions must be approved by the Engineer. Otherwise, proportioning of mix and batching plant shall be according to ASTM Designation C-94, latest revision, specifications for ready-mixed concrete.

(b) Forms:

Forms for concrete with exposed surfaces shall consist of dressed and sized lumber or metal and must match on edges sufficiently to prevent leakage of mortar. Forms shall be built to such accuracy and braced to such an extent that they shall not vary from true lines

and surfaces where exposed more than 1/4" before pouring concrete, nor more than 3/8" after pouring. Angle strips (3/4" size) shall be placed in all exposed corners of forms.

(c) Steel Reinforcement Placing:

All such steel shall be delivered in new condition either clean or with only a slight coating of rust. If stored on the site it must be kept under shelter or supporting at least 12" above ground to prevent its becoming coated with dirt and when placed in forms it must be free from scale or dirt.

When placing in forms, steel must be tied together to form a rigid frame before pouring concrete and must be secured in the walls or slabs in such a manner as to insure its holding and position designed for it in the finished work by use of form stands, steel or concrete chairs or spacers. As a rule, steel bars must have a minimum covering of 2" when exposed to air and a minimum of 3" when exposed to earth" of concrete, unless otherwise noted on the plans. All splices shall be 24 diameters long and 1" between spliced bars.

(d) Mixing and Placing:

Concrete shall be thoroughly mixed at least two minutes after all materials, including water, are in the mixer drum having a capacity of at least one sack batch.

Concrete must be poured into forms slowly enough to permit thorough tamping and vibrating to eliminate any honeycombed surfaces.

Concrete pouring will not be permitted under conditions where there is danger of freezing or when materials are frozen. After pouring, concrete must be protected from freezing weather for at least 72 hours.

Ready-mixed concrete delivery facilities pledged to the concrete pour shall be approved by the Engineer before permission will be given to start the pour. The period between termination of placing by one truck and starting by the next shall not be longer than 10 minutes at temperatures above 70° F., nor longer than 20 minutes below 70° F. The concrete in a truck mixer or agitator must be totally discharged within 1-1/2 hours after the introduction of mixing water to the cement and aggregates. The mixing operation shall begin within 30 minutes after the cement has been intermingled with the aggregates. Otherwise, mixing, mixers, agitators, and inspection shall be according to ASTM Designation C-94, latest revision, specifications for ready-mixed concrete. Non-agitating trucks for hauling concrete from central mixing plant will not be accepted.

(e) Tempering:

All concrete must be kept wet or moist for a period of at least 48 hours after pouring in order to prevent too rapid drying out. In dry weather, wooden forms must be thoroughly wet before concrete is placed in them and must also be kept in this condition during the period above mentioned. Concrete must be covered and kept damp to protect it from the

sun as soon as the surfaces are firm enough to allow the placing of such covering or protection.

TESTING CONCRETE

(a) Slump Test:

At least one slump test shall be made before first concrete pour, at the start of pouring any concrete and at each 5 cubic yards deposited during one operation. These shall be made from samples as those taken from cylinder tests and records of same kept therewith. Tests shall be made according to ASTM Designation C-143 and as required under ASTM Designation C-94, for ready-mixed concrete. Mix is designed for a slump test of 2" and not more than 4", except in cases where thin sections would indicate, in the opinion of the Engineer, that a wetter mix is more desirable. The **Contractor** shall furnish necessary equipment for the slump tests.

(b) Cylinder Test:

Cylinder tests will be taken on all important structures such as the storage tank or Booster Station. However, on line work for sewer and waterline requiring only small amounts of concrete per pour, the cylinder tests will be waived. However, should the Engineer have reason to doubt that the concrete being furnished meets the strength requirements, he shall have the right to order cylinder tests according to the following specifications:

At the start of concreting or before, if practical, the **Contractor** shall make from a single batch a set of four (4) cylinders per ASTM Designation C-31. Two (2) shall be tested at 7 days and two (2) at 28 days per ASTM Designation C-39.

At each time when five or more cubic yards of concrete are placed during one operation and when the sum of smaller deposits of concrete equal 10 cubic yards since previous test and at any change in the mix four (4) cylinder tests will be required, two tested 7 days and the other two at 28 days per ASTM Designation C-39. In case of ready-mixed concrete, requirement for testing of ASTM Designation C-94 and C-172 shall be added. Class "A" concrete sampled shall show a compressive strength of not less than 3,000 lbs. per square inch in 7 days and 4,000 lbs. per square inch in 28 days. Class "C" concrete shall have a compressive strength of 3,000 lbs. per square inch in 28 days. Seven (7) day tests on Class "C" concrete shall have the same relation to 28 days requirements.

The **Contractor** shall furnish all equipment for sampling and curing on the job and shall bear the cost of laboratory curing and testing.

27. PAVEMENT REPLACEMENT:

Details for the required pavement replacement is given on Sht. 15 of the plans. All

replacement pavement shall conform to the applicable section of Specifications for Road and Bridge Construction, Kentucky Transportation Cabinet. All areas which are to be repaved shall first be sawn to full depth. Pavement edges shall not be broken or ripped by backhoe or other equipment. Paving quantities as shown on the Bid Form are calculated for crossings and/or areas which are designed as constructing under pavement. Bid quantities do not include pavement repair on the edge of roads damaged by your construction activities. Certain areas of the project may require that unavoidable damage occurs along roadway edges. If this is the case, at the discretion of the Engineer, payment will be made for pavement replacement at your bid unit price. However, should pavement damage be caused by your willful disregard of reasonable construction technique and room existed for pipeline (or other items) placement without damage to the pavement, this **pavement shall be repaired to original or better condition at your sole expense.** The decision of the Engineer is final.

28. FLOWABLE FILL

If shown on the plans, use flowable fill consisting of a mixture of cement, sand, Class F fly ash, water, and other materials the Engineer approves.

Proportion flowable fill as follows, per cubic yard batch:

Cement	30 pounds
Fly Ash, Class F	300 pounds
Sand (S.S.D.)	3,000 pounds
Water (Maximum)	500 pounds

Do not allow the loss on ignition for Class F fly ash to exceed 12 percent.

The Engineer may approve other mixtures. The mixtures may include other proportions of the above materials, Class C fly ash, chemical admixtures, or aggregate not conforming to the Standard Specifications of the Kentucky Department of Highways. When deviating from the above specified proportions and materials, make and test a trial batch of at least 4 cubic yards to ensure that the mix will have flow and density characteristics suited for the intended use. Use the ingredients, proportions, and equipment intended for the project, including batching, mixing, and delivery. Provide mixtures that are firm within 3 hours. Refer to the following general guidelines:

- a) Require a minimum flow of 8 inches when tested with a 3 by 6-inch opened ended cylinder modified flow test.
- b) Mixture bleeds freely within 10 minutes.
- c) Require the mixture to support a 150-pound person within 3 hours.

The Engineer will observe all phases of the trial batching for approval. Submit the proposed mixture proportions and test results for the minimum flow, time of bleeding, and time to achieve firmness to the Engineer for review and approval.

The Contractor will cast test cylinders for each 300 cubic yards of flowable fill in place. Do not rod the cylinders, but lightly tap the sides of the mold. Allow the test cylinders to bleed for about 30 minutes, refill, and then cover with a sheet of tough, durable, impervious plastic or cylinder lid. Secure the plastic in place around the mold, within one inch of the top, with a rubber band or string, and cover the lid with wet burlap. Remove the burlap after 24 hours and cure for 28 days when the ambient shade temperature is 60 to 90 degrees F. Obtain an average compressive strength of 50 to 100 psi at 28 days.

29. DRAIN CROSSINGS:

- 1) The following Specification will be followed, with no exceptions, to protect the aquatic life within the waters of the Commonwealth.
- 2) When making a drain crossing it shall be completely dry, with no visible flow. The drain shall be excavated to grade, pipe installed, backfill installed, backfill compacted by tread or other methods, to density satisfactory to the Engineer, and cap installed if appropriate. The drain shall, in all cases, whether caused by your work in, nearly, parallel, or upstream, remain clear of sediment.
- 3) The required structures for silt control, as determined by the Engineer, shall be put in place to satisfy Paragraph 2 of this Section.

After this, if required by drain bottom conditions (see Paragraph 4 below) apply drain crossing concrete. After Application of concrete, apply re-vegetation measures to the drain crossing (see other sections of these specifications). If you do not have the ability to complete these operations within a twenty-four (24) hour period, **DO NOT BID THIS PROJECT.**

- 4) All drain crossings as noted on plans shall have a minimum cover of 36" as measured from the original channel floor. Bedding shall be the same as that for "open areas" shown on the "Standard" sheet with the following exceptions:
 - A. Begin at 6" above pipe and refill with removed material.
 - B. 6" from original channel floor apply Class "C" concrete flush to top of rock.

If channel floor is not of a rocky nature, then this requirement may be waived at the discretion of the Engineer.

30. SIMPLEX GRINDER LIFT STATION

Scope

Provide all labor, materials, and all else required for the complete setup and installation of simplex grinder lift stations in the locations as shown on the plans. This work shall include connection of the existing sewer service lateral to the existing structure and the provision of electrical power to each individual station. The work shall also include coordination between the Homeowner, Owner, and Contractor for the suitable location of each station including the requirement that the station be filled by gravity from the existing residence.

The final connection between the station and the existing service lateral shall be completed by a Plumber licensed in Kentucky, and this plumber shall be required to obtain any necessary permit/s for this work.

The drawings show general details for the required electrical work completed by the Contractor. All of this work shall be completed by an Electrician licensed for this work in the State of Kentucky. All work shall comply fully with the National Electric Code (NEC), State Building Code, and any Local Codes for electrical work. The electrician shall coordinate his efforts with the local power company (American Electric Power) and the homeowner for minimal disruption of electrical service, entry into the home (see drawings), and any other matters which may arise.

Pumps

Pump Model – Pump shall be of the centrifugal type or progressing cavity, (High Head), with an integrally built-in grinder unit and submersible type motor. Pump and motor assembly shall be FM3615 listed for Class 1, Division 1, Groups C & D hazardous location service.

Operating Conditions – The pump shall have a minimum capacity of 10 GPM at a total head of 105 feet, 15 GPM at 90 feet, shutoff head of 130', and shall use a motor rated at 2 HP and 3450 RPM. The grinder unit shall be capable of macerating all material in normal residential and commercial sewage, including reasonable amounts of foreign objects such as sanitary napkins, disposable diapers, thin rubber, small wood, plastic and the like to a fine slurry that will easily pass through the pump and 1-1/4" NPT discharge.

Construction – Major pump components shall be of gray cast iron, ASTM A-48, Class 30, with smooth surfaces devoid of blowholes or other irregularities. All exposed fasteners shall be 304 stainless steel. All metal surfaces coming into contact with the pumpage, other than stainless steel, shall be protected by a factory applied spray coating of primer and an air-dry enamel paint finish to the exterior of the pump.

Sealing design shall incorporate metal-to-metal contact between machined surfaces. Critical mating surfaces where watertight sealing is required shall be machined and fitted with O-rings, designed and constructed to meet FM3615 for Class 1, Division 1, Groups C & D standards. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides (rabbet joint construction) without the requirement of a specific torque limit. **No secondary sealing compounds, elliptical O-rings, grease or other devices shall be used.**

Pump Impeller – Pump impeller shall be ductile iron and threaded onto a stainless steel shaft. The impeller shall be of the recessed vortex type to provide an unobstructed passage through the volute for the ground solids. Impeller must be dynamically balanced to specification ISO 1940G 6.3 standard.

Grinder Construction – Both grinder impeller and shredding ring shall be of 440C stainless steel hardened to 56-60 Rockwell C. The grinder assembly shall consist of a grinder impeller and shredding ring mounted directly below the volute passage. The grinder impeller is threaded to a stainless steel shaft, locked with a screw and washer. The shredding ring shall be bolted into the cast iron volute for easy removal. All grinding of solids shall be from the action of the grinder impeller against the shredding ring. There shall be 16,600 cuts / second.

Seals – Type 21, domestic manufactured, dual mechanical seal construction mounted in tandem, shall protect the motor. Standard construction of primary seal shall be silicon / carbide. Standard construction of secondary seal shall be silicon / carbide. The seal face shall be lapped to a flatness of one light band. An electrode shall be mounted in the seal chamber to detect water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control box. This signal shall not stop the motor, but shall act as a warning only, indicating service is required. Lip seal arrangements shall not be considered equal.

Motor – The pump motor shall be of the submersible type, rated 2 HP, 3450 RPM. The motor shall be for 60 Hz, either 208 or 230 volt, single-phase operation. Three-phase operation shall be 208, 230 or 460 volt. Single-phase motors shall be capacitor start, capacitor run type for high starting torque. Start and run capacitors, and electronic starting relay for operating the motor will be found in the control box. Major motor operating temperature must not exceed Class B ratings.

The stator winding shall be of the open type with Class F insulation. The stator shall be pressed into the cast iron motor housing. Winding housing shall be filled with clean, high dielectric oil that lubricates bearings and seals, transferring heat from windings and rotor to the outer cast housing. Maximum

skin temperature of motor assembly shall not exceed a T-4 rating per FM3615 standards. Any motor assembly T-code per FM3615 standard that exceeds a T-4 rating shall not be considered equal.

Air-filled motors, which do not have the superior heat dissipating capabilities of oil-filled motors, shall not be considered equal.

Single-phase motors shall have automatic reset overload protection attached to the top end of the motor windings to stop the motor if the motor winding temperature reaches 130 degrees C. The high temperature shut-off will cause the pump to cease operation, should a control failure cause the pump to run in a dry wet well. The overload shall automatically reset when the motor cools to a safe operating temperature.

Bearings / Shaft - The motor shall have two heavy-duty ball bearings and one sleeve bearing to support the pump shaft, taking radial and thrust loadings. Sleeve bearing shall act as flame path for seal chamber. Ball bearings shall be designed for a minimum 50,000 hours B-10 life. The common motor pump and grinder shaft shall be of 416 SST, threaded to take the pump and grinder impeller.

Power Cord – The motor power cord shall be 12 Ga. Type SOOW, UL listed, CSA approved cable. The cable jacket shall be sealed at the motor entrance by means of an agency-approved rubber compression washer and compression nut. An epoxy-filled cord cap seals the outer cable jacket and individual leads to prevent water from entering the motor housing. Compression fittings with molded pins shall not be considered equal. Cord shall withstand a pull strain to meet FM requirements.

Basin

Standard Basin diameter and depth are shown on the drawings. The basin shall have the ability to be extended by as much as 2'-0" if required by site conditions and/or depth of lateral. Contractor shall probe and discover depth of existing lateral prior to ordering grinder vault (see drawings for req. ht. above floor for inlet pipe). Basin shall be made from a fiberglass reinforced polyester resin. Resins used shall be of commercial grade polyester and shall be evaluated as a laminate test or determined by previous service to be acceptable for the intended environment. The reinforcing material shall be a commercial grade of glass fiber having a coupling agent to provide a suitable bond between the glass reinforcement and the resin. The manufacturer may supply either (continuous strand, chopped-strand, continuous mat and/or non-continuous mat) or (non-continuous glass strands having fiber lengths from 0.5 to 2.0 inches). The completed material shall be inert and acceptable to the environment. The basin shall be water-tight.

Inner Surface -The inner surface shall be smooth and resin rich, free of

cracks, exposed fibers, porosity and crazing.

Exterior Surface – The exterior surface shall be relatively smooth with no exposed fibers or sharp projections . If a pigment is added, color should be relatively equal throughout. Foreign inclusions, dry spots, pinholes or pits, delaminations, large dimples not meeting thickness requirements, and air bubbles are not acceptable.

Tank Wall – Wall thickness shall vary with the basin height to provide the aggregate strength necessary to meet the tensile and flexural physical properties requirements. The basin wall laminate must be designed to withstand wall collapse or buckling based on:

- a. Wall thickness
- b. Hydrostatic pressure
- c. Saturated soil weight
- d. Soil Modulus
- e. Pipe stiffness values as specified (ASTM D3753)
- f. Tank wall laminate must be constructed to withstand or exceed (2) two times the actual imposed loading on any depth of basin .

Tank Bottom – The basin bottom shall be of sufficient thickness to withstand applicable hydrostatic uplift pressure . In saturated conditions, the center deflection of the empty basin bottom shall be less than 3/8" (elastic deflection) and shall not interfere with bottom pump mounting requirements. Any mounting studs, plates, or cap screws in tank bottom shall be stainless steel and resin covered except for threads. Any inserts shall be stainless steel or brass and resin covered except for threads.

Tank Collar (Anti-Flotation) – A means to counteract buoyancy forces shall be provided on the tank bottom in the form of a ring, and shall extend a minimum of 2" beyond the O. D. of the basin wall. Wall and collar should be blended with a radius not to exceed 1 W' beyond wall O.D.

Top Flange – The top flange shall be parallel to the tank bottom/collar and perpendicular to the tank wall. Corrosion resistant inserts shall be embedded in the top flange for securing the basin cover. The inserts shall be totally encapsulated to prevent turning (minimum turning torque shall not be less than 30 foot/lbs.) pullout.

Basin Cover- A one piece, solid fiberglass 30" dia. cover shall be provided for each installation. The cover shall be constructed with a minimum thickness of 3/8". The cover shall be grass green in color. The cover surface

shall have a non-skid design, and shall be water-tight. Cover shall be bolted to the basin with stainless steel cap screws. All 30" diameter basin covers are designed for "light duty" loading. Design of cover allows for basin to be mounted flush with ground.

Piping- Discharge piping shall be 1-1/4" PVC Schedule 80 and shall connect to the stationary discharge base assembly and terminate at a 1-1/4" NPT stainless steel flange (with a reducing bushing) mounted on the basin at the height shown in the plans.

Check Valve- The lift-out check valve shall be of the ball type with a corrosion resistant neoprene ball. The ball shall be the only moving part and shall move automatically out of the path of flow, thus providing an unobstructed smooth flow through the valve body. Upon pump shut-off the ball shall automatically roll to the closed position to provide a positive seal against back pressure or back flow.

Shutoff Valve- The schedule 80 PVC true union ball type shutoff valve shall be furnished and installed as an integral part of the internal pipe assembly. If the discharge depth is more than 2 feet from the surface, a stainless steel handle extension shall be supplied. Handle is attached to the valve stem and is supported near the top of basin within reach for service personnel.

Anti-Siphon Valve- The basin assembly shall include a PVC riser pipe for acceptance of an anti-siphon valve which may be factory installed or field installed. The riser pipe shall extend from the pump discharge between the check valve and the ball valve to within two feet of the surface of the basin. The riser shall be capped. An anti-siphon valve kit shall be supplied to easily assemble to the riser pipe. The valve assembly shall include all materials required to complete the assembly. The anti-siphon valve shall mount horizontally, shall be made of PVC and will not interfere with pump removal and installation.

Inlet Flange- One-piece, flexible basin inlet fittings for 4" SCH 40 plastic pipe shall be shipped loose for field installation as required. Available optional fittings shall include:

- A. 6" SCH40
- B. 6" SDR35

And shall be used if required by site conditions for varying inlet piping sizes and types.

Junction Box - A U.L. listed, Type 6 junction box shall be provided. Junction box shall be formed from corrosion resistant, flame retardant thermoplastic. The enclosure shall be of adequate thickness and properly reinforced to provide good mechanical strength. The junction box shall have

a fully gasketed, hinged cover that is held in place by four (4) stainless steel screws. The hinged cover shall prevent dropping the cover into the basin during service. An adequate number of sealing-type cord grips shall be supplied for incoming pump and level control cords. The cord grips shall be made of non-corrosive material such as PVC or nylon, and shall make an effective seal around the wire jacket. The junction box shall have a PVC solvent weld socket with an integral 2" NPT pipe for attaching basin conduit hub. The hub shall be made of a corrosion resistant material and shall be of adequate size to accommodate the number of wires required for pump and level control operation. The incoming wires shall be sealed by external means, so that condensation from the conduit or groundwater will not enter the enclosure. The interior of the enclosure shall be of adequate size to accommodate the wires and connections for pump and level control operation. The wires running between the control panel and the junction box shall be color-coded and fastened to the pump and level controls by means of adequately sized and insulated twist lock or crimp connectors. This junction box shall function as a vent for the grinder station. Submit to Engineer details of this junction box and conduit connections to it.

Electrical Control Panel And Appurtenances

Simplex Weather Proof Controller- with Alarm and shall be relay logic. Panels utilizing printed circuit boards are not considered equal because of the inability to troubleshoot control issues. A complete wiring diagram and installation instructions will be provided. The control panel assembly shall be completely factory tested and shall be "UL" 508A listed and labeled. The control panel must be manufactured by the pump supplier. A Hand-Off-Auto switch shall be provided for and mounted for convenient control of the pump state. In the "Auto" position, the level control circuit will control the pump. In the "Hand" position, the pump will be turned on, and in the "Off" position the pump will be disabled from running. The TEST/SILENCE pushbutton shall be of momentary contact design and be accessible on outside of control box. The motor contactor shall be an 18 amp. heavy duty I.E.C. rated contactor. It shall provide the electrical start stop control for the pump along with an integral overload protection and have 120 volt operating coil.

Control Panel Factory Tests -Each control panel shall receive a factory test to ensure proper operation prior to shipment. Factory Tests shall include at a minimum.

All control logic functions, including: turn on, turn off, alarms, etc.

1.3.2.4.All fuses and circuit breakers

All indicator lights and switches 1.3.2.6. Audible and visual alarm indicators Power transfer circuit to pump motor
Float switch input circuits (for float operated models) The panel shall be tested for proper motor starting and running operation

Enclosure- Durable NEMA 4X Enclosure, made from a poly carbonate material or fiberglass and intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose directed water; undamaged by the formation of ice on the enclosure. The resin system also shall include a flame retardant to obtain a flammability rating which meets U.L. 94V-O. Heat distribution temperature shall be 350 degrees Fahrenheit. The resin system shall be resistant to ultraviolet light. Provide hinged door with standard lockable stainless steel latches, for safe operation indoor and outdoor.

Alarms Indicators-

Visual Alarm Circuitry – A top mounted high intensity flashing red light with various flashing modes depending on alarm condition.

Audible Alarm Circuitry – Audible piezo alarm, +/- 95 db within 2 feet, with a bottom mounted push to silence button and circuitry as a standard feature.

Seal Failure Indication – The control panel shall provide a means for connecting the seal failure probe(s) from the pump. The control panel shall incorporate a seal failure warning light that provides a visual indication of moisture entry into the motor. The seal failure indication light shall not stop the pump.

Circuit Breakers- The 120 Volt common control circuit shall be protected by an auxiliary single (1) pole circuit breaker. Breaker shall be rated 10,000 Amps interrupt current. The pump breakers shall be thermal magnetic trip devices and provide for individual motor disconnect and overload short circuit protection as required by the NEC rating for motor branch circuit protection. Breaker shall be rated 10,000 Amps interrupt current. The voltage rating shall match that of the panel incoming service.

Elapsed Time Meter- An E.T.M. shall be provided to record the actual running time of the motor. The E.T.M. shall be energized by an auxiliary contact from the motor starter or contactor and be wired in parallel with the pump run light. The E.T.M. shall have a maximum reading of 99,999.99 hours. The E.T.M. shall be non-resettable.

Cycle Counter- A cycle counter shall be provided to show the number of cycles (starts) of the pump. The counter shall be energized by an auxiliary contact from the motor starter or contactor and be wired in parallel with the pump run light. The counter shall have a maximum reading of 999,999 cycles (starts). The counter shall be non-resettable.

Auxillary Dry Contact (not used)

Level Controls

Float Switch Control Operation- the control panel shall provide terminal strip inputs for: pump off, pump on, and alarm float controls.

Float Controls- simplex control panel operation shall be automatically controlled by 3 mercury level controls. Float switches shall control off, on and alarm functions. Float switch shall be capable of operating at temperatures between 32 and 170 degrees F. Float switches shall activate and deactivate between 5 degrees above horizontal and 5 degrees below horizontal. Float switch shall be constructed with a polypropylene outer shell for durability and resistance to wastewater environment. Outer shell shall be filled with polyurethane foamed interior to provide best buoyancy, water tight integrity and protect the mercury switch. Float switches shall be of normally open type. Float switch cables shall be made of chlorinated polyethylene, type SJOOW, 18 AWG, 2-wire type. Float switch contacts and shall be capable of handling 10 amps at 115 VAC or 3 amps at 240 VAC. Float switch shall be third party safety listed by UL, and shall be capable of operating intrinsic safe relays. Float switches shall have an external zinc plated cast iron weight. Weight shall be of the split design and shall be easily adjustable for tether length. Float switch weights made of heavy metals which may contaminate the waste flow stream shall not be acceptable.

Redundant Off Circuitry (Not used)

Execution

Start-Up Instruction Services- The pump supplier and/or manufactures rep. shall provide two (2) days of start-up instruction and training for the service personnel responsible for the long term maintenance and servicing of the grinder pumping system. The training shall address all aspects of installation, start-up, troubleshooting, operation, maintenance, and repair of the grinder units including all electrical components. The training sessions shall include complete review of installation, operation and maintenance manuals, as well as actual field instruction. The Training sessions shall be coordinated with the pump manufacturer, engineer and the authority's personnel. The training

sessions shall be scheduled two (2) weeks in advance to allow for adequate notification to all parties involved in the start-up and training. The contractor shall make certain that all the grinder pumps systems are ready for start up/activation prior to the notification and scheduling of such. Prior to the arrival of the manufacturer's representative, the contractor is required to have the cover to the grinder pump station unbolted and ready for removal. Contractor shall provide a minimum of 70 gallons of water supplied into the basin for start-up procedures. Power will be supplied to the control panel and grinder pump system. Upon completion of start-up testing, the Contractor shall replace the cover to the grinder pump system and fasten securely to prevent any water infiltration. Contractor shall be responsible for any personnel and/or material necessary for the manufacturer's representative to complete the start-up and testing phase of the project, including, but not limited to, water source at each station, labor personnel to remove and replace cover, etc.

Quality Assurance

The grinder pump shall have an industry standard commercial test which consists of a run test, Hi Pot test, hermetic leak decay test, Panel Test, Basin Test, & Manufacture must have a Quality Assurance Manual.

The equipment manufacturer shall warrant for a period not to exceed sixty-five (65) months from delivery, or a period of sixty (60) months after successful startup, whichever is less, that all equipment is free from defects in workmanship and material, and that the equipment performs as specified and is not defective. Any component that fails to perform as stated herein shall be repaired or replaced at the manufacturers discretion.

Delivery, Storage and Handling

2.1.1. The manufacturer shall furnish and deliver assembled grinder pump stations to the Contractor. Simplex units, containing one grinder pump and all necessary parts and equipment, shall be installed in fiberglass reinforced polyester tanks for outside installations. All equipment shall be factory installed, except for externally mounted control panel, gravity sewer inlet hubs and pump assembly, which are to be installed in the field. Each simplex grinder pump unit shall be complete, consisting of a basin, basin cover, grinder pump, quick disconnect rail system, check valve, junction box, start-stop level controls, motor high temperature shutoff, motor seal leak alarm, high water alarm, pump motor failure, alarm loss of power, all internal wiring terminating into the junction box, shutoff valve and discharge piping. In addition, an external alarm and pump control panel is to be provided for the unit. All tanks 96" tall and shorter shall ship vertically up right. The tanks shall ship with the covers

bolted and attached.

All packaged tank assemblies will include all the necessary equipment to make a complete turnkey system ready for installation except the grinder pump and control panel. For ease of handling and storage, grinder pump and control panel shall ship mounted on wooden pallet. Upon receipt of packaged tank assemblies, the Contractor will visually inspect to make certain the freight carrier has successfully transported the equipment with no damage. It is the responsibility of the Contractor to reject any or all damaged equipment prior to signing the delivery slip. Handling and unloading the basin assemblies shall be the responsibility of the Contractor. The basin assemblies, grinder pumps and control panels will be stored in a controlled environment to prevent weather conditions from damaging equipment.

The pump supplier shall provide four (4) copies of Installation , Operations and Maintenance Manuals to the Owner.

31. SURVEY REQUIREMENTS:

The Contractor is responsible for having the proper equipment and personnel adequately skilled and trained to perform all survey requirements. The Contractor is responsible for re-establishing, and establishing, all noted elevations. The Contractor is also responsible for establishing all horizontal locations throughout the project. The Contractor is responsible for comparison of horizontal and vertical location with that planned by running from established bench marks. The Contractor shall report any difference found between that planned and his established horizontal and vertical location to the Engineer. The Contractor is responsible for determining any gross grade conflicts before he begins any line segment.

32. PVC PIPE FOR WATER - CLASS 250:

All Waterline designated as PVC shall be PVC type pressure pipe designed ASTM Class 250 of the Integral Bell Joint type. The pipe shall conform to ASTM 2241 for Standard Dimension Ratios, SDR 17 for pressure characteristics. The pipe shall be extruded from clean, virgin, approved class 12454-A PVC compound conforming to ASTM resin Specification D1784. Rubber rings shall conform to ASTM D 1869. This pipe shall be CertainTeed Fluid-Tite PVC Pressure pipe or approved equal. Laying radius of pipe shall in all cases be equal to, or greater than, that listed by the manufacturer of the pipe. All tees, elbows, and bends shall be Mechanical Joint unless noted on the Plans. All mechanical joint fittings shall be equipped with grip rings.

33. DUCTILE IRON PIPE FOR WATER:

All pipe designated as ductile iron shall be of Grade 60-42-10 material meeting AWWA

C151 Minimum physical properties. Thickness of the pipe shall be determined in accordance with ANSI/AWWA C150/A21.50 and shall be Type 4 Bedding Condition except in high traffic areas where Type 5 Bedding shall be used; all pipe 12" and smaller shall be Pressure Class 350 with the exception of 4" and 3" which shall be thickness Class 51. 16" diameter pipe shall be Pressure Class 300. Joints shall meet the requirements of AWWA C111 for Fastite Joint Pipe ANSI/AWWA C151.51 and Mechanical Joint ANSI/AWWA C111/A21.11. Pipe shall be equal to that manufactured by the U. S. Pipe Company or approved equal. All tees, elbows, and bends shall be Mechanical Joint. All mechanical joint fittings shall be equipped with grip rings, or in the case of 16" pipe retainer glands. The exterior of the pipe shall be furnished with an asphaltic coating. Installation shall be as recommended by the manufacturer in their printed manual. Pulling devices and tie-in devices shall be that normally furnished by the manufacturer for this type of installation. Where ductile iron pipe is being used to cross areas which may be contaminated with gasoline or gasoline type substances (these areas clearly shown on the plan), the Contractor shall use gasket material recommended by the pipe manufacturer as being impervious or highly resistive to degradation from gasoline type chemicals. Nitrile Rubber Gaskets are satisfactory. Pipe which is noted as D.I.M.J. shall be ductile iron, mechanical joints. Where the Plans designate 3" ductile iron pipe, except where 3" ductile iron pipe is designated within the Pay Limits of Booster or Pressure Stations, may substitute, at his convenience, 4" ductile iron pipe. The Unit Price shall be the same regardless. Should the Contractor elect to use 4" D.I. vs 3" D.I., any associated valve or fitting shall be paid at the 3" Unit Price.

34. POLYETHYLENE (PE) PIPE (WATER):

See this same section under the sanitary sewer portion. Same specification with exception of use of marking tape.

35. VALVES (WATER & SANITARY SEWER):

All valves must be of ductile iron with bronze mountings, unless otherwise specified. Only makers of well-known and approved standings who have been making similar devices for a period of at least ten (10) years, prior to the bid date, will be considered. Also, maker shall be prepared to furnish through the bidder, within one (1) week after award is made, complete catalogues or other descriptive matter giving complete details and dimensions of valves they proposed to furnish.

All valves shall be provided with suitable operating devices and adapted for operation in the position in which they are shown on the plans. All screw operated valves shall open by turning to the left.

All valves shall have mechanical joints both ends (unless noted on the Plans) and shall conform to A.W.W.A Specifications D-150, N.R.S. complying to A.W.W.A. C222 and ANSI A21.11.

All 4" through 12" Gate valves shall be resilient seat Gate valves, 250 psi max working pressure, 400 psi test pressure, Mueller A-2370-20, or approved equal. 3" and smaller Gate valves shall be double disc, parallel seat, bronze faces and disc rings with wedging mechanism simple and direct, Mueller A-2380-20, or approved equal. 1", 1-1/4", and 1-1/2" Gate valves shall be Mueller H-10914, bronze Gate valve with solid wedge and F.I.P. thread with appropriate fittings and hand wheel. All valves shall conform to the latest revision of "Specifications for Gate Valves for Ordinary Water Works Service," adopted by A.W.W.A.

36. VALVES, 14" & LARGER:

All valves 14" and larger shall be Butterfly Valves. Valves shall be manufactured in accordance with the latest revision of AWWA C504, Class 150B, and conformed to NSF Standard 61. All butterfly valves for waterline service shall be Mechanical Joint (MJ) unless noted otherwise. Valve body shall be ASTM A126, Class B Cast Iron. Valve seat shall be rubber. Valve bearings shall be self lubricating non metallic material to effectively isolate the disc-shaft assembly from the valve body. The valve disc shall be designed to afford minimal pressure drop and line turbulence. The valve disc shall be constructed of ASTM A126, Class B Cast Iron with a stainless steel type 316 edge. The valve shaft shall of stainless steel Type 304. The valve shall be equipped with an operating nut manual actuator and shall be designed to hold the valve in any intermediate position between fully opened and fully closed without creeping or fluttering. Actuator shall be equipped with devices to prevent over travel of the disc in the open and closed positions. The valve shall be designed for a working pressure of 150 psi. The valve shall be a Mueller Line Seal III, Pratt 2MII, or Engineer approved equal. The Contractor is responsible for determining any clearance issues associated with the installation of these Butterfly Valves.

37. VALVE BOXES:

Valve Boxes for 1" through eight (8") inch valves shall be telescope type with screw top, of extension length suitable for the cover/s noted on the plans. Ten (10") inch and twelve (12") inch valve boxes shall have an extension length ranging from eighteen (18") inches to twenty-four (24") inches. These minimum valve box lengths redefine depth of cover over pipe at valve locations. These requirements shall be maintained. Pieces of scrap PVC or ductile iron pipe with lid installed **shall not** be acceptable. Valve boxes shall be Tyler 461-S for ten (10") inch and twelve (12") inch valves, Tyler 562-S for one (1") inch through eight (8") inch valves and for 16" valves, or approved equal. All valve boxes shall have a minimum inside diameter of 4-1/4" for intersection with an arc base. **In high traffic areas only** all valve box lids shall be cast iron and manufactured by the same firm as the box and marked WATER. **In all other areas**, use plastic lid manufactured by Bingham & Taylor, NCUL5LWRDLT with locking tab, H20 load rated, or approved equal. All valve boxes shall have installed a valve box collar similar in all respects to the Cloud Company U-235 Valve Retainer Ring, alternate as shown on the detail sheet, or approved equal.

38. TYPE I, 3" BLOW-OFF:

Type I, 3" Blow-off's shall be self-draining, non-freeze, compression type with 2-1/4" main valve opening. Inlet connection shall be 3" Mechanical Joint. Outlet size shall be 2-1/2" NST. Blow-offs shall have cast iron box, locking lid, and 3" Ductile Iron Riser Pipe. Principal operating parts shall be Brass and be removable from the blow-off for servicing without excavation. Blow-offs shall be set in four cubic feet min. of crushed stone to allow for proper drainage. The blow-off shall be M&H Style 333 Flush Type, or approved equal.

39. TYPE II, 3" BLOW-OFF:

Type II, 3" Blow-off's shall be self-draining, non-freeze, compression type with 2-1/4" main valve opening. Inlet connection shall be 3" Mechanical Joint. Outlet size shall be 2-1/2" NST. Blow-offs shall have 3" Ductile Iron Riser Pipe. Principal operating parts shall be Brass and be removable from the blow-off for servicing without excavation. Blow-offs shall be set in four cubic feet min. of crushed stone to allow for proper drainage. The blow-off shall be M&H Style 33 Post Type, or approved equal. No pay difference for the blow-off will be made where incoming line is smaller than 3". Any valve used will be paid as a separate unit price item.

40. WATER AIR RELEASE VALVES:

Air Release Valves shall be simple lever, float operated. The body and cover shall be cast iron. The float shall be stainless steel with bronze linkage. All connection sizes shall be as shown on the Plans. The air relief valve shall be so designed as to operate at a pressure of 150 psi. The maximum venting capacity shall be 22 cubic feet of free air per minute. The valve shall be Valmatic 15A, or approved equal. The valves shall be rigidly installed within the box as detailed on the drawings or as recommended by the Valve Manufacturer.

41. WATER ARV BOX AND COVER:

All ARV's shall be installed within a circular plastic meter box of nominal 18"x30" interior dimensions. The properties of the box shall be equal to Mid-States Meter MS 183010. The cover shall be Ford, Type C, appropriately sized, or approved equal.

42. SMALL RIVER TEST STATION:

Small river test stations shall be installed where shown on the Drawings. Where undesignated test stations are shown, they shall be "small" river test stations. Detail for the small test station is shown on Sheet U22 of the Drawings. This river test station consists only of the materials herein specified. The valve, 3/4" service line, and other items necessary are paid at your bid unit price for those items. The river test station consists of a standard meter box and cover as previously specified. Additionally, use the specified standard copper setter with dual check valve feature replaced with extra Angle Valve and

being sized for 5/8" x 3/4". Unit shall be copper. Service saddle shall be 3/4" bronze, same as previously specified for standard meter sets. Corp. Stop to be 3/4", same as previously specified for standard meter sets. The meter shall be Badger RecordAll, Model No. M25, equipped w/ radio read as previously specified, suitable for a maximum continuous flow rate of 25 gpm. All the above materials shall be as specified or approved equal.

43. CAPS OR PLUGS, 2" THROUGH 12":

Where designated on Plans, Mechanical Joint Caps or Plugs, size 2" through 12" shall be installed. These caps shall be equipped with grip rings. No unit price difference will be made between any size or whether a cap or plug.

44. HYDRANT REMOVAL:

At the location/s indicated on the Plans the Contractor shall be required to remove existing fire hydrants. In all instances, the Contractor shall cut the feeder line between the valve and the hydrant so to not disturb the existing line. Additional blocking or bracing may be necessary to keep the branch line valve from kicking off its line after the hydrant is removed. The City of Hazard may desire the hydrant body, contact before removal. The hydrants shall not be removed in any manner which would disturb the branch or main line.

45. REMOVE/RELOCATE HYDRANT:

At the location/s indicated on the Plans the Contractor shall be required to remove existing fire hydrant/s. In all instances, the Contractor shall cut the feeder line between the valve and the hydrant so to not disturb the existing line. Additional blocking or bracing may be necessary to keep the branch line valve from kicking off its line after the hydrant is removed. The hydrant/s shall not be removed in any manner which would disturb the branch or main line. When appropriate, the hydrant/s shall be re-installed where indicated on the plans

46. ALL WATER TIES COMPLETE:

The drawings indicate where tie-ins to existing waterlines are to be made, and should give an indication of the work and materials involved to make the same. These ties are listed below. On this form below, the Contractor should insert a Price for each tie, sum, and show the **average Bid Unit Price** in his Bid Proposal as KYTC requires that these items be bid as "each":

Tie #1, 16" 45° Ell at exist. Fitting	\$ _____
Tie #2, 8" MJ Tee, 8x4 Reducer, tie to 8"	\$ _____
Tie #3, 4x3 Tapping Sleeve & 3" Tapping Vlv., 4x3 Reducer, Cap 4"	\$ _____
Tie #4, Tie to 8", fittings as req.	\$ _____
Tie #5, 12x10 Tapping Sleeve & 10" Tapping Vlv.,	\$ _____

Cap 12"	\$ _____
Tie #6, 8x8 Tapping Sleeve & 8" Tapping Vlv., Cap 8"	\$ _____
Tie #7, Tie to 3", place 3" Cap"	\$ _____
Tie #8, Tie to 4", fittings as req.	\$ _____
Tie #9, Tie to 4", fittings as req.	\$ _____
Tie #10, Tie to 6", fittings as req.	\$ _____
Tie #11, 4x4 Tapping Sleeve & 4" Tapping Vlv., Cap 4"	\$ _____
Tie #12, Tie to 4", fittings as req.	\$ _____
Tie #13, 8x8 Tapping Sleeve & 8" Tapping Vlv., Cap 8"	\$ _____
Tie #14, 6x6 Tapping Sleeve & 6" Tapping Vlv., Cap 6"	\$ _____
Tie #15, 4x4 Tapping Sleeve & 4" Tapping Vlv., Cap 4"	\$ _____
Tie #16, 8x8 Tapping Sleeve & 8" Tapping Vlv., Cap 8"	\$ _____
Tie #17, 8x8 Tapping Sleeve & 8" Tapping Vlv., Cap 8"	\$ _____
Tie #18, Tie to 8", fittings as req.	\$ _____
Tie #19, 1" Serv. Saddle in 8" line	\$ _____
Tie #20, Tie to 1", fittings as req.	\$ _____
Tie #21, 8x8 Tapping Sleeve & 8" Tapping Vlv., Cap 8"	\$ _____
Tie #22, Tie to 1", fittings as req.	\$ _____
Tie #22a, Tie to 3/4", fittings as req.	\$ _____
Tie #23, Tie to 4", 4" cap, other fittings as req.	\$ _____
Tie #24, Tie to 2", fittings as req.	\$ _____
Tie #25, 8x8 Tapping Sleeve & 8" Tapping Vlv., Cap 8"	\$ _____

TOTAL \$ _____

TOTAL (from above) divided by twenty six (26) equals average Unit Bid Price for this work. Insert this average Unit Bid Price in your KYTC proposal.

After Award, the Contractor shall provide this price listing to KYTC for billing purposes.

47. SERVICE BORE:

At the location/s shown on the Drawings, the Contractor shall construct service bores under roadway or other structures as indicated. All service bores shall be completed using equipment specifically designed for this work. Pay length for service Bores is edge of structure (edge of road, etc.) to edge of structure.

48. TRAFFIC CAPABLE VAULT:

At locations where master meters require installation in a high traffic area, this vault type shall be used. The vault shall consist of a Oldcastle Concrete (or equal) 3'0" I.D. barrel section with a pre-capped 3' top slab. Inside this top slab shall be a precast NEEHAN R-6041 cover and frame with tamper proof bolts marked "WATER". The vault shall be H20 load rated. When this vault type is used, it should reflect that this is a "net cost", meaning that the standard vault (as specified below) will not be used.

49. TAPPING SLEEVES & TAPPING VALVES:

All "wrap around" sleeves shall be stainless steel equipped with 304 L stainless steel outlet flange and shall be Mueller H-304SS, Cascade Extra Heavy, or Engineer's approval equal.

All "wrap around" sleeves shall be rated for 250 psi working pressure. All "wrap around" sleeves shall be the longest laying length of any model and size offered by a particular manufacturer in their standard production line.

All tapping valves 12" and smaller shall be Mueller T-2360, flanged x M.J., equipped with grip ring on the M.J. end., or Engineer's approval equal. All tapping valves 14" and larger shall be Mueller T-2361, flanged by M.J., equipped with grip ring on the M.J. end. All tapping valves shall have a rated working pressure of 250 psi minimum.

50. MAG METERS:

Electromagnetic meters shall be installed where indicated on the Plans. Mag Meters are shown on the Bid Form as, for example, 4" in 6". What this means is the use of a 4" mag meter placed within 6" piping. The mag meter sizes used range from 3" thru 6" with pipe sizes ranging from 4" thru 8". The Bid Unit Cost shall include the concentric reducers, spool pieces, and other items as indicated on the Drawings. The Bid Unit Price for the mag meters shall also include the exterior enclosure as detailed on the Plans, and all attendant conduiting. Also included in the mag meter placement is the 36" dia. plastic vault, 36" extension ring (Ford or equal), and standard meter cover with frame for 20" tile size. The meter cover shall be the same as that previously specified for ARV covers. The 36" plastic vault shall have the same material properties as the ARV box previously specified. The Contractor should note that when the Traffic Capable Vault is used, the Unit Price for that item should reflect a "net cost" meaning that the plastic vault will not be provided. **Valves and boxes are excluded from this item bid unit cost**, and will be paid at their own bid unit cost.

The mag meter shall be a Badger M-5000 using battery power, or Engineer approved equal. If the Drawings show a circled "P" this indicates that an exterior enclosure mounting will be provided with attendant battery power and use of the Badger M-5000. As indicated on the Drawings the meter shall be equipped with a junction box for remote amplifier. All mag meters shall be submersible NEMA 6P rated. All mag meters shall be equipped with stainless steel grounding rings and any additional grounding that

may be recommended by the manufacturer. The meter shall be capable of plus or minus 0.50% accuracy independent of fluid viscosity, density, and temperature. The mag meter shall be fully capable of communication with Badger Orion Radio Read Equipment as shown. The remote amplifier shall be installed in an FRP 4X lockable enclosure for exterior mountings.

51. PRESSURE REDUCING VALVE VAULTS:

Pressure Reducing Valves - The pressure reducing valves shall maintain a constant preset downstream pressure, regardless of changing pressure and/or flow rates. The large pressure reducing valves (2) shall consist of a Globe pattern body, hydrodynamically designed with semi-straight flow. The valves shall be diaphragm actuated and provide for drip tight seal.

The large valves shall be equal in all respects to a flanged 6", 4" & 3" Watts 115-7 equipped with optional position indicator and isolation cocks. The smaller PRV's (2) shall also be a Watts 2" or 1.5" 115-7, threaded NPT inlet and outlet. Adjustment range shall be suitable for the inlet and outlet pressures as noted on the Drawings.

Valves - The PRV Stations shall have valves as detailed on the Drawings. Larger valves shall be Mueller a-2361 flanged gate valves, 250 psi max. working pressure. Smaller valves shall be Watts (or equal) threaded ball valves, 300 psi min. working pressure, with lever option, size as indicated on the drawings.

Gauges – Three (3) pressure gauges shall be installed within each PRV vault. The (2) gauges on the upstream side of the PRV (with (1) before the strainer) shall have a 0 - 300 psi range. The single gauge on the discharge side of the PRV shall have a range of 0 - 200 psi. All gauges shall be equal in all respects to Trerice 450 Pressure Gauge with 1/2" brass drain cock. An additional 1/2" drain cock shall be provided and installed as shown on the Drawings. The pressure gauges shall also be equipped with a stainless steel protective diaphragm. The gauges are detailed on the Drawings.

Basket Strainer - A basket strainer with top accessible removable straining element, Mueller Model 155M 6", 4" & 3" Basket Strainer, flanged, with S.S. screen shall be installed.

Access Cover - The access cover required is detailed on the Drawings. The access cover shall be a U.S.F. Fabrication APD 300 Access Door with clear openings as shown on the drawings, heavy duty double leaf construction, stainless steel slam lock, or Approved Equal. The cover shall be equipped with S.S. horizontal spring assists, bituminous paint in areas with concrete contact, and Auto hold open feature.

All larger piping shall be ductile iron, 350 psi, flanged where indicated.

Contractor Responsibilities - Contractor is responsible for verifying all equipment dimensions should he choose to use a precast PRV vault. Vault shall be submitted for approval by the Engineer.

The vault shall be an Oldcastle or equal pre-cast unit, sized per the drawings. The Contractor is free to use a cast-in-place unit but shall submit shop drawings showing details of construction including re-steel if used. The vault shall be equipped with pedestals as shown, fully chamfered & anchored as detailed on the drawings.

Pit Drainage - The PRV pit shall be equipped with a drain pipe as shown on the Drawings. The drain line shall be installed as directed by the Engineer. The end of the drain shall be equipped w/ S.S. bug/vermin screen as detailed on the drawings.

52. SERVICE OR METER RETIES (3/4" & 1" SERVICE CONNECTION):

At the locations indicated on the Plans, and other locations as may become apparent, provide 3/4" and 1" re-connection of existing 3/4" or 1" water meters. Replacement of the meter, meter box, or reading equipment is not included in this bid item. As indicated on the detail given in the plans, when using ductile iron pipe it shall be directly tapped for the appropriate size using AWWA taper. Following this use a Mueller B-25008 ball valve in the tap. This ball valve is equipped with a compression fitting on the discharge side. As indicated on the drawing, thoroughly compact the DGA (if used vs flowable fill) under the tap so no undue stress is placed upon the tap. Service tubing, concrete, pavement and other items necessary to complete this tie will be paid at your bid unit price. No difference in pay will be considered between 3/4" and 1" work.

53. STANDARD METER SETTING EQUIPMENT:

Meter yoke to be Mueller 1404-2 with non-approved Dual Check Valve feature, 7" to 9" riser height with valve for 5/8" x 3/4" meter unit. Unit shall be copper. Service saddle shall be bronze, Mueller Single Strap H-13000 Series. Corp. Stop to be Muller 15008. All the above materials shall be as specified or approved equal.

54. METERS ,STANDARD:

All meters shall be Badger Model 25, or approved equal, with bronze case, suitable for operation with remote meter reading system. Meter shall be designed to permit the use of either a straight reading, environmentally sealed local register and remote reading electronic register. The registration reading shall be US Gallons. The register shall not be in contact with the water being measured. The transmitter/register devices shall be designed to permit removal and exchange without the removal of the meter from the service installation or interruption of service water supply.

The transmitter shall use the most current and up to date battery/s available from the manufacturer as a power source and said battery/s shall be guaranteed for a minimum of ten (20) years from initiation of operation. The transmitter shall be guaranteed for a minimum of twenty (20) years.

This unit shall be capable of providing optional leak detection when no two hour window of no usage within a 24 hour period is detected. It shall also be capable of tamper detection such as a cut wire. The meters and meter reading software shall be fully compatible with the existing City of Hazard meter reading software and hardware and shall be compatible with existing City of Hazard billing software. All meters shall have a production date no earlier than 6 months prior to their installation.

55. 1" WATER METER:

At the location shown on the plans install a new 1" water meter. The meter shall be a Badger RecordAll, Model No. M70, equipped w/ radio read as previously specified, suitable for a maximum continuous flow rate of 70 gpm. The box shall be a standard meter box and cover as previously specified with the exception that a 24" diameter (minimum, larger if recommended by meter Mfg.) box shall be used. Additionally, use the previously specified copper setter and being sized for 1" x 1". Unit shall be copper. Service saddle shall be bronze, same as previously specified for standard meter sets. Corp. Stop to be same as previously specified for standard meter sets. All the above materials shall be as specified or approved equal.

56. REMOVE/RELOCATE WATER METERS:

Sheet U5 of the plans shows two (2) water meters which may have to be removed and then relocated in a nearby location. If this is required, this Bid Item pays for the work associated with this effort.

57. GEOTEXTILE

SCOPE

This work shall consist of furnishing and placing geotextile beneath ditches, around subsurface drains, and/or other applications as directed by the ENGINEER.

MATERIALS

Geotextile used on the project shall be a non-woven, polyester or polypropylene fabric meeting the following minimum physical properties.

Minimum Physical Properties
Geotextile

Property	Value
----------	-------

Burst Strength	300 psi
Grab Strength	160 lbs.
Permeability	3×10^{-1} cm/sec
Apparent Opening Size	0.21 - 0.15

The CONTRACTOR shall submit, for each roll of geotextile material delivered, a certification that the delivered products meet or exceed the values specified in this section, and all supporting data.

INSTALLATION

The surface to receive geotextile and aggregate shall be prepared to a relatively smooth condition free of obstructions, debris, or sharp objects that may puncture the fabric. The fabric shall be placed with long dimension parallel to the flow line and shall be laid smooth and free of tension, stress, folds, wrinkles, or creases. If more than one strip is necessary, the strips shall overlap (longitudinally) a minimum of 24 inches. Transverse overlaps shall be a minimum of 18 inches and shall be placed so the upstream strip overlaps the downstream strip. Fastener pins shall be installed through the midpoint of the lap and at any other locations as necessary to prevent slippage of the geotextile.

The geotextile shall not be exposed to sunlight for a period greater than two weeks. If the fabric is damaged during construction, the torn or punctured section shall be repaired by placing a piece of fabric that is large enough to cover the damaged area and meet the overlap requirement.

The geotextile shall be protected from damage due to the placement of the channel lining by limiting the height of drop of the material to no greater than three (3) feet, or by placing a cushioning layer of sand on top of the fabric before dumping the material, at the CONTRACTOR'S option. Fabric shall not be placed until it can be covered with stone promptly to avoid damage from water, wind, and deterioration from undue exposure. The CONTRACTOR shall demonstrate that the placement technique will not damage the fabric.

MEASUREMENT AND PAYMENT

No payment will be made for the geotextile as it considered incidental to all other items of work.

58. FIELD LOCK GASKETS:

Where indicated on the plans (on both ends of any significant length HDD run) the Contractor shall use joint restraint for push-on joint ductile iron pipe. The field lock gaskets shall be installed at the first three joints of ductile pipe following the transition from PE to D.I. or a minimum length of 54', whichever is longest. The field lock gasket shall be U.S.

Pipe Field Lok Gasket, or Engineer approved equal.

59. LINE & VALVE MARKERS:

At the locations noted on the drawings, line and valve markers shall be placed for both water and sanitary sewer. The markers shall be Carsonite Composites CRM3-066-08 (blue) with white graphics for water, and CRM3-066-01 (white) with green graphics for sanitary sewer, or Engineer approved equal. All markers shall be equipped with optional anchor barb.

60. ONE YEAR GUARANTEE:

The Contractor, and through him each subcontractor, in accepting the Contract for this construction, or respective portions of the construction covered by these Plans and Specifications, does hereby agree to replace and make good, without expense to the KYTC, any work or material which may be found to be defective within one year from the date of the final certificate of payment to said Contractor. The deterioration due to ordinary use and wear and failure of materials furnished by the Owner (or KYTC) are excepted from this guarantee.

This guarantee shall include damage done by settlement of backfills and filling regrade elevations, such damage and sinking of fills being considered as defective workmanship. This shall also included paint failure.

The Contractor shall reimburse the Owner for cost of damage, if any, as well as cost of replacing defective materials or workmanship. If replacements are not made within ten (10) days in case of materials, then Owner may make replacements and charge cost of same to the Contractor or his bondsman.

The Contractor is responsible for having equipment and adequately trained personnel for establishment and installation to the grades shown on the plans.

See Special Warranty requirements in Grinder Lift Station section of these Specifications for additional warranty times for this equipment.

Standard Sanitary Sewer Bid Item Descriptions

S BYPASS PUMPING This item shall include all labor, equipment, and materials needed to complete a bypass pumping and/or hauling operation for diversion of sewage during sanitary sewer construction. Examples of such operations when bypass pumping and/or hauling may be necessary is during force main tie-ins, manhole invert reconstruction, insertion of new manholes into existing mains, or other similar construction. There may be more than one bypass pumping/hauling operation on a project. This item shall be paid for each separate bypass pumping/hauling operation occurrence as called out on the plans or directed by the engineer and actually performed. There will be no separate bid items defined for length, duration, or volume of sewage pumped or hauled in each occurrence. If a bypass pumping/hauling operation is called out on the plans; but, conditions are such that the bypass pumping/hauling operation is not needed or utilized, no payment will be made under this item. The contractor shall draw his own conclusions as to what labor, equipment, and materials may be needed for each bypass pumping/hauling occurrence. The contractor should be prepared to handle the maximum volume of the sewer being bypassed, even during a storm event. This item shall not be paid separately, but shall be considered incidental, when bypass pumping and/or hauling is needed during cast-in-place-pipe (CIPP) and/or point repair operations. 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).

S CIPP LATERAL SERVICE INVESTIGATION This item shall include all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements and perform the identification, assessment and pre-measurement of all existing and abandoned laterals for the placement of Cured-In-Place-Pipe lining. This item shall be in payment for all lateral service investigation for all sewer segments to be lined as a part of this contract. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be LUMP SUM (LS).

S CIPP LATERAL REINSTATEMENT This item is to pay for installing a Cured-In-Place-Pipe liner in service laterals and service/mainline connections to stabilize structural defects and construction inadequacies. This bid item shall include all labor, equipment, materials and incidentals necessary to perform the service lateral reinstatement in accordance with the plans and specifications. Work under this item shall include sewer flow control, pre-installation cleaning, sealing connections to existing sewer main, pre- and post- construction CCTV inspection and final testing of the CIPP system. This item shall also include the "top hat" required by the specifications. All CIPP lateral reinstatements shall be paid under this item regardless of the size or length of reinstatement. No separate bid items of varying sizes or length of CIPP lateral reinstatement will be provided in the contract. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each CIPP lateral reinstatement complete and ready for use.

S CIPP LINER This bid Item is to pay for rehabilitation of existing sanitary sewers using the Cured-In-Place-Pipe method. This bid item description applies to all CIPP sizes included in the contract.

All CIPP Liner items of all varying sizes shall include all labor, materials, customer notification, testing, necessary permits, ingress and egress procedures, bypass pumping, pre- construction video, sediment and root removal, dewatering, traffic control, erosion and sediment control, excavation pits, removal and replacement of manhole frames and covers as necessary to facilitate the lining work, sealing at manholes and service connections, clearing and grubbing, pipeline cleaning, re-cleaning and video inspection as many times as necessary, debris collection and disposal, root removal, pre- and post-construction video inspection, all digital inspection footage, final report preparation and approval, the cost of potable water from the Owner, required compliance tests, site restoration, site cleanup, sealing of liner at manholes, acceptance testing and all other rehabilitation work and incidentals not included under other pay items necessary to complete the rehabilitation per the plans and specifications. There will be no separate payment for acceptance testing of the lined pipe; but shall be considered incidental to this item. Pay under this item shall be by each size bid in the contract. Pay measurement shall be from center of manhole to center of manhole. 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).

S CIPP PROTRUDING LATERAL REMOVAL This item includes all equipment, materials, labor and incidentals necessary to enter the sewer in compliance with all safety/confined space requirements, remove a sufficient amount of the protruding tap to insure a proper and safe Cured-In-Place-Pipe lining insertion and perform pre-installation CCTV. This bid item shall include bypass pumping when required. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. Payment for this item shall be EACH (EA) for each protruding lateral removed.

S CONCRETE PIPE ANCHOR This item shall be constructed on the sewer pipe at the locations shown on the plans in accordance with sanitary sewer specifications and standard drawings. Payment for concrete anchors will be made at the contract unit price each in place complete and ready for use. Each concrete anchor of sewer pipe or force main shall be paid under one bid item per contract regardless of the sizes of carrier pipe being anchored in the contract. 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.

S 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 force main or gravity sewer 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).

S ENCASEMENT CONCRETE Includes all labor, equipment, excavation, concrete, reinforcing

steel, backfill, restoration, and etc., to construct the concrete encasement of the sewer or force 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.

S 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).

S 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 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).

S FORCE MAIN This description shall apply to all PVC and ductile iron and polyethylene/plastic pipe bid items of every size and type, 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, 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 also include pipe anchors on polyethylene pipe runs as shown on the plans or required by the specifications 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). No separate payment will be made under pipe items when the directional bore pipe is the carrier 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. 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).

S FORCE MAIN AIR RLS/VAC VLV This bid item description shall apply to all force main air release/vacuum valve installations of every size except those defined as "Special". This item shall include the air release/vacuum 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/vacuum 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/vacuum 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.

S FORCE MAIN 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 sewer or force main under streets, buildings, 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).

S FORCE 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 force 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. Force Main Relocate shall not be paid on a linear feet basis; but shall be 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.

S FORCE MAIN TAP SLEVE/VALVE RANGE 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:

- Range 1 = All live tapped main sizes up to and including 8 inches
- Range 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.

S FORCE MAIN TIE-IN This bid description shall be used for all force 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, testing and backfill required to make the force main tie-in as shown on the plans and in accordance with the specifications complete and ready for use. This bid item shall include purge and sanitary disposal of any sewage from any abandoned segments of force main. Pipe for tie-ins shall be paid under separate bid items. 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.

S FORCE MAIN VALVE This description shall apply to all force main 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 force main valves being installed with new force 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, 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, force main valves shall be restrained. Force main valve restraint shall be considered incidental to the force main valve 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.

S FORCE MAIN 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 force main valve 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.

S LATERAL CLEANOUT This item shall be for payment for installation of a cleanout in a service lateral line. This item shall include furnishing and installation of a tee, vertical pipe of whatever length required, and threaded cap. The cleanout shall extend from the lateral to final grade elevation. The size of the cleanout shall be equivalent to the size of the lateral. The cleanout materials shall meet the same specification as those for the lateral. The cleanout shall be installed at the locations shown on the plans or as directed by the engineer. Only one pay item shall be established for cleanout installation. No separate pay items shall be established for size or height variances. 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.

S LATERAL LONG SIDE This bid item description shall apply to all service lateral installations of every size up to and including 6 inch internal diameter, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for service lateral installations where the ends of the lateral connection are on opposite sides of the public roadway. The new lateral must cross the centerline of the public roadway to qualify for payment as a long side lateral. The length of the service lateral 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 lateral 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. 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.

S LATERAL SHORT SIDE This bid item description shall apply to all service lateral installations of every size up to and including 6 inch, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap tee, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready for use. This bid item is to pay for lateral installations where both ends of the lateral connection are on the same side of the public roadway, or when an existing lateral 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 lateral 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 lateral 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. 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.

S LINE MARKER This item is for payment for furnishing and installing a ground level sewer 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.

S MANHOLE Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup in accordance with the specifications and standard drawings. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S MANHOLE ABANDON/REMOVE Payment under this item is for the partial removal and/or filling of any sanitary sewer manhole regardless of size or depth that no longer serves any purpose. Payment shall be made regardless of whether the manhole is or is not in conflict with other work. Any manhole requiring partial removal, but not total removal, in order to clear a conflict with other work shall be paid under this item. All manholes partially removed shall be removed to a point at least one foot below final grade, one foot below roadway subgrade, or one foot clear of any other underground infrastructure, whichever is lowest. If partial removal of an abandoned manhole is elected by the contractor, the remaining manhole structure shall be refilled with flowable fill. Payment for disposal of a sanitary sewer manhole will be made under this item only. 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.

S MANHOLE ADJUST TO GRADE Payment under this item is for the adjustment of sanitary sewer casting elevation on all sizes of existing sanitary manholes. This work shall be performed in accordance with the sanitary sewer specifications. Payment shall be made under this bid item regardless of the amount of adjustment necessary to a sanitary sewer manhole casting or diameter of the manhole. Work under this pay item may be as simple as placing a bed of mortar under a casting; but, shall also be inclusive of installation of adjusting rings, and /or addition, removal, or replacement of barrel sections. The existing casting is to be reused unless a new casting is specified on the plans. New casting, when specified, shall be paid as a separate bid item. Anchoring of the casting shall be incidental to this 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.

S MANHOLE CASTING STANDARD Payment under this bid items is for furnishing of a new standard traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. 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 installed.

S MANHOLE CASTING WATERTIGHT Payment under this bid item is for furnishing of a new watertight traffic baring casting for sanitary manholes meeting the requirements of the sanitary sewer specifications and standard drawings. 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 installed.

S MANHOLE RECONSTRUCT INVERT This bid item is to pay for all labor, equipment, and material for rework of the manhole bench to redirect or eliminate flow, such as when the flow of a pipe or pipes are being removed or redirected. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in elimination or redirect of flow. This item shall also include providing and placement of a rubber seal or boot as required by utility specification, standard drawing or plan. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. No payment shall be made under this bid when MANHOLE TAP EXISTING, or MANHOLE TAP EXISTING ADD DROP are being paid at the same location, as this type of work is included in those items. 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.

S MANHOLE TAP EXISTING This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each core opening added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. 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.

S MANHOLE TAP EXISTING ADD DROP This bid item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base, addition of a rubber seal as specified, addition of a vertical drop pipe to the outside of the manhole, placement of reinforcing steel and concrete to encase vertical pipe, and rework of the manhole bench to direct the additional pipe flow. The bid item shall be paid for each drop added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and

scope of work needed to comply with the specifications, standard drawings, and plans. 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.

S MANHOLE WITH DROP Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with drop. Payment for drop manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Drop manholes shall include concrete base, barrel sections, drop materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S MANHOLE WITH LINING Payment under this item is for the installation of new 4 foot interior diameter sanitary sewer manhole with corrosion resistant lining. Payment for manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, lining, excavation, backfilling, air testing, restoration, and cleanup in accordance with the standard drawings. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S MANHOLE WITH TRAP Payment under this item is for the installation of a new manhole with trap. Payment for trap manholes will be made at the contract unit price each in place complete and ready for use at the locations shown on plans in accordance with specifications and standard drawings. Trap manholes shall include concrete base, manhole structure and trap materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. 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.

S PIPE This description shall apply to all PVC and ductile iron gravity sewer pipe bid items of every size and type 8 inches internal diameter and larger, 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,

tap tees and couplings for joining to existing similar or dissimilar pipes), polyethylene wrap (if required by specification), labor, equipment, excavation, bedding, restoration, pressure or vacuum testing, temporary testing materials, video inspection, 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. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever specified on the plans or in the specifications. No additional payment will be made for rock excavation. Measurement of quantities under this item shall be through fittings and encasements to a point at the outside face of manhole barrels, or to the point of main termination at dead ends or lamp holes. Carrier pipe placed within an encasement shall be paid under this item and shall include casing spacers and end seals. 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).

S PIPE POINT REPAIR This item is to be used to pay for repair of short lengths of existing sanitary sewer pipe that, through prior video inspection or other means, are known to have pre-existing failure. Pipe Point Repair may be needed in preparation for installation of cured-in-place-pipe (CIPP) lining or other instances where failure is known and repair is prudent. The size of pipe shall not be defined in separate bid items. All diameter sizes of point repair shall be paid under this one item. The materials to be used to make the repair shall be as defined on the plans or in the specifications. This bid item shall include all excavation, pipe materials, joining materials to connect old and new pipe, bedding, and backfill to complete the repair at the locations shown on the plans or as directed by the engineer, complete and ready for use. This bid item shall include bypass pumping when required. 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).

S PUMP STATION This item is for payment for installation of sanitary pump stations including 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) for each when complete.

S STRUCTURE ABANDON This item is to be used to pay for abandonment of larger above or below ground sewer structures such as air release/vacuum valve vaults, 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 sewer construction, (i.e., abandonment of standard air release/vacuum valves 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.

S STRUCTURE REMOVAL This item is to be used to pay for removal of larger above or below ground sewer structures such as air release/vacuum valve vaults, 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 sewer

construction, (i.e., removal of standard air release/vacuum valves and their structure 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.

SPECIAL NOTE CONCERNING
CORPS OF ENGINEERS LETTER OF PERMISSION PERMIT (LOP)
PERRY COUNTY
KY 15 Widening
Item No. 10-269.10

THIS SHALL SERVE AS A NOTICE TO THE CONTRACTOR THAT THE CORPS OF ENGINEERS LOP PERMIT IS PENDING APPROVAL ON THIS PROJECT.

THE CONTRACTOR WILL NOT BE ABLE TO BEGIN WORK UNTIL THE KENTUCKY TRANSPORTATION CABINET HAS SECURED THE APPROPRIATE APPROVALS AND HAS PROVIDED COPIES OF THESE APPROVALS TO THE CONTRACTOR.

KENTUCKY TRANSPORTATION CABINET (1)

And

_____ **(2), Construction**

Kentucky Pollutant Discharge Elimination System

Permit KYR10

Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

[KY 15 RECONSTRUCTION](1)

Project: 10-269.10

Project information

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

Owner – KENTUCKY TRANSPORTATION CABINET (1)

Resident Engineer: (2)

Contractor name: (2)

Address: (2)

Phone number: (2)

Contact: (2)

Contractors agent responsible for compliance with the KPDES permit requirements (3):

Project Control Number (2)

Route (Address) KY 15, Hazard, KY (1)

Latitude/Longitude (project mid-point) 37/17, 83/17 (1)

County (project mid-point) Perry County(1)

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

Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description)
RECONSTRUCT KY 15 FROM MORTON BLVD. TO LOWER SECOND CREEK RD.(1)
2. Order of major soil disturbing activities (2) and (3)
3. Projected volume of material to be moved **2,245,568 CY(1)**
4. Estimate of total project area (acres) **165.56 (1)**
5. Estimate of area to be disturbed (acres) **165.56 (1)**
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. No information describing existing discharge water quality is available(1) & (2)
9. Receiving water name: **NORTH FORK KENTUCKY RIVER, FIRST CREEK, SECOND CREEK(1)**
10. TMDLs and Pollutants of Concern in Receiving Waters: **NO TMDLS INVOLVED ON THIS PROJECT(1)**
11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.
12. Potential sources of pollutants:
The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating

construction equipment, concrete washout water, sanitary wastes and trash/debris.
(3)

B. Sediment and Erosion Control Measures:

- 1. Plans for highway construction projects will include erosion control sheets that depict Disturbed Drainage Areas (DDAs) and related information. These plan sheets will show the existing project conditions with areas delineated by DDA within the right of way limits, the discharge points and the areas that drain to each discharge point. Project managers and designers will analyze the DDAs and identify Best Management Practices (BMPs) that are site specific. The balance of the BMPs for the project will be listed in the bid documents for selection and use by the contractor on the project with approval by the resident engineer.**

Projects that do not have DDAs annotated on the erosion control sheets will employ the same concepts for development and managing BMP plans.

- 2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as "Do Not Disturb" until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP's shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA's as the work progresses. All DDA's will have adequate BMP's in place before being disturbed.**
- 3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:**
 - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
 - At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.

- Clearing and Grubbing – The following BMP's will be considered and used where appropriate.
 - Leaving areas undisturbed when possible.
 - Silt basins to provide silt volume for large areas.
 - Silt Traps Type A for small areas.
 - Silt Traps Type C in front of existing and drop inlets which are to be saved
 - Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
 - Brush and/or other barriers to slow and/or divert runoff.
 - Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
 - Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
 - Non-standard or innovative methods.
- Cut & Fill and placement of drainage structures - The BMP Plan will be modified to show additional BMP's such as:
 - Silt Traps Type B in ditches and/or drainways as they are completed
 - Silt Traps Type C in front of pipes after they are placed
 - Channel Lining
 - Erosion Control Blanket
 - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
 - Non-standard or innovative methods
- Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
 - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
 - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
 - Additional Channel Lining and/or Erosion Control Blanket.
 - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
 - Special BMP's such as Karst Policy
- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
 - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
 - Permanent Seeding and Protection
 - Placing Sod

- Planting trees and/or shrubs where they are included in the project
- BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are : PROJECT DOES NOT INCLUDE STORM WATRT BMPS OR FLOW CONTROLS (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 contact 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 received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.

- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non – Storm Water discharges

It is expected that non-storm water discharges may occur from the site during the construction period. Examples of non-storm water discharges include:

- Water from water line flushings.
- Water from 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;

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 name¹

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.

EXHIBIT #2

PCN #

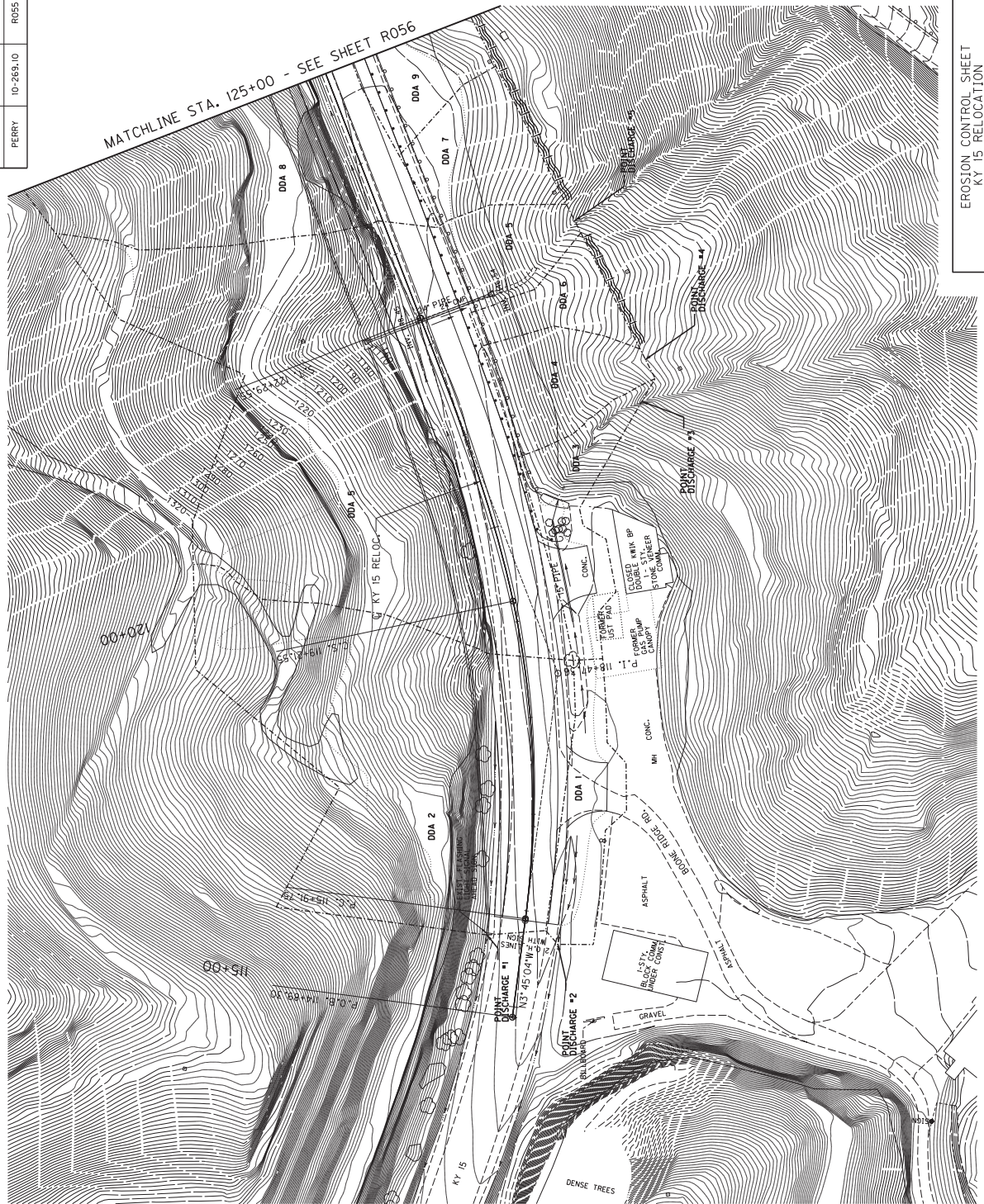
SYP Item #10-269.10 Reconstruct KY 15 from Morton Blvd. to Bonnyman

**KPDES NOI for Stormwater Discharges Associated with
Construction Activity Under the KPDES General Permit**

Transaction ID:

40417010-1b7f-4f02-b54d-f8caf8baf4ff

COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-263.10	R055



EROSION CONTROL SHEET
KY 15 RELOCATION
STA 115+90 TO STA 125+00

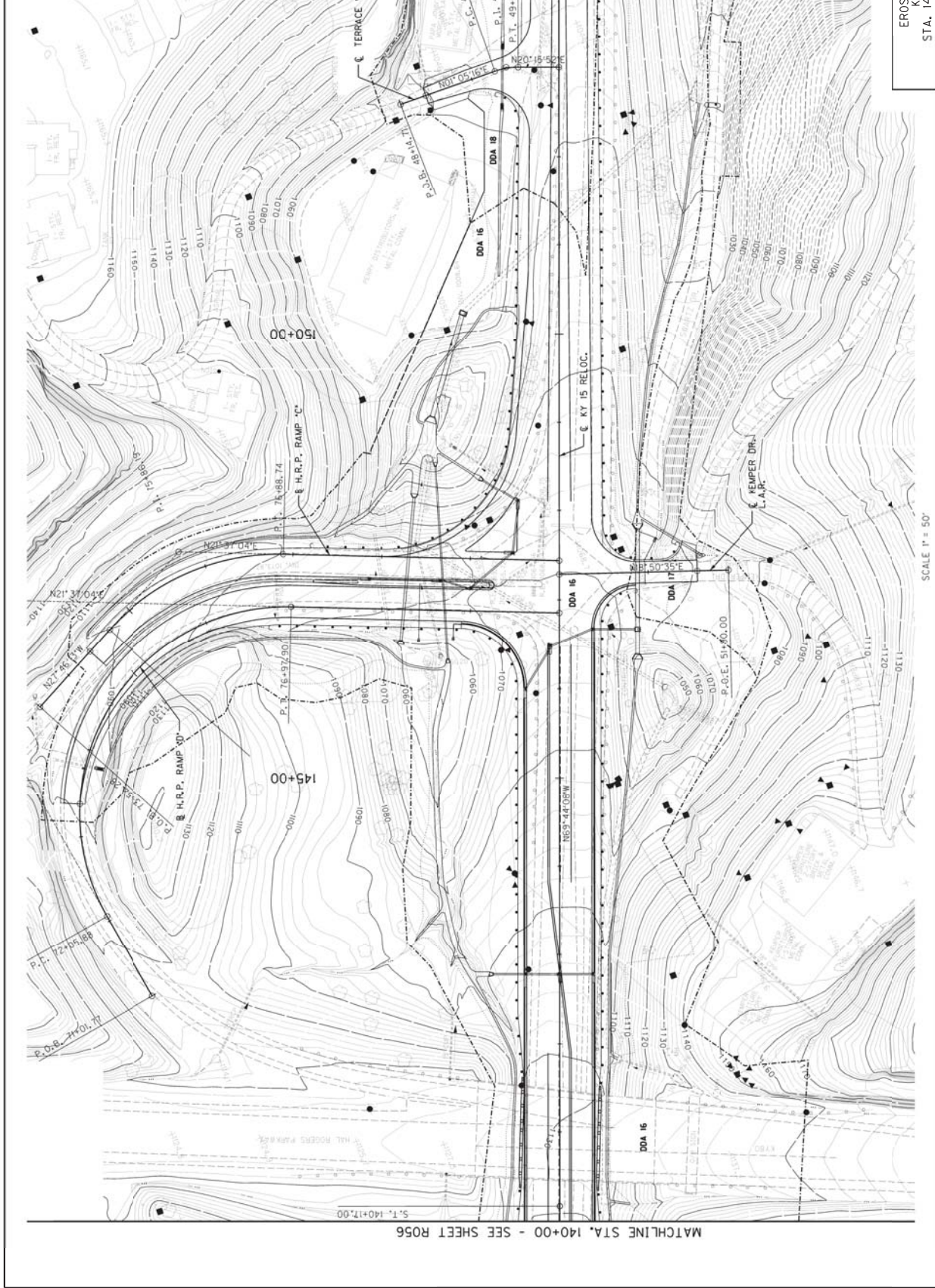
SCALE 1" = 50'

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4	37.284636796	83.215793639
5	37.284991392	83.216123553

PREPARED BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED BY _____ DATE _____

Cell: lbr/orys kyt.c.c.d
 08-MMM-YYYY HH:MM
 08-KMM-YYYY HH:MM

COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-269.10	R057



EROSION CONTROL SHEET
KY 15 RELOCATION
STA. 140+00 TO STA. 155+00

SCALE 1" = 50'

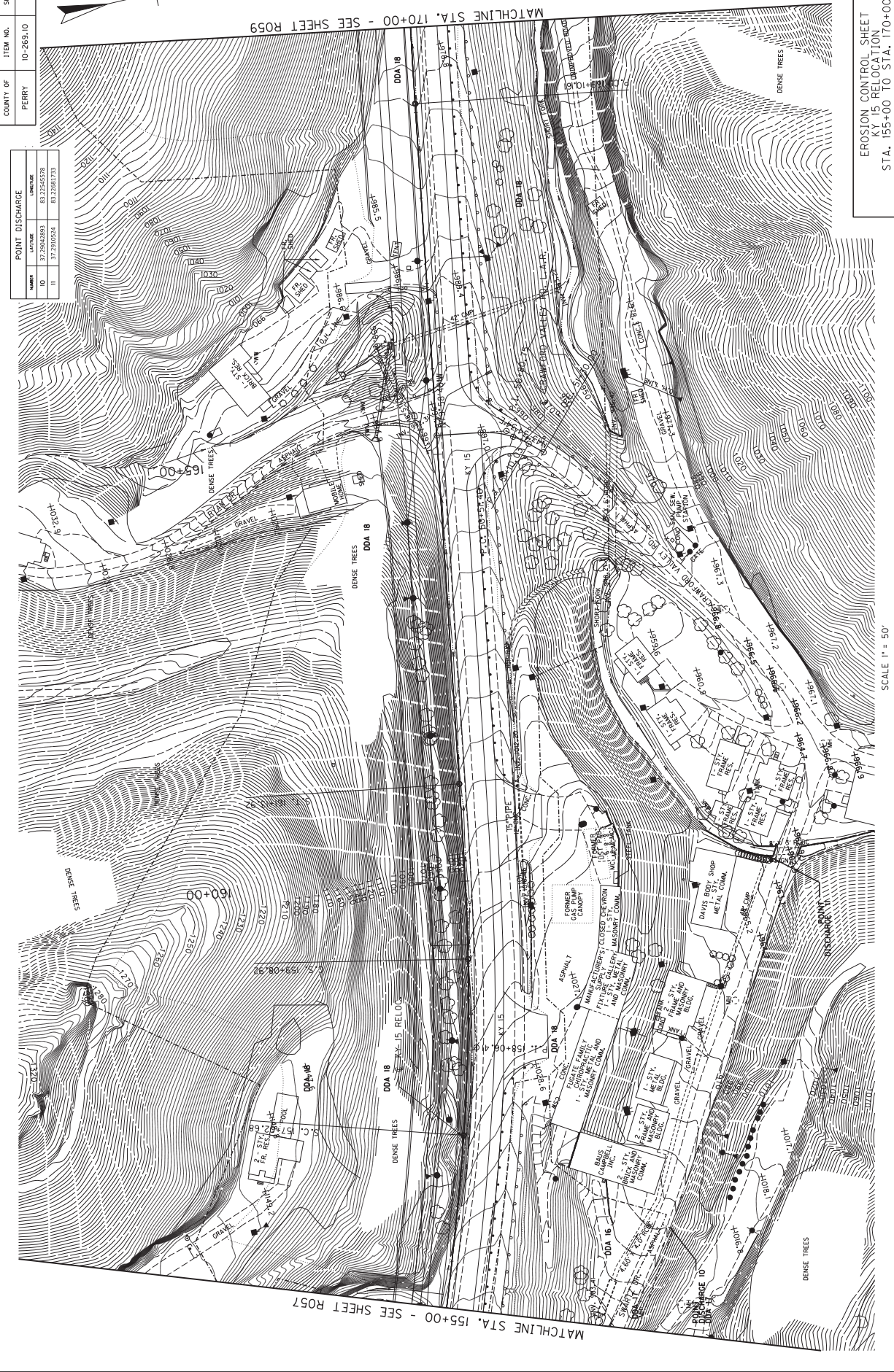
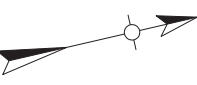
APPROVED BY	DATE
CHECKED BY	DATE
PREPARED BY	DATE

CDM LEBRON BY TSCM
CD NUMBER 88
SD NUMBER 88

MATCHLINE STA. 140+00 - SEE SHEET R056

MATCHLINE STA. 155+00 - SEE SHEET R058

POINT DISCHARGE		COUNTY OF	ITEM NO.	SHEET NO.
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II	37.29100524			
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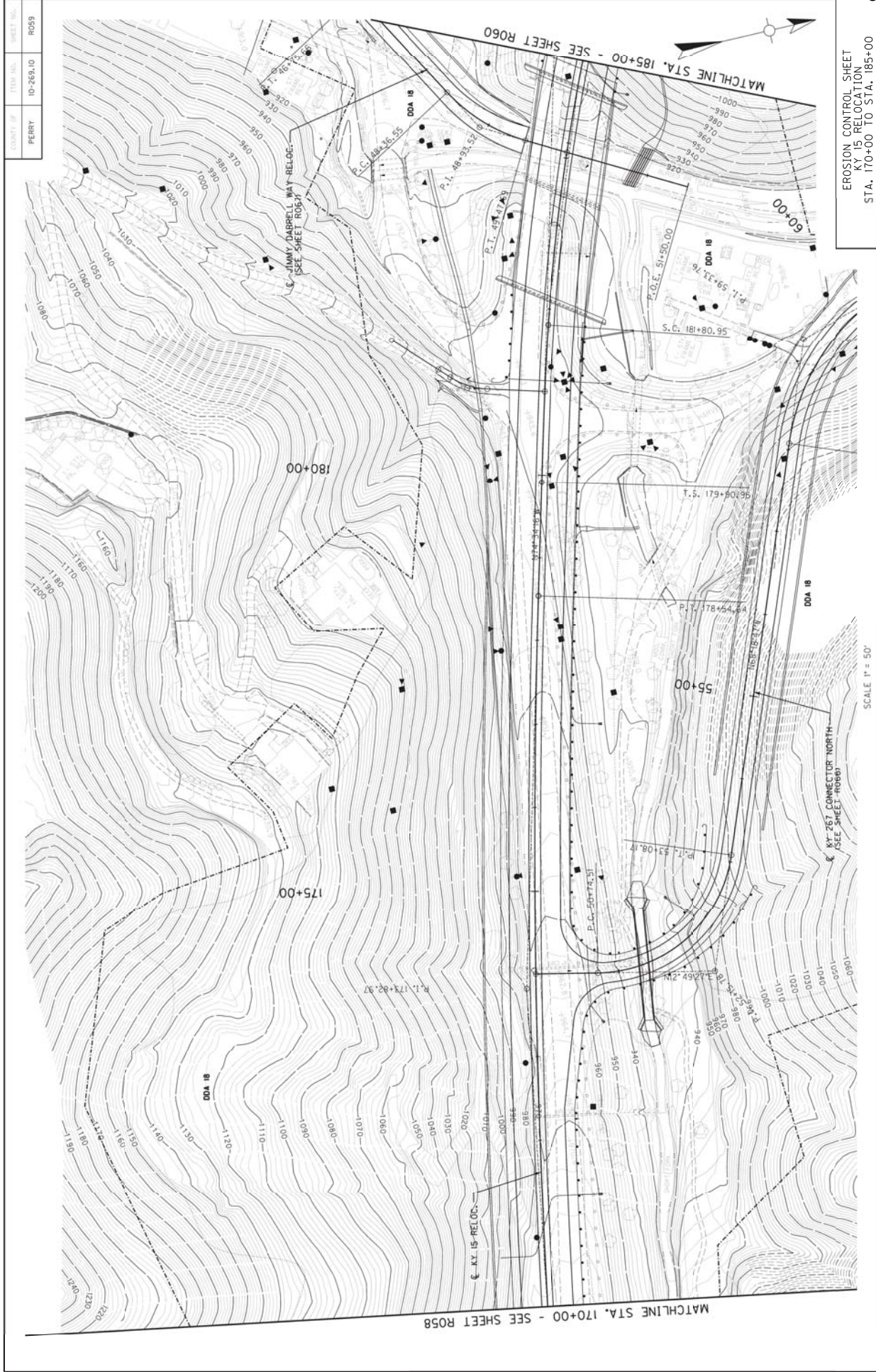


EROSION CONTROL SHEET
KY 15 RELOCATION
STA. 155+00 TO STA. 170+00

SCALE 1" = 50'

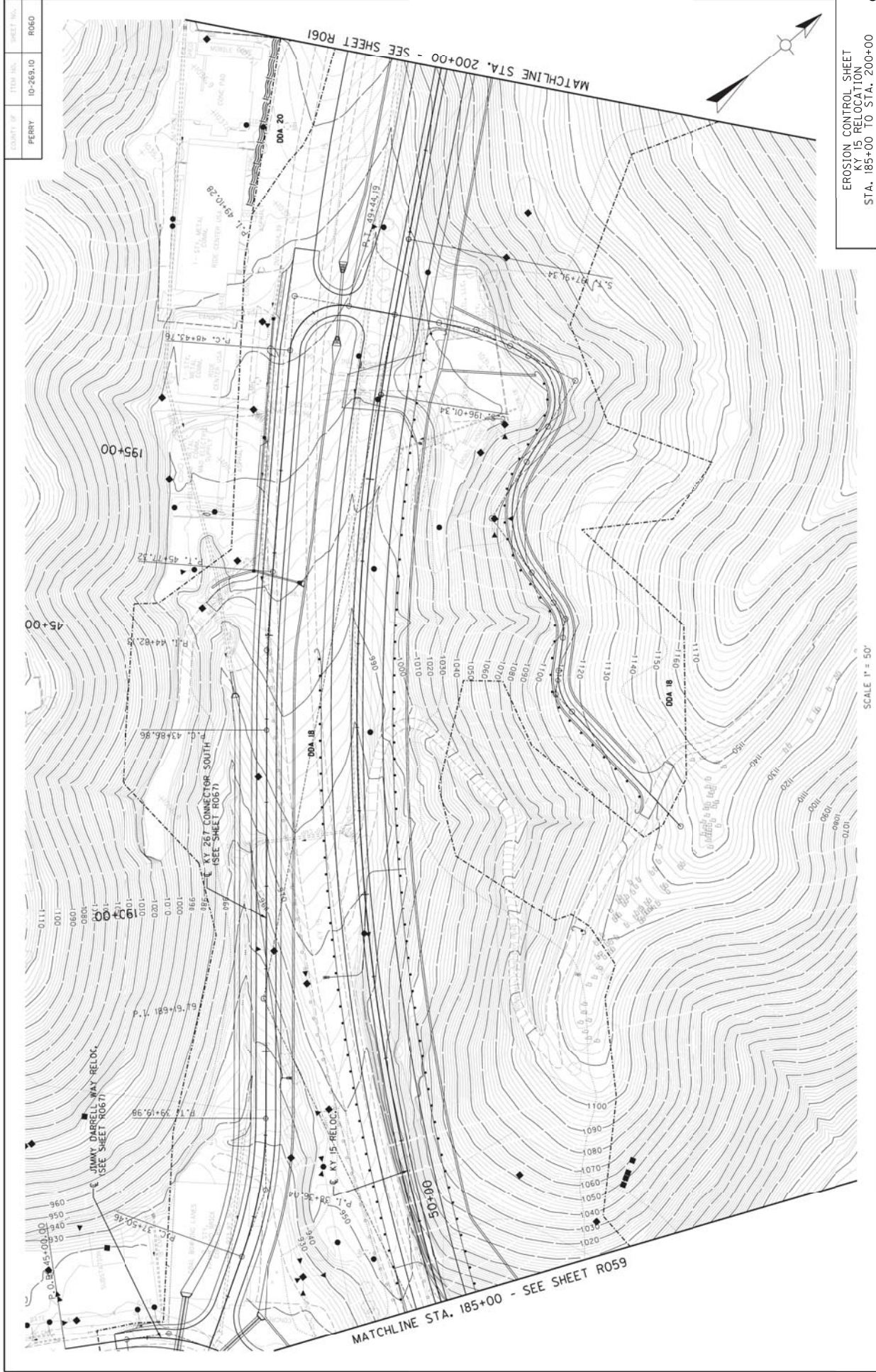
APPROVED BY _____	DATE _____
CHECKED BY _____	DATE _____
PREPARED BY _____	DATE _____

Cell: lbr\perry\kyrc.cel
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00-NAME-YYYY HH:MM



APPROVED BY _____	DATE _____
CHECKED BY _____	DATE _____
PREPARED BY _____	DATE _____

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 50-5000-1111-1111
 50-5000-1111-1111



COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-269.10	R060

EROSION CONTROL SHEET
KY 15 RELOCATION
STA. 185+00 TO STA. 200+00

SCALE 1" = 50'

DATE	APPROVED BY
DATE	CHECKED BY
DATE	PREPARED BY

DATE PLOTTED: 08/11/11
SCALE: 1" = 50'

COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-263.10	R061



EROSION CONTROL SHEET
KY 15 RELOCATION
STA. 200+00 TO STA. 215+00

SCALE 1" = 50'

NUMBER	POINT DISCHARGE	LATITUDE	ELEVATION
12	37.29010796	83.2441155	

APPROVED BY _____	DATE _____
CHECKED BY _____	DATE _____
PREPARED BY _____	DATE _____

Cell Lbr/ory ky tc.cdl
D0-AMM-YYY H8JNM
Date: 08/08/2010 10:00

COUNTY OF	FIELD NO.	SHEET NO.
PERRY	10-269.10	R062



MATCHLINE STA. 230+00 - SEE SHEET R063

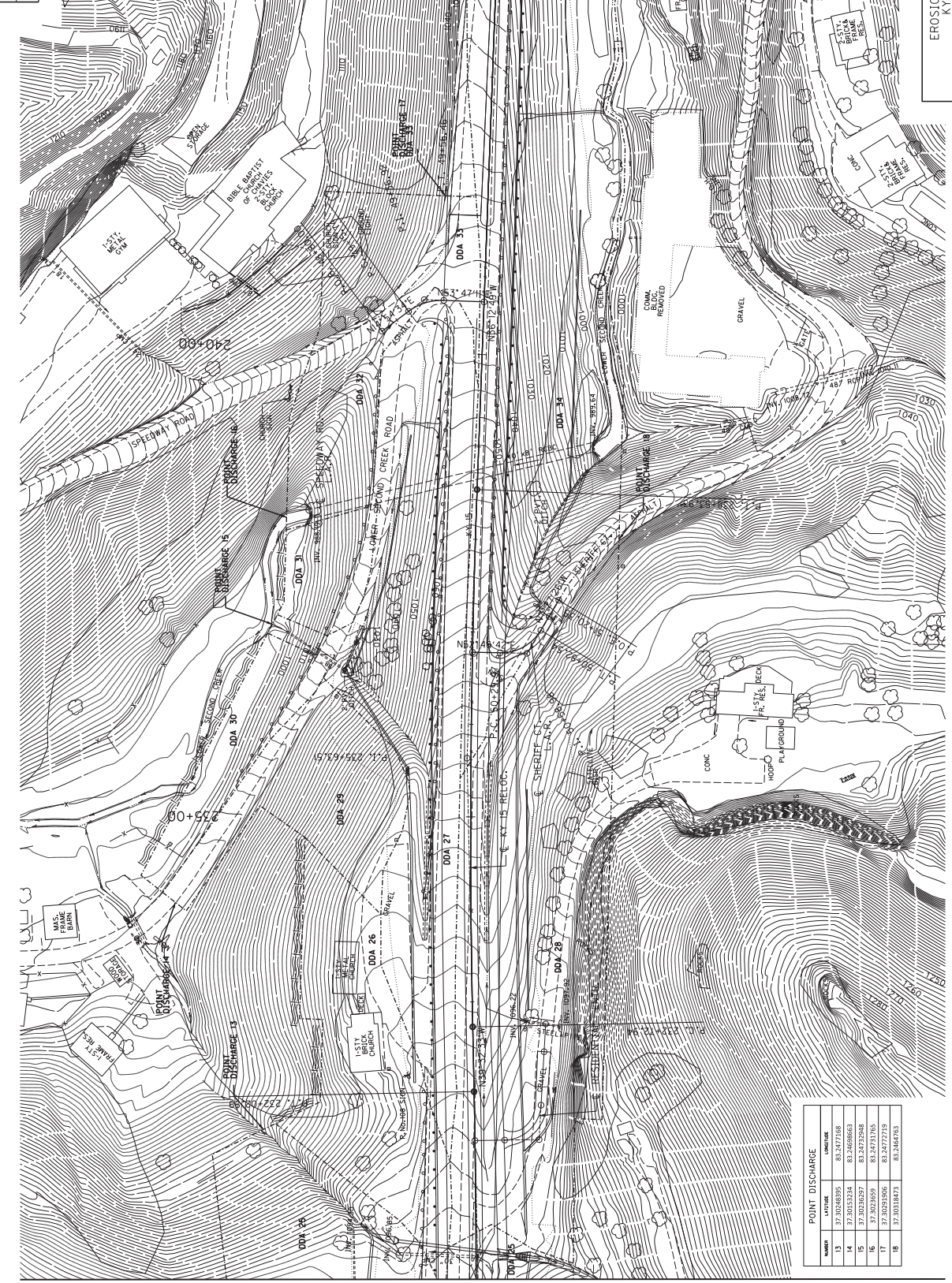
MATCHLINE STA. 215+00 - SEE SHEET R061

EROSION CONTROL SHEET
KY 15 RELOCATION
STA. 215+00 TO STA. 230+00

APPROVED BY	DATE
CHECKED BY	DATE
PREPARED BY	DATE

Scott L. Brown, PE
10-269.10

COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-269.10	RO63



EROSION CONTROL SHEET
KY 15 RELOCATION
STA. 230+00 TO STA. 245+00

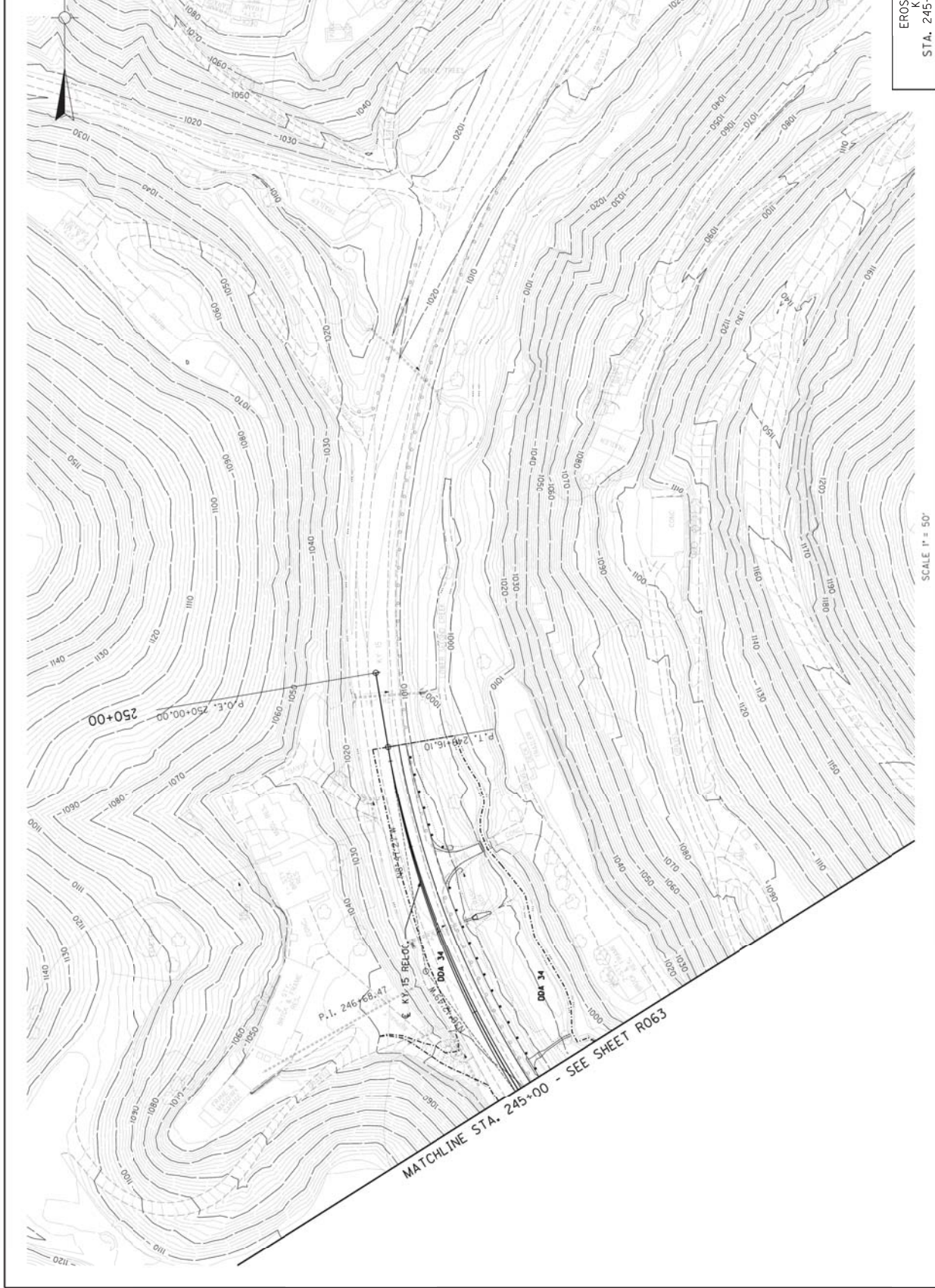
SCALE 1" = 50'

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14	37.50268355	83.2468543
15	37.50268355	83.2471245
16	37.50268355	83.2471245
17	37.50268355	83.2472215
18	37.50268355	83.2466715

PREPARED BY _____ DATE _____
CHECKED BY _____ DATE _____
APPROVED BY _____ DATE _____

Cell:lvh@perry.kytc.gov
00-NAME-YYYY-HH.MM

COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-269.10	R064



EROSION CONTROL SHEET
 KY 15 RELOCATION
 STA. 245+00 TO STA. 249+16.00

SCALE 1" = 50'

MATCHLINE STA. 245+00 - SEE SHEET R063

APPROVED BY	DATE
CHECKED BY	DATE
PREPARED BY	DATE

Scott L. Brown, P.E.
 50-000-1117-0001

COUNTY OF	SHEET NO.
PERRY	8065
10-269.10	

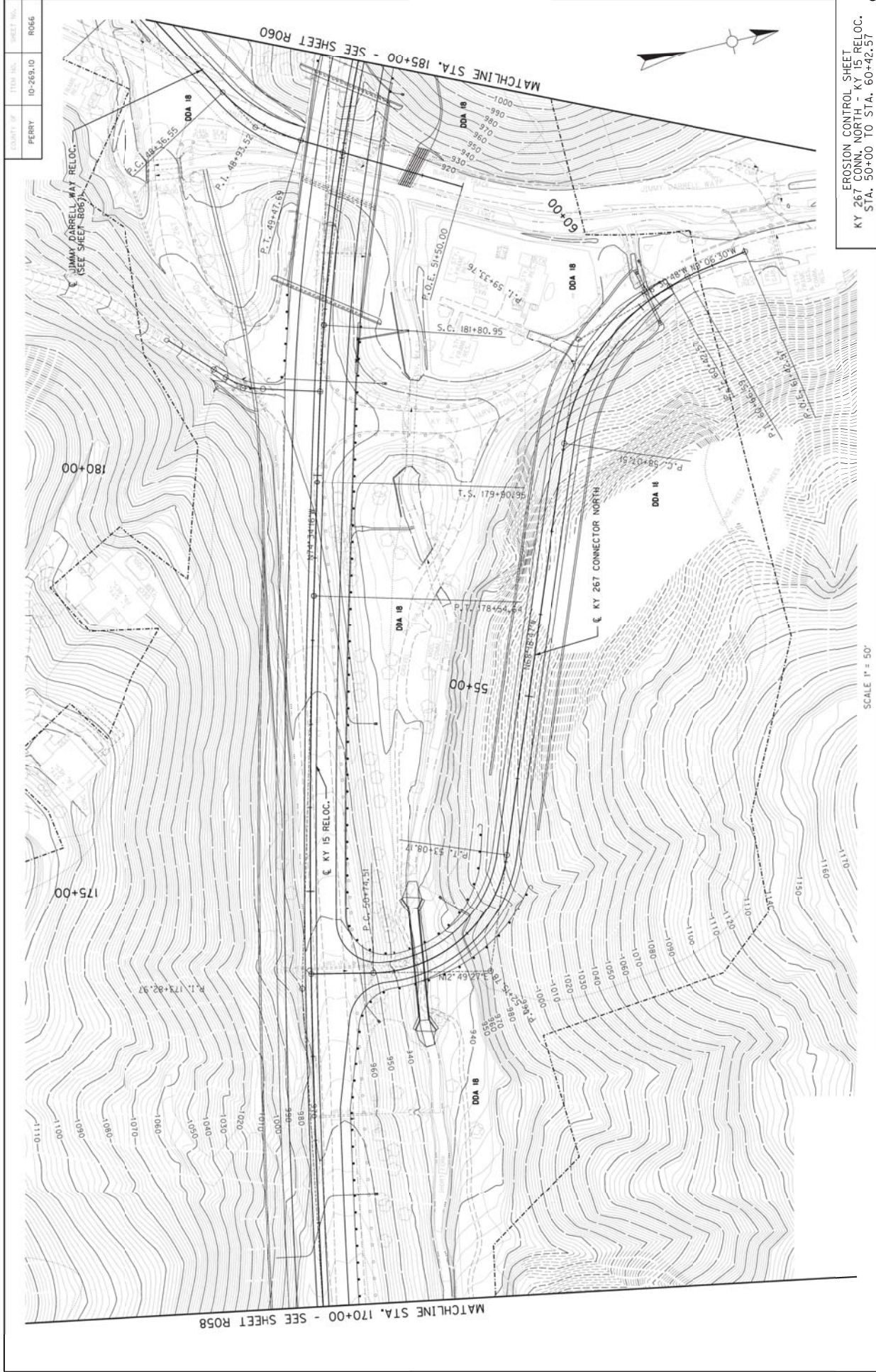


EROSION CONTROL SHEET
 H.R.P. RAMP "C" AND "D" - KY 15 RELOC.
 STA. 73+37.08 TO STA. 80+00.00

SCALE 1" = 50'

DATE	APPROVED BY
DATE	CHECKED BY
DATE	PREPARED BY

Scale: 1" = 50'
 Date: 10/11/17
 Project: NHPP 0151 (78)



COUNTY OF	ITEM NO.	SHEET NO.
PERRY	10-269.10	8066

EROSION CONTROL SHEET
 KY 267 CONN. NORTH - KY 15 RELOC.
 STA. 50+00 TO STA. 60+42.57

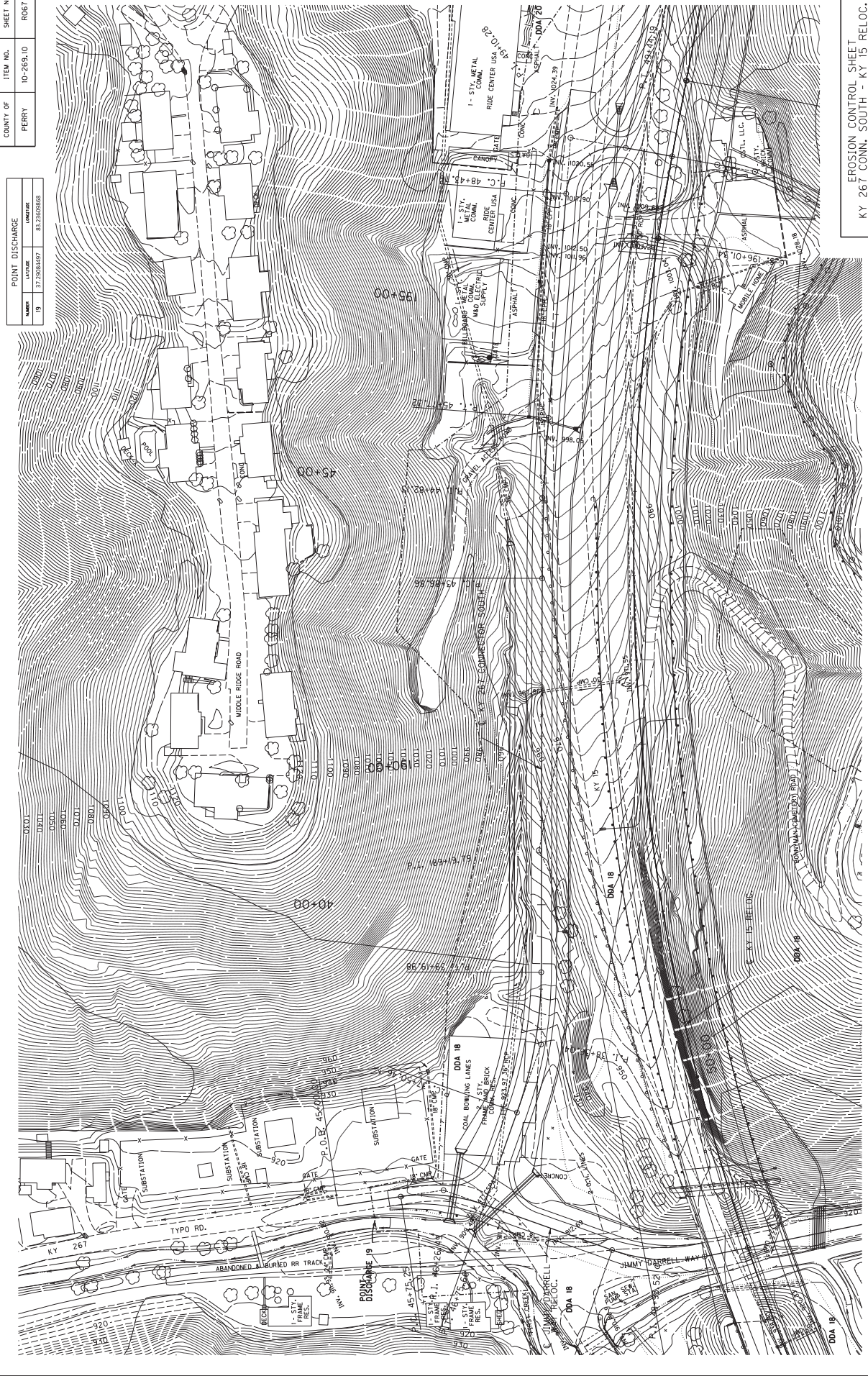
SCALE 1" = 50'

APPROVED BY	DATE
CHECKED BY	DATE
PREPARED BY	DATE

CDM LEBRON KY LLC
 50-000-1111-0000

COUNTY OF		ITEM NO.	SHEET NO.
PERRY		10-263.10	RO67

POINT DISCHARGE		DATE
NUMBER	DATE	DATE
19	3/23/2005	8/23/2005



EROSION CONTROL SHEET
KY 267 CONN. SOUTH - KY 15 RELOC.
STA. 36+34.56 TO STA. 50+00.

SCALE 1" = 50'

APPROVED BY	DATE
CHECKED BY	DATE
PREPARED BY	DATE

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00-Name: YYY HH:MM
00-Name: 50

KENTUCKY TRANSPORTATION CABINET COMMUNICATION ALL PROMISES (CAP)

Item Number 10-0269.10	County PERRY	Route KY 15	Project Manager kytc\darren.back
----------------------------------	------------------------	-----------------------	--

CAP #	Date of Promise	Requestor	Location of Promise:	CAP Description
1	6/26/14	Benny Bailey	319 Nascar Drive Hazard, KY	Mr. Bailey has great concerns about the blasting from KY 15 and the negative effect that it may have on his home and/or property. Mr. Bailey has requested that he be contacted prior to construction activities by the awarded contractor. Also, he has requested a pre-blast survey of his home and property. His home is located at 319 Nascar Drive and his cell phone number is 606-438-0660.
2	11/10/14	Hazard Tourist Center - P27	Parcel 27	The following agreements have been made pertaining to construction activities near this parcel: 1. There will be a minimum of 10 feet of unencumbered space from the end of the easement to the front of the building; 2. Agree that one entrance must be remain open during all construction; 3. Agree that pedestrian traffic in and out of the building will continue throughout the easement period until the interest reverts; 4. Agree that access to the dumpster, including the ability for waste management to empty and place the dumpster, be maintained throughout the easement period; 5. Agree that parking is available at all times during the easement period, with the understanding that there may be obstruction of the minimum parking areas due to the construction; 6. Agree that the easement will revert back to the owner after the project has been formally accepted by KYTC within 30 days from this acceptance.
3	8/10/15	Kentucky River Properties - P60	Parcel 60	The following agreements have been made pertaining to construction activities on/near this parcel: 1. The railway within the temporary easement is presently inactive, but it remains a railway and the Property Owner may use or allow others to use the railway at any point in the future. KYTC shall accommodate Property Owner's reconstruction, repairs, upgrade, modification, maintenance, or use of the rail as Property Owner deems necessary or convenient. In the event the Property Owner desires the reconstruction, repairs, upgrade, modification, maintenance, or use of the rail during the effective term of the Temporary Easement, KYTC may retain concurrent access and use of the Temporary Easement provided however that KYTC shall install such equipment or other safety measures as required by law to ensure the safety of those entering upon the area affected by this Temporary Easement including, without limitation, highway treatments or paint, crossing equipment, signs, beacons, or otherwise. In the event additional permits are required for the reconstruction, repairs, upgrade, modification, maintenance, or use of the existing railroad crossing the Temporary Easement, the Grantee agrees that it will not object to such permit and will execute any and all consents necessary or required to allow Grantor to obtain such permits. 2. KYTC acknowledges that there is no personal property (including railroad tracks) within the Temporary Easement that Property Owner could be required to move. The awarded contractor shall not remove personal property (including railroad tracks) from the easement area.

KENTUCKY TRANSPORTATION CABINET COMMUNICATION ALL PROMISES (CAP)

CAP #	Date of Promise	Requestor	Location of Promise:	CAP Description
4	9/30/15	Clemmie Jane Feltner/ Anna Marie McRae	Sta. 207+00 100'L	KYTC has agreed that the 30" CMP located in this area would be safeloaded and no additional drainage would be diverted onto either of these property owners' parcels.
5	9/30/15	Kathy & Voncel Thacker - P300	Sta. 225+00 - 230+00	KYTC has come to an agreement with the property owner about the specifics of Proposed Retaining Wall No. 7. The retaining wall shall be an M.S.E. wall with an architectural finish of "Reinforced Earth's Ashlar Stone" or equivalent. Any revisions or alterations to this wall must be approved by the District 10 Project Development Branch Manager. Please see sheet R35G for details.

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 2012 with the 2012 Revision*.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	102.15 Process Agent.
Revision:	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:	105.13 Claims Resolution Process.
Revision:	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:	108.03 Preconstruction Conference.
Revision:	Replace 8) Staking with the following: 8) Staking (designated by a Professional Engineer or Land Surveyor licensed in the Commonwealth of Kentucky.
Subsection:	109.07.02 Fuel.
Revision:	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:	110.02 Demobilization.
Revision:	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:	112.03.12 Project Traffic Coordinator (PTC).
Revision:	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.
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.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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.
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.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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.
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.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	212.05 PAYMENT.												
Revision:	Delete the following item code:												
	<table border="1"> <thead> <tr> <th><u>Code</u></th> <th><u>Pay Item</u></th> <th><u>Pay Unit</u></th> </tr> </thead> <tbody> <tr> <td>05966</td> <td>Topdressing Fertilizer</td> <td>Ton</td> </tr> </tbody> </table>	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>	05966	Topdressing Fertilizer	Ton						
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>											
05966	Topdressing Fertilizer	Ton											
Subsection:	212.05 PAYMENT.												
Revision:	Add the following pay items:												
	<table border="1"> <thead> <tr> <th><u>Code</u></th> <th><u>Pay Item</u></th> <th><u>Pay Unit</u></th> </tr> </thead> <tbody> <tr> <td>05963</td> <td>Initial Fertilizer</td> <td>Ton</td> </tr> <tr> <td>05964</td> <td>20-10-10 Fertilizer</td> <td>Ton</td> </tr> <tr> <td>05992</td> <td>Agricultural Limestone</td> <td>Ton</td> </tr> </tbody> </table>	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>	05963	Initial Fertilizer	Ton	05964	20-10-10 Fertilizer	Ton	05992	Agricultural Limestone	Ton
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>											
05963	Initial Fertilizer	Ton											
05964	20-10-10 Fertilizer	Ton											
05992	Agricultural Limestone	Ton											
Subsection:	213.03.02 Progress Requirements.												
Revision:	Replace the last sentence of the third paragraph with the following: Additionally, the Department will apply a penalty equal to the liquidated damages when all aspects of work are not coordinated in an acceptable manner within 7 calendar days after written notification.												
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.												
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 subplot(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.												

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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 subplot. 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 Subplot(s) Verified by Department.
Revision:	Replace the third sentence of the second paragraph with the following: When the paired <i>t</i> -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:	402.03.03 Verification.
Part:	B) Evaluation of Subplots Not Verified by Department.
Revision:	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.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	402.03.03 Verification.
Part:	B) Evaluation of Sublots Not Verified by Department.
Revision:	Replace the third sentence of the second paragraph with the following: When the <i>F</i> -test or <i>t</i> -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:	402.03.03 Verification.
Part:	C) Test Data Patterns.
Revision:	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:	402.03 CONSTRUCTION.
Revision:	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:	402.03.04 Dispute Resolution.
Revision:	Change the subsection number to 402.03.05.
Subsection:	402.05 PAYMENT.
Part:	Lot Pay Adjustment Schedule Compaction Option A Base and Binder Mixtures
Table:	AC
Revision:	Replace the Deviation from JMF(%) that corresponds to a Pay Value of 0.95 to ± 0.6 .
Subsection:	403.02.10 Material Transfer Vehicle (MTV).
Revision:	Replace the first sentence with the following: In addition to the equipment specified above, provide a MTV with the following minimum characteristics:
Subsection:	412.02.09 Material Transfer Vehicle (MTV).
Revision:	Replace the paragraph with the following: Provide and utilize a MTV with the minimum characteristics outlined in section 403.02.10.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	412.03.07 Placement and Compaction.
Revision:	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:	412.04 MEASUREMENT.
Revision:	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:	501.03.05 Weather Limitations and Protection.
Revision:	Replace the reference to Subsection 501.03.19 in Paragraph 5, with Subsection 501.03.20.
Subsection:	501.03.19 Surface Tolerances and Testing Surface.
Part:	B) Ride Quality.
Revision:	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:	603.03.06 Cofferdams.
Revision:	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:	605.03.04 Tack Welding.
Revision:	Insert the subsection and the following: 605.03.04 Tack Welding. The Department does not allow tack welding.
Subsection:	606.03.17 Special Requirements for Latex Concrete Overlays.
Part:	A) Existing Bridges and New Structures.
Number:	1) Prewetting and Grout-Bond Coat.
Revision:	Add the following sentence to the last paragraph: Do not apply a grout-bond coat on bridge decks prepared by hydrodemolition.
Subsection:	609.03 Construction.
Revision:	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
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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 July 31, 2015 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 second sentence 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.
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.
Subsection:	716.03.02 Lighting Standard Installation.
Part:	B) High Mast Installation
Revision:	Replace the first sentence with the following: Install each high mast pole as noted on plans.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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

(1): Shaft length is 22' for cohesive soil only. For cohesionless soil, contact geotechnical branch for design.

(2): Do not construct high mast drilled shafts on ground slopes steeper than 1.5:1 without the approval of the Division of Traffic.

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 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 accordingly.

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 are encountered.

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.

Subsection:	716.03.03 Trenching.
Part:	A) Trenching of Conduit for Highmast Ducted Cables.
Revision:	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.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	716.03.03 Trenching.
Part:	B) Trenching of Conduit for Non-Highmast Cables.
Revision:	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. No payment for additional junction boxes for greater depths will be allowed.
Subsection:	716.03.10 Junction Boxes.
Revision:	Replace subsection title with the following: Electrical Junction Box.
Subsection:	716.04.07 Pole with Secondary 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 mounting the cabinet to the pole, backfilling, restoration, any necessary hardware to anchor pole, or electrical inspection fees, 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, and ground wires and will consider them 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 constructing the concrete base, excavation, backfilling, restoration, any necessary anchors, or electrical inspection fees, 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, and ground wires and will consider them incidental to this item of work.
Subsection:	716.04.09 Luminaire.
Revision:	Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection:	716.04.10 Fused Connector Kits.
Revision:	Replace the first sentence with the following: The Department will measure the quantity as each individual unit furnished and installed.
Subsection:	716.04.13 Junction Box.
Revision:	Replace the subsection title with the following: Electrical Junction Box Type Various.
Subsection:	716.04.13 Junction Box.
Part:	A) Junction Electrical.
Revision:	Rename A) Junction Electrical to the following: A) Electrical Junction Box.
Subsection:	716.04.14 Trenching and Backfilling.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, backfilling, underground utility warning tape (if required), the restoration of disturbed areas to original condition, 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 July 31, 2015 Letting**

Subsection:	716.04.18 Remove Lighting.															
Revision:	Replace the paragraph with the following: The Department will measure the quantity as a lump sum for the removal of lighting equipment. The Department will not measure the disposal of all equipment and materials off the project by the contractor. The Department also will not measure the transportation of the materials and will consider them incidental to this item of work.															
Subsection:	716.04.20 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. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.															
Subsection:	716.05 PAYMENT.															
Revision:	Replace items 04810-04811, 20391NS835 and, 20392NS835 under <u>Code</u> , <u>Pay Item</u> , and <u>Pay Unit</u> with the following:															
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20392NS835	Electrical Junction Box Type C	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 first sentence 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.															
Subsection:	723.03.02 Poles and Bases Installation.															
Part:	A) Steel Strain and Mastarm Poles Installation															
Revision:	Replace the second paragraph with the following: For concrete base installation, see Section 716.03.02, B), 2), Paragraphs 2-7. 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:	723.03.02 Poles and Bases Installation.															
Part:	B) Pedestal or Pedestal Post Installation.															
Revision:	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.															

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	723.03.03 Trenching.
Part:	A) Under Roadway.
Revision:	Add the following after the second sentence: If depths greater than 24 inches are necessary, obtain the Engineer's approval and maintain either required conduit depths coming into the junction boxes. No payment for additional junction boxes for greater depths will be allowed.
Subsection:	723.03.11 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:	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:	723.04.02 Junction Box.
Revision:	Replace subsection title with the following: Electrical Junction Box Type Various.
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 (if required), the restoration of disturbed areas to original condition, and will consider them incidental to this item of work.
Subsection:	723.04.10 Signal Pedestal.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, specified conduits, fittings, ground rod, ground wire, backfilling, restoring disturbed areas, or other necessary hardware and will consider them incidental to this item of work.
Subsection:	723.04.15 Loop Saw Slot and Fill.
Revision:	Replace the second sentence with the following: The Department will not measure sawing, cleaning and filling induction loop saw slot, loop sealant, backer rod, and grout and will consider them incidental to this item of work.
Subsection:	723.04.16 Pedestrian Detector.
Revision:	Replace the paragraph 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 (with arrow) sign, furnishing and installing mounting hardware for sign and will consider them incidental to this item of work.
Subsection:	723.04.18 Signal Controller- Type 170.
Revision:	Replace the second sentence with the following: The Department will not measure constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees 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; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires 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 July 31, 2015 Letting**

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 constructing the concrete base or mounting the cabinet to the pole, connecting the signal and detectors, and excavation, backfilling, restoration, any necessary pole mounting hardware, electric service, or electrical inspection fees 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; furnishing and installing electrical service conductors, specified conduits, anchors, meter base, fused cutout, fuses, ground rods, ground wires and will consider them incidental to this item of work.
Subsection:	723.04.22 Remove Signal Equipment.
Revision:	Replace the paragraph with the following: The Department will measure the quantity as a lump sum removal of signal equipment. The Department will not measure the return of control equipment and signal heads to the Department of Highways as directed by the District Traffic Engineer. The Department also will not measure the transportation of materials of the disposal of all other equipment and materials off the project by the contractor and will consider them incidental to this item of work.
Subsection:	723.04.28 Install Pedestrian Detector Audible.
Revision:	Replace the second sentence with the following: The Department will not measure installing sign R10-3e (with arrow) and will consider it incidental to this item of work.
Subsection:	723.04.29 Audible Pedestrian Detector.
Revision:	Replace the second sentence with the following: The Department will not measure furnishing and installing the sign R10-3e (with arrow) and will consider it incidental to this item of work.
Subsection:	723.04.30 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. Construction methods shall be in accordance with Sections 706.03.02, paragraphs 1, 2, and 4.
Subsection:	723.04.31 Install Pedestrian Detector.
Revision:	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 sign R 10-3e (with arrow) and will consider it incidental to this item of work.
Subsection:	723.04.32 Install Mast Arm Pole.
Revision:	Replace the second sentence with the following: The Department will not measure arms, signal mounting brackets, anchor bolts, or any other necessary hardware and will consider them incidental to this item of work.
Subsection:	723.04.33 Pedestal Post.
Revision:	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, conduit, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware 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 July 31, 2015 Letting**

Subsection:	723.04.36 Traffic Signal Pole Base.															
Revision:	Replace the second sentence with the following: The Department will not measure excavation, reinforcing steel, anchor bolts, specified conduits, ground rods, ground wires, backfilling, or restoration and will consider them incidental to this item of work.															
Subsection:	723.04.37 Install Signal Pedestal.															
Revision:	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.															
Subsection:	723.04.38 Install Pedestal Post.															
Revision:	Replace the second sentence with the following: The Department will not measure excavation, concrete, reinforcing steel, anchor bolts, specified conduits, fittings, ground rod, ground wire, backfilling, restoration, or any other necessary hardware and will consider them incidental to this item of work.															
Subsection:	723.05 PAYMENT.															
Revision:	Replace items 04810-04811, 20391NS835 and, 20392NS835 under <u>Code</u> , <u>Pay Item</u> , and <u>Pay Unit</u> with the following:															
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20392NS835	Electrical Junction Box Type C	Each														
Subsection:	804.01.02 Crushed Sand.															
Revision:	Delete last sentence of the section.															
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} (nonrecoverable creep compliance) between 0.1 and 0.5, when tested according to AASHTO TP 70.															

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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:						
	<u>Test</u>	<u>Specification</u>	<u>100% Pay</u>	<u>90% Pay</u>	<u>80% Pay</u>	<u>70% Pay</u>	<u>50% Pay⁽¹⁾</u>
	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:	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.						
Subsection:	814.04.02 Timber Guardrail Posts.						
Revision:	Third paragraph, replace the reference to "AWPA C14" with "AWPA U1, Section B, Paragraph 4.1".						
Subsection:	814.04.02 Timber Guardrail Posts.						
Revision:	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:	814.04.02 Timber Guardrail Posts.						
Revision:	Fourth paragraph, replace the reference to "AWPA C2" with "AWPA U1, Section B, Paragraph 4.1".						
Subsection:	814.04.02 Timber Guardrail Posts.						
Revision:	Delete the second sentence of the fourth paragraph.						
Subsection:	814.05.02 Composite Plastic.						
Revision:	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:	816.07.02 Wood Posts and Braces.						
Revision:	First paragraph, replace the reference to "AWPA C5" with "AWPA U1, Section B, Paragraph 4.1".						
Subsection:	816.07.02 Wood Posts and Braces.						
Revision:	Delete the second sentence of the first paragraph.						
Subsection:	818.07 Preservative Treatment.						
Revision:	First paragraph, replace all references to "AWPA C14" with "AWPA U1, Section A".						

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

<p>Subsection: Revision:</p>	<p>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).</p>
<p>Subsection Revision:</p>	<p>834.14.03 High Mast Poles. Remove the second and fourth sentence from the first paragraph.</p>
<p>Subsection Revision:</p>	<p>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.</p>
<p>Subsection: Revision:</p>	<p>834.14.03 High Mast Poles. 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-gauge 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).</p>
<p>Subsection: Revision:</p>	<p>834.16 ANCHOR BOLTS. 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.</p>

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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.
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.

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

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.	
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:	
	<u>Property</u>	<u>Minimum Value⁽¹⁾</u>
	CBR Puncture (lbs)	494
	Permittivity (1/s)	0.7
		<u>Test Method</u>
		ASTM D6241
		ASTM D4491

**Supplemental Specifications to the
Standard Specifications for Road and Bridge Construction, 2012 Edition
Effective with the July 31, 2015 Letting**

Subsection:	843.01.01 Geotextile Fabric.		
Table:	TYPE II FABRIC GEOTEXTILES FOR UNDERDRAINS		
Revision:	Add the following to the chart:		
	<u>Property</u>	<u>Minimum Value⁽¹⁾</u>	<u>Test Method</u>
	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:		
	<u>Property</u>	<u>Minimum Value⁽¹⁾</u>	<u>Test Method</u>
	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:		
	<u>Property</u>	<u>Minimum Value⁽¹⁾</u>	<u>Test Method</u>
	CBR Puncture (lbs)	309	ASTM D6241
	Permittivity (1/s)	0.5	ASTM D4491
Subsection:	843.01.01 Geotextile Fabric.		
Table:	TYPE V HIGH STRENGTH GEOTEXTILE FABRIC		
Revision:	Make the following changes to the chart:		
	<u>Property</u>	<u>Minimum Value⁽¹⁾</u>	<u>Test Method</u>
	CBR Puncture (lbs)	618	ASTM D6241
	Apparent Opening Size	U.S. #40 ⁽³⁾	ASTM D4751
	⁽³⁾ Maximum average roll value.		

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.

- 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/=>=>=>/	/MIN/SPEED/**MPH/
/KEEP/LEFT/<=<=<=</	/ICY/BRIDGE/AHEAD/ /ONE
/LOOSE/GRAVEL/AHEAD/	LANE/BRIDGE/AHEAD/
/RD WORK/NEXT/**MILES/	/ROUGH/ROAD/AHEAD/
/TWO WAY/TRAFFIC/AHEAD/	/MERGING/TRAFFIC/AHEAD/
/PAINT/CREW/AHEAD/	/NEXT/***/MILES/
/REDUCE/SPEED/**MPH/	/HEAVY/TRAFFIC/AHEAD/
/BRIDGE/WORK/***0 FT/	/SPEED/LIMIT/**MPH/
/MAX/SPEED/**MPH/	/BUMP/AHEAD/
/SURVEY/PARTY/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

11

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:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02671	Portable Changeable Message Sign	Each

Effective June 15, 2012

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.

11D

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

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 2008 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.

²Minimum Average Roll Values for tensile strength of sample material machine direction.

³Tensile Strength percentage retained after stated 1000 hr duration of exposure under ASTM D4355 testing. Based on nondegradable components exclusively.

⁴Maximum 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:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
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

April 18, 2009

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:

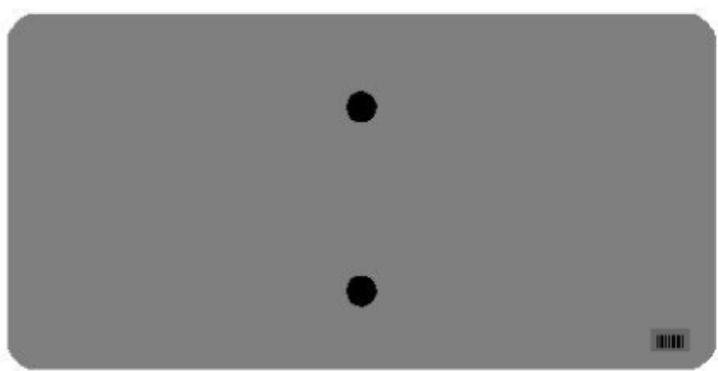
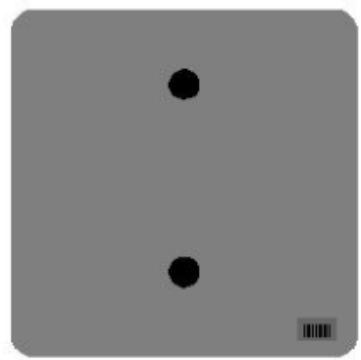
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24631EC	Barcode Sign Inventory	Each

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.

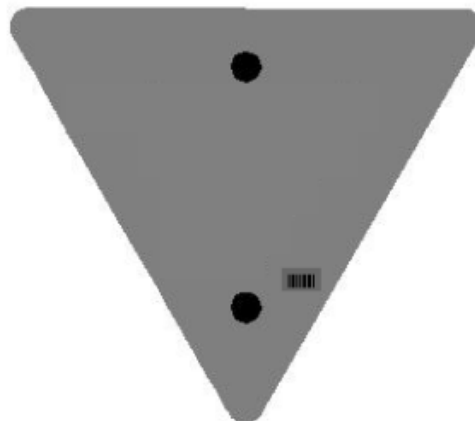
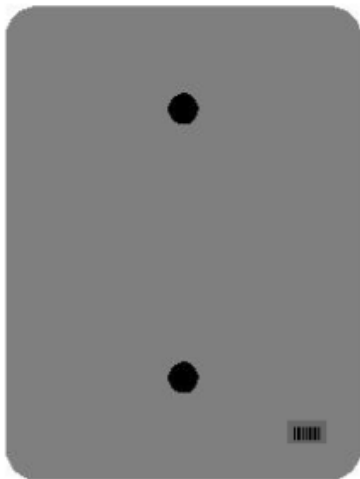
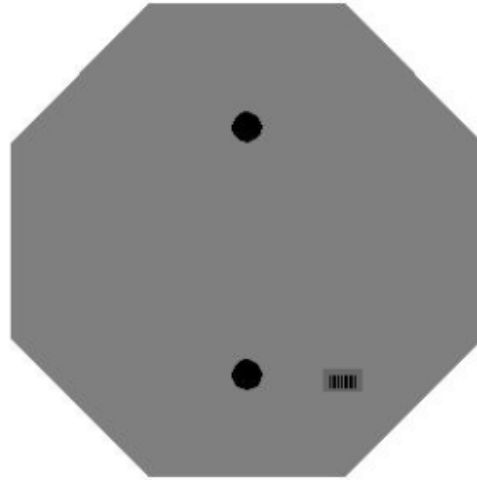
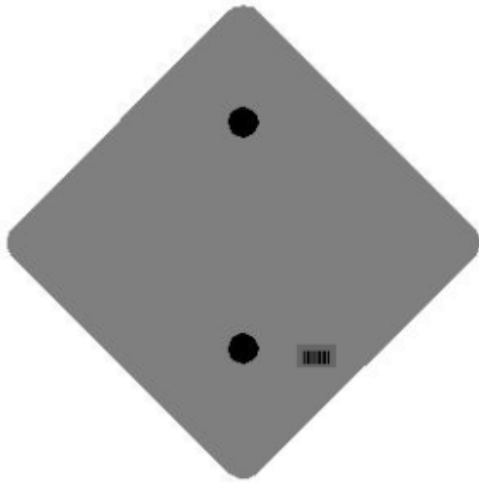
One Sign Post



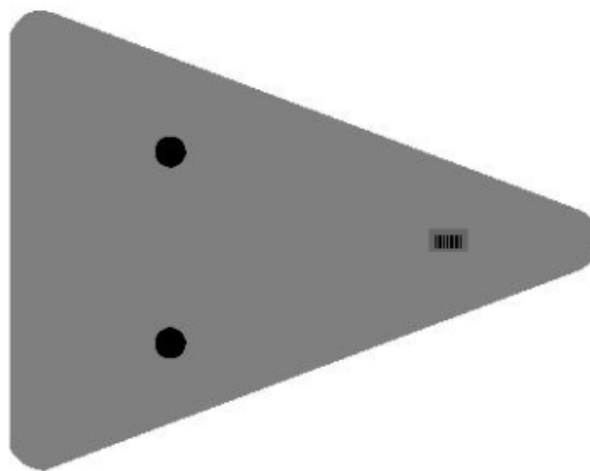
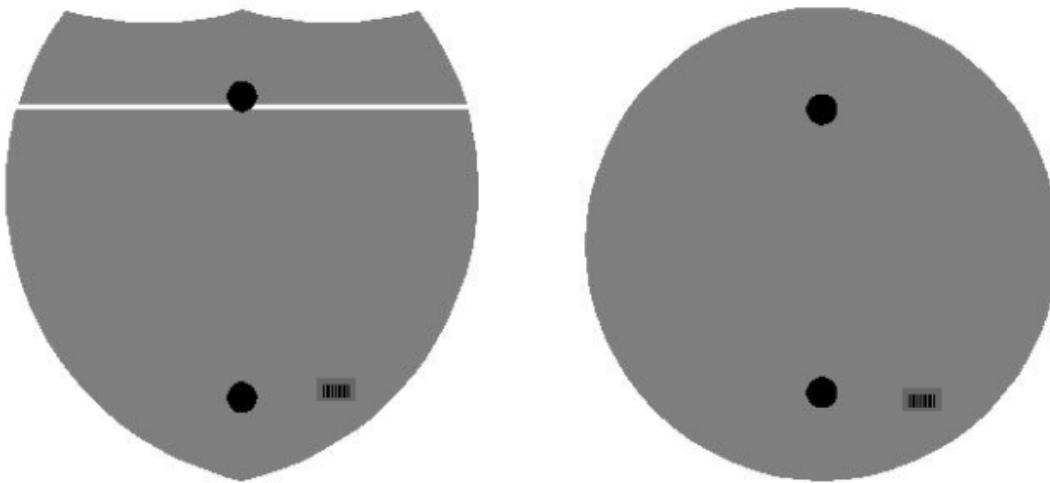
↑
2" Wide Post



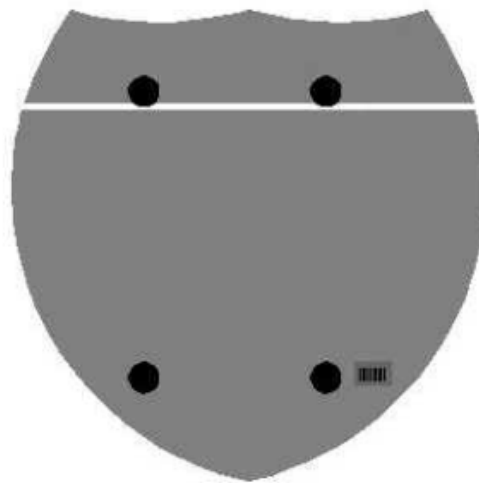
One Sign Post



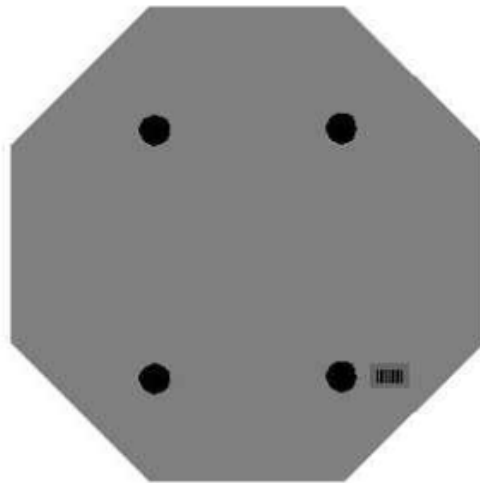
One Sign Post



Double Sign Post



Interstate
Shield

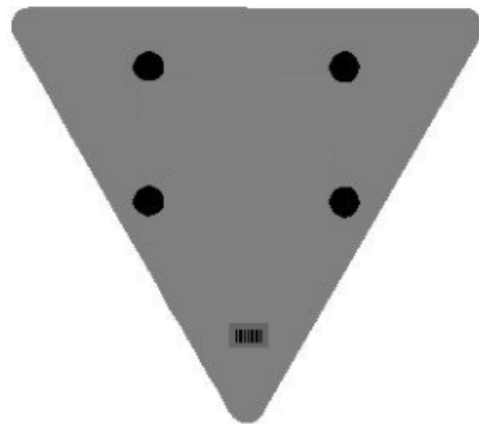


48" Stop

2 Post Signs



↑
2" Wide Post



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.

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 ° 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.

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) ASTM D 3236	4.0-10.0	3.5-10.5	3.0-3.4 10.6-11.0	2.5-2.9 11.1-11.5	2.0-2.4 11.6-12.0	≤1.9 ≥ 12.1
Cone Penetration, 77 ° F ASTM D 5329	60-100	57-103	54-56 104-106	51-53 107-109	48-50 110-112	≤ 47 ≥ 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
20071EC

Pay Item
Joint Adhesive

Pay Unit
Linear Foot

August 19, 2013

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 2012 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Construct a soil, granular, or rock embankment with 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 2012 Standard Specifications.

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 Granular Pile Core. 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.

2.4 Cohesive Pile Core. 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 6 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.

2.5 Structure Granular Backfill. Conform to Subsection 805.11

2.6 Geotextile Fabric. Conform to Type I or Type IV in Section 214 and 843 as required in the plans.

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 granular or cohesive pile core, soil, granular or rock embankment, and structure granular backfill according to the applicable density requirements for the project. When constructing granular or rock embankments, use granular pile core for driven pile foundations and use cohesive pile core for pre-drilled pile or drilled shaft foundations. Place geotextile fabric, Type IV between cohesive pile core and structure

granular backfill and granular or rock embankment.

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 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 or install shafts, 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 removing adjacent forms, fill the excavation with structure granular backfill material to the level of the berm prior to placing beams for the bridge. For soil embankments, 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 structure granular backfill to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill 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 structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means the Engineer approves. 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 the 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 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 Granular Pile Core. 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 furnishing and placing 8-inch perforated underdrain pipe and will consider it incidental to the Granular pile core. The Department will not measure for payment any granular pile core that is necessary because the contractor elects to use granular or rock embankment when it is not specified in the plans.

4.4 Cohesive Pile Core. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204.

4.5 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 structure excavation at the end bent or an existing embankment for payment and will consider it incidental to Structure Granular Backfill.

The Department will not measure for payment the 4-inch perforated underdrain pipe and will consider it incidental to the Structure Granular Backfill.

4.6 Geotextile Fabric. The Department will measure the quantities as specified in Section 214. The Department will not measure the quantity of fabric used for separating granular or rock embankment and cohesive pile core and will consider it incidental to cohesive pile core.

4.7 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.

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

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02223	Granular Embankment	Cubic Yards
20209EP69	Granular Pile Core	Cubic Yards
20210EP69	Cohesive Pile Core	Cubic Yards
02231	Structure Granular Backfill	Cubic Yards
02596, 02599	Geotextile Fabric, Type	See Section 214

The Department will consider payment as full compensation for all work required in this provision.

June 15, 2012

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

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.

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

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.

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).

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 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.

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.

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.

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.

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).

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.

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.

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 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 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 administering 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.

IRONWORKER.....\$ 26.97 20.01

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, Groat
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 Llaborer 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.....\$ 28.85 14.15
Group 2.....\$ 26.24 14.15

Group 3.....\$ 26.65 14.15
Group 4.....\$ 25.95 14.15

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, 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, 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 (under 212 cu ft), 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.

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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.

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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-15-II- HWY dated July 20, 2015.

NOTE: Both Kentucky Determination No. CR-15-II-HWY and Federal Decision No. KY150186 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-15-II-HWY

Project No.
Highway

Date of Determination: July 20, 2015

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.



Anthony Russell, Commissioner
Department of Workplace Standards

<u>CLASSIFICATIONS</u>	<u>RATE AND FRINGE BENEFITS</u>	
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
<p>*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.</p>		
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	\$ 27.56
	FRINGE BENEFITS	20.57

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:

HEAVY & HIGHWAY	BASE RATE	\$21.80
	FRINGE BENEFITS	12.36

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:

HEAVY & HIGHWAY	BASE RATE	\$22.05
	FRINGE BENEFITS	12.36

GROUP 3: Air track driller (all types), asphalt luteman and rakersm gunnite nozzleleman, 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:

HEAVY & HIGHWAY	BASE RATE	\$22.10
	FRINGE BENEFITS	12.36

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:

HEAVY & HIGHWAY	BASE RATE	\$22.70
	FRINGE BENEFITS	12.36

OPERATING ENGINEERS:

Group A-1:

NCCCO or OECP Certified; 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:

BASE RATE	\$31.08
FRINGE BENEFITS	14.40

CLASSIFICATIONS

RATE AND FRINGE BENEFITS

OPERATING ENGINEERS (CONTINUED):

Group A:

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 points, 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, gradeall, 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 guries, self-propelled compactor, self-contained hydraulic percussion drill:

BASE RATE \$29.95
FRINGE BENEFITS 14.40

Group B:

All air compressors (200 cu. ft. per min. or greater capacity), bituminous mixer, concrete mixer (under 21 cu. ft.), welding machine, form grader, tractor (50 H.P. and over), bull float, finish machine, outboard motor boat, brakeman, mechanic helper, whirly oiler, tractair and road widening trencher, articulating trucks:

BASE RATE \$27.26
FRINGE BENEFITS 14.40

Group B2:

Greaser on grease facilities servicing heavy equipment:

BASE RATE \$27.68
FRINGE BENEFITS 14.40

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:

BASE RATE \$26.96
FRINGE BENEFITS 14.40

PAINTERS:

All Excluding Bridges:

BASE RATE \$19.92
FRINGE BENEFITS 9.57

Bridges:

BASE RATE \$23.92
FRINGE BENEFITS 10.07

CLASSIFICATIONS

RATE AND FRINGE BENEFITS

PLUMBERS:

BASE RATE \$22.52
 FRINGE BENEFITS 7.80

SHEET METAL:

BASE RATE \$20.40
 FRINGE BENEFITS 7.80

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

Kentucky Determination No. CR-15-II-HWY dated July 20, 2015

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-15-II-HWY dated July 20, 2015. 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 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 Perry 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

PROPOSAL BID ITEMS

151273

Page 1 of 9

Report Date 10/28/15

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	65,807.00	TON		\$	
0020	00020		TRAFFIC BOUND BASE	3,195.00	TON		\$	
0030	00078		CRUSHED AGGREGATE SIZE NO 2	416.00	TON		\$	
0040	00100		ASPHALT SEAL AGGREGATE	146.00	TON		\$	
0050	00103		ASPHALT SEAL COAT	17.00	TON		\$	
0060	00212		CL2 ASPH BASE 1.00D PG64-22	18,042.00	TON		\$	
0070	00214		CL3 ASPH BASE 1.00D PG64-22	51,514.00	TON		\$	
0080	00216		CL3 ASPH BASE 1.00D PG76-22	15,123.00	TON		\$	
0090	00301		CL2 ASPH SURF 0.38D PG64-22	3,556.00	TON		\$	
0100	00336		CL3 ASPH SURF 0.38A PG76-22	6,281.00	TON		\$	
0110	02101		CEM CONC ENT PAVEMENT-8 IN	1,024.00	SQYD		\$	
0120	20071EC		JOINT ADHESIVE	56,330.00	LF		\$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0790	01310		REMOVE PIPE	69.00	LF		\$	
0800	01810		STANDARD CURB AND GUTTER	1,768.00	LF		\$	
0810	01845		ISLAND INTEGRAL CURB	32.00	LF		\$	
0820	01891		ISLAND HEADER CURB TYPE 2	478.00	LF		\$	
0830	01897		ASPHALT WEDGE CURB	2,059.00	LF		\$	
0840	01917		STANDARD BARRIER MEDIAN TYPE 2	505.00	SQYD		\$	
0850	01967		CONC MEDIAN BARRIER TYPE 12C	302.00	LF		\$	
0860	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	257.00	EACH		\$	
0870	02003		RELOCATE TEMP CONC BARRIER	586.00	LF		\$	
0880	02091		REMOVE PAVEMENT	4,544.00	SQYD		\$	
0890	02157		PAVED DITCH TYPE 1	1,405.00	SQYD		\$	
0900	02159		TEMP DITCH	6,663.00	LF		\$	
0910	02200		ROADWAY EXCAVATION	2,245,568.00	CUYD		\$	
0920	02203		STRUCTURE EXCAV-UNCLASSIFIED	1,869.00	CUYD		\$	
0930	02231		STRUCTURE GRANULAR BACKFILL	2,161.00	CUYD		\$	
0940	02242		WATER (FOR DUST CONTROL)	1,000.00	MGAL		\$	
0950	02262		FENCE-WOVEN WIRE TYPE 1	3,184.00	LF		\$	
0960	02351		GUARDRAIL-STEEL W BEAM-S FACE	12,850.00	LF		\$	
0970	02360		GUARDRAIL TERMINAL SECTION NO 1	22.00	EACH		\$	
0980	02363		GUARDRAIL CONNECTOR TO BRIDGE END TY A	8.00	EACH		\$	
0990	02367		GUARDRAIL END TREATMENT TYPE 1	1.00	EACH		\$	
1000	02369		GUARDRAIL END TREATMENT TYPE 2A	9.00	EACH		\$	
1010	02371		GUARDRAIL END TREATMENT TYPE 7	2.00	EACH		\$	
1020	02381		REMOVE GUARDRAIL	10,748.00	LF		\$	
1030	02391		GUARDRAIL END TREATMENT TYPE 4A	2.00	EACH		\$	
1040	02397		TEMP GUARDRAIL	83.00	LF		\$	
1050	02429		RIGHT-OF-WAY MONUMENT TYPE 1	96.00	EACH		\$	
1060	02430		RIGHT-OF-WAY MONUMENT TYPE 1A	1.00	EACH		\$	

PROPOSAL BID ITEMS

151273

Page 2 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1070	02432		WITNESS POST	3.00	EACH		\$	
1080	02482		CHANNEL LINING CLASS IA	515.00	TON		\$	
1090	02483		CHANNEL LINING CLASS II	2,822.00	TON		\$	
1100	02484		CHANNEL LINING CLASS III	4,080.00	TON		\$	
1110	02488		CHANNEL LINING CLASS IV	6,649.00	CUYD		\$	
1120	02545		CLEARING AND GRUBBING (APPROXIMATELY 111.88 ACRES)	1.00	LS		\$	
1130	02555		CONCRETE-CLASS B	494.00	CUYD		\$	
1140	02562		TEMPORARY SIGNS	2,000.00	SQFT		\$	
1150	02599		FABRIC-GEOTEXTILE TYPE IV	1,338.00	SQYD		\$	
1160	02611		HANDRAIL-TYPE A-1	508.00	LF		\$	
1170	02625		REMOVE HEADWALL	1.00	EACH		\$	
1180	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
1190	02671		PORTABLE CHANGEABLE MESSAGE SIGN	4.00	EACH		\$	
1200	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
1210	02677		ASPHALT PAVE MILLING & TEXTURING	177.00	TON		\$	
1220	02690		SAFELOADING	261.00	CUYD		\$	
1230	02696		SHOULDER RUMBLE STRIPS-SAWED	30,480.00	LF		\$	
1240	02701		TEMP SILT FENCE	6,663.00	LF		\$	
1250	02703		SILT TRAP TYPE A	112.00	EACH		\$	
1260	02704		SILT TRAP TYPE B	112.00	EACH		\$	
1270	02705		SILT TRAP TYPE C	112.00	EACH		\$	
1280	02706		CLEAN SILT TRAP TYPE A	112.00	EACH		\$	
1290	02707		CLEAN SILT TRAP TYPE B	112.00	EACH		\$	
1300	02708		CLEAN SILT TRAP TYPE C	112.00	EACH		\$	
1310	02726		STAKING	1.00	LS		\$	
1320	02731		REMOVE STRUCTURE (10' X 5' BOX CULVERT - STA. 178+42.09)	1.00	LS		\$	
1330	02731		REMOVE STRUCTURE (EXISTING BRIDGE - STA. 182+98.25)	1.00	LS		\$	
1340	02775		ARROW PANEL	2.00	EACH		\$	
1350	03171		CONCRETE BARRIER WALL TYPE 9T	2,226.00	LF		\$	
1360	03262		CLEAN PIPE STRUCTURE	9.00	EACH		\$	
1370	04953		TEMP RELOCATION OF SIGNAL HEAD	6.00	EACH		\$	
1380	05950		EROSION CONTROL BLANKET	115,010.00	SQYD		\$	
1390	05952		TEMP MULCH	360,999.00	SQYD		\$	
1400	05953		TEMP SEEDING AND PROTECTION	270,750.00	SQYD		\$	
1410	05963		INITIAL FERTILIZER	18.00	TON		\$	
1420	05964		20-10-10 FERTILIZER	18.00	TON		\$	
1430	05985		SEEDING AND PROTECTION	232,251.00	SQYD		\$	
1440	05992		AGRICULTURAL LIMESTONE	216.00	TON		\$	
1450	06510		PAVE STRIPING-TEMP PAINT-4 IN	78,000.00	LF		\$	
1460	06514		PAVE STRIPING-PERM PAINT-4 IN	86,735.00	LF		\$	
1470	06568		PAVE MARKING-THERMO STOP BAR-24IN	1,025.00	LF		\$	
1480	06573		PAVE MARKING-THERMO STR ARROW	18.00	EACH		\$	
1490	06574		PAVE MARKING-THERMO CURV ARROW	79.00	EACH		\$	
1500	06600		REMOVE PAVEMENT MARKER TYPE V	500.00	EACH		\$	
1510	08018		RETAINING WALL (NO. 7)	9,622.00	SQFT		\$	
1520	08100		CONCRETE-CLASS A	99.00	CUYD		\$	
1530	08150		STEEL REINFORCEMENT	5,950.00	LB		\$	

PROPOSAL BID ITEMS

151273

Page 3 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1540	08903		CRASH CUSHION TY VI CLASS BT TL3	6.00	EACH		\$	
1550	10020NS		FUEL ADJUSTMENT	578,783.00	DOLL	\$1.00	\$	\$578,783.00
1560	10030NS		ASPHALT ADJUSTMENT	369,524.00	DOLL	\$1.00	\$	\$369,524.00
1570	20411ED		LAW ENFORCEMENT OFFICER (KSP ONLY)	1,200.00	HOUR		\$	
1580	20550ND		SAWCUT PAVEMENT	26,000.00	LF		\$	
1590	20997ED		REMOVE TRAFFIC ISLAND	588.00	SQYD		\$	
1600	21935EN		REMOVE CONC MEDIAN BARRIER	536.00	LF		\$	
1610	22664EN		WATER BLASTING EXISTING STRIPE	39,000.00	LF		\$	
1620	23839EC		REMOVE CONCRETE MEDIAN	2,441.00	SQYD		\$	
1630	24489EC		INLAID PAVEMENT MARKER	929.00	EACH		\$	
1640	24540		R/W MONUMENT TYPE 3	10.00	EACH		\$	
1650	24814EC		PIPELINE INSPECTION	2,693.00	LF		\$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1660	00440		ENTRANCE PIPE-15 IN	272.00	LF		\$	
1670	00441		ENTRANCE PIPE-18 IN	113.00	LF		\$	
1680	00443		ENTRANCE PIPE-24 IN	214.00	LF		\$	
1690	00445		ENTRANCE PIPE-30 IN	284.00	LF		\$	
1700	00462		CULVERT PIPE-18 IN	420.00	LF		\$	
1710	00464		CULVERT PIPE-24 IN	577.00	LF		\$	
1720	00466		CULVERT PIPE-30 IN	493.00	LF		\$	
1730	00468		CULVERT PIPE-36 IN	289.00	LF		\$	
1740	00469		CULVERT PIPE-42 IN	177.00	LF		\$	
1750	00472		CULVERT PIPE-60 IN	121.00	LF		\$	
1760	00494		CULVERT PIPE-30 IN EQUIV	62.00	LF		\$	
1770	00521		STORM SEWER PIPE-15 IN	183.00	LF		\$	
1780	00522		STORM SEWER PIPE-18 IN	927.00	LF		\$	
1790	00524		STORM SEWER PIPE-24 IN	143.00	LF		\$	
1800	00526		STORM SEWER PIPE-30 IN	220.00	LF		\$	
1810	00528		STORM SEWER PIPE-36 IN	131.00	LF		\$	
1820	00529		STORM SEWER PIPE-42 IN	189.00	LF		\$	
1830	00530		STORM SEWER PIPE-48 IN	137.00	LF		\$	
1840	01000		PERFORATED PIPE-4 IN	5,766.00	LF		\$	
1850	01010		NON-PERFORATED PIPE-4 IN	644.00	LF		\$	
1860	01020		PERF PIPE HEADWALL TY 1-4 IN	15.00	EACH		\$	
1870	01022		PERF PIPE HEADWALL TY 1-8 IN	1.00	EACH		\$	
1880	01024		PERF PIPE HEADWALL TY 2-4 IN	2.00	EACH		\$	
1890	01028		PERF PIPE HEADWALL TY 3-4 IN	2.00	EACH		\$	
1900	01032		PERF PIPE HEADWALL TY 4-4 IN	2.00	EACH		\$	
1910	01204		PIPE CULVERT HEADWALL-18 IN	5.00	EACH		\$	
1920	01208		PIPE CULVERT HEADWALL-24 IN	3.00	EACH		\$	
1930	01210		PIPE CULVERT HEADWALL-30 IN	5.00	EACH		\$	
1940	01212		PIPE CULVERT HEADWALL-36 IN	3.00	EACH		\$	
1950	01214		PIPE CULVERT HEADWALL-42 IN	3.00	EACH		\$	
1960	01216		PIPE CULVERT HEADWALL-48 IN	2.00	EACH		\$	
1970	01220		PIPE CULVERT HEADWALL-60 IN	1.00	EACH		\$	

PROPOSAL BID ITEMS

151273

Page 4 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1980	01414		METAL END SECTION TY 4-30 IN	2.00	EACH		\$	
1990	01433		SLOPED BOX OUTLET TYPE 1-18 IN	5.00	EACH		\$	
2000	01450		S & F BOX INLET-OUTLET-18 IN	1.00	EACH		\$	
2010	01451		S & F BOX INLET-OUTLET-24 IN	3.00	EACH		\$	
2020	01452		S & F BOX INLET-OUTLET-30 IN	4.00	EACH		\$	
2030	01453		S & F BOX INLET-OUTLET-36 IN	1.00	EACH		\$	
2040	01480		CURB BOX INLET TYPE B	14.00	EACH		\$	
2050	01490		DROP BOX INLET TYPE 1	3.00	EACH		\$	
2060	01538		DROP BOX INLET TYPE 7	1.00	EACH		\$	
2070	01544		DROP BOX INLET TYPE 11	3.00	EACH		\$	
2080	01650		JUNCTION BOX	1.00	EACH		\$	
2090	01691		FLUME INLET TYPE 2	5.00	EACH		\$	
2100	01767		MANHOLE TYPE C	4.00	EACH		\$	
2110	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	9,038.00	SQYD	\$2.00	\$	\$18,076.00
2120	24575ES610		HEADWALL 30" DOUBLE PIPE CULVERT HEADWALL	2.00	EACH		\$	
2130	24575ES610		HEADWALL 36" DOUBLE PIPE CULVERT HEADWALL	2.00	EACH		\$	

Section: 0004 - BRIDGE - FIRST CREEK - DWG. 27298

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2140	02231		STRUCTURE GRANULAR BACKFILL	578.00	CUYD		\$	
2150	02998		MASONRY COATING	845.00	SQYD		\$	
2160	03299		ARMORED EDGE FOR CONCRETE	187.40	LF		\$	
2170	08001		STRUCTURE EXCAVATION-COMMON	2,531.00	CUYD		\$	
2180	08002		STRUCTURE EXCAV-SOLID ROCK	156.00	CUYD		\$	
2190	08019		CYCLOPEAN STONE RIP RAP	839.00	TON		\$	
2200	08033		TEST PILES	90.00	LF		\$	
2210	08039		PRE-DRILLING FOR PILES	1,212.00	LF		\$	
2220	08046		PILES-STEEL HP12X53	1,151.00	LF		\$	
2230	08100		CONCRETE-CLASS A	439.00	CUYD		\$	
2240	08104		CONCRETE-CLASS AA	890.90	CUYD		\$	
2250	08150		STEEL REINFORCEMENT	54,553.00	LB		\$	
2260	08151		STEEL REINFORCEMENT-EPOXY COATED	263,259.00	LB		\$	
2270	08500		APPROACH SLAB	251.40	SQYD		\$	
2280	08635		PRECAST PC I BEAM TYPE 6	2,839.80	LF		\$	
2290	21532ED		RAIL SYSTEM TYPE III	522.00	LF		\$	

Section: 0005 - BRIDGE - SHORT CREEK CULVERT - DWG. 27299

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2300	08003		FOUNDATION PREPARATION	1.00	LS		\$	
2310	08100		CONCRETE-CLASS A	228.00	CUYD		\$	
2320	08150		STEEL REINFORCEMENT	32,561.00	LB		\$	

Section: 0006 - SEWER

PROPOSAL BID ITEMS

151273

Page 5 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2330	01052		SEWER PIPE-8 IN (PVC GRAVITY)	2,875.00	LF		\$	
2340	01081		STEEL ENCASEMENT PIPE-24 IN	315.00	LF		\$	
2350	01084		STEEL ENCASEMENT PIPE-OPEN CUT-12 IN	135.00	LF		\$	
2360	01315		BLOW-OFF ASSEMBLY (TYPE III)	2.00	EACH		\$	
2370	01787		REMOVE MANHOLE	11.00	EACH		\$	
2380	01799		SANITARY SEWER MANHOLE (STANDARD 0 - 6-IN, H2S PROTECTION)	3.00	EACH		\$	
2390	01799		SANITARY SEWER MANHOLE (STANDARD 0-6-IN)	1.00	EACH		\$	
2400	01799		SANITARY SEWER MANHOLE (STANDARD 6 -12-IN, H2S PROTECTION)	1.00	EACH		\$	
2410	01799		SANITARY SEWER MANHOLE (STANDARD DROP 6 - 12-IN)	1.00	EACH		\$	
2420	01799		SANITARY SEWER MANHOLE (STANDARD DROP 0 - 6-IN, H2S PROTECTION)	1.00	EACH		\$	
2430	01799		SANITARY SEWER MANHOLE (STANDARD DROP 6 -12-IN, H2S PROTECTION)	1.00	EACH		\$	
2440	01799		SANITARY SEWER MANHOLE (TYPE I, 0 - 6-IN)	1.00	EACH		\$	
2450	01799		SANITARY SEWER MANHOLE (TYPE1 DROP 6 - 12-IN)	1.00	EACH		\$	
2460	02220		FLOWABLE FILL	30.00	CUYD		\$	
2470	03495		AIR RELEASE VALVE	8.00	EACH		\$	
2480	03524		GATE VALVE-4 IN (& BOX)	6.00	EACH		\$	
2490	03526		GATE VALVE-6 IN (& BOX)	2.00	EACH		\$	
2500	03528		GATE VALVE-8 IN (& BOX)	2.00	EACH		\$	
2510	15057		S FORCE MAIN PVC 02 INCH	120.00	LF		\$	
2520	15068		S FORCE MAIN SPECIAL (1 1/2-IN PVC)	210.00	LF		\$	
2530	15073		S FORCE MAIN TIE-IN 04 INCH	2.00	EACH		\$	
2540	15074		S FORCE MAIN TIE-IN 06 INCH	2.00	EACH		\$	
2550	15122		S STRUCTURE REMOVAL	1.00	EACH		\$	
2560	20772ND		TIE-IN TO MANHOLE (EXISTING)	7.00	EACH		\$	
2570	20985ND		CLEANOUT (STANDARD)	6.00	EACH		\$	
2580	21251ED		RAISE MANHOLE TO GRADE	8.00	VTFT		\$	
2590	21353ND		TIE-IN TO FORCE MAIN	6.00	EACH		\$	
2600	21799EN		BORE AND JACK PIPE-24 IN (STEEL ENCASEMENT)	265.00	LF		\$	
2610	21800EN		BORE AND JACK PIPE-30 IN (STEEL ENCASEMENT)	95.00	LF		\$	
2620	22444EN		HDPE-6 IN (SDR 9 FORCE MAIN)	7,340.00	LF		\$	
2630	22984EN		PVC FORCE MAIN-6 IN	3,380.00	LF		\$	
2640	23046EN		POLYETHYLENE PIPE-8 IN (SDR 13.5 FORCE MAIN)	4,550.00	LF		\$	

PROPOSAL BID ITEMS

151273

Page 6 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2650	23046EN		POLYETHYLENE PIPE-8 IN (SDR 11 FORCE MAIN)	2,795.00	LF		\$	
2660	23126EN		BORE AND JACK PIPE-18 IN (STEEL ENCASEMENT)	35.00	LF		\$	
2670	23300ED		CRUSHED STONE	1,800.00	TON		\$	
2680	23340EC		PAVEMENT REPLACEMENT	10.00	TON		\$	
2690	23341EC		GENERAL CONCRETE	65.00	CUYD		\$	
2700	23349EC		BORED LINER PIPE-12 IN (STEEL ENCASEMENT)	235.00	LF		\$	
2710	23528EC		PVC FORCE MAIN-4 IN-INSTALL	3,380.00	LF		\$	
2720	23600EC		GRINDER PUMP ASSEMBLY	2.00	EACH		\$	
2730	24240ED		OPEN CUT W/ STEEL ENCASEMENT-18 IN	135.00	LF		\$	

Section: 0007 - SIGNING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2740	06404		FLEXIBLE DELINEATOR POST-M/Y	35.00	EACH		\$	
2750	06405		SBM ALUMINUM PANEL SIGNS	1,296.00	SQFT		\$	
2760	06406		SBM ALUM SHEET SIGNS .080 IN	655.00	SQFT		\$	
2770	06407		SBM ALUM SHEET SIGNS .125 IN	360.00	SQFT		\$	
2780	06410		STEEL POST TYPE 1	380.00	LF		\$	
2790	06411		STEEL POST TYPE 2	3,360.00	LF		\$	
2800	06412		STEEL POST MILE MARKERS	3.00	EACH		\$	
2810	06441		GMSS GALV STEEL TYPE C	1,224.00	LB		\$	
2820	06490		CLASS A CONCRETE FOR SIGNS	31.11	CUYD		\$	
2830	06491		STEEL REINFORCEMENT FOR SIGNS	1,600.00	LB		\$	
2840	20418ED		REMOVE & RELOCATE SIGNS	11.00	EACH		\$	
2850	21596ND		GMSS TYPE D	6.00	EACH		\$	
2860	24631EC		BARCODE SIGN INVENTORY	185.00	EACH		\$	

Section: 0008 - SIGNALIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
2870	04792		CONDUIT-1 IN	110.00	LF		\$	
2880	04793		CONDUIT-1 1/4 IN	640.00	LF		\$	
2890	04795		CONDUIT-2 IN	440.00	LF		\$	
2900	04811		ELECTRICAL JUNCTION BOX TYPE B	12.00	EACH		\$	
2910	04820		TRENCHING AND BACKFILLING	1,080.00	LF		\$	
2920	04830		LOOP WIRE	4,900.00	LF		\$	
2930	04844		CABLE-NO. 14/5C	2,050.00	LF		\$	
2940	04850		CABLE-NO. 14/1 PAIR	5,840.00	LF		\$	
2950	04886		MESSENGER-15400 LB	650.00	LF		\$	
2960	04895		LOOP SAW SLOT AND FILL	2,650.00	LF		\$	
2970	04931		INSTALL CONTROLLER TYPE 170	1.00	EACH		\$	
2980	04932		INSTALL STEEL STRAIN POLE	4.00	EACH		\$	
2990	04950		REMOVE SIGNAL EQUIPMENT	2.00	EACH		\$	
3000	20094ES835		TEMP RELOCATION OF SIGNAL HEAD	32.00	EACH		\$	
3010	20188NS835		INSTALL LED SIGNAL-3 SECTION	22.00	EACH		\$	

PROPOSAL BID ITEMS

151273

Page 7 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3020	21543EN		BORE AND JACK CONDUIT	50.00	LF		\$	
3030	23157EN		TRAFFIC SIGNAL POLE BASE	21.00	CUYD		\$	
3040	23982EC		INSTALL ANTENNA	1.00	EACH		\$	

Section: 0009 - LIGHTING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
3050	04700		POLE 30 FT MTG HT	14.00	EACH		\$	
3060	04701		POLE 40 FT MTG HT	10.00	EACH		\$	
3070	04721		BRACKET 6 FT	4.00	EACH		\$	
3080	04722		BRACKET 8 FT	5.00	EACH		\$	
3090	04724		BRACKET 12 FT	12.00	EACH		\$	
3100	04725		BRACKET 15 FT	3.00	EACH		\$	
3110	04740		POLE BASE	24.00	EACH		\$	
3120	04750		TRANSFORMER BASE	24.00	EACH		\$	
3130	04761		LIGHTING CONTROL EQUIPMENT	1.00	EACH		\$	
3140	04770		HPS LUMINAIRE	24.00	EACH		\$	
3150	04780		FUSED CONNECTOR KIT	60.00	EACH		\$	
3160	04793		CONDUIT-1 1/4 IN	4,970.00	LF		\$	
3170	04795		CONDUIT-2 IN	700.00	LF		\$	
3180	04820		TRENCHING AND BACKFILLING	5,000.00	LF		\$	
3190	04832		WIRE-NO. 12	3,600.00	LF		\$	
3200	04834		WIRE-NO. 6	19,455.00	LF		\$	
3210	04940		REMOVE LIGHTING	1.00	LS		\$	
3220	20391NS835		ELECTRICAL JUNCTION BOX TYPE A	14.00	EACH		\$	
3230	21543EN		BORE AND JACK CONDUIT	625.00	LF		\$	

Section: 0010 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0130	01067		STEEL ENCASEMENT PIPE-10 IN (OPEN CUT)	55.00	LF		\$	
0140	01084		STEEL ENCASEMENT PIPE-OPEN CUT-12 IN	175.00	LF		\$	
0150	01090		DUCTILE IRON PIPE-3 IN	20.00	LF		\$	
0160	01091		DUCTILE IRON PIPE-4 IN	835.00	LF		\$	
0170	01093		DUCTILE IRON PIPE-6 IN	75.00	LF		\$	
0180	01095		DUCTILE IRON PIPE-8 IN	3,970.00	LF		\$	
0190	01099		DUCTILE IRON PIPE-12 IN	165.00	LF		\$	
0200	01103		DUCTILE IRON PIPE-16 IN	2,305.00	LF		\$	
0210	01315		BLOW-OFF ASSEMBLY (TYPE II)	10.00	EACH		\$	
0220	01315		BLOW-OFF ASSEMBLY (TYPE I)	5.00	EACH		\$	
0230	03381		PVC PIPE-2 IN	110.00	LF		\$	
0240	03383		PVC PIPE-4 IN	520.00	LF		\$	
0250	03385		PVC PIPE-6 IN	320.00	LF		\$	
0260	03387		PVC PIPE-8 IN	1,835.00	LF		\$	
0270	03430		INSTALL WATER METER (3/4-IN)	3.00	EACH		\$	

PROPOSAL BID ITEMS

151273

Page 8 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0280	03430		INSTALL WATER METER (1-IN)	1.00	EACH		\$	
0290	03433		RELOCATE FIRE HYDRANT	1.00	EACH		\$	
0300	03434		REMOVE FIRE HYDRANT (& DELIVER)	1.00	EACH		\$	
0310	03437		RECONNECT SERVICE (OR METER)	5.00	EACH		\$	
0320	03460		TIE-IN TO WATER LINE	26.00	EACH		\$	
0330	03495		AIR RELEASE VALVE	5.00	EACH		\$	
0340	03522		GATE VALVE-2 IN (& BOX)	3.00	EACH		\$	
0350	03523		GATE VALVE-3 IN (& BOX)	14.00	EACH		\$	
0360	03524		GATE VALVE-4 IN (& BOX)	8.00	EACH		\$	
0370	03526		GATE VALVE-6 IN (& BOX)	6.00	EACH		\$	
0380	03528		GATE VALVE-8 IN (& BOX)	14.00	EACH		\$	
0390	03532		GATE VALVE-12 IN (& BOX)	1.00	EACH		\$	
0400	03536		GATE VALVE-16 IN (& BOX)	2.00	EACH		\$	
0410	14071		W PIPE POLYETHYLENE/PLASTIC 10 INCH (SDR 7 HDD)	165.00	LF		\$	
0420	20153EC		ACCESS MANHOLE VAULT	2.00	EACH		\$	
0430	20311EC		SERVICE LINE-3/4 IN	725.00	LF		\$	
0440	21344ND		REM AND RESET WATER METER AND BOX	2.00	EACH		\$	
0450	21558EC		SERVICE LINE - 1 IN	1,000.00	LF		\$	
0460	21799EN		BORE AND JACK PIPE-24 IN (STEEL ENCASMENT)	185.00	LF		\$	
0470	21860EN		OPEN CUT AND CASE FOR 8 IN WATERLINE (STEEL ENCASMENT)	80.00	LF		\$	
0480	21868NN		TANDEM METER SETTING (3/4-IN)	1.00	EACH		\$	
0490	21938EN		SERVICE BORE	140.00	LF		\$	
0500	23126EN		BORE AND JACK PIPE-18 IN (STEEL ENCASMENT)	55.00	LF		\$	
0510	23300ED		CRUSHED STONE	400.00	TON		\$	
0520	23341EC		GENERAL CONCRETE	60.00	CUYD		\$	
0530	23344EC		BORED LINER PIPE-8 IN (STEEL ENCASMENT)	265.00	LF		\$	
0540	23349EC		BORED LINER PIPE-12 IN (STEEL ENCASMENT)	355.00	LF		\$	
0550	24078EC		WATER MASTER METER AND PIT (3-IN 4 MAG METER)	3.00	EACH		\$	
0560	24078EC		WATER MASTER METER AND PIT (4-IN 6 MAG METER)	1.00	EACH		\$	
0570	24482ED		BYPASS METER ASSEMBLY (SM. RIV. TEST STA.)	1.00	EACH		\$	
0580	24484ED		PE SERVICE TUBING (1-IN HDD)	110.00	LF		\$	
0590	24569ED		PRESSURE REDUCING VALVE (#3)	1.00	EACH		\$	

PROPOSAL BID ITEMS

151273

Page 9 of 9

Report Date 10/28/15

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0600	24569ED		PRESSURE REDUCING VALVE (#2)	1.00	EACH		\$	
0610	24569ED		PRESSURE REDUCING VALVE (#1)	1.00	EACH		\$	
0620	24633EC		CAP & PLUG (2-IN THROUGH 12-IN)	4.00	EACH		\$	

Section: 0011 - MISCELLANEOUS - RETAINING WALL NO. 5 - DWG. 27447

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0630	02231		STRUCTURE GRANULAR BACKFILL	1,465.00	CUYD		\$	
0640	02998		MASONRY COATING	395.00	SQYD		\$	
0650	08001		STRUCTURE EXCAVATION-COMMON	1,955.00	CUYD		\$	
0660	08100		CONCRETE-CLASS A	315.00	CUYD		\$	
0670	08150		STEEL REINFORCEMENT	40,950.00	LB		\$	
0680	08151		STEEL REINFORCEMENT-EPOXY COATED	213.00	LB		\$	

Section: 0012 - MISCELLANEOUS - RETAINING WALL NO. 4 - DWG. 27446

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0690	02231		STRUCTURE GRANULAR BACKFILL	1,524.00	CUYD		\$	
0700	02998		MASONRY COATING	227.00	SQYD		\$	
0710	08001		STRUCTURE EXCAVATION-COMMON	1,536.00	CUYD		\$	
0720	08100		CONCRETE-CLASS A	372.00	CUYD		\$	
0730	08150		STEEL REINFORCEMENT	46,150.00	LB		\$	
0740	08151		STEEL REINFORCEMENT-EPOXY COATED	189.00	LB		\$	

Section: 0013 - TRAINEES

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0750	02742		TRAINEE PAYMENT REIMBURSEMENT 1 GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOURL		\$	
0760	02742		TRAINEE PAYMENT REIMBURSEMENT 1-GROUP 2, 3 OR 4 OPERATOR	1,400.00	HOURL		\$	

Section: 0014 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0770	02568		MOBILIZATION	1.00	LS		\$	
0780	02569		DEMOBILIZATION	1.00	LS		\$	