



**CALL NO. 100**

**CONTRACT ID. 191239**

**HENDERSON COUNTY**

**FED/STATE PROJECT NUMBER STP BRO 5053 (031)**

**DESCRIPTION US 60**

**WORK TYPE BRIDGE WITH GRADE, DRAIN & SURFACE**

**PRIMARY COMPLETION DATE 6/1/2022**

**LETTING DATE: September 20,2019**

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME September 20,2019. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

**PLANS AVAILABLE FOR THIS PROJECT.**

**DBE CERTIFICATION REQUIRED - 5%**

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

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**PART I**  
**SCOPE OF WORK**

## ADMINISTRATIVE DISTRICT - 02

**CONTRACT ID - 191239**

**STP BRO 5053 (031)**

**COUNTY - HENDERSON**

**PCN - DE05100601939**

**STP BRO 5053 (031)**

US 60 (MP 19.236) ADDRESS DEFICIENCIES OF BRIDGE ON US 60 OVER GREEN RIVER AT INSECTION WITH KY  
1078 (MP 19.444), A DISTANCE OF 0.82 MILES.BRIDGE WITH GRADE, DRAIN & SURFACE SYP NO. 02-01080.00.  
GEOGRAPHIC COORDINATES LATITUDE 37:51:45.00 LONGITUDE 87:24:41.00

**COMPLETION DATE(S):**

COMPLETED BY 06/01/2022

APPLIES TO ENTIRE CONTRACT

COMPLETED BY 04/01/2020

INTERMEDIATE MILESTONE -  
EXISTING BRIDGE REPAIRS



## **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 electronic bidding software. The Bidder must download the bid file located on the Bid Express website ([www.bidx.com](http://www.bidx.com)) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

### **JOINT VENTURE BIDDING**

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

### **UNDERGROUND FACILITY DAMAGE PROTECTION**

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

### **REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY**

Pursuant to KRS 176.085(1)(b), an agency, department, office, or political subdivision of the Commonwealth of Kentucky shall not award a state contract to a person that is a foreign entity required by [KRS 14A.9-010](#) to obtain a certificate of authority to transact business in the Commonwealth ("certificate") from the Secretary of State under [KRS 14A.9-030](#) unless the person produces the certificate within fourteen (14) days of the bid or proposal opening. If the foreign entity is not required to obtain a certificate as provided in [KRS 14A.9-010](#), the foreign entity should identify the applicable exception. Foreign entity is defined within [KRS 14A.1-070](#).

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

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

#### **SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT**

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to [kytc.projectquestions@ky.gov](mailto: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](http://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.

April 30, 2018

### **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 Rating          | 102.08 Preparation and Delivery of Proposals |
| 102.13 Irregular Bid 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 **5** 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 Proposal Line Number, 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, along with the DBE's certificate of insurance. If the DBE is a supplier of materials for the project, a signed purchase order 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 (hard copy along with an electronic copy) of this information must be received in 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 Disadvantaged Enterprise Business Liaison Officer (DEBLO) in the Office of Civil Rights and Small Business Development 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 complete and submit a **signed and notarized** Affidavit of Subcontractor Payment (TC 18-7) and copies of checks for any monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal. These documents must be completed and signed within 7 days of being paid by the Cabinet.

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

#### **\*\*\*\*\* IMPORTANT \*\*\*\*\***

**Please mail the original, signed and completed TC (18-7) Affidavit of Subcontractor Payment form and all copies of checks for payments listed above to the following address:**

Office of Civil Rights and Small Business Development  
6<sup>th</sup> Floor West 200 Mero Street  
Frankfort, KY 40622

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 in this office is Mr. Melvin Bynes. Mr. Bynes' current contact information is email address – [melvin.bynes2@ky.gov](mailto:melvin.bynes2@ky.gov) and the telephone number is (502) 564-3601.

### **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.

7/19/2019

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

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

SECTION 7 is expanded by the following new Article:

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

Pursuant to Title 46CFR Part 381, the Contractor agrees

- To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

- To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph 1 of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

- To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

### **PROJECT TRAFFIC COORDINATOR (PTC)**

Be advised this project is a significant project pursuant to section 112.03.12.

### **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.

### **OPTION A**

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

### **MATERIAL TRANSFER VEHICLE (MTV)**

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

**US-60 over GREEN RIVER – EXISTING BRIDGE REPAIRS**

**PROPOSAL BID ITEMS**

Line	Bid Code	Description	Quantity	Unit
001	24084EC	STRINGER REPAIR	7	EA
002	23304EC	REPAIR TRUSS MEMBER TYPE 1	1	EA
003	23304EC	REPAIR TRUSS MEMBER TYPE 2	2	EA
004	23304EC	REPAIR TRUSS MEMBER TYPE 3	1	EA
005	03301	REPAIR CONCRETE HANDRAIL	15	LF
006	24182EC	VERTICAL MEMBER REPAIR	1	EA

**SPECIAL NOTE FOR MILESTONE COMPLETION DATE  
AND LIQUIDATED DAMAGES ON EXISTING BRIDGE  
REPAIRS**

- I. COMPLETION DATE.** All work described in the existing bridge repair notes and details is to be completed by April 1, 2020. The Contractor must notify the Department seven (7) calendar days before contract work begins on the existing bridge repairs.
- II. LIQUIDATED DAMAGES.** Liquidated damages will be assessed on the Contractor in accordance with the Transportation Cabinet, Department of Highway's 2019 Standard Specifications for Road and Bridge Construction, Section 108.09, at a rate of \$1000 per calendar day, when the April 1, 2020 date is exceeded. In addition to the liquidated damages specified in Section 108.9, liquidated damages in the amount of \$500 per 15 minutes will be assessed when the bridge remains closed to traffic during prohibited hours as specified in the Traffic Control Plan for the Existing Bridge Repairs.

All construction must be completed in accordance with the weather limitations specified in Section 606 and/or Section 601 as applicable. No extension of Contract time will be granted due to inclement weather or temperature limitations.

## SPECIAL NOTE FOR STRINGER REPAIR

**I. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's 2019 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, this Note, and the attached detail drawing(s). Section references are to the Standard Specifications.

This work consists of the following: (1) Furnish all labor, materials, tools, and equipment; (2) Verify or measure existing dimensions (3) Add bolted connections through the stringer webs as shown on the detail drawings; (4) Maintain and control traffic as necessary; and (5) Any other work specified as part of this contract. Sections or provisions of this Special Note may be waived at the discretion of the Engineer. Submit requests for waiver of provisions in writing to the Engineer for approval.

## II. CONSTRUCTION.

**A. Construction Sequence.** The suggested construction sequence for stringer repair may be modified by the contractor to conform to the means and methods being used to prosecute the work. Submit modifications to the Engineer for review. The suggested construction sequence is as follows:

- 1) Field measure as shown on the plans or as necessary to accurately determine dimensions for ordering material.
- 2) Using approved means, carefully drill holes in the existing plate as shown in the detail drawings so as to not damage the plate or stringer web. Field drill holes to accept 7/8" dia. A 325 bolts.
- 3) Install bolts in accordance with the Specifications and contract documents.
- 4) Paint new and reused structural steel remaining in structure in accordance with the Specifications and Special Notes.

### **B. Construction Loading**

- 1) Equipment live loads shall be limited to 25 tons if moving at speed greater than 15mph or 30 tons if moving at speed less than 15mph (no impact).
- 2) Construction dead loads shall not be stored on or staged from the span being repaired.

## IV MEASUREMENT.

**A. Stringer Repair.** The Department will measure the quantity as each repair location shown in the contract documents completed and installed.

## V. PAYMENT.

**A. Stringer Repair (24084EC).** Payment at the unit bid price 'Each' includes any and all labor, materials, manufactured assemblies, removing existing material, surface preparation for paint, paint, and all incidental items necessary to complete the work in accordance with this Note, the Standard Specifications, and as shown on the attached detail drawing(s), or other contract documents, or as directed by the Engineer.

## SPECIAL NOTE FOR REPAIR TRUSS MEMBER

**I. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's 2019 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, this Note, and the attached detail drawing(s). Section references are to the Standard Specifications.

This work consists of the following: (1) Furnish all labor, materials, tools, and equipment; (2) Verify or measure existing dimensions (3) Remove and replace existing damaged portions of truss member as shown on the detail drawings for repair types 1, 2, and 3; (4) Maintain and control traffic as necessary; and (5) Any other work specified as part of this contract. Sections or provisions of this Special Note may be waived at the discretion of the Engineer. Submit requests for waiver of provisions in writing to the Engineer for approval.

## II. CONSTRUCTION.

**A. Construction Sequence.** The suggested construction sequence for truss repair may be modified by the contractor to conform to the means and methods being used to prosecute the work. Submit modifications to the Engineer for review. The suggested construction sequence is as follows:

- 1) Field measure as shown on the plans or as necessary to accurately determine dimensions for ordering material.
- 2) Using a rivet buster or other approved means, carefully remove rivets as shown in the detail drawings so as to not damage existing rivet holes. Field drill, ream, or otherwise recondition rivet holes to accept 7/8" dia. A 325 bolts.
- 3) Install replacement and fill plates in accordance with the Specifications and contract documents.
- 4) Paint new and reused structural steel remaining in structure in accordance with the Specifications and Special Notes.

### **B. Construction Loading**

- 1) Equipment live loads shall be limited to 25 tons if moving at speed greater than 15mph or 30 tons if moving at speed less than 15mph (no impact).
- 2) Construction dead loads shall not be stored on or staged from the span being repaired.

## IV MEASUREMENT.

**A. Repair Truss Member.** The Department will measure the quantity as each repair location shown in the contract documents completed and installed.

## V. PAYMENT.

**A. Repair Truss Member (23304EC).** Payment at the unit bid price 'Each' includes any and all labor, materials, manufactured assemblies, removing existing material, surface preparation for paint, paint, and all incidental items necessary to complete the work in accordance with this Note, the Standard Specifications, and as shown on the attached detail drawing(s), or other contract documents, or as directed by the Engineer.



## SPECIAL NOTE FOR REPAIR CONCRETE HANDRAIL

**I. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's 2019 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, this Note, and the attached detail drawing(s). Section references are to the Standard Specifications.

This work consists of the following: (1) Furnish all labor, materials, tools, and equipment; (2) Verify or measure existing dimensions (3) Remove damaged portion of concrete barrier and repair as shown on the detail drawings; (4) Maintain and control traffic as necessary; and (5) Any other work specified as part of this contract. Sections or provisions of this Special Note may be waived at the discretion of the Engineer. Submit requests for waiver of provisions in writing to the Engineer for approval.

## II. CONSTRUCTION.

**A. Construction Sequence.** The suggested construction sequence for truss repair may be modified by the contractor to conform to the means and methods being used to prosecute the work. Submit modifications to the Engineer for review. The suggested construction sequence is as follows:

- 1) Field measure as shown on the plans or as necessary to accurately determine dimensions for ordering material.
- 2) Remove damaged portions of the concrete barrier.
- 3) Contractor shall clean and reuse existing reinforcing steel when possible. All new reinforcing steel installed shall be of equivalent size and strength.
- 4) Install new portion of concrete barrier in accordance with the Specifications and the detail drawings.

### **B. Construction Loading**

- 1) Equipment live loads shall be limited to 25 tons if moving at speed greater than 15mph or 30 tons if moving at speed less than 15mph (no impact).
- 2) Construction dead loads shall not be stored on or staged from the span being repaired.

## IV MEASUREMENT.

**A. Repair Concrete Handrail.** The Department will measure the quantity in linear feet as shown in the contract documents completed and installed.

## V. PAYMENT.

**A. Repair Concrete Handrail (03301).** Payment at the unit bid price 'Linear Feet' includes any and all labor, materials, manufactured assemblies, removing existing material, surface preparation for repairing the concrete barrier, and all incidental items necessary to complete the work in accordance with this Note, the Standard Specifications, and as shown on the attached detail drawing(s), or other contract documents, or as directed by the Engineer.

## SPECIAL NOTE FOR VERTICAL MEMBER REPAIR

**I. DESCRIPTION.** Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's 2019 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, and this Note. Section references are to the Standard Specifications.

This work consists of the following: (1) Furnish all labor, materials, tools, and equipment; (2) Verify or measure existing dimensions (3) Install temporary support system in accordance with plans provided by and stamped by a Professional Engineer licensed in the state of KY; (4) Remove and replace existing damaged vertical member in kind; (5) Maintain and control traffic as necessary; and (6) Any other work specified as part of this contract. Sections or provisions of this Special Note may be waived at the discretion of the Engineer. Submit requests for waiver of provisions in writing to the Engineer for approval.

## II. CONSTRUCTION.

**A. Temporary Supports.** The contractor shall be required to submit temporary support system plans and supporting design calculations to the Engineer for approval prior to starting work. The temporary support plans and design calculations must be stamped by a Professional Engineer licensed in the state of Kentucky and submitted to the Kentucky Transportation Cabinet for review before vertical member is repaired.

**B. Construction Sequence.** The suggested construction sequence for truss repair may be modified by the contractor to conform to the means and methods being used to prosecute the work. Submit modifications to the Engineer for review. The suggested construction sequence is as follows:

- 1) Field measure as shown on the plans or as necessary to accurately determine dimensions for ordering material.
- 2) Install temporary support system.
- 3) Once the temporary support system is installed use a rivet buster or other approved means to carefully remove rivets as shown in the detail drawings so as to not damage existing rivet holes. Field drill, ream, or otherwise recondition rivet holes to accept 7/8" dia. A 325 bolts.
- 4) Remove the damaged vertical member and replace it with a member of equivalent size and strength.
- 5) Paint new and reused structural steel remaining in structure in accordance with the Specifications and Special Notes.

### **C. Construction Loading**

- 1) Equipment live loads shall be limited to 25 tons if moving at speed greater than 15mph or 30 tons if moving at speed less than 15mph (no impact).
- 2) Construction dead loads shall not be stored on or staged from the span being repaired.

## IV MEASUREMENT.

**A. Vertical Member Repair.** The Department will measure the quantity as each repair location shown in the contract documents completed and installed.

**V. PAYMENT.**

**A. Vertical Member Repair (24182EC).** Payment at the unit bid price 'Each' includes any and all labor, materials, manufactured assemblies, removing existing material, surface preparation for paint, paint, and all incidental items necessary to complete the work in accordance with this Note, and the Standard Specifications, or other contract documents, or as directed by the Engineer.

## **SPECIAL NOTE FOR SURFACE PREPARATION AND PAINT APPLICATION**

### **New Steel**

Clean and Paint all new steel and temporary support items, if any, that will remain in the completed construction in accordance with section 607.03.23 of the Standard Specification. Contrary to Section 607.03.23 of the Standard Specification, apply a **Class I (Type V)** system from the Department's list of Approved Materials maintained by the Division of Materials and shop apply all coatings. Faying surfaces of new steel that is to be installed to existing steel shall receive the primer coating only. Remove all grease, dirt, etc. from new washers, nut and bolt heads and field apply the coating system specified. Necessary touch up/repair of the shop applied coatings on the new steel may be executed in the field.

**The finish paint coat shall closely match existing paint color.**

### **Existing Steel**

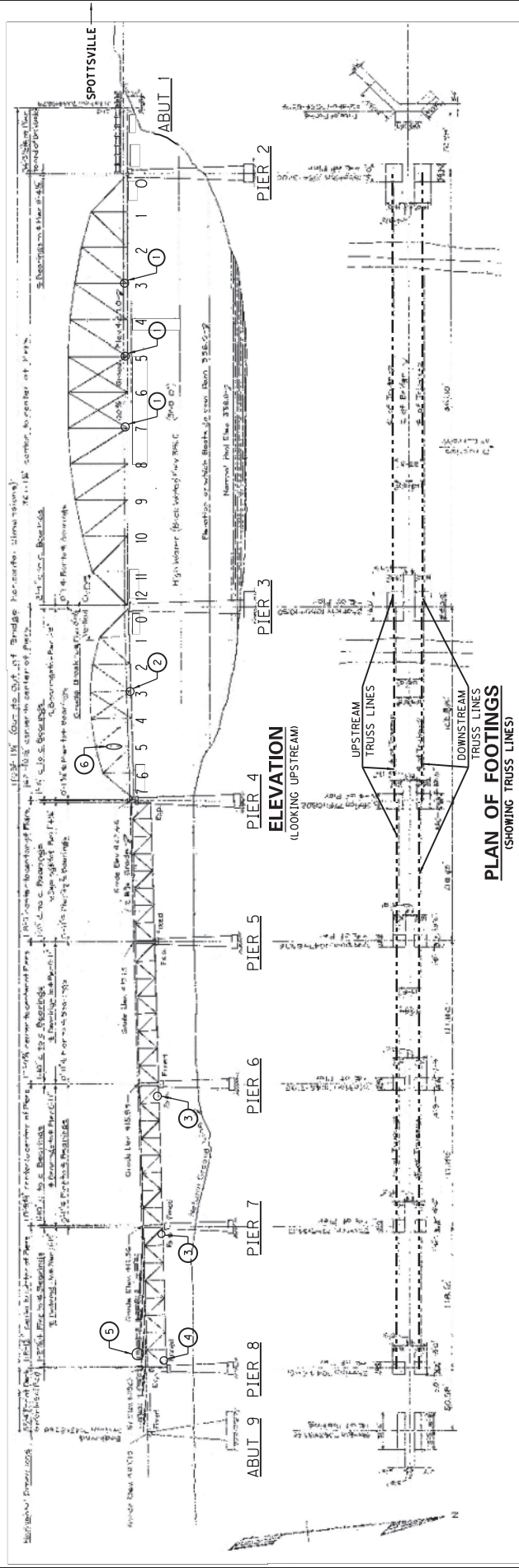
Clean and apply a primer coating to all existing faying surfaces of the existing steel where new steel is to be installed. Level of cleaning shall be to an **SSPC-SP 15** (Commercial Grade Power Tool Cleaning). All Power tools shall be equipped with vacuum shrouds and fitted with HEPA filters at their air exhausts. Maintain and operate all vacuum shrouded power tools to collect generated debris. Apply a **Class 1 (Type I-Type IV) prime coating** from the Department's list of Approved Materials maintained by the Division of Materials. Any existing paint damaged during construction shall be repaired using the coating system specified above for new steel.

**Residual lead paint may still be on bridge.** The Contractor is advised to take all necessary protective measures including worker safety and environmental regulations when performing surface preparation. The Department will not consider any claims based on residual lead paint.

### **Payment**

All items necessary to complete surface preparation and paint application as specified in this note shall be considered incidental to the unit price bid for Stringer Repair, Repair Truss Member, and Vertical Member Repair.

SPAN 8    SPAN 7    SPAN 6    SPAN 5    SPAN 4    SPAN 3    SPAN 2    SPAN 1



Repair Locations:

- ① Stringer Repair (7 locations, SPAN 2), Stringer 1 on the downstream side, Stringer 5 on the upstream side
  - At Floorbeam 3, East Face, Stringer 1
  - At Floorbeam 3, West Face, Stringer 1
  - At Floorbeam 3, East Face, Stringer 5
  - At Floorbeam 3, West Face, Stringer 5
  - At Floorbeam 5, West Face, Stringer 1
  - At Floorbeam 5, West Face, Stringer 5
  - At Floorbeam 7, West Face, Stringer 5
  - At Floorbeam 7, East Face, Stringer 5
- ② Repair Truss Member (Type 1) Downstream Truss (1 location, Span 3)
- ③ Repair Truss Member (Type 2) Upstream Truss (1 location per span, Spans 6 & 7)

Repair Locations Cont'd:

- ④ Repair Truss Member (Type 3) Downstream Truss (1 location, Span 7)
- ⑤ Repair Concrete Handrail Upstream Side (1 location, Span 7)
- ⑥ Vertical Member Repair (L5-U5) Downstream Side (1 location, Span 3)

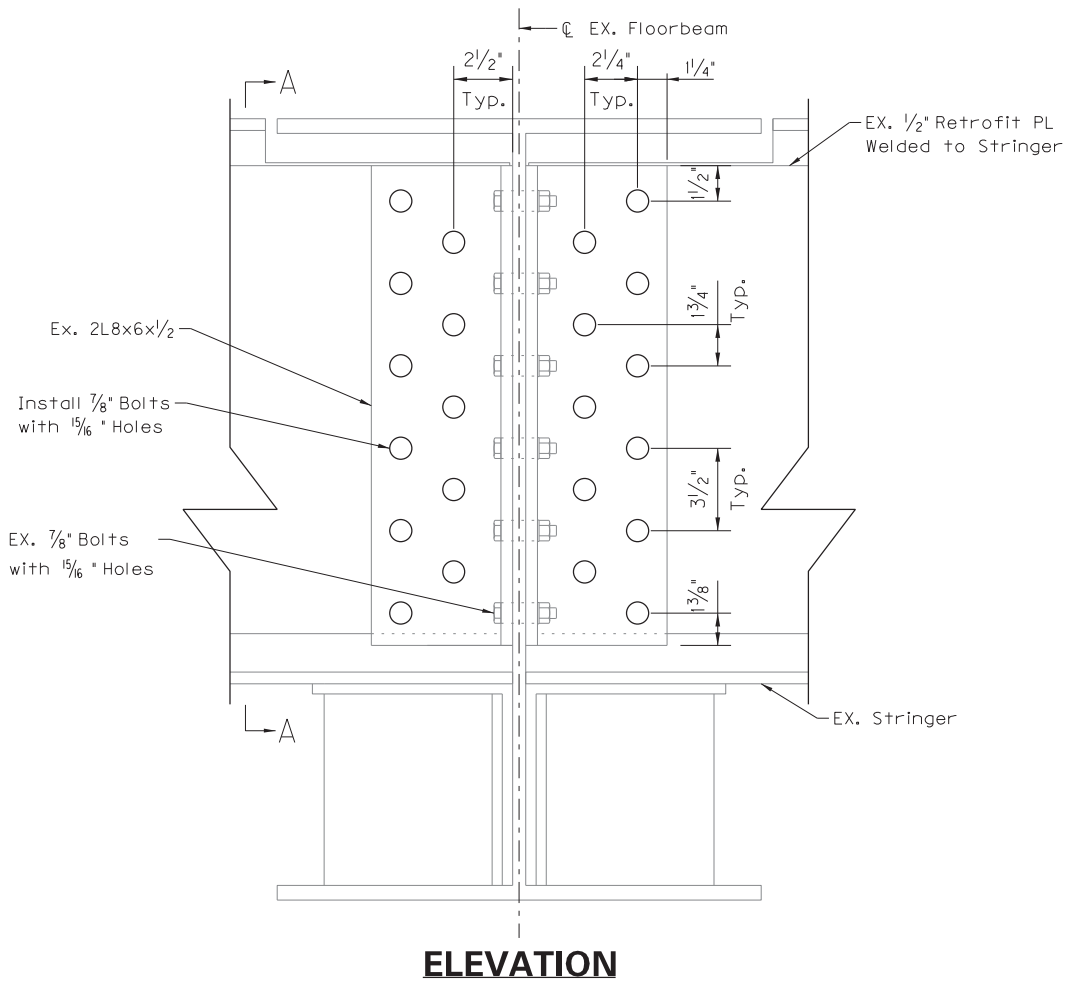
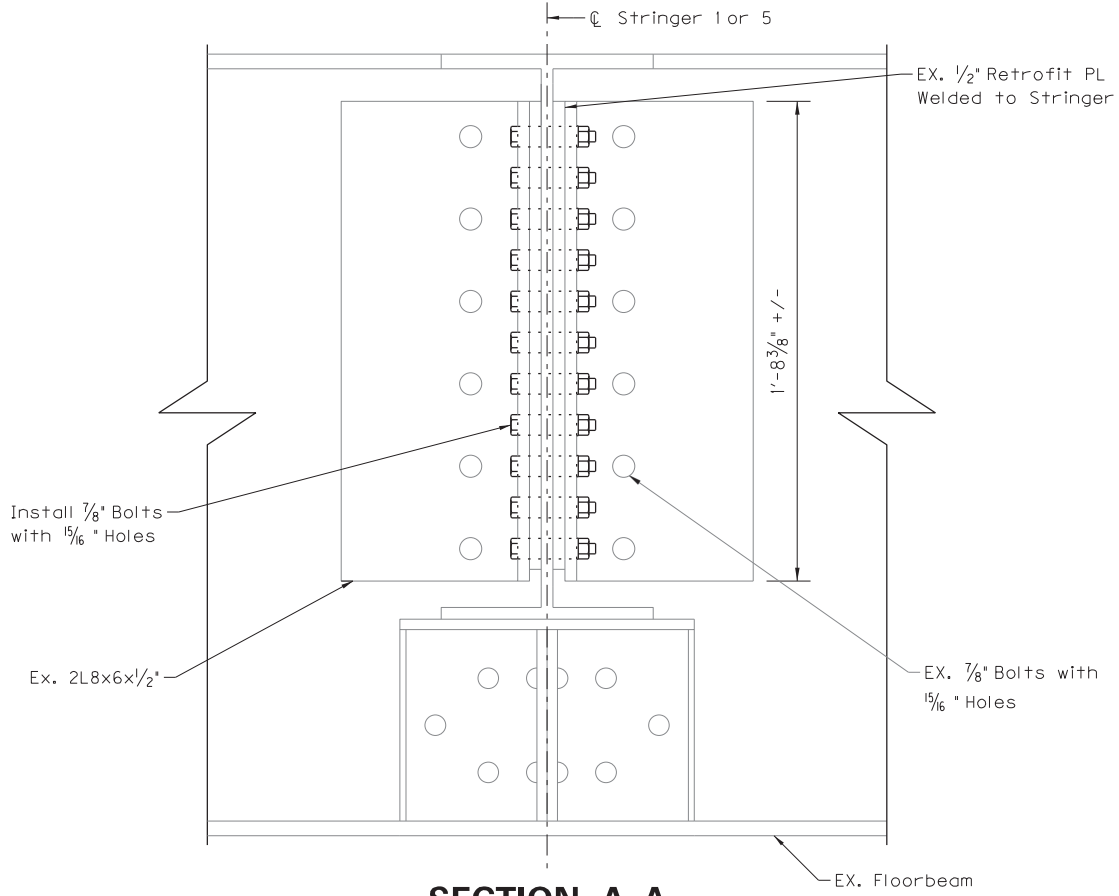
General Notes:

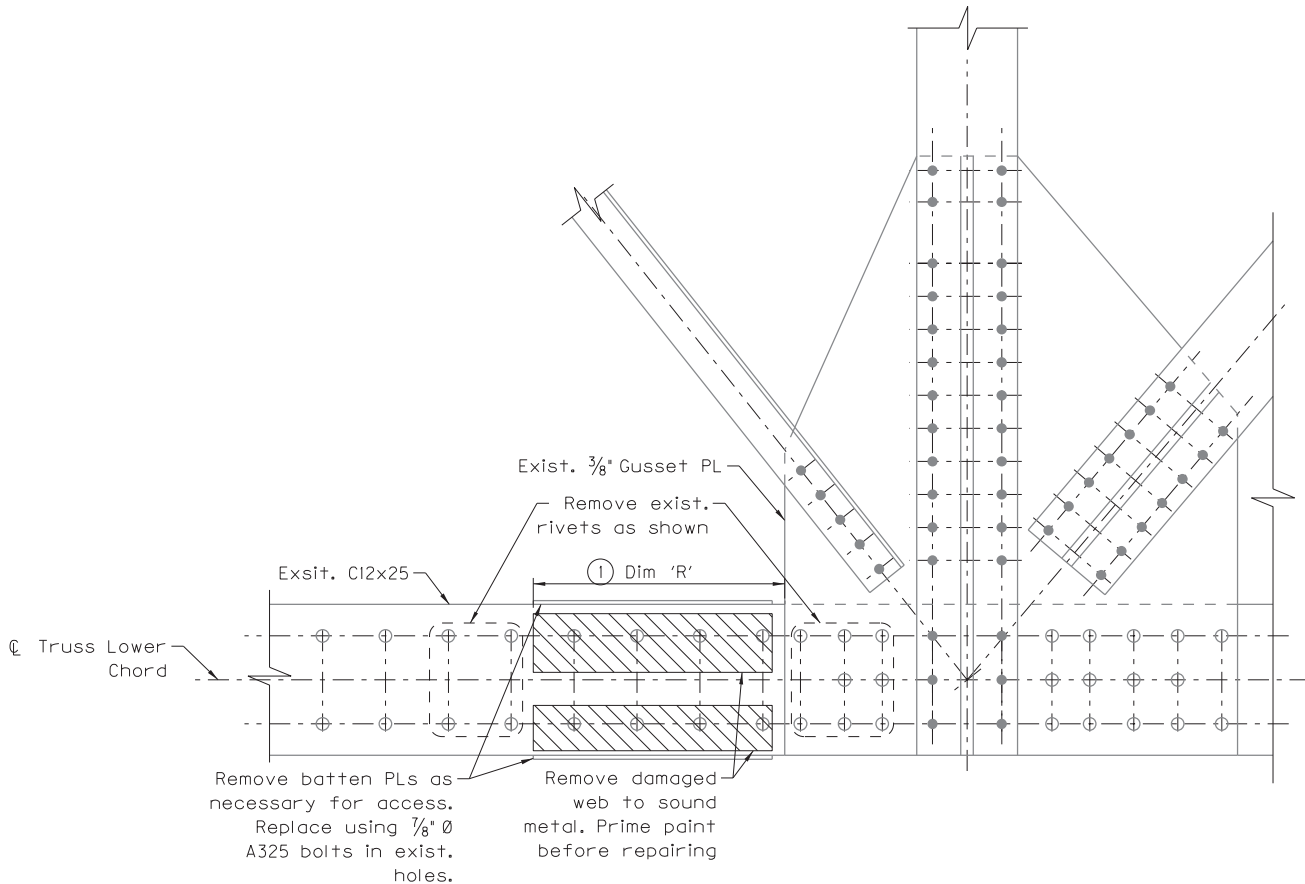
1. The naming convention of the spans, substructure units, and superstructure (panel points) match the nomenclature used for inspection documentation (NBI). This does not match the original plan set and shop drawings. See DWG 04053, DWG 07129 (shop plans), and STD DWG'S S-60, S-61, and S-62 for dimensions and details.
2. All new steel to be A109, Grade 50.
3. All new and replacement bolts to be 7/8" diameter A325 in 15/16" diameter holes.
4. Paint all steel repairs to match the existing steel.
5. Designated portion of concrete handrail in Span 7 (Upstream) to be replaced in kind.



BRIDGE REPAIR LOCATIONS

COUNTY: HENDERSON  
ROUTE: US-60  
CROSSING: GREEN RIVER  
BRIDGE NO: 05B00015N

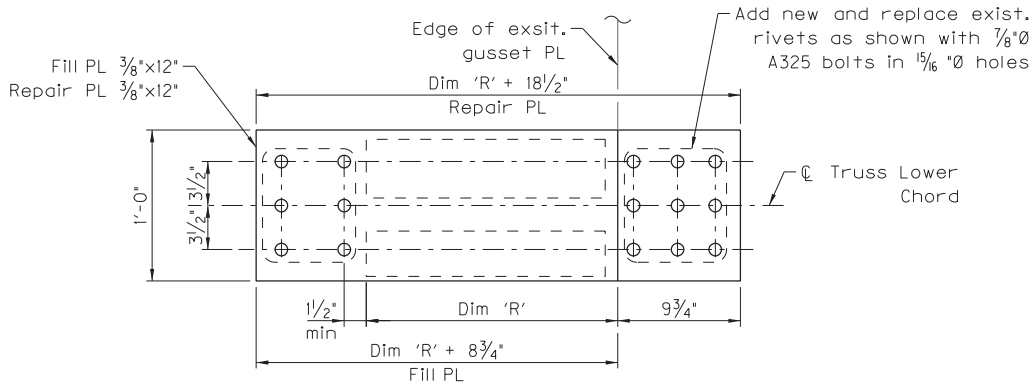




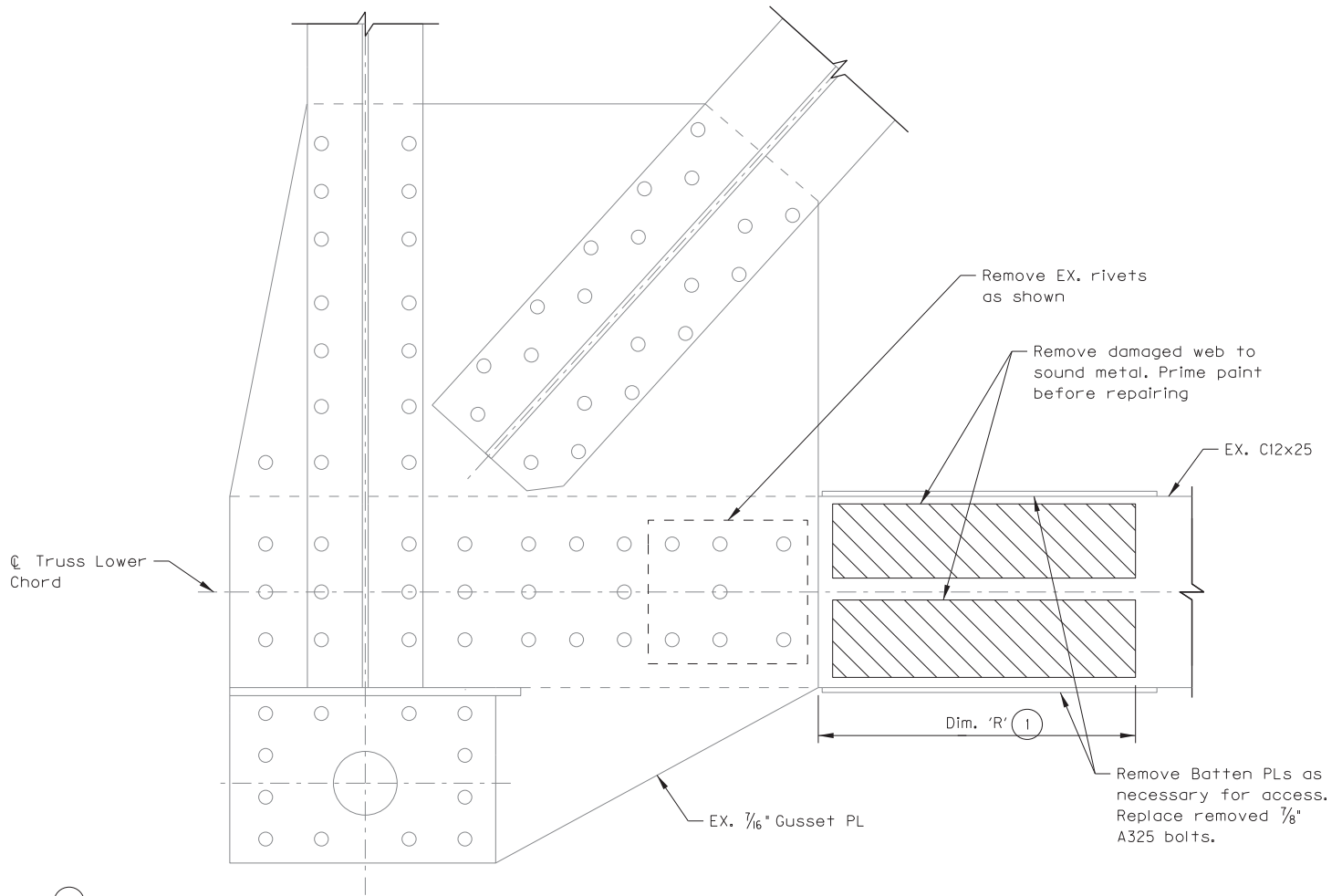
**ELEVATION**

(Looking Downstream at Truss Joint L3)

① Field measure after removing deterioration and use dim 'R' to size repair PL below

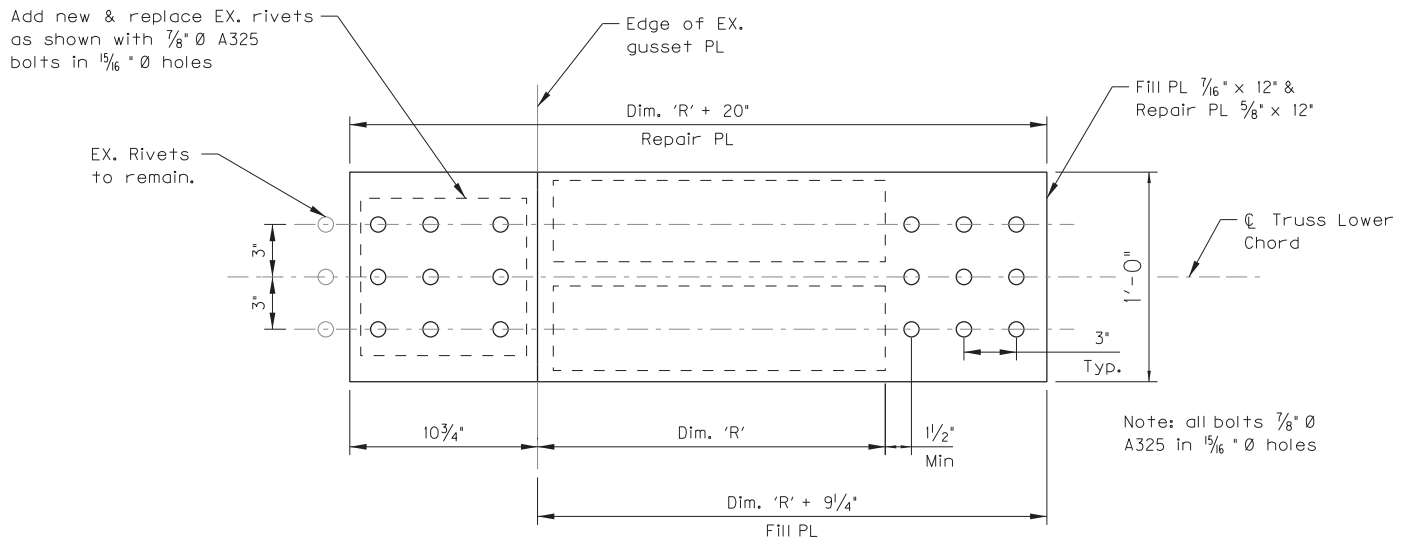


**DETAIL - REPAIR PLs**



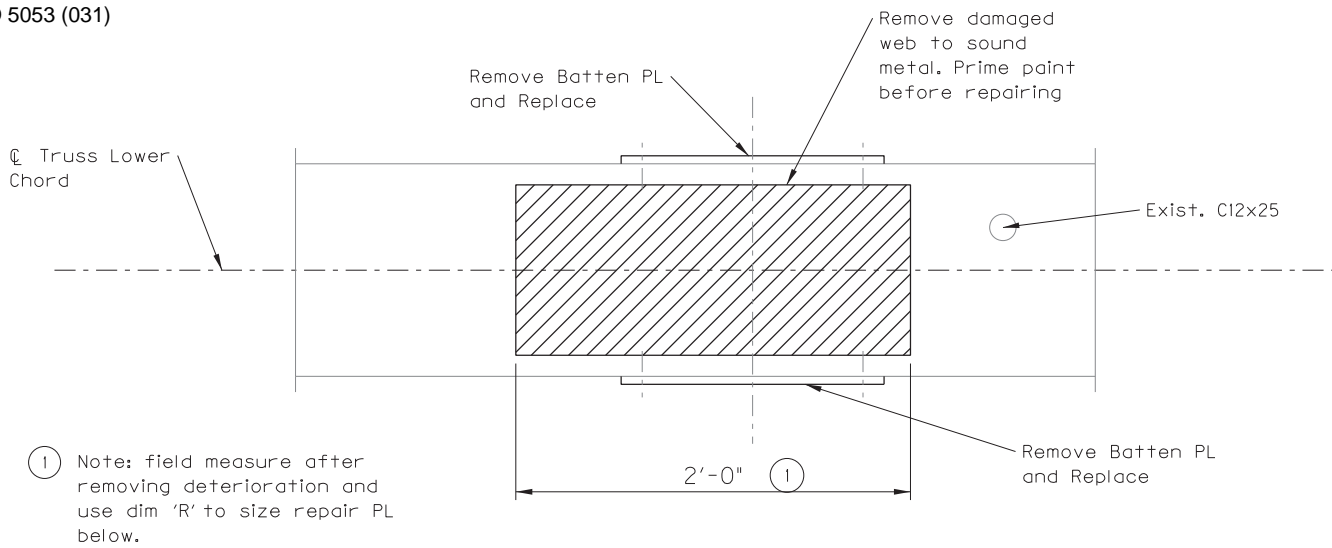
① Note: field measure after removing deterioration and use dim 'R' to size repair PL below.

**ELEVATION**  
(Looking Downstream at Truss Joint L0)

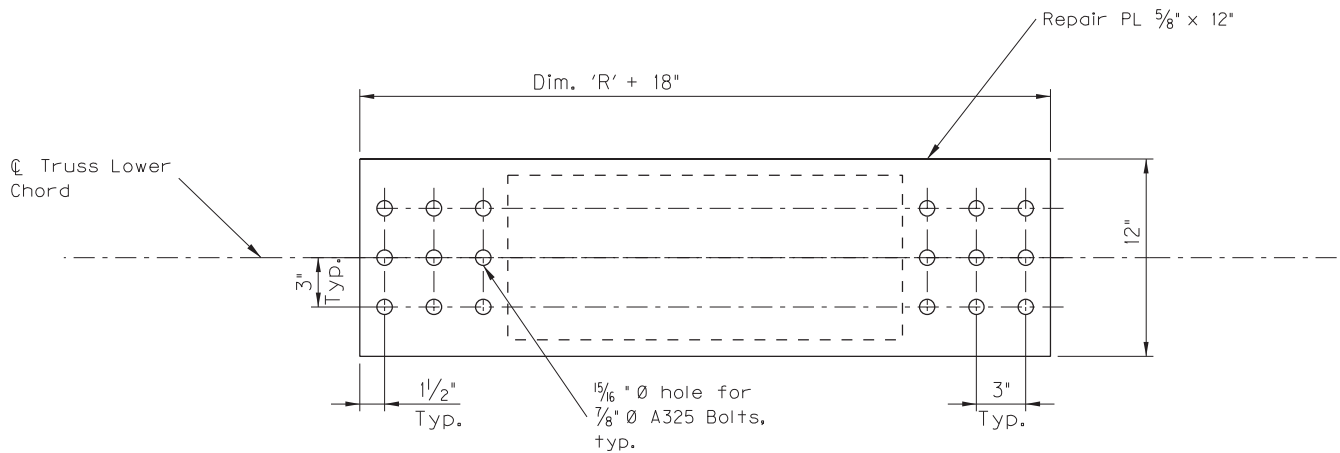


**DETAIL - REPAIR PLs**

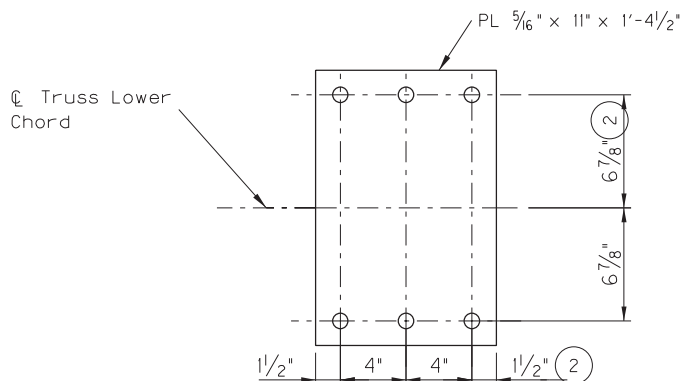




**ELEVATION**  
(Downstream Truss Near Joint L8)



**DETAIL - REPAIR PLs**

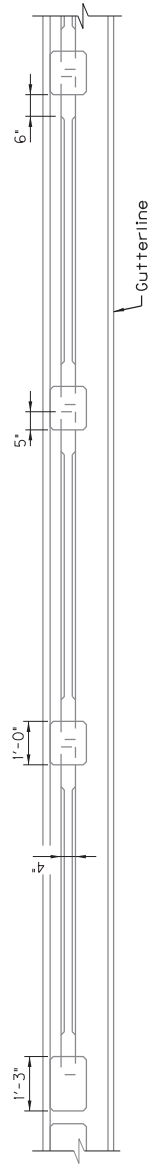


**BATTEN PL**

BRIDGE: 051B00015N	
COUNTY: HENDERSON	DATE: 8-1-2019
ROUTE: US-60	BY: CAV
CROSSING: GREEN RIVER	SHEET: 5

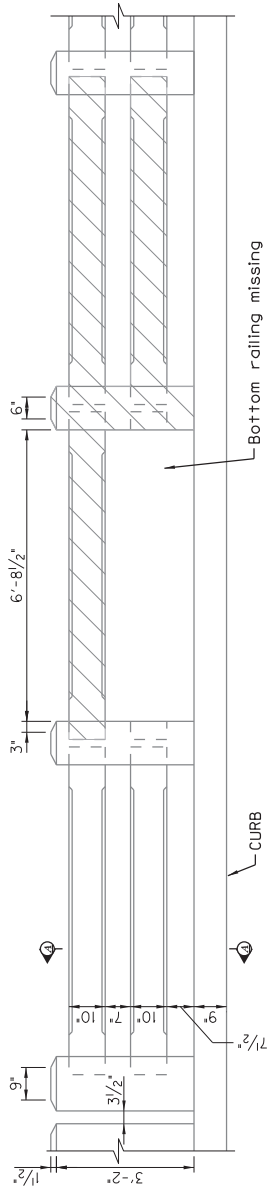
Notes:

- Contractor shall clean and reuse existing reinforcing steel when possible. All new reinforcing steel installed shall be of equivalent size and strength.
- Carefully remove damaged portions of concrete barrier designated by the hatched area and replace in kind.
- For bonding new concrete to existing surfaces, see Section 5.11 of the Standard Specifications.
- Roughen existing concrete when in contact with new concrete.
- Contractor shall field measure removed portions of the concrete barrier to verify material condition and quantities.



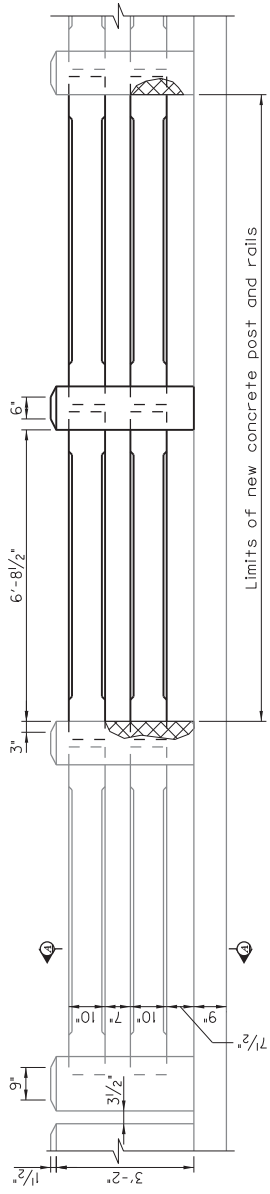
**EXISTING PLAN VIEW**

SPAN 8

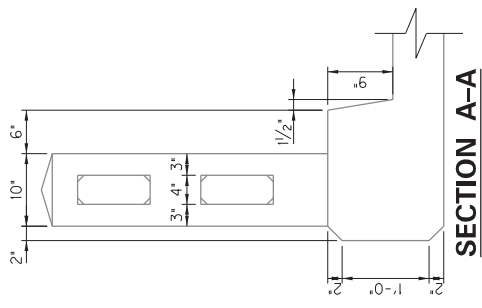


**EXISTING ELEVATION**

SPAN 8



**PROPOSED ELEVATION**

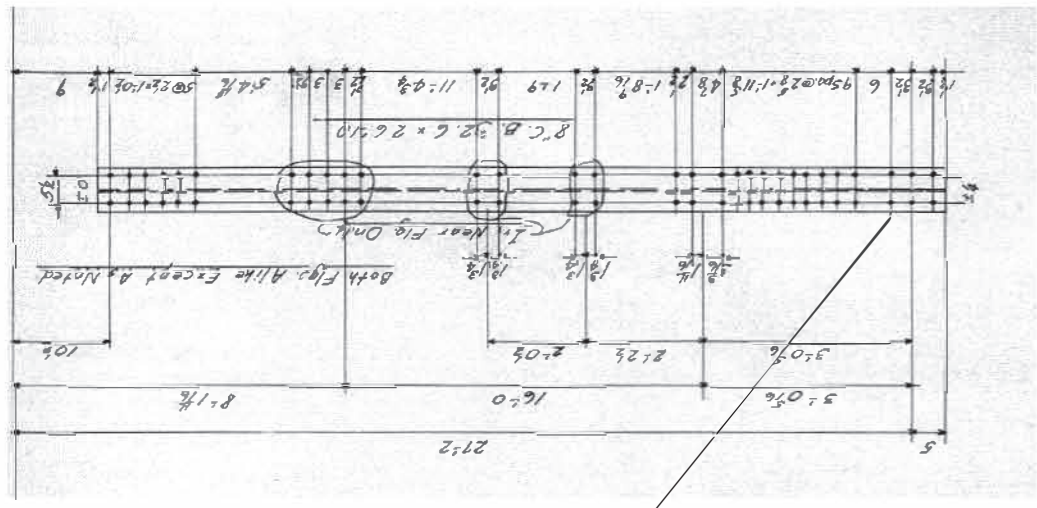


**SECTION A-A**

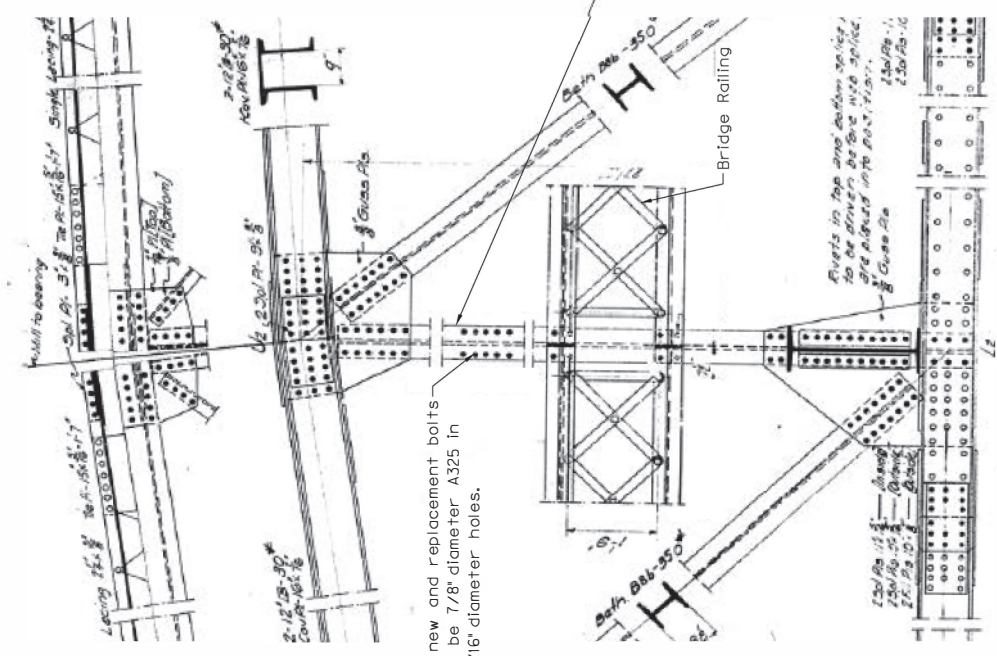
BRIDGE: 051B00015N	COUNTY: HENDERSON
DATE: 8/1/2019	ROUTE: US-60
BY: JLH	CROSSING: GREEN RIVER
SHEET: 6	

REPAIR CONCRETE HANDRAIL





**VERTICAL L5-U5**  
(Downstream Truss)



**VERTICAL L5-U5**  
(Downstream Truss)

BRIDGE:	05B00015N
DATE:	8/1/2019
BY:	JLH
SHEET:	7

COUNTY:	HENDERSON
ROUTE:	US-60
CROSSING:	GREEN RIVER

VERTICAL MEMBER REPAIR



## **SPECIAL NOTE FOR DISC BEARINGS**

### **Henderson County Item No. 2-1080 US 60 Bridge over Green River – Drawing No. 27516**

#### **1.0 DESCRIPTION AND SCOPE OF WORK**

- 1.1** This work shall consist of designing, furnishing, testing, and installing Multi-Rotational, High Load Disc Bearings and Assemblies at the locations shown on the plans in accordance with this special note and the following specifications:
- KYTC Standard Specification for Road and Bridge Construction
  - AASHTO LRFD Bridge Design Specifications
  - AASHTO LRFD Bridge Construction Specifications
  - AASHTO/AWS D1.5 Bridge Welding Code
- 1.2** Disc bearings shall consist of a polyether urethane structural element (disc) confined by upper and lower steel bearing plates. The bearing shall be equipped with a shear resisting mechanism, and/or positive location device to prevent lateral movement of the disc. Bearings shall adequately provide for the thermal expansion and contraction, rotation, camber changes, and creep and shrinkage of structural members, where applicable. Assemblies shall also include all other plates and fasteners designated in the plans as part of the “Bearing Assembly”.
- 1.3** Disc bearing supplier shall demonstrate a minimum of five (5) years’ experience in the design and fabrication of disc bearings and a minimum of ten (10) bridge installations. Documentation of the supplier’s experience and installations shall be provided to the engineer for approval.
- 1.4** Shop Drawings - The contractor shall submit drawings and calculations to the engineer for approval, and shall have received said approval, prior to the fabrication of the disc bearing assemblies. The shop drawings and design calculations shall be sealed by a Professional Engineer with at least five (5) years of documented history of disc bearing design experience. These drawings shall include, but not be limited to, the following information:
- Plan and elevation of each disc bearing
  - Complete details and sections showing all materials (with ASTM or other designations) incorporated in the disc bearings.
  - Vertical and horizontal load capacities.
  - All bearing connection details and weld procedures.
  - Temporary support details for handling, transporting, storing, field adjustment, and installation.
  - Design calculations verifying compliance with AASHTO LRFD standards and with the design loadings, movements, and other specified requirements.

## **2.0 MATERIALS**

- 2.1** Materials shall conform to the following standards:
- Steel Plate: AASHTO M270 (ASTM A709) Grade 50W. All steel surfaces in contact with PTFE, or other steel surfaces, shall be finished to a smoothness of 125 micro-inches (rms) or better.
  - Stainless Steel: ASTM A240, Type 304, with a minimum No. 8 mirror finish. The minimum thickness of stainless steel sheet shall be 12 gage.
  - Polytetrafluoroethylene (PTFE): PTFE sheet shall be manufactured from pure virgin unfilled PTFE resin conforming to the requirements of AASHTO LRFD Bridge Construction Specification, Section 18.8.
- 2.2** All materials shall be new and unused, with no reclaimed material incorporated in the finished bearing.
- 2.3** Unless otherwise noted herein, all materials for the disc bearing assemblies shall be as specified in the plans and in accordance with Section 18 of the AASHTO LRFD Bridge Construction Specifications.
- 2.4** Material test certificates shall be provided for all materials used in the bearing assemblies.

## **3.0 DESIGN REQUIREMENTS**

- 3.1** Bearings shall be designed based on the current AASHTO LRFD Bridge Design Specification using the loads, rotations and movements given on the project plans. Designs shall assume that vertical and horizontal loads occur simultaneously. The design of the bearings shall meet the additional requirements listed herein.
- 3.2** The bearing assembly shall be removable and replaceable by raising the bridge superstructure 3/8 inch maximum. This requires the fabrication of a minimum of a four plate system including a masonry plate, lower bearing plate, upper bearing plate and sole plate. The design plans show a feasible bearing replacement connection detail. Approval of alternative connection details proposed by the Contractor shall be at the sole discretion of the Engineer.
- 3.3** The sole and masonry plates shall be designed to distribute the bearing loads into the surrounding substructure and/or superstructure. Service or installation considerations specified by the design engineer, such as weldability and bearing height, may require thicker masonry and sole plates than are required due to strength considerations alone.
- 3.4** When necessary, guide bars shall be welded to the slide plates or integrally machined into a larger plate. Guide bars shall be designed for the specified horizontal loads, but not less than 10% of the vertical capacity of the bearing. Guided members must have their contact area within the guide bars in all operating positions. The total clearance between guide bars and the guided member shall be 1/16 inch,  $\pm 1/32$  inch.
- 3.5** The shear restriction mechanism shall be designed to allow free rotation and withstand the specified horizontal forces. The mechanism shall be designed to withstand the design forces on the bearing without exceeding the allowable shear, bending and bearing capacities. Shear resistance of the urethane disc shall not be included.

#### **4.0 FABRICATION**

- 4.1** The contractor shall provide the engineer with written notification prior to the start of bearing fabrication.
- 4.2** Unless otherwise noted herein, fabrication of the disc bearing, including tolerances, shall be in accordance with Section 18 of the AASHTO LRFD Bridge Construction Specifications.
- 4.4** All welding shall conform to, and all welders shall be qualified in accordance with, the requirements of the American Welding Society (AWS).
- 4.5** After assembly, including sole plates and masonry plates as applicable, bearing components shall be held together with steel strapping or other means to prevent disassembly until the time of installation.
- 4.6** Each bearing shall be stamped with the manufacturer's name, bearing type or model number, bearing number and the installed location. The stamp shall be on a surface visible after installation.
- 4.7** All steel surfaces exposed to the atmosphere, except stainless steel surfaces and metal surfaces to be welded, shall be shop painted. Prior to painting, the exposed steel surfaces shall be cleaned in accordance with the recommendations of the paint manufacturer. All surfaces covered by stainless steel or PTFE sheet are not painted. Painting shall be completed in accordance with the paint manufacturer's recommendations and the KYTC Construction Specifications.

#### **5.0 TESTING**

- 5.1** Production bearing sampling and testing shall be performed in accordance with AASHTO LRFD Bridge Construction Specifications, Section 18.3.4. For sampling, the two guided bearings at Abutment 1 shall be considered one lot, and the two fixed bearings at Pier 1 shall be considered another lot.
- 5.2** All testing shall be performed in the presence of a representative from KYTC or its designated inspection agency in accordance with Section 18.1.5 of the AASHTO LRFD Bridge Construction Specification.
- 5.3** The following test shall be performed on all disc bearing types (fixed and guided):
  - Material certification testing – Refer to AASHTO Section 18.3.4.4.1
  - Dimensional check – Refer to AASHTO Section 18.1.5.2.4.
  - Clearance test – Refer to AASHTO Section 18.1.5.2.5.
  - Proof load test - Load the bearing to 150 percent of the design service compressive load at a rotation of 0.02 rad for a duration of one hour. Refer to AASHTO Section 18.3.4.4.4.
  - The horizontal load carrying capacity shall be tested per AASHTO 18.1.5.2.8.
- 5.4** The sliding coefficient of friction shall be measured for guided bearings per AASHTO 18.3.4.4.5.
- 5.5** Each bearing shall be visually examined both during and after testing. Any resultant defects, such as bond failure, physical destruction or cold flow of PTFE to the point of debonding, shall be cause for rejection. Defects such as permanently extruded or severely deformed elastomer or cracked steel shall also be cause for rejection.

## 6.0 INSTALLATION

- 6.1** Bearings shall be installed in strict accordance with the manufacturer's instructions. The Contractor shall submit an installation procedure to the Engineer for review and acceptance prior to bearing installation, containing at a minimum:
- Installation sequence of the bearings in accordance with the accepted bridge superstructure erection sequence.
  - Measures to prevent disturbances to the grout during its initial setting and early strength gain.
  - Methods to support and shim the bearing assemblies.
  - Methods for field setting and adjustments as required to compensate for installation temperatures and erection conditions in order to achieve the installation tolerances specified in Section 18 of the AASHTO LRDF Bridge Construction Specifications.
  - Procedure for grouting operations including measures to ensure no voids in the grouted area.
- 6.2** A technical representative from the bearing manufacturer shall be present on-site to supervise the installation of the bearing assemblies.
- 6.3** Bearings delivered to the bridge site shall be stored under cover on a platform above the ground surface. Bearings shall be protected at all times from damage. When placed, bearings shall be dry, clean, and free from dirt, oil, grease, or other foreign substances.
- 6.4** Bearing devices shall not be disassembled unless otherwise permitted by the engineer or manufacturer.
- 6.5** Bearings assemblies shall be handled by their bottom surfaces only, unless specially designed lifting brackets are used. Do not lift bearings by their tops, sides and/or shipping bands. Lifting brackets shall be approved by the bearing supplier prior to use.
- 6.6** Upon final installation of the bearings, the Engineer shall inspect the bearing components to assure that they are level and parallel to within  $\pm 0.005$  radians. Any deviations in excess of the allowed tolerances shall be corrected.
- 6.7** Caution shall be taken to ensure that the steel temperature directly adjacent to the polyether urethane rotational element does not exceed 225°F. The polyether urethane disc must not be exposed to direct flame or sparks. In addition, no weld current shall pass between bearing plates on either side of the urethane disc.

## 7.0 GROUT AND GROUTING OPERATION

- 7.1** Grout for bearing assemblies shall be a non-shrink, non-metallic and cementitious grout containing no chloride conforming to Section 601 of the KYTC Standard Specifications. The grout shall have a minimum compressive strength of 7,000 psi at 28 days as tested in accordance with ASTM C109. The grout shall have appropriate early setting and strength gain properties as required to minimize the duration during which the grout is susceptible to disturbances from superstructure movement or other causes.
- 7.2** Surface preparations, installation temperatures ranges, mixing methods, equipment, application methods, and curing conditions and times shall be in strict accordance with the grout manufacturer's written specifications.



- 7.3 The Contractor shall submit the manufacturer's product data sheets for review and acceptance prior to ordering the grout material.
- 7.4 Grouting operations shall not commence until the grouting procedure has been reviewed and accepted by the Engineer.
- 7.5 Load transfer to the grouted bearing assemblies will be permitted only after the grout has reached the minimum strength specified.

**8.0 CERTIFICATION**

- 8.1 After installation of all bearing assemblies and prior to acceptance by KYTC, the bearing manufacturer shall provide a written certification that the bearing assemblies have been fabricated, tested, and installed in accordance with the project requirements and manufacturer's requirements.

**9.0 MEASUREMENT AND PAYMENT**

- 9.1 The Department will pay for the "Disc Expansion Bearing" and "Disc Fixed Bearing" at the contract unit price per each bearing assembly. This will constitute full compensation for all costs associated with preparing concrete surfaces; installation of anchor bolts; grouting; design, fabrication, testing, and installation of the bearing assemblies (including all steel plates and fasteners below the sole plate).

The Department will pay for the completed and accepted quantities under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
Disc Expansion Bearing	Each
Disc Fixed Bearing	Each



# SPECIAL NOTE FOR STRUCTURE LIGHTNING PROTECTION

## Henderson County Item No. 2-1080 US 60 Bridge over Green River – Drawing No. 27516

### 1.0 DESCRIPTION AND SCOPE OF WORK

- 1.1 Perform all work in accordance with the Kentucky Transportation Cabinet, Department of Highway's 2019 Standard Specifications for Road and Bridge Construction and applicable Supplemental Specifications, the Standard Drawings, this Note, and the attached detail drawings. Section references are to the Standard Specifications.
- 1.2 This work shall include the design, furnishing and installation of a complete structure lightning protection system on the truss. At a minimum the following work is included:
  - 121 Design of a Lightning Protection System meeting the requirements of the Specifications, Plans and this Special Note.
  - 122 Preparation and submittal for approval of shop drawings for Structure Lightning Protection System.
  - 123 Furnishing all labor, materials, tools, and equipment necessary for installation of Structure Lightning Protection System.
  - 124 Any other work specified as part of this contract.

### 2.0 GENERAL

The Structure Lightning Protection for the truss bridge superstructure shall be in accordance with the latest edition of ANSI/NFPA 780 lightning protection installation standards, ANSI/UL 96 lightning protection components and UL96A installation requirements for lightning protection systems. Protection shall include, but not be limited to air terminals, bonding, interconnecting conductors, and grounding as required under the provisions of UL 96A, NFPA 780, and as specified in excess of the referenced standards herein.

### 3.0 DESIGN

- 3.1 The contractor shall design and prepare calculations and shop drawings for the Structure Lightning Protection System. All design documents shall be stamped by a Professional Engineer registered in the State of Kentucky. Design calculations and shop drawings shall be submitted to the engineer for review and approval. The contractor shall receive engineer's approval prior to purchasing any materials or equipment for the Structure Lightning Protection System.

- 3.2 The Lightning Protection System shall be designed to continue to function after the design seismic event. During this event the truss at Abutment 1 can be anticipated to move 4.0 inches longitudinally relative to the abutment.
- 3.3 At a minimum, the structure shall be grounded at each of the main bearings at Abutment 1 and Pier 1. A grounding conductor shall run down through the abutment and pier column and footing encased in the concrete. Separate ground connections shall be made at the base of the abutment and pier for each grounding conductor.
- 3.4 No welding will be allowed on any truss members or plates designated as fracture critical. All other welding must be approved by the engineer. Only welding as shown on the approved shop drawings will be allowed.

#### 4.0 MATERIALS

- 4.1 All materials shall comply in weight, size and composition with the requirements of the Underwriters' Laboratories, Inc., the National Fire Protection Association Code and OSHA relating to the height of the structure.
- 4.2 All rods, cables, ground rods, and connectors used in the system shall carry an UL Label "A" & "B" and all lightning air terminals shall carry the Manufacturer's name.
  - 4.2.1 Conductors: Conductors shall consist of commercially pure copper cable, sized in accordance with NFPA Code.
  - 4.2.2 Conductor Fasteners: Conductor fasteners shall be an approved type of noncorrosive metal having ample strength to support conductor.

#### 5.0 INSTALLATION

##### 5.1 General

- 5.1.1 All ungrounded sizable metallic objects within 6' of the truss or metal connected to the trusses shall be bonded to the system with approved fittings and conductors.
- 5.1.2 Copper materials connecting to steel shall be lead-coated.
- 5.1.3 Connection between metals shall be made with approved exothermic welds.
- 5.1.4 All materials shall be fastened to eliminate any possibility of displacement and subsequent maintenance.

##### 5.2 Air Terminals

- 5.2.1 Air terminals shall be approved type extending not less than 10 inches above the top chord of the truss and shall be securely anchored.
- 5.2.2 Air terminals shall not extend higher than 24 inches except with individual approval or as required by OSHA. Terminals 23 inches and less shall be spaced 20 feet apart.

**5.2.3** Terminals 24 inches and higher shall be spaced 25 feet apart or as required by codes.

**5.3** Conductors: Conductors shall be run concealed.

**5.4** Conductor Fasteners: Space 3'-0" O.C. max.

**5.5** Ground Connection

**5.5.1** Lay out an extensive wire network on the surface of the rock surrounding the abutment and pier footings, consisting of ring, radial, and/or plate electrodes. Other grounding will be permitted, providing it will pass UL requirements.

## **6.0 MEASUREMENT**

Structure Lightning Protection. Measurement will be lump sum and include the design, shop drawing preparation, and installation of the Structure Lightning Protection.

## **7.0 PAYMENT**

Structure Lightning Protection. Payment at the contract unit price is full compensation for contractor to design, prepare shop drawings, and to provide all materials, labor, equipment, tools, and incidentals necessary to complete the work as specified by this note.

The Department will consider payment as full compensation for all work required by this note.

**SPECIAL NOTE FOR MINE GROUTING**  
Henderson County – US 60 Bridge over Green River  
Item No. 2-1080.00

**1. DESCRIPTION**

- 1.1.** This work shall consist of grouting portions of an existing underground coal mine along US 60 within the limits shown on the contract plans. The purpose of the grouting is to reduce potential ground settlement and subsidence so that the underlying bedrock can support a bridge abutment.
- 1.2.** The Kentucky Standard Specifications for Road and Bridge Construction, current edition governs unless otherwise specified in this Special Note or in the plans. For the purposes of this Special Note, “Department” refers to the Kentucky Department of Highways and/or consultants acting on behalf of the Department of Highways. “Engineer” is defined in Section 101.03 of the Standard Specifications.
- 1.3.** The method of grouting shall consist of systematically drilling vertical or angled holes into mine locations and injecting low-slump grout material to provide bearing support for soil and rock layers beneath the proposed highway facilities.
- 1.4.** Bidders and Contractors shall understand the potential difficulties posed by the nature of the site and the requirements of the work. Parts of the mine may be open, collapsed, silt or muck filled, previously backfilled, or partially backfilled. Ground settlement during drilling and grouting activities may occur. Difficult drilling, high torque, and hole instability may occur.
- 1.5.** The Engineer, using real-time data provided by the contractor during the drilling and grouting operations, will evaluate and determine the extent of treatment work to be conducted at each location specified in the contract plans.
- 1.6.** Monitoring, recording, and analyzing of drilling and grouting data shall be performed in real time.
- 1.7.** No grouting activities shall be performed from the interior of the mine. The mine space is water filled, and measured water level elevations in the exploratory borings are shown on the subsurface data sheets. Several exploratory borings conducted by the Department were cased and are available for inspection using downhole camera equipment. Video recordings taken by the Department of the borings and mine openings are available for viewing.
- 1.8.** The cased exploratory borings are available for the Contractor’s use during construction. At the completion of the grouting activities, grout these exploratory borings to the ground surface.
- 1.9. Disclaimer.** Acceptance of any of the contractor’s submissions required by this note does not constitute endorsement or approval. The acceptance is acknowledgement of the work performed and authorization for the contractor to proceed. The Department is not bound by acceptance of any of the submissions required by this note. Final acceptance will be contingent on the satisfactory completion of the work required by this note.

## 2. SITE, SUBSURFACE INFORMATION, AND SAMPLE INSPECTION

Bidders are encouraged to consult available geological literature including but not necessarily limited to the Spotsville Geologic Quadrangle Map (GQ-1090) and the U.S. Geological Survey Professional Paper 1151-H, "The Geology of Kentucky -- A Text to Accompany the Geologic Map of Kentucky", Edited by Robert C. McDowell. Additional geotechnical information may be available via the KYTC Division of Construction Procurement Website under "Project Related Information". The referenced geological literature and geotechnical information are for information only and are not contract documents. However, available subsurface data are included in the bridge plans which are contract documents.

Soils encountered in the borings drilled near the proposed Abutment 1 consist of low-plasticity clays, low-plasticity silts, and high-plasticity silts. Borings advanced using hollow or solid stem augers indicate that the soils vary from 12 to 15 feet in thickness. Rock core specimens obtained in the borings consist primarily of shales with a non-durable sandstone layer closer to the surface (approximate elevation 405 to 395 feet).

According to geologic mapping the coal seam encountered at the project site is the No. 9 coal bed. This coal bed does not outcrop near the project site but is present near elevation 330. This places the coal seam slightly below the normal pool elevation of the Green River of 341.5 feet. Geologic mapping indicates the seam can vary from 0 to 5 feet thick. Geologic mapping also indicates abandoned vertical mine shafts in the vicinity of the project site.

Appendix A contains maps showing the outlines of mines in the project area. These maps were provided by the Kentucky Geological Survey. Maps of the mines showing mining methods, pillars, etc., were not found. The outlines shown on the map in Appendix A came from a set of tracings shown on topographic maps that are at the Kentucky Geological Survey (KGS) Henderson Office. The source of the information on the tracings is unknown. According to KGS sources, Reynolds Aluminum Company owned much of the coal rights in the area, but Emerald Land Company bought these rights out sometime ago. According to local historians, the mine was one of the first commercial coal operations in the region with mining activity starting in the 1800s. In the early 1900s it was revived and produced coal for several years.

The initial set of exploratory borings (Holes 1004-1008 and 1024) were performed in March 2016. These borings were obtained using conventional boring techniques (hollow-stem augers, solid-stem augers, and diamond-bit core barrels). Several of the borings where mine openings were encountered were cased through the overburden soil so that a downhole camera could be utilized to view the rock in the borings as well as to view conditions in the mine opening. After allowing a period of time for drilling fluids and cuttings to settle out of the groundwater, KYTC personnel returned to the site on June 22, 2016, to conduct the downhole videos.

Additional borings (Holes 2001-2011) were performed in November and December 2016 to further help define the extent of the mined area surrounding the proposed end of the bridge. These borings were performed with poly-crystalline diamond bits and extended through the mine opening or coal seam. These borings were cased through the overburden soils. KYTC personnel returned to the site in April 2017 to conduct downhole videos in the borings. Videos of Borings 2002 and 2004 were not obtained because the PVC casing had collapsed.

The subsurface data sheets are included in the plans. The downhole videos are available for viewing by prospective bidders at the following link:

<https://www.youtube.com/playlist?list=PLFxn4Rhh9fBkXtXP9WjuXAh6V5StUWd4v>

The videos generally show the mine openings to be sediment and debris filled. In some instances, the videos show a small gap between the top of the sediment and the mine roof, while in other cases no gap can be seen.

During the downhole video inspection in June 2016, groundwater levels were measured in the borings that encountered the mine openings at elevations between 360.3 and 362.0 feet, which is approximately 20 feet higher than the normal pool elevation of the Green River. During the video inspection in April 2017, the groundwater levels were measured in the borings that encountered the mine openings at elevations between 362.9 and 363.3 feet. Measured groundwater elevations are shown on the subsurface datasheets.

Samples of the groundwater were obtained from borings that encountered mine voids during the April 2017 site visit. These samples were tested and met the requirements for total solids, chlorides, pH, and sulfate per ASTM C1602/C1602M-06. Please note that the samples were obtained after allowing a period of time for drilling fluids and cuttings to settle out of the groundwater. Drilling and grouting activities will likely disturb sediment and debris in the mine opening and may create different results. The table below contains the laboratory results for the groundwater samples.

Hole #	% Solids	% Chloride	pH	Sulfate (SO <sub>4</sub> ), ppm
1004	0.0685	0.0061	6.945	0.082
1005	0.1353	0.0356	6.746	117.49
1006	0.372	0.0076	6.742	84.5
1024	0.1087	0.0167	6.84	119.34
2001	0.0815	0.0033	7.03	41.97
2009	0.1023	0.0027	7.02	125.10
2011	0.1607	0.0089	7.05	74.00

Prospective bidders are strongly encouraged to visit the project site and view the downhole videos. Grouting and backfilling mine contractors/subcontractors are required

to inspect available rock cores prior to the letting date. Representatives of the prime contractor and the grouting subcontractor(s) (if applicable) will be required to inspect the rock cores prior to beginning grouting and backfilling mine void operations. To schedule a viewing of the rock cores, contact the Division of Structural Design, Geotechnical Branch (502-564-2374), a minimum of five business days in advance. The bidders are also responsible to familiarize themselves with the available geotechnical data, which provides further information regarding the anticipated soil and bedrock conditions that will impact the grouting operations. Failure to inspect the project site, view the available rock cores, and view the downhole videos will result in the forfeiture of the right to file a claim based on site conditions and may result in disqualification from the project.

### **3. GENERAL SCOPE AND REQUIREMENTS**

Work included consists of providing all labor, equipment, materials, water, and power; performing all operations necessary to complete the intended grouting for the project; cleaning up the area upon completion of the work; and providing all other operations that are incidental to the work specified herein. Key aspects of the work to be performed or furnished by the contractor include, but are not limited to, the following:

1. Provide appropriate drilling equipment and experienced drill operators capable of drilling holes for the injection of grout.
2. Coordinate with relevant utility companies to avoid damage to utilities including, but not limited to, sewer, gas, water, and telecommunication lines.
3. Provide an appropriate system to deliver, mix, and place grout. All data related to volume and pressure of injected materials shall be collected using an automated system. A back-up system consisting of mechanical pressure gauges, in good operating condition, shall be located at the pump so that the pressure may be checked by the operator and the Engineer's representative. A mechanical counter shall be used at the pump to monitor the quantity of grout placed at each location and during each shift of work. The volume of grout displaced per pump stroke shall be verified by the Contractor prior to grout placement.
4. Comply with Kentucky Energy and Environmental Cabinet (EEC) requirements. Obtain necessary permits and provide proper notification to EEC offices prior to beginning the work.
5. Use proper abandonment techniques for injection holes including injection holes that do not encounter voids.
6. Demobilize equipment and clean-up site.

### **4. PRECONSTRUCTION SUBMITTALS**

- 4.1. Submit to the Engineer for review in electronic format (PDF) the following at least ten (10) working days prior to the Preconstruction Grouting Meeting.



**4.2. Personnel Qualifications and Site Organization.** The contractor shall submit verification that the supervision of all drilling and grouting work will be conducted by a resident Superintendent with at least five (5) years of recent on-the-job supervision in similar applications. In addition, the Project Manager, Project Engineer, and foremen shall each have completed at least three (3) similar projects in the previous five (5) years. The Project Engineer shall be a licensed Professional Engineer. The resumes submitted shall be of the personnel that will be on-site working on the project.

At a minimum, resumes of the following key field personnel shall be included in the submission:

Project Manager  
Superintendent(s)  
Project Engineer(s)  
Foremen

Resumes must demonstrate, by specific project detail, competence and experience in the following areas: (1) drilling and grouting capabilities in similar ground conditions; (2) logging of drilling; (3) automated monitoring of grouting parameters; and (4) ability to process, interpret, display, and act upon these data in real time during the construction process.

The functions of planning and quality control are particularly important on this project. The responsibility for carrying out these functions must be clearly addressed within the group of individuals whose resumes are submitted. If during the construction the Contractor proposes to change any of the key personnel, the resume of the proposed replacement person shall be submitted and accepted by the Engineer prior to assuming responsibilities on the project.

**4.3. References for Past Projects.** List of at least three (3) previously completed projects of similar scope and purpose within the last five (5) years for acceptance by the Engineer. The list shall include a description of the project, quantity of material placed, time period that grouting was performed, and client contact person with phone number.

**4.4. Installation and Work Plan.** Submit a detailed step-by-step description of the proposed drilling and grouting construction procedure including personnel, testing, and equipment to assure quality control, as well as procedures and measures to avoid interference between drilling and previously grouted holes. At a minimum, the submittal shall address the following:

- Contractor's understanding of the scope of work, and interaction with the investigation and treatment activities.



- Practical operational interface with the Engineer in the field.
  - Details of health and safety plan.
  - Construction operation sequence and schedule.
  - Details of delivery of materials and equipment to the project site. Please note that the existing bridge structure has been load rated and posted for reduced weight carrying capacities. The existing bridge is also a narrow through truss and may not be suitable for crossing by large equipment.
  - Details of drilling methods including casing advancement and withdrawal; approach to drilling through variable materials including soil, rock, rubble, and previously backfilled areas; and procedures to monitor quality control including sample drilling logs.
  - Details of grout type, storage, testing and delivery methods.
  - Details of grout placement.
  - Details of all automated recording and analysis systems.
  - Details of equipment and number of drill rigs to be used.
  - Details of video verification equipment.
  - Equipment and method of monitoring heave or ground movement.
  - Plan describing control and proper disposal of surface water, water displaced from mine void due to grouting activities, drill flush, and excess grout.
  - Subcontracting plan, including proposed subcontractors.
  - Details for traffic control where necessary.
  - Details of quality control including qualifications, certifications, etc.
- 4.5. Grout Mix Design Report.** Provide grout mix design report for the low slump grout (LSG) to be used. Include details regarding batching method, batch quantities, mixing method, set times, slump cone, and compressive strength results from laboratory samples or data from representative mixes from previous projects. Include a description of the methods and equipment for accurate automated monitoring, recording, and analyzing of the grout volume and pressure during placement. Finally, provide procedure and equipment for monitoring grout quality control during placement including sample logs for grouting.
- 4.6.** Related work shall not begin until the submittals have been received, reviewed, and accepted in writing from the Engineer. Allow the Engineer ten (10) working days to review the submittals after the complete final set has been received. Additional time required due to incomplete or unacceptable submittals are not cause for delay or impact claims. All costs associated with incomplete or unacceptable submittals shall be the responsibility of the Contractor.

## 5. DEFINITIONS

The following is a list of technical terms which are used in this Special Note. The list does not include all technical terms used since a general understanding of these is assumed.

- 5.1. **Admixture:** Substance added to a grout to control bleed and/or shrinkage, improve flowability, reduce water content, or retard setting time.
- 5.2. **Ascending Stage Drilling/Grouting:** The process of drilling a hole to full depth and then grouting the hole in stages from the bottom up.
- 5.3. **Casing:** Steel tube introduced during the drilling process in overburden soil and/or fractured rock to temporarily stabilize the drill hole.
- 5.4. **Low Slump Grout (LSG):** A blend of fine aggregate, cement, and water to achieve a pumpable, thixotropic, viscous grout of low slump to enable pumping at high pressure and remains intact during and after placement. Primary functions are densification of sediment and spoils in the mine void, void filling, and creation of grout columns to provide support to the mine roof.
- 5.5. **Order of Hole:** In a split spacing pattern, primary holes are drilled and grouted, then secondary holes are drilled and grouted in between the primary holes. Tertiary holes are then drilled and grouted in between the secondary and primary holes. The order of holes refers to a phase of work, be it primary, secondary, or tertiary.
- 5.6. **Refusal:** A grout stage shall be considered refused when one of the following occurs:
  - Grout flow ceases at a header reading pressure of 700 psi.
  - Sustained pumping at a header pressure of 500 psi or greater
  - Surface Ground heave of 0.125 inches (1/8") is observed.
  - Interconnection or surface breakout is observed.
  - Grout injection volume of 15 cubic feet per foot of treatment.
- 5.7. **Split Spacing:** In a split spacing pattern, low order holes are drilled and grouted first with higher order holes drilled and grouted between lower order holes.

## 6. PRECONSTRUCTION GROUTING MEETING

- 6.1. A preconstruction meeting for the grouting work will be scheduled by the Engineer and held at least ten (10) working days prior to the anticipated start of any grouting activities. Attendance by the Contractor and any Subcontractors at the meeting is mandatory.
- 6.2. The preconstruction meeting for the grouting work will be conducted to clarify the construction requirements and method statement, to review the submittals for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities among the

Contractor and any Subcontractors, specifically those pertaining to ground improvement grouting, anticipated subsurface conditions, testing, survey control, and site drainage control.

## 7. MATERIALS

- 7.1. Materials will be furnished new and without defects. Defective materials will be removed from the jobsite and replaced by the Contractor at no additional cost to the Department.
- 7.2. **Admixtures.** Admixtures shall conform to the requirements of Section 802 of the Standard Specifications. Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout, subject to the review and acceptance of the engineer. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations. Accelerators and admixtures containing chlorides are not permitted.
- 7.3. **Bentonite.** High yield sodium montmorillonite at least 200 barrel yield with 100% passing No. 325 screen.
- 7.4. **Cement.** All cement shall be Portland cement, Type I or II, conforming to Section 801 of the Standard Specifications.
- 7.5. **Fine Aggregate.** If sand-cement grout is used, sand shall conform to Section 804 of the Standard Specifications.
- 7.6. **Low Slump Grout (LSG).** A low slump grout (less than 2 inches) with high internal friction and a minimum 28-day compressive strength of 500 psi. Material components may include sand, silt, clay, cement, ground slag, fly ash, water, and other inert materials. Compressive strength of grout is designed to be 500 psi at 28 days and to provide a permanent, non-erodible material.
- 7.7. **Water.** Water used in the grout mix shall conform to Section 803 of the Standard Specifications and shall be potable, clean, and free from substances that may be injurious to cement and steel. Ground or local surface water may be used provided the Contractor provides documentation the water is not detrimental to grout.

## 8. EQUIPMENT

- 8.1. **Drilling.** Use drilling equipment suitable for the work capable of drilling vertical or inclined holes and capable of penetration all subsurface materials including soil, intact bedrock, collapsed bedrock, and rubble. Anticipated mine void elevations are between 320 and 330 feet. Provide equipment capable of drilling to an elevation of 300 feet. The drilling equipment and methods shall not damage the existing underground mine, adjacent ground, or overlying structures. Drilling means and methods shall be selected by the Contractor to match the anticipated ground conditions.

- 8.2. Pumps.** Furnish positive displacement pumps suitable for the work. For grout injection, the pumps shall be capable of continuously delivering the grout at pressures of at least 700 psi at rates between 0.5 and 3 cubic feet per minute.
- 8.3. Real-Time Grout Injections Monitoring.** Provide either a X-Y recorder or a computer based system capable of accurately monitoring, recording, and displaying the grouting pressures and flow rates in real time at a location suitable for assessing and controlling the grouting operation, as well as allowing the Engineer to view the data as it is collected. The system shall be capable of monitoring as many injection points as the Contractor injects simultaneously. A print-out clearly identifying the injection details (i.e., pressure, rate of injection, and volume) at each stage of grouting shall be submitted after each shift.
- 8.4. Grout Injection Pipes.** Furnish steel grout pipes, casing, and connections of sufficient strength to maintain the hole and to withstand the required installation, jacking and pumping stresses. The pipes shall have a minimum 3-inch inside diameter in order to adequately handle the grout without plugging. All casing shall be flush joint threaded, or shall be single piece tubing to provide a smooth inner wall and an unobstructed inside diameter. All fittings (elbows, bends, adapters, reducers, etc.) shall be long sweep, gradual transition pieces specifically designed and manufactured for high pressure grout and concrete pumping applications. Standard pipe elbows and reducers will not be allowed. It shall be the Contractor's responsibility to install casing that does not detrimentally impact the grouting procedure. Casings shall be sized and installed such that grout material will not travel in the annulus area between the pipe and adjacent ground and escape at the surface when pumped.
- 8.5. Grout Hoses.** Use grout hoses suitable for the execution of the work. The hoses shall be sized and rated to accommodate the required pumping pressures and flows with acceptable factors of safety against rupture.
- 8.6. Grout Plant.** For grout produced on site, provide a grout plant suitable for the execution of the work. The plant shall be sized to accommodate the Contractor's selected pumping rates and shall be capable of continuously producing uniformly mixed grout. The plant shall be capable of accurately and routinely proportioning materials used in the grouts.

The grout shall be either batched on site or brought to the site by agitator trucks. If the grout is batched on site, the mixer shall be a continuous auger type to ensure complete and uniform mixing of the materials used and shall be of sufficient capacity to continuously provide the pumping unit with mixed grout at its normal pumping range. The mixer must be capable of accurately proportioning the grout materials.

The maximum distance between the mixing/supply point of grout and its point of injection shall be less than 300 feet unless otherwise approved by the Engineer.

- 8.7. Communication System.** An appropriate voice communication system shall be maintained between the mixing and pumping location(s) and the drilling and injection locations(s).

## **9. DETAILED PHILSOPHY, SCOPE, AND DERIVATION OF QUANTITIES**

- 9.1. Philosophy and Scope.** Each hole shall be drilled to the elevations of the mine voids/coal seams identified on the contract plans. The contractor shall log each hole to identify subsurface materials and voids. Each hole will also be used for grout injection or backfilled as indicated by the Engineer. Casing shall be installed to allow drilling to proceed without loss of drilling flush into the overburden and to maintain an open hole during grouting operations.

It is anticipated that ascending stage drilling and grouting principles shall be used for LSG operations. No payment will be made for redrill of grout.

The treatment holes shall be systematically drilled and grouted. At any one location, each order of treatment hole (e.g., primary) shall be drilled and grouted prior to starting drilling for the next higher order of treatment hole (e.g., secondary). The Contractor shall allow sufficient time between drilling and grouting in any one area to ensure that freshly placed grout is not disturbed by subsequent drilling operations. At a minimum grouting may not take place within 10 feet of locations grouted within the previous 12 hours; however, the size of the area and amount of time required will be dependent on the means and methods selected by the Contractor and the local ground conditions.

A typical primary hole pattern is shown on the contract plans. The actual number and location of drill holes is dependent on the subsurface conditions encountered and the Contractor's means and methods. The need to install additional higher order holes (secondary or tertiary) at any given location shall depend upon the results of the drilling and grouting of the initial lower order holes (i.e., primary and secondary). Addition or deletion of holes and/or rows is at the discretion of the Engineer. Thus, monitoring, processing, and interpreting the drilling and grouting data is necessary in real time to avoid delays or interruptions. The Engineer will collaborate with the contractor in reviewing the drilling and grouting data, but will be the final decision-maker for instructing the scope of work.

An appropriate steel pipe shall be installed full depth to the mine floor and the hole shall be grouted, in 1-foot stages within the feature (void, collapse, or previously infilled space) and in 10-foot ascending stages in intact rock (i.e., in the event a drill hole encounters a pillar or unmined area).

Each stage shall be grouted until refusal, as defined in this Special Note. Grouting pressure shall ease at the top of rock. The remainder of the hole shall be backfilled with grout to the ground surface. Holes not encountering voids will be backfilled with grout to the ground surface.

**9.2. Derivation of Quantities.** The planned approach to drilling and grouting is uniform and consistent in general philosophy. The foreseen amount and type of drilling and grouting activities are estimated using the current understanding of local subsurface conditions and the treatment area geometry. Estimates of grout are based on treatment of the mine mass as a whole, and not on a hole by hole quantity. A typical primary hole pattern within the ground improvement area is shown on the contract plans.

This data and this Special Note represent the current best estimate of the scope of work to be conducted. Modifications to the scope of work at each location will be directed by the Engineer based on the data provided by the Contractor regarding drilling and grouting conditions actually encountered. Addition or deletion of holes is at the discretion of the Engineer.

In estimating the quantities shown on the contract plans, the depth of drilling is dictated by achieving a target depth elevation corresponding to the original mine floor elevation.

The estimated quantities of drilling and grouting are provided solely for the purpose of providing bidders with an introduction to the scope of the work to be conducted. They are not a guarantee of quantities, absolute or relative, and can reasonably be expected to vary depending on the actual site conditions encountered.

## **10. EXECUTION OF WORK**

**10.1. Site Drainage Control.** Control and properly dispose of drill flush and construction related waste, groundwater, displaced groundwater from mine void grouting, excess grout, and equipment washout water, in accordance with the Standard Specifications, project plans, and all applicable local codes and regulations. All work shall be done in accordance with EEC regulations. On-site disposal is permitted, with the approval of the Engineer, with control of solids content to prevent runoff of uncontrolled sediment, grout, etc., directly off



- of KYTC property. Maintain all pipes or conduits used to control surface water during construction. Repair damage caused by surface water control pipes or conduits from the site. At completion of the work, restore the site to the grades and conditions required by the project plans and specifications. No direct payment will be made for meeting these requirements.
- 10.2. Dust Suppression.** Dust suppression shall conform to the applicable portions of Section 107 of the Standard Specifications. In addition to any requirements set forth by a health and safety plan required elsewhere in this Special Note, the Contractor shall have no prolonged and significant emission of dust. No direct payment will be made for any expenses incurred by the Contractor for compliance with this requirement except for those items which have been included in the contract as a pay item.
- 10.3. Drilling.** The drilling equipment and methods shall be suitable for drilling through all the conditions to be encountered, and shall be selected and modified, if necessary, by the Contractor. The drilling method shall not cause damage to the adjacent ground, underground mine, or adjacent structures. The Contractor is to observe the boring during drilling and provide the Engineer a log of all pertinent information. Parameters to be recorded shall include penetration rate, high torque zones, strata changes, drill actions, flush characteristics, and hole stability. The information from these logs will be used to confirm voids and grouting zones.
- 10.4. Grouting.** Once initiated, the Contractor shall methodically proceed to complete all grouting activities in a continuous operation until refusal criteria are met. Areas of excessive grout takes may be required to rest between grouting intervals to control runaway grout. The Contractor shall monitor grouting activities from both the surface and subsurface for flow of material outside of the limits of ground improvement shown on the contract plans. Cost incurred to remove grout from areas outside the work limits shall be borne by the Contractor.
- 10.5. Monitoring of Ground Heave/Settlement.** During construction, the Contractor shall monitor the ground for heave/settlement in the vicinity of the drilling and grouting locations. The Contractor shall immediately notify the Engineer of any instances of suspected or observed tilt, ground surface heave, or settlement and suspend or modify drilling or backfilling operations pending resolution with the Engineer.

No direct payment will be made for any expenses incurred by the Contractor for compliance with this Special Note except for those items which have been included in the contract as a pay item.

## 11. CONTRACTOR'S QUALITY CONTROL

- 11.1.** The Contractor's Quality Control Representative (CQCR) shall perform slump tests (ASTM C143) at least once per day of injection or at any time as requested by the Engineer. Preparation and testing for compressive strength testing shall be in accordance with ASTM D4832. The CQCR shall cast 6-inch by 12-inch cylinders at the rate three sets for every 100 cubic yards of grout injected, but not less than once during each shift grout is placed. One set of the cylinders is to be tested for compressive strength at 7 days, one is to be tested at 28 days, and one set is extra to be used if needed. All test data shall be promptly forwarded to the Engineer. Testing of the 28-day and extra cylinders will not be required if the required minimum strength is obtained at 7 days. Temperature readings of the grout are to be taken each time compressive strength cylinders are cast.
- 11.2.** The CQCR shall verify the layout of injection and verification holes. The Contractor shall provide survey data accurate to within 0.1 foot for horizontal control and 0.1 foot for vertical control for all injection and verification holes drilled by the contractor. Proposed locations for such holes (if not already indicated with the initial plan provided before start of construction) shall be provided by the Contractor at least one week prior to hole drilling. Survey data for all hole locations shall be provided no later than one week following hole drilling.
- 11.3.** In addition, the CQCR shall submit records to the Engineer as follows:
1. Accurate daily reports providing technical details and quantities associated with drilling, grout installation, verification drilling and videoing, and results of material tests.
  2. The Contractor shall provide a log for each boring used for installing grout. Such logs shall be neat, legible, and include an accurate characterization of all material encountered in the hole and notation of special features such as voids, soft or broken rock, ground water, loss of circulation of drilling fluids, rod drop, or any other item of interest. The Contractor shall prepare and submit to the Engineer full installation logs for each drilling or grouting operation at each work location. The records shall be submitted within one work shift after the drilling or grouting operation has been completed. A separate log shall be provided for each operation with the format established in the preconstruction submittals and meeting. All automated data generated during drilling and grouting operations shall be made available in real time to the Engineer, with hard copies included in the daily logs.
  3. The contractor shall submit the laboratory test results to the Engineer as they become available.



- 11.4.** In all cases the Department reserves the right to request raw data, field notes and/or other available information that may be necessary to evaluate the results of the work specified in this Special Note. Upon request, provide any available information at no additional cost to the Department.

In all cases the Department reserves the right to perform testing to obtain independent results of testing specified in this Special Note. The Department may also conduct other ancillary testing as needed to verify the adequacy of the work performed. Upon request provide any assistance required for the Department or the Department's representative to perform such testing at no additional cost to the Department.

The Department reserves the right to perform drilling, coring, and downhole video inspection at any time to evaluate the results of the work specified in this Special Note. Provide any required assistance (e.g., access, etc.) to the Department or the Department's representative for these independent inspections at no additional cost to the Department.

## **12. METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

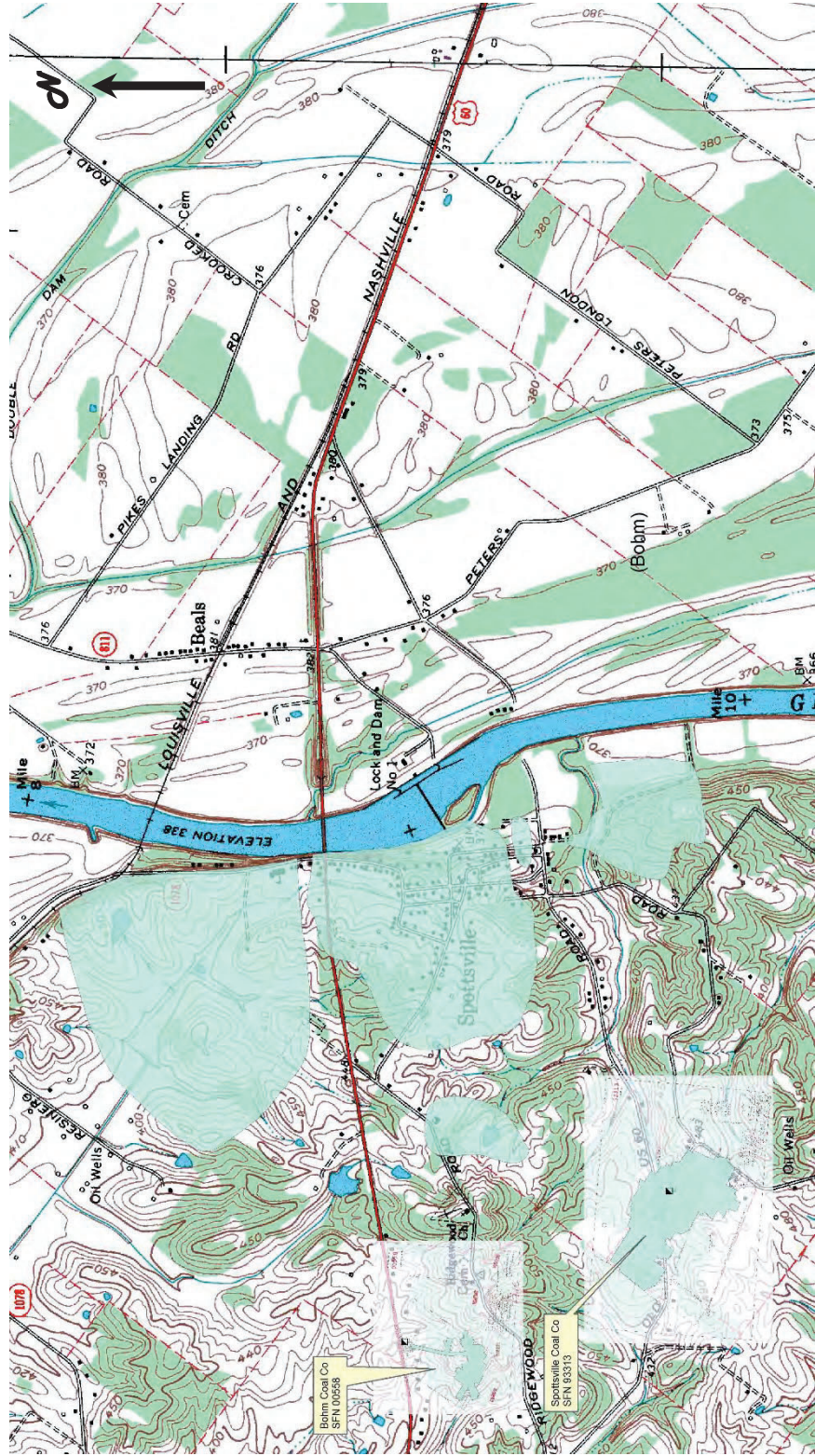
No direct payment will be made for any expenses incurred by the Contractor for compliance with this Special Note except for those items which have been included in the contract as a pay item.

- 12.1. Mobilization for Grouting.** Mobilization will be paid as a lump sum.
- 12.2. Drilling.** Payment will be measured to the 0.1 Linear Foot for accepted length measured from the ground surface to the depths directed and approved by the Engineer. This item may be overrun or underrun at the direction of the Engineer without adjustment in the contract unit price. All costs associated with and incidental to drilling (including casing and layout of grout injection locations) of the hole for the grouting operations shall be included in the contract unit price for Drilling, Linear Foot.
- 12.3. Low Slump Grout (LSG).** Payment will be measured to the 0.1 Cubic Yards for accepted quantity of grout placed as approved by the Engineer. This also includes the quantity grout required to backfill holes, overburden, and exploratory borings. This item may be overrun or underrun at the direction of the Engineer without adjustment in the contract unit price. All costs associated with and incidental to providing, placing, and testing of LSG for the grouting operations shall be included in the contract unit price for Low Slump Grout, Cubic Yards.

**12.4. Payment.** Payment will be made under:

<b>Code</b>	<b>Pay Item</b>	<b>Pay Unit</b>
25000EC	Mobilization for Grouting	Lump Sum
24999EC	Drilling	Linear Foot
23911EC	Low Slump Grout	Cubic Yard

**APPENDIX A**  
**MINED AREA MAPS**



## **SPECIAL NOTE FOR NON-DESTRUCTIVE TESTING IN DRILLED SHAFTS**

The following sections provide the requirements for non-destructive testing (Crosshole Sonic Logging and Thermal Integrity Profiling) of the drilled shaft foundations, including technique shafts, schedule requirements for submittals, reporting requirements and Contractor/Testing Subcontractor/Department responsibilities. The purpose of the non-destructive testing is to evaluate whether the Contractor's means and methods are suitable for proposed drilled shaft foundation construction and to potentially detect air-, clay- or debris-filled voids or other discontinuities within and along the perimeter of the drilled shafts.

### **1.0 Crosshole Sonic Logging**

#### **1.1 Description**

Crosshole Sonic Logging (CSL) is a nondestructive method to test the integrity of drilled shafts. It is the responsibility of the Contractor to supply all equipment and materials necessary to perform this testing and for obtaining the services of a CSL Testing Firm, which is experienced with CSL testing in accordance with Section 1.4.1 of this note and approved by the Engineer, to perform the testing.

The Contractor will be responsible for providing:

1. access tubes to be used for CSL testing of the drilled shafts;
2. watertight shoes, watertight caps, and non-shrink grout;
3. suitable working space and access to every shaft;
4. a reliable 600 watt (minimum) generator; and
5. any other equipment or materials necessary to accomplish the testing.

#### **1.2 Materials**

##### **1.2.1 Access Tubes**

1. Provide access tubes meeting the requirements below:
  - a. 2-inch ID schedule 40 steel pipe conforming to ASTM A 53, Grade A or B, Type E, F, or S;
  - b. contains round, regular internal diameters free of defects or obstructions, including any at pipe joints;
  - c. capable of permitting the free, unobstructed passage of a 1.5-inch-diameter source and receiver probes; and
  - d. watertight and free from corrosion with clean internal and external faces to ensure passage of the probes and a good bond between the concrete and the tubes.
2. Provide watertight shoes on the bottom and removable watertight caps on the top of the tubes.
3. The Engineer will accept access tubes based on visual inspection, certification, and that the steel pipe meets the requirements above.



### 1.2.2 Grout

Provide non-shrink grout to fill the access tubes and any cored holes at the completion of the CSL tests. Use grout conforming to Section 601.03.03 of the Standard Specifications.

## 1.3 Execution

### 1.3.1 Access Tube Installation

1. Install 6 access tubes as shown in Section 2.4.2 of this Special Note in each of the drilled shafts having a rock socket diameter of 5.5 feet or greater, unless directed by the Engineer to omit any access tubes. Install 4 access tubes as shown in Section 2.4.2 of this Special Note in each of the drilled shafts having a rock socket diameter of 3.5 feet to 5 feet, unless directed by the Engineer to omit any access tubes.
2. Securely attach the CSL tubes that are along the inside periphery to the spiral reinforcement. Wire-tie the tubes a minimum of every 3 ft. so they will stay in position during placement of reinforcement and concrete. Place the tubes so they will be parallel with each other and as near to vertical as possible in the finished shaft. Even moderate bending of the tubes will result in large regional variations in the data.
3. Place the tubes from 6 inches above the shaft tip to at least 3 ft. above the top of rebar cage, at least 3 ft. above water level, at least to the top of concrete, and at least 3 ft. above the top of casing. Under no circumstances may the tubes be allowed to come to rest on the bottom of the excavation.
4. Ensure that any joints in the tubes are watertight.
5. During placement of the reinforcement cage, exercise care so that the tubes will not be damaged to the extent that would prevent a 1.5-inch diameter probe from passing through them.
6. After placing the reinforcing cage and before beginning concrete placement, **fill the tubes with clean potable water** and cap or seal the tube tops to keep debris out of the tubes. Replace the watertight caps immediately after filling the tubes with water.
7. Before placing concrete, investigate at least one tube per shaft to make sure that there are no bends, crimps, obstructions or other impediments to the free passage of the testing probes.
8. During removal of the caps from the tubes, exercise care so as not to apply excess torque, hammering, or other stresses which could break the bond between the tubes and concrete.
9. After concrete placement and before the beginning of CSL testing, inspect the access tubes and report any access tubes that the 1.5-inch diameter test probe cannot pass through to the Engineer. The Engineer will make an evaluation to determine if the CSL testing can be successfully performed without the tube(s); the Engineer may require the contractor to, at its own expense, replace one or more

tubes with 2-inch-diameter holes cored through the concrete for the entire length of the shaft, excluding the bottom 6 inches. Unless directed otherwise by the Engineer, locate core holes approximately 6 inches inside the reinforcement such that it does not damage the reinforcement. For each core hole drilled, record a log with descriptions of inclusions and voids in the cored holes and submit a copy of the log and photographs to the Engineer. Preserve the cores, identify as to location and make available for inspection by the Engineer.

**1.3.2 Grouting**

After completion of the CSL and TIP testing, evaluation of results and upon being directed by the Engineer, remove the water from the access tubes and any cored holes, completely fill the tubes and holes with approved grout. After grouting, cut the tubes flush with the tops of the drilled shafts.

**1.4 CSL Testing and Evaluation of Test Results**

Make submittals electronically in accordance with the Project requirements for submittals. See Table 1 below. The Department will respond to the Contractor regarding acceptability of submittals within ten (10) business days, unless indicated otherwise in this special note. A “Business Day” is defined as any day except Saturdays, Sundays and Holidays, as defined in Section 101.03 of the Standard Specifications.

<b>Table 1 – Schedule of CSL Submittals</b>			
<b>Submittal Number</b>	<b>Submittal Item</b>	<b>Calendar Days</b>	<b>Event</b>
1	Technical Proposal with CSL Testing Firm qualifications	60 before	Start of Drilled Shaft Construction
2	CSL Testing Reports	5 After	Completion of testing on an individual drilled shaft

Provide all submittals and reports in .pdf format

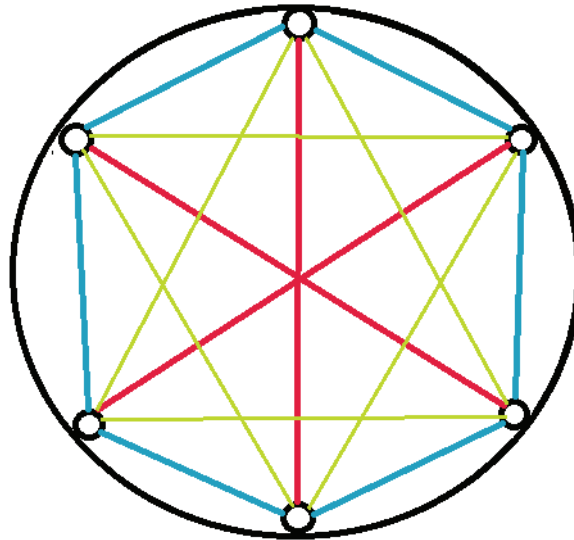
### 1.4.1 Technical Proposal

Submit a technical proposal prepared by the CSL Testing Firm that addresses the testing procedures and qualifications and experience of the testing firm. Include at least 3 similar deep foundation projects for which the testing organization has been engaged in CSL Testing. Use personnel having a minimum of 3 similar deep foundation projects experience in CSL Testing and interpretation. Within 10 business days, the Department will review the proposal and report to the Contractor whether the CSL Testing Firm is approved.

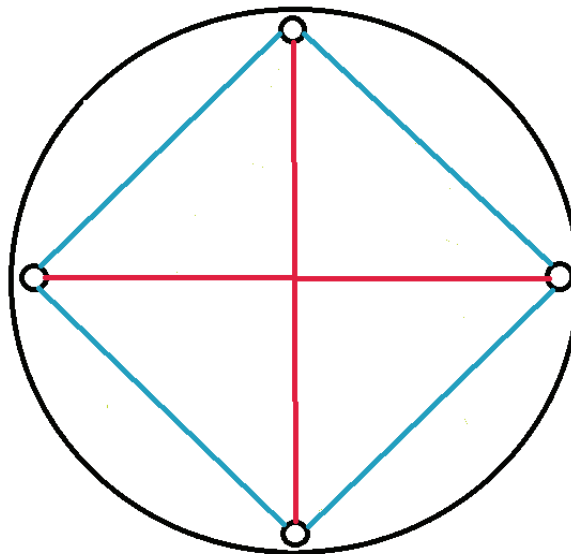
### 1.4.2 Testing

1. Provide access to the top of the shaft for testing personnel and equipment.
2. Perform CSL testing on all shafts, unless directed otherwise by the Engineer.
3. Perform CSL testing in general accordance with ASTM D 6760.
4. Perform CSL testing on all completed shafts designated for testing by the Engineer, after the shaft concrete has cured at least 72 hours and has obtained a minimum strength of 2500 psi.
5. For drilled shafts with diameters of 5.5 feet and greater, obtain a minimum of 15 CSL logs per shaft (6 perimeter, 3 major diagonal and 6 minor diagonal logs), unless otherwise directed by the Engineer (see figure below). For drilled shafts with diameters of 3.5 feet to 5 feet, obtain a minimum of 6 CSL logs per shaft (4 perimeter and 2 major diagonal logs), unless otherwise directed by the Engineer (see figure below).
6. If the CSL testing firm believes that additional testing is required (such as Angled CSL, Crosshole Tomography, Singlehole Sonic Logging, or Sonic Echo/Impulse Response, etc.), contact the Engineer immediately. The Department will determine if additional testing is required, and such testing, if not due to a drilled shaft defect, would be paid for using a change order.





**Proposed CSL Tube and Reading Configuration**  
5.5 ft. to 7 ft. Diameter Shafts – 6 CSL Tubes  
3 Major Diagonal Readings  
6 Perimeter Readings  
6 Minor Diagonal Readings



**Proposed CSL Tube and Reading Configuration**  
3.5 ft. to 5 ft. Diameter Shafts – 4 CSL Tubes  
2 Major Diagonal Readings  
4 Perimeter Readings

### **1.4.3 Test Reports**

1. Submit a test report prepared by the CSL Testing Firm within 5 business days of completion of testing which, as a minimum, contains:
  - a. Date of test;
  - b. Plan Shaft No. and Reference Elevation;
  - c. Schematic showing a plan view of the access tube locations;
  - d. CSL logs with reference elevations;
  - e. CSL logs presented for each tube pair tested with any discontinuity zones indicated on the logs and discussed in the report as appropriate;
  - f. Analyses of initial pulse arrival time versus depth or velocity versus depth; and
  - g. Analyses of pulse energy/amplitude versus depth.
  - h. A narrative portion of the report will be used to present items a through f.
2. Complete all reports using English units.

### **1.4.4. Evaluation of CSL Test Results**

1. Allow direct communication between the CSL Testing Firm and the Department.
2. The Department will evaluate the CSL test results in the test report to determine whether or not the drilled shaft integrity is acceptable. Within 5 business days after receiving a test report, the Engineer will report to the Contractor whether the construction is acceptable or additional analyses are needed. Thermal Integrity Testing (TIP) as described in Section 2.0 will also be used by the Department to determine the presence of anomalies.
3. Perform CSL testing on the first shaft constructed. Continue with subsequent drilled shaft rock socket excavation and concrete placement only after receiving written approval and acceptance of the first shaft of each specified diameter, based on the results and analysis of the CSL testing for the first shaft. Drilled shaft operations such as casing placement and overburden excavation will be allowed during the waiting period.
4. Continue with construction of the structure above the drilled shafts only after receiving written approval from the Engineer to do so, based on evaluation of the CSL test results.
5. If the CSL records are inconclusive (e.g. records do not clearly indicate discontinuity, good conditions or missing data), the Engineer may require additional testing, such as Angled CSL, or Singlehole Sonic Logging or concrete cores to sample the concrete in question to verify shaft conditions. If core samples are needed, obtain cores with a minimum diameter of 2 inches using a double tube core barrel at a minimum of 4 locations selected by the Department, unless directed otherwise by the Engineer. Unless directed otherwise by the

Engineer, locate core holes approximately 6 inches inside the reinforcement such that they do not damage the reinforcement. For each core hole drilled, record a log with descriptions of inclusions and voids in the cored holes and submit a copy of the log to the Engineer. Place the cores in crates properly marked showing the shaft depth at each interval of core recovery. Transport the cores and logs to the Geotechnical Branch in Frankfort for inspection and testing. Grout the core holes in accordance with Section 1.3.2 above.

6. If the additional testing or evaluation of cores indicate that concrete for any drilled shaft on which additional testing or coring was required is acceptable, the Department will pay for the direct cost of additional testing and concrete coring and grouting by change order. If the additional testing or evaluation of cores indicates that the concrete for any drilled shaft concrete is unacceptable, the additional testing and concrete coring and grouting will be at the expense of the Contractor.
7. If discontinuities are found, an independent structural and/or geotechnical consultant hired by the Contractor will perform structural and/or geotechnical evaluation at the expense of the Contractor. Hire consultants who are prequalified by KYTC in applicable areas. Based on the design criteria established for the structure and the evaluation of the independent structural engineer, the Engineer will assess the effects of the defects on the structural performance of the drilled shaft. If the results of the analyses indicate that there is conclusive evidence that the discontinuity will result in inadequate or unsafe performance under the design loads, as defined by the design criteria for the structure, the Engineer will reject the shaft.
8. If any shaft is rejected, provide a plan for remedial action to the Engineer for approval. Any modifications to the foundation shafts and/or other substructure elements caused by the remedial action will require calculations and working drawings by consultant(s) hired by the contractor, at the expense of the Contractor, which will be subject to review by the Engineer. Begin remediation operations only after receiving approval from the Engineer for the proposed remediation. All remedial action will be at no cost to the Department and with no extension of contract time.

## **2.0 Thermal Integrity Profiling**

### **2.1 Description**

Thermal Integrity Profiling (TIP) will be used as part of the program to test the integrity of drilled shafts. The Contractor will be responsible for supplying all equipment and materials necessary to perform this testing, and obtaining the services of a TIP Testing Firm, experienced with TIP testing and approved by the Engineer, to perform the testing. TIP testing will be performed using the CSL

tubes installed in the drilled shafts. Proposed alternate methods of performing the TIP testing may be considered by the Department.

Alternate methods of performing the TIP testing would be subject to acceptance by the Department, and installation of any sensors/instrumentation to the reinforcing cage would be incidental to the applicable contract unit bid price for TIP Testing. Ensuring that the TIP instrumentation is operational and provides the required information is the responsibility of the TIP Testing Firm. Overseeing the installation of the TIP testing instrumentation and properly training the Contractor in the installation of the TIP testing instrumentation is the responsibility of the TIP Testing Firm and is incidental to applicable unit bid price for TIP Testing. If any additional training for the Contractor is required for the TIP instrumentation, it is the responsibility of the TIP Testing Firm and is incidental to applicable unit bid price for TIP Testing.

The Contractor will be responsible for providing:

1. wires or probes which will be used for TIP testing of the drilled shafts;
2. dewatering equipment for CSL tubes if probes will be used;
3. suitable working space and access to every shaft;
4. a reliable 600 watt (minimum) generator; and
5. other equipment or materials necessary to accomplish the testing.

## **2.2 Materials**

Refer to Section 1.2 for CSL tube materials.

## **2.3 Execution**

### **2.3.1 Access Tube Installation**

Refer to CSL access tube installation in Section 1.3.1 of this Special Note.

### **2.3.2 Grouting**

After completion of the TIP and CSL testing, evaluation of results and upon being directed by the Engineer, remove the water from the access tubes and any cored holes, completely fill the tubes and holes with approved grout. After grouting, cut the tubes flush with the tops of the drilled shafts.

## **2.4 TIP Testing and Evaluation of Test Results**

Make submittals electronically in accordance with the Project requirements for submittals. See Table 2 below. The Department will respond to the Contractor regarding acceptability of submittals within ten (10) business days, unless indicated otherwise in this special note. A "Business Day" is defined as

any day except Saturdays, Sundays and Holidays, as defined in Section 101.03 of the Standard Specifications.

<b>Table 2 – Schedule of TIP Submittals</b>			
<b>Submittal Number</b>	<b>Submittal Item</b>	<b>Calendar Days</b>	<b>Event</b>
1	Technical Proposal with TIP Testing Firm qualifications, including any alternate testing methods and information required for alternate methods discussed in Section 2.1	60 before	Start of Drilled Shaft Construction
2	TIP Testing Reports	5 After	Completion of testing on an individual drilled shaft

Provide all submittals and reports in .pdf format

**2.4.1 Technical Proposal**

Submit a technical proposal prepared by the TIP Testing Firm that addresses the testing procedures and qualifications and experience of the testing firm. It is acceptable for the TIP and CSL Testing Firm to be the same firm, provided they meet requirements for both TIP (this Section) and CSL (Section 1.4.1) Testing Firms. Include at least 3 similar deep foundation projects for which the testing organization has been engaged in TIP Testing. Documented participation in the development of ASTM Standard Test Method D7949-14 may be counted as one project for the purposes of this pre-qualification. Experience in at least one similar project using CSL Testing and interpretation may be counted as one project. If used, this CSL project must be a different project than that used to satisfy the actual TIP Testing project experience. Include at least one project where TIP Testing was performed and interpreted. Use personnel having a minimum of 3 similar deep foundation projects experience in TIP Testing and interpretation. Within 10 business days, the Engineer will review the proposal and report to the Contractor whether the TIP Testing Firm is approved.

**2.4.2 Testing**

1. Provide access to the top of the shaft for testing personnel and equipment.
2. Perform TIP testing on all shafts, unless directed otherwise by the Engineer.
3. Perform TIP testing in accordance with generally accepted TIP Testing methods.

4. Perform TIP testing on all completed shafts designated for testing by the Engineer, within the time frame indicated by the TIP testing firm after of the completion of concrete placement in the drilled shaft. Do not exceed 60 hours after completion of the placement of the drilled shaft concrete.
5. If embedded thermal sensor wires are used, securely attach the wires to the full length of the longitudinal reinforcing steel, per the manufacturer's recommendations and at the same spacing and number as the CSL tubes.
6. If probes are used, verify the length of the tubes and pump water from the tubes prior to testing.
7. Perform TIP testing in the shafts designated for testing using either thermal probes in each CSL tube or the embedded thermal wire array, and in accordance with the ASTM Test Method D7949-14.
8. Immediately report potential local discontinuities indicated by locally low temperatures relative to the average temperature at that depth, or average temperatures significantly lower than the average temperatures at other depths to the Department.
9. If shaft discontinuities or thermal sensor/probe damage/defects are detected in the field, perform any confirmatory TIP testing deemed necessary by the TIP Testing Firm at no additional cost to the Department.

### **2.4.3 Test Reports**

1. Submit a test report prepared by the TIP Testing Firm within 5 business days of completion of testing which, as a minimum, contains:
  - a. Date of test;
  - b. Plan Shaft No. and Reference Elevation;
  - c. Schematic showing a plan view of the access tube locations;
  - d. Graphical displays of all temperature measurements versus depth;
  - e. Indication of unusual temperatures, particularly significantly cooler local deviations of the average at any depth from the overall average over the entire length;
  - f. The overall average temperature. This temperature is proportional to the average radius computed from the actual total concrete volume installed (assuming a consistent concrete mix throughout). Radius at any point can then be determined from the temperature at that point compared to the overall average temperature;
  - g. Variations in temperature between wires (at each depth) which may correspond to variations in cage alignment (where concrete volume is known, the cage alignment or offset from center should be noted); and
  - h. Where shaft specific construction information is available (e.g. elevations of the top of shaft, bottom of casing, bottom of shaft, etc.), these values should be noted on all pertinent graphical displays.

- i. Drilled shaft radius calculations and the shaft quality, based upon the collected data, as well other available data, such as, as shaft alignment and wall profile from the SC Testing, top/bottom shaft/concrete elevations and concrete volume records collected during construction of the drilled shaft.
  - j. A narrative portion of the report which addresses items a through i above.
2. Complete all reports using English units.

#### **2.4.4 Evaluation of TIP Test Results**

1. Allow direct communication between the TIP Testing Firm and the Department.
2. The Engineer will evaluate the TIP test results in the test report to determine whether or not the drilled shaft integrity is acceptable. Within 5 business days after receiving a test report, the Engineer will report to the Contractor whether the construction is acceptable or additional more detailed analyses are needed.
3. Perform TIP testing on the first shaft constructed. Continue with subsequent drilled shaft rock socket excavation and concrete placement only after receiving written approval and acceptance of the first shaft, based on the results and analysis of the TIP testing for the first shaft. Drilled shaft operations such as casing placement and overburden excavation will be allowed during the waiting period.
4. Continue with construction of the structure above the drilled shafts only after receiving written approval from the Engineer to do so, based on evaluation of the TIP and CSL test results.
5. If the TIP and the CSL records are inconclusive, the Engineer may require additional testing (such as Angled CSL, Crosshole Tomography, Singlehole Sonic Logging, or Sonic Echo/Impulse Response, etc.) or concrete cores to sample the concrete in question to verify shaft conditions. If either the TIP or CSL records are inconclusive, the Engineer may elect to require additional testing, based on the results of the conclusive TIP or CSL records. If core samples are needed, obtain cores with a minimum diameter of 2 inches, double tube core barrel at a minimum of four locations specified by the Department, unless directed otherwise by the Engineer. Unless directed otherwise by the Engineer, locate core holes approximately 6 inches inside the reinforcement such that they do not damage the reinforcement. For each core hole drilled, record a log with descriptions of inclusions and voids in the cored holes and submit a copy of the log to the Engineer. Place the cores in crates properly marked showing the shaft depth at each interval of core recovery. Transport the cores and logs to the Geotechnical Branch in Frankfort for inspection and testing. Grout the core holes in accordance with Section 2.3.2 above.



6. If the additional testing or evaluation of cores indicate that concrete for any drilled shaft on which additional testing or coring was required is acceptable, the Department will pay for the direct cost of additional testing and concrete coring and grouting by change order. If the additional testing or if evaluation of cores indicates that the concrete for any drilled shaft concrete is unacceptable, the additional testing and concrete coring and grouting will be at the expense of the Contractor.
7. If defects are found, the original structural designer will perform structural and/or geotechnical analyses, at the expense of the Contractor, based on the design criteria established for the structure to assess the effects of the defects on the structural performance of the drilled shaft. If the results of the analyses indicate that there is conclusive evidence that the defects will result in inadequate or unsafe performance under the design loads, as defined by the design criteria for the structure, the Engineer will reject the shaft.
8. If any shaft is rejected, provide a plan for remedial action to the Engineer for approval. Any modifications to the foundation shafts and/or other substructure elements caused by the remedial action will require calculations and working drawings by independent consultant(s) hired by the Contractor, at the expense of the Contractor. The calculations and working drawings will be reviewed by the Engineer. Begin remediation operations only after receiving acceptance from the Engineer for the proposed remediation. All remedial action will be at no cost to the Department and with no extension of contract time.

### **3.0 Measurement and Payment**

#### **3.1 Method of Measurement CSL Testing**

The Department will pay for the authorized and accepted quantities of “CSL Testing” at the contract unit price per each shaft tested (production and technique drilled shafts). This will constitute full compensation for all costs associated with providing access for testing personnel and equipment, performing the CSL Testing in a single shaft, and reporting the results to the Engineer.

Installation of CSL Access Tubing is incidental to the applicable contract unit bid price for Drilled Shaft, Common, and Drilled Shaft, Solid Rock. This will constitute all costs and delays associated with installing the CSL Access Tubing in a single shaft, including but not limited to providing and installing access tubing, providing and installing all required bracing for access tubes, providing and placing grout in access tubes.

The Department will pay using a change order for the direct cost of additional testing and concrete coring, authorized by the Engineer, required to investigate shafts with inconclusive CSL records if evaluation of the additional testing or



cores indicates that concrete for that drilled shaft is acceptable. This will constitute full compensation for all costs and delays associated with performing additional tests, obtaining and delivering concrete cores to the Geotechnical Branch, and grouting core holes.

### 3.2 Method of Measurement TIP Testing

The Department will pay for the authorized and accepted quantities of "TIP Testing" at the contract unit price per each shaft tested (production and technique drilled shafts). This will constitute full compensation for all costs associated with providing access for testing personnel and equipment, performing the TIP Testing in a single shaft, and reporting the results to the Engineer.

Installation of CSL/TIP Access Tubing and/or thermal sensor wires is incidental to the applicable contract unit bid price for Drilled Shaft, Common, and Drilled Shaft, Solid Rock. This will constitute all costs and delays associated with installing the CSL Access Tubing in a single shaft, including but not limited to providing and installing access tubing, providing and installing all required bracing for access tubes, providing and placing grout in access tubes.

The Department will pay using a change order for the direct cost of additional testing and concrete coring, authorized by the Engineer, required to investigate shafts with complex or inconclusive TIP records if evaluation of the additional testing or cores indicates that concrete for that drilled shaft is acceptable. This will constitute full compensation for all costs and delays associated with performing additional tests, obtaining and delivering concrete cores to the Geotechnical Branch, and grouting core holes.

### 3.3 Payment

The Department will pay for the completed and accepted quantities under the following. The Pay Unit of "Each" refers to each individual shaft.

Code	Pay Item	Pay Unit
21322NC	CSL Testing (6 tubes)	Each
21321NC	CSL Testing (4 tubes)	Each
24742EC	TIP Testing (6 tubes)	Each
24743EC	TIP Testing (4 tubes)	Each

The Department will consider payment as full compensation for all work required under this Section.

## SPECIAL NOTE FOR STEEL ERECTION

### Henderson County Item No. 2-1080 US 60 Bridge over Green River – Drawing No. 27516

#### 1.0 DESCRIPTION

This work shall consist of fabricating, furnishing and installing the truss span superstructure, including truss main members, connections, floor beams, stringers and bracing.

Materials and workmanship shall be in accordance with the KYTC Standard Specifications for Road and Bridge Construction, 2019 Edition (KYTC); AASHTO/AWS D1.5M/D1.5 "Bridge Welding Code"; AWS D1.1/D1.1M "Structural Welding Code - Steel"; the Contract Drawings; and this Special Note.

Where a conflict exists between this Special Note and KYTC Section 607, the provisions herein shall govern.

#### 2.0 MATERIALS

Materials shall conform to the Contract Drawings and KYTC Section 607.

#### 3.0 ERECTION ANALYSIS AND STABILITY

**3.1 Steel Erection Responsibility.** The stability of the structure during erection, and the final geometry of the structure, is the responsibility of the Contractor. The Contractor shall retain an erection engineer for the purpose of evaluating the stability, state of stress and geometry of the structure during and after erection. The erection engineer shall evaluate and propose wind loads during construction which are appropriate for the proposed erection scheme chosen. The Contractor shall erect the bridge in a safe manner without overstressing the structural components during erection and shall leave the structure in a state of stress compatible with the design.

Structural steel shall be in conformance with KYTC Section 607. Steel erection shall be in conformance with the AASHTO/NSBA "Steel Bridge Erection Guide Specification," S10.1-2014.

**3.2 Conceptual Erection Sequence.** The assumed erection sequence, as described in the Contract Drawings, is that a portion of the truss and floor system is constructed on blocking in the "no-load condition." This would require floating in of the partially completed steel superstructure for placement on top of temporary falsework, followed by on site erection of the remainder of the truss span and floor system. The Contractor may choose and develop

any sequence that can safely erect the bridge without overstress or damage to the structural steel subject to approval by the Engineer and United States Coast Guard. The design of any necessary shoring / falsework and its foundations is the responsibility of the contractor.

- 3.3 Truss Erection and Camber.** In addition to full analysis of the completed structure, load capacity and stability of the truss structure has been verified by the Engineer of Record for the completely erected steel superstructure, prior to deck placement. The Contract Drawings details the assumed erection and deck pour sequence that is consistent with the camber shown on the Contract Drawings and the load capacity of the fully-erected structure. No provision in either the camber or structural capacity of the members has been included for erection stresses.

The load capacity and stability verification of a partially completed truss span in the various stages of erection prior to installation of all steel members is the responsibility of the Contractor. The Contractor shall evaluate the partially completed structure in accordance with the same design provisions used for the permanent structure except as indicated herein. Wind loads for the final structure are given on the Contract Drawings. The erection engineer shall evaluate wind loads during construction which are appropriate for the proposed erection scheme chosen.

No uplift at bearings shall be allowed in any construction phase.

- 3.4 Changes to the Structure.** Any changes to the structural steel system shown in the Contract Plans require reanalysis for load capacity and stability for both construction and permanent load conditions, including seismic. Diaphragm action of the stay-in-place forms shall be neglected in all analyses.

Dead load deflection, camber and stringer haunch thickness are based on the erection and slab pouring sequences as shown in the plans. Any deviation from this sequence will need to be evaluated by the Contractor's engineer to determine the effect on camber, dead load deflection and structural member stresses. This evaluation must be submitted to the Engineer for review and approval by the Engineer of Record.

## **4.0 QUALIFICATIONS AND SUBMITTALS**

- 4.1 Erector Qualifications.** Structural steel shall be erected by a qualified, competent erection contractor. To establish qualification the erection contractor shall submit to the Department proof of their experience on previous projects of equivalent complexity which, at a minimum, include the following:

- A. Any one lift using two or more cranes/derricks/poles,
- B. Steel truss spans over water,
- C. Erection with floating equipment,
- D. Field splicing primary members while held in place by erection equipment.

The Department shall determine whether the submitted evidence is satisfactory to establish qualification and competency.

**4.2 Erection Procedure.** The Contractor shall submit a detailed erection procedure to the Engineer, prepared and sealed by a professional engineer licensed in Kentucky. The professional engineer who prepares the erection procedure and calculations shall have experience in steel erection of similar size, complexity, and scope. The procedure shall address all requirements for erection of the structural steel into the final designed configuration and satisfy all written comments from the Engineer of Record and the Department or its agents prior to the start of erection. The procedure, as a minimum, shall include the following information:

**Drawings.**

- A. Plan of the work area showing permanent support structures (piers and abutments), roads, waterways (including navigational channel), overhead and underground utilities, and other information pertinent to erection.
- B. Erection sequence for all members noting any temporary support conditions, such as holding crane positions, temporary supports, falsework, etc. Member reference marks, when reflected on the erection plans, should be the same as used on shop detail drawings.
- C. Primary member delivery location and orientation.
- D. Location of each crane for each primary member pick, showing radius and crane support (barges, mats, etc.).
- E. Capacity chart for each crane configuration and boom length used in the work.
- F. Center of gravity locations for primary members.
- G. Detail, weight, capacity, and arrangement of all rigging for primary member picks.
- H. Lifting weight of primary member picks, including all rigging and pre-attached elements.
- I. Details of any temporary lifting devices to be bolted or welded to permanent members, including: method and place (shop or field) of attachment; capacity; and method, time and crew responsible for removal.
- J. Bolted splice assembly requirements.
- K. Lifting/handling procedure for any primary member that has a lifted length-to-width ratio ( $l/b$ ) greater than 85.
- L. Blocking details for bridge bearings.

**Calculations.**

- A. Design calculations indicating the load capacity and verifying the stability of temporary supports for structure and crane(s) for each pick and release.

- B. Calculations to substantiate structural adequacy and stability of all steel members for each step of bridge assembly, including documentation of the wind loads and other construction loads assumed to be applied.
- C. Calculations to verify adequate capacity of contractor-fabricated rigging such as lift beams, welded lugs, spreader beams, beam clamps, etc. Submit manufacturers' certification or catalog cuts for pre-engineered devices.
- D. Geometrical information that will be used to monitor the structure during erection to ensure that the final geometry of the structure is as indicated on the plans.

**Coordination Items.**

- A. Review / approval by other agencies as required (e.g., US Coast Guard, US Army Corp of Engineers, etc.).
- B. Construction activities that occur concurrently with steel erection, such as setting forms or concrete deck pours.

**4.3 Shop Drawings.** Shop drawings for truss and components shall conform to KYTC Section 607. The following replaces Subsection 607.03.01 of the Department's 2012 Standard Specifications for Road and Bridge Construction in its entirety.

**607.03.01 Shop Drawings and Welding Procedures.** Submit detailed shop drawings and welding procedures to the Division of Structural Design or their designated representative ("Reviewer"). The Department will furnish plans showing sufficient details for the Contractor to prepare detailed shop drawings. Include welding procedures and details, when required, as part of the shop drawings. The Department will not consider the shop drawing submittal process to be complete without the submittal of welding procedures.

Submit a shop drawing submittal schedule (Schedule) for review and approval no later than thirty calendar days prior to the first submittal. List all anticipated shop drawing packages for the project by component and superstructure unit, span or pier, and show the estimated submittal dates for each package. Update the Schedule and resubmit to the Engineer, for review but not approval, on the first day of each calendar month until all required shop drawing submittals have been approved.

Submit shop drawings in substantial conformance with the latest Schedule submitted to the Engineer and include all relevant drawings and construction procedures necessary for a thorough review. Allow sufficient lead time to permit a complete review.

Submit shop drawings in electronic format. Make all drawing submittals in a 22 inch by 36 inch Portable Document Format (PDF) that will produce clear prints and sharp lines on both 11 inch by 17 inch prints and 22 inch by 36 inch prints ("PDF Prints"). The Department reserves the right to require hard copy prints on a case-by-case basis.

Submission of two or three-dimensional computer modeling data will not by itself constitute a complete shop drawing submittal. The use of two- or three-dimensional computer modeling techniques to facilitate fabrication will not relieve the fabricator from providing detailed shop drawings of all bridge members and components for the Department's records.

Submit to the Reviewer PDF Print Files of the detailed shop drawings and welding

procedures. Electronically stamp all shop drawings and procedures with the Contractor's stamp as an acknowledgment that the Contractor has reviewed the submittal for completeness and appropriateness. Each sheet will be electronically stamped by the Reviewer. The Reviewer will return one PDF file of reviewed shop drawings with all required corrections noted. When corrections and resubmittal are required, submit PDF Print Files of the corrected drawings. After the final review, when additional resubmittal is unnecessary, the Reviewer will forward the reviewed shop drawing PDF Print files with the Reviewer's Stamp indicating approval (or conditional approval) and any final comments to the DOSD Shop Plan Coordinator for distribution. Only plans submitted directly to the Shop Plan Coordinator by the Reviewer will be distributed, and only plans electronically stamped "distributed by the Division of Structural Design" are to be used for fabrication.

After fabrication is complete and the Engineer has approved the structural steel for shipment, furnish to the Engineer one electronic set of the as-built shop drawings, including the welding procedures, as PDF Prints.

Review cycles will begin the first Business Day after a submittal is received ("logged"), or the next Business Day after the submittal date indicated on the most recently submitted Schedule, whichever occurs later. Submittals received after 2:00 PM Eastern Time will be logged as the next Business Day following receipt of the submission. 'Business Days' are weekdays, Monday through Friday except official Department holidays.

The Reviewer will determine if all relevant drawings and construction procedures have been submitted. If a submission is incomplete or otherwise requires additional information or data to properly complete the review, the review cycle for the submission will be reset and the cycle will begin as specified in the previous paragraph once all required information is received (logged.)

Review cycle durations for shop drawing submittal packages deemed complete by the Reviewer are as follows:

- Allow at minimum 30 Business Days for review of shop drawing submissions of welded plate girders or rolled steel sections.
- Allow at minimum 30 Business Days for review of shop drawing submissions for disc bearings, truss members, lateral bracing, floor beams, and their respective connections.
- Allow at minimum 15 Business Days for review of other shop drawing packages.

No claims for delay will be considered for shop drawing reviews when the Engineer has indicated that relevant drawings or construction procedures are insufficient for a thorough review. No claims for delay will be considered for shop drawing reviews when information relevant to the submittal review is still in the process of being developed. Additional time to review requested changes to any relevant drawings and construction procedures will not be considered cause for delay claims.

Do not make changes to any drawing after the Engineer has reviewed it without the Engineer's written approval or written direction.

Only make substitutions of sections different from those shown on the drawings when the Engineer approves in writing.

Although the drawings may have been reviewed, take responsibility for the correctness of the drawings and for shop fits and field connections.

Take responsibility for any material ordered or work done before the Engineer reviews the drawings and welding procedures.

When design drawings differ from the shop drawings, the design drawings govern. When the requirements of this section differ from the shop drawings, the requirements of this section govern.

When the design drawings differ from the requirements of this section, the design drawings govern.

## 5.0 TRANSPORTATION, HANDLING AND SUPPORT

### 5.1 Transportation.

**Responsibility.** The Contractor is responsible for coordinating delivery from the fabricator to the jobsite and for providing adequate site access.

**Shipping plan.** The Contractor is responsible for preparing a shipping plan indicating support, lateral bracing, and tie-down points for primary members during transportation to the jobsite.

**Handling.** Ship primary members upright, unless otherwise approved by the Department. Load, support, and unload primary members in a manner that will not damage, excessively stress or permanently deform the steel or cause repeated stress reversals in the members.

### 5.2 Lifting and Assembly.

**General.** Lift, position and assemble all members in accordance with the approved erection procedures. The proposed crane location(s) and member delivery location(s) may require modification in the field to suit changing jobsite conditions. However, cranes and material must be located such that the lift is safe and within the crane manufacturer's rated capacity for all required positions.

**Lifting device.** Install lifting devices, including bolted assemblies using existing bolt holes (splices, cross frame connection plates, etc.), using Department-approved details. Welded lugs are not permitted without approval of the Engineer.

**Erection stability.** All structural members shall be stabilized with falsework, temporary bracing and/or holding cranes until the structure is complete and has the necessary lateral stability to make the structure self-supporting.

**Falsework and temporary supports.** Falsework and temporary supports shall be detailed to ensure that the temporary elevation of supported steel accommodates the deflections expected to occur as the structure is completed.

**Pins.** Pins are normally used to align holes for bolted field connections. Field reaming to facilitate fit-up will only be allowed with the Department's prior approval. Any abnormal distortion of the member or of the holes during the alignment process shall be immediately reported to the Engineer.



**Connections.** For splice connections of primary members, fill at least 50 percent of the holes prior to crane release. The 50 percent may be either erection bolts in a snug tight condition or full-size erection pins. At least half (25 percent of all holes) shall be filled with bolts, and sufficient pins shall be used near outside corners of splice plates and at member ends near splice plate edges to ensure alignment. Uniformly distribute the filled holes.

The 50 percent requirement may be waived if a reduced percentage is calculated as sufficient and shown on the approved erection procedure. Permanent bolts may be used as erection bolts, provided they are installed in accordance with the specifications.

Primary member splice connections that are assembled on the ground (prior to erection) shall be 100 percent complete, in the no-load condition, prior to any lifting operation.

**Abnormalities.** Any abnormal member deformation or brace deflection after crane release or temporary support removal shall be immediately reported to the Engineer for swift resolution. Further work affecting the area, except for restoring support or adding bracing, shall be stopped until the deformation/deflection is resolved.

## 6.0 REPAIR

- 6.1 **Documentation.** The Contractor is responsible for documenting damage due to handling, removal of erection aids, aligning members and other actions, uncorrected misfits at connections, and misalignments exceeding tolerances in erected members. As-received damage attributable to transport or fabrication shall also be documented.
- 6.2 **Implementation.** The Contractor shall propose a method of repair and basis for acceptance for the Department's review.
- 6.3 **Repair Procedures.** Submit repair procedures for damaged or misaligned steel in the form of sketches and/or written procedures as applicable and as requested by the Department. Information must provide sufficient detail for the Department to adequately review the repair application. After repairs are complete, the Contractor shall provide as-built detailed drawings, NDT results, and procedures/materials used to the Engineer for inclusion in the project file.
- 6.4 **Welds.** Field or shop welds that are unacceptable must be repaired in accordance with AWS D1.5. Responsibility for the cost of the repair and subsequent inspection shall be at the Contractor's expense.

## 7.0 MEASUREMENT

The cost of fabricating, furnishing and installing the truss span superstructure, including truss main members, connections, floor beams, stringers, bracing, and truss disc bearing masonry plates and masonry plate studs; and all material, labor, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents; shall be included in the lump sum unit price for Structural Steel.



**8.0 PAYMENT**

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
08160	STRUCTURAL STEEL	LS

## **SPECIAL NOTE FOR TRAFFIC CONTROL ON EXISTING US60 BRIDGE REPAIRS**

### **I. TRAFFIC CONTROL GENERAL**

Except as provided herein, traffic shall be maintained in accordance with the 2019 Standard Specifications, Section 112, and the current edition of the Manual on Uniform Traffic Control Devices (MUTCD). All items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic" (02650)

Type III Barricades shall be placed in accordance with the MUTCD and the 2019 Standard Specifications, Section 112. Barricades will be considered incidental to "Maintain and Control Traffic"

Contrary to Section 106.01, traffic control devices used on this project may be new or used in new condition, at the beginning of the work and maintained in like new condition until completion of the work.

### **II. TRAFFIC COORDINATOR**

Furnish a Traffic Coordinator as per Section 112. The Traffic Coordinator shall inspect the project maintenance of traffic, at least three times daily, or as directed by the Engineer, during the Contractor's operations and at any time the bridge closure is in place. The personnel shall have access on the project to a radio or telephone to be used in case of emergencies or accidents.

The Traffic Coordinator shall report all incidents throughout the work zone to the Engineer on the project. The Contractor shall furnish the name and telephone number where the Traffic Coordinator can be contacted at all times.

### **III. SIGNS**

Variable message signs shall be provided accordance with the Special Note for Portable Changeable Message Signs. All other signs necessary to maintain and control traffic will not be measured for payment but will be considered incidental to "Maintain and Control Traffic".

### **IV. DETOUR**

The detour shall utilize the Audubon Parkway and shall be signed by the contractor as directed/approved by KYTC District 2 officials and in accordance with the MUTCD.

### **V. PROJECT PHASING & CONSTRUCTION PROCEDURES**

All work to repair the truss member shall be completed during four weekend bridge closures from 6:00pm on Friday to 5:00am the following Monday (59 hours). Bridge closure is only permitted during the four (4) "59-hour lane closure" periods. Bridge closure will not be permitted at any other times.

***SPECIAL NOTE***

**For Tree Removal**

**Henderson County  
ADDRESS DEFICIENCIES OF BRIDGE ON US 60 OVER  
GREEN RIVER AT INTERSECTION WITH KY 1078  
Item No. 2-1080**

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

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



Kentucky Transportation Cabinet  
Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

County: Henderson Item No.: 2-1080.00

Federal Project No.: BRO 5053(026)

**Project Description:**

Replace Bridge over Green River at Intersection with KY 1078 at MP 19.236 to MP 19.444 in Henderson County.

Roadway Classification:  Urban  Rural  
 Local  Collector  Arterial  Interstate

ADT (current) 5200 AM Peak Current \_\_\_\_\_ PM Peak Current \_\_\_\_\_ % Trucks 5.70

Project Designation:  Significant  Other: \_\_\_\_\_

**Traffic Control Plan Design:**

Taper and Diversion Design Speeds 45

Minimum Lane Width 12', 2 Minimum Shoulder Width 8', 4'

Minimum Bridge Width 40'

Minimum Radius 7150' Maximum Grade 6.0%

Minimum Taper Length n/a Minimum Intersection Level of Service n/a

Existing Traffic Queue Lengths n/a Projected Traffic Queue Lengths n/a

**Comments:**

[Empty box for comments]



Kentucky Transportation Cabinet  
 Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

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Item No. 2-1080.00

**Discussion:**

<b>1) Public Information Plan</b>	
a) Prepare with assistance from <input checked="" type="checkbox"/> KYTC or <input type="checkbox"/> _____	
b) Identify Trip Generators      N/A	f) Railroad Involvement      N/A
c) Identify Types of Road Users    N/A	g) Address Pedestrians, Bikes Mass Transit      N/A
d) Public Information Message    N/A	h) Address Timing, Frequency, Updates, Effectiveness of Plan      N/A
e) Public Information Strategies to be used      N/A	i) Police & Other Emergency Services      N/A



Kentucky Transportation Cabinet  
 Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

Item No. 2-1080.00

<b>2) Temporary Traffic Control Plan (For Each Phase of Construction)</b>	
<b>Phase I</b>	
<b>Exposure Control Measures</b>	<b>Positive Protection Measures</b>
a) Is Road Closure Allowed Type: N/A	a) Address Drop Off Protection Criteria Referenced
b) Detour Conditions N/A	b) Temporary Barrier Requirements Referenced
c) Working Hour Restrictions N/A	c) Evaluation of Existing Guardrail Conditions N/A
d) Holiday or Special Event Work Restrictions N/A	d) Address Temporary Drainage Referenced
e) Evaluation of Intersection LOS N/A	<b>Uniformed Law Enforcement Officers</b> N/A
f) Evaluation of Queue Lengths N/A	<b>Payment for Traffic Control*</b>
g) Evaluation of User Costs and Incentives/Disincentives N/A	a) Method of Project Bidding Referenced
h) Address Pedestrians, Bikes, Mass Transit N/A	b) Special Notes Referenced
<b>Work Vehicles and Equipment</b> Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction
Comments:	



Kentucky Transportation Cabinet  
Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

Item No. 2-1080.00

<b>2) Temporary Traffic Control Plan (For Each Phase of Construction)</b>			
<b>Phase 2</b>			
<b>Exposure Control Measures</b>		<b>Positive Protection Measures</b>	
a) Is Road Closure Allowed Type:	Referenced	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	<b>Uniformed Law Enforcement Officers</b>	N/A
f) Evaluation of Queue Lengths	N/A	<b>Payment for Traffic Control*</b>	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	N/A
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	N/A
<b>Work Vehicles and Equipment</b>	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			



Kentucky Transportation Cabinet  
Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

Item No. 2-1080.00

<b>2) Temporary Traffic Control Plan (For Each Phase of Construction)</b>			
<b>Phase 3</b>			
<b>Exposure Control Measures</b>		<b>Positive Protection Measures</b>	
a) Is Road Closure Allowed Type:	Referenced	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	<b>Uniformed Law Enforcement Officers</b>	N/A
f) Evaluation of Queue Lengths	N/A	<b>Payment for Traffic Control*</b>	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	N/A
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	Referenced
<b>Work Vehicles and Equipment</b>	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			





Kentucky Transportation Cabinet  
Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

Item No. 2-1080.00

<b>2) Temporary Traffic Control Plan (For Each Phase of Construction)</b>			
<b>Phase 4</b>			
<b>Exposure Control Measures</b>		<b>Positive Protection Measures</b>	
a) Is Road Closure Allowed Type:	N/A	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	<b>Uniformed Law Enforcement Officers</b>	N/A
f) Evaluation of Queue Lengths	N/A	<b>Payment for Traffic Control*</b>	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	N/A
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	N/A
<b>Work Vehicles and Equipment</b>	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			



Kentucky Transportation Cabinet  
Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

Item No. 2-1080.00

<b>2) Temporary Traffic Control Plan (For Each Phase of Construction)</b>			
<b>Phase 5</b>			
<b>Exposure Control Measures</b>		<b>Positive Protection Measures</b>	
a) Is Road Closure Allowed Type:	Referenced	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	<b>Uniformed Law Enforcement Officers</b>	N/A
f) Evaluation of Queue Lengths	N/A	<b>Payment for Traffic Control*</b>	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	N/A
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	N/A
<b>Work Vehicles and Equipment</b>	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			



Kentucky Transportation Cabinet  
 Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

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Item No. 2-1080.00

<b>2) Temporary Traffic Control Plan (For Each Phase of Construction)</b>			
<b>Phase 6</b>			
<b>Exposure Control Measures</b>		<b>Positive Protection Measures</b>	
a) Is Road Closure Allowed Type:	Referenced	a) Address Drop Off Protection Criteria	Referenced
b) Detour Conditions	N/A	b) Temporary Barrier Requirements	Referenced
c) Working Hour Restrictions	N/A	c) Evaluation of Existing Guardrail Conditions	N/A
d) Holiday or Special Event Work Restrictions	N/A	d) Address Temporary Drainage	Referenced
e) Evaluation of Intersection LOS	N/A	<b>Uniformed Law Enforcement Officers</b>	N/A
f) Evaluation of Queue Lengths	N/A	<b>Payment for Traffic Control*</b>	
g) Evaluation of User Costs and Incentives/Disincentives	N/A	a) Method of Project Bidding	N/A
h) Address Pedestrians, Bikes, Mass Transit	N/A	b) Special Notes	N/A
<b>Work Vehicles and Equipment</b>	Referenced	*Payment for traffic control items shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction	
Comments:			



Kentucky Transportation Cabinet  
Division of Highway Design  
**TRAFFIC MANAGEMENT PLAN**

Item No. 2-1080.00

**APPROVAL:**

*Ad Rudd* 8/2/19  
Project Manager Date

*Ad Rudd for Jason Ward* 8/2/19  
Project Delivery and Preservation Manager Date

*[Signature]* 8/2/19  
Engineering Support Manager Date

\_\_\_\_\_  
FHWA Representative Date

**Revisions to the TMP require review/approval by the signatories.**

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R33

# MAINTENANCE OF TRAFFIC NOTES

## GENERAL NOTES

1. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
2. EXCEPT FOR THE ROADWAY AND TRAFFIC CONTROL BID ITEMS LISTED, ALL ITEMS OF WORK NECESSARY TO MAINTAIN AND CONTROL TRAFFIC WILL BE PAID AT THE LUMP SUM BID PRICE TO "MAINTAIN AND CONTROL TRAFFIC AS SET FORTH IN THE CURRENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION UNLESS OTHERWISE PROVIDED FOR IN THESE NOTES. THE LUMP SUM BID TO "MAINTAIN AND CONTROL TRAFFIC" SHALL ALSO INCLUDE, BUT IS NOT LIMITED TO, THE FOLLOWING ITEMS AND OPERATIONS:
  - A. ALL GRADING AND NECESSARY DRAINAGE UNLESS A BID ITEM FOR DETOUR CONSTRUCTION IS INCLUDED FOR THE TEMPORARY ROADWAY AND REMOVAL THEREOF, WHEN IT IS NO LONGER NEEDED, IF A BID ITEM FOR DETOUR CONSTRUCTION IS INCLUDED, GRADING AND DRAINAGE WILL BE PAID FOR IN THE BID ITEM "DETOUR CONSTRUCTION".
  - B. ALL LABOR AND MATERIALS NECESSARY FOR CONSTRUCTION AND MAINTENANCE OF TRAFFIC CONTROL DEVICES AND MARKINGS.
  - C. ALL FLAGPERSONS AND TRAFFIC CONTROL DEVICES SUCH AS, BUT NOT LIMITED TO, FLASHERS, SIGNS, BARRICADES AND VERTICAL PANELS, PLASTIC DRUMS (STEEL DRUMS WILL NOT BE PERMITTED) AND CONES NECESSARY FOR THE CONTROL AND PROTECTION OF VEHICULAR AND PEDESTRIAN TRAFFIC AS SPECIFIED IN THESE NOTES, THE PLANS, THE MUTCD OR THE ENGINEER.
3. ANY TEMPORARY TRAFFIC CONTROL ITEMS, DEVICES, MATERIALS AND INCIDENTALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR WHEN NO LONGER NEEDED.
4. EXCEPT AS INDICATED IN PHASING NOTES FOR SPECIFIC OPERATIONS/PHASES, THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE OF 9 FEET, AND ON ALL OTHER ROADS MAINTAIN A TWO-LANE TRAVELED WAY WITH A MINIMUM LANE WIDTH OF 6'.
5. THE CONTRACTOR SHALL COMPLETELY COVER ANY SIGNS, EITHER EXISTING, PERMANENT OR TEMPORARY, WHICH DO NOT PROPERLY APPLY TO THE CURRENT TRAFFIC PHASING, AND SHALL MAINTAIN THE COVERING UNTIL THE SIGNS ARE APPLICABLE OR ARE REMOVED.
6. IN GENERAL, ALL TRAFFIC CONTROL DEVICES SHALL BE PLACED STARTING AND PROCEEDING IN THE DIRECTION OF THE FLOW OF TRAFFIC AND REMOVED STARTING AND PROCEEDING IN THE DIRECTION OPPOSITE THE FLOW OF TRAFFIC.
7. THE ENGINEER AND THE CONTRACTOR, OR THEIR AUTHORIZED REPRESENTATIVES, SHALL REVIEW THE SIGNING BEFORE TRAFFIC IS ALLOWED TO USE ANY LANE CLOSURES, CROSSOVERS OR DETOURS. ALL SIGNING SHALL BE APPROVED BY THE ENGINEER BEFORE WORK CAN BE STARTED BY THE CONTRACTOR.
8. IF THE CONTRACTOR DESIRES TO DEVIATE FROM THE TRAFFIC CONTROL SCHEME AND CONSTRUCTION SCHEDULE OUTLINED IN THESE PLANS AND THIS PROPOSAL, HE SHALL PREPARE AN ALTERNATE PLAN AND PRESENT IT IN WRITING TO THE ENGINEER. THIS ALTERNATE PLAN CAN BE USED ONLY AFTER REVIEW AND APPROVAL OF THE DIVISIONS OF TRAFFIC, DESIGN AND CONSTRUCTION, AND THE FEDERAL HIGHWAY ADMINISTRATION, WHERE APPLICABLE.
9. IF TRAFFIC SHOULD BE STOPPED DUE TO CONSTRUCTION OPERATIONS AND AN EMERGENCY VEHICLE ON AN OFFICIAL EMERGENCY RUN ARRIVES AT THE SCENE, THE CONTRACTOR SHALL MAKE THE PROVISIONS FOR THE PASSAGE OF THAT VEHICLE AS QUICKLY AS POSSIBLE.
10. ALL SIGNS NECESSARY FOR A MARKED DETOUR WILL BE PROVIDED BY THE CONTRACTOR AS REQUIRED BY STANDARD DRAWINGS AND THE MUTCD. SIGNS OUTSIDE THE PROJECT LIMITS SHALL BE PAID FOR BY THE SQUARE FOOT. THIS QUANTITY SHALL INCLUDE SIGN MOUNTING HARDWARE AND POSTS.
11. REASONABLE MEANS OF INGRESS AND EGRESS SHALL BE MAINTAINED TO ALL PROPERTIES WITHIN THE PROJECT LIMITS.
12. CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING PROPERTY OWNERS 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS THAT WILL IMPACT ACCESS TO THEIR RESIDENCES.

## TEMPORARY PAVEMENT:

ANY ITEMS IN M.O.T. PLANS NOTED OR LABELED AS TEMPORARY PAVEMENT, TEMPORARY WIDENING, OR DIVERSION SHALL HAVE PAVEMENT DESIGN AS NOTED FOR DIVERSION TYPICAL SECTION ON SHEET R2B.  
TEMPORARY ENTRANCES SHOWN ON DIVERSION PLANS SHALL BE CONSTRUCTED WITH 4 INCHES OF C.S.B.

## PAVEMENT DROP-OFF:

- A PAVEMENT EDGE THAT TRAFFIC IS NOT EXPECTED TO CROSS, EXCEPT ACCIDENTALLY, SHOULD BE TREATED AS FOLLOWS:  
 - LESS THAN TWO INCHES - NO PROTECTION REQUIRED. WARNING SIGNS SHOULD BE PLACED IN ADVANCE AND THROUGHOUT THE DROP-OFF AREA.  
 - TWO TO FOUR INCHES - PLASTIC DRUMS, VERTICAL PANELS OR BARRICADES EVERY 100 FEET ON TANGENT SECTIONS FOR SPEEDS OF 50 MPH OR GREATER. CONES MAY BE USED IN PLACE OF PLASTIC DRUMS, PANELS AND BARRICADES DURING DAYLIGHT HOURS. FOR TANGENT SECTIONS WITH SPEEDS LESS THAN 50 MPH AND FOR CURVES, DEVICES SHOULD BE PLACED EVERY 50 FEET. SPACING OF DEVICES ON TAPERED SECTIONS SHOULD BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.  
 - GREATER THAN FOUR INCHES - POSITIVE SEPARATION OR WEDGE WITH 3:1 OR FLATTER SLOPE NEEDED. IF THERE IS FIVE FEET OR MORE DISTANCE BETWEEN THE EDGE OF THE PAVEMENT AND THE DROP-OFF, THEN DRUMS, PANEL, OR BARRICADES MAY BE USED. IF THE DROP-OFF IS GREATER THAN 12 INCHES, POSITIVE SEPARATION IS STRONGLY ENCOURAGED. IF CONCRETE BARRIERS ARE USED, SPECIAL REFLECTIVE DEVICES OR STEADY BURN LIGHTS SHOULD BE USED FOR OVERNIGHT INSTALLATIONS.  
 FOR TEMPORARY CONDITIONS, DROP-OFFS GREATER THAN FOUR INCHES MAY BE PROTECTED WITH PLASTIC DRUMS, VERTICAL PANELS OR BARRICADES FOR SHORT DISTANCES DURING DAYLIGHT HOURS WHILE WORK IS BEING DONE IN THE DROP-OFF AREA.  
 LESSER TREATMENTS THAN THOSE DESCRIBED ABOVE MAY BE CONSIDERED FOR LOW-VOLUME LOCAL STREETS.  
 PAYMENT WILL BE ALLOWED FOR CSB MATERIAL USED FOR WEDGING.

## PROJECT SPECIFIC NOTES

### SPEED LIMIT:

REDUCE REGULATORY SPEED LIMIT ON US 60 BY 10 MPH THROUGH PROJECT LIMITS.

### LANE CLOSURES:

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, DIRECT PAYMENT WILL ONLY BE MADE FOR NECESSARY LONG-TERM (3 DAYS) LANE CLOSURES. ALL SHORT-TERM LANE CLOSURES AND SHOULDER CLOSURES WILL BE INCIDENTAL TO THE LUMP SUM ITEM OF MAINTAIN AND CONTROL TRAFFIC.

LANE CLOSURES ON US 60 WILL ONLY BE PERMITTED FOR SPECIFIC WORK TASKS AS INDICATED IN THE CONSTRUCTION PHASING NOTES.

LANE CLOSURES WILL NOT BE ALLOWED ON US 60 DURING THE FOLLOWING HOLIDAYS AND HOLIDAY WEEKENDS:

THANKSGIVING	11/27/19 - 12/1/19
CHRISTMAS/NEW YEARS	12/24/19 - 1/2/20
EASTER	4/10/20 - 4/12/20
MEMORIAL DAY	5/22/20 - 5/25/20
LABOR DAY	9/4/20 - 9/7/20
THANKSGIVING	11/25/20 - 11/29/20
CHRISTMAS/NEW YEARS	12/24/20 - 1/1/21
EASTER	4/2/21 - 4/4/21
MEMORIAL DAY	5/28/21 - 5/31/21
LABOR DAY	9/5/21 - 9/6/21
THANKSGIVING	11/24/21 - 11/28/21
CHRISTMAS/NEW YEARS	12/24/21 - 1/2/22
EASTER	4/15/22 - 4/17/22
MEMORIAL DAY	5/27/22 - 5/30/22

IN ORDER TO ACCOMMODATE LOCAL FARMERS, DURING PHASE III LANE CLOSURES WILL NOT BE PERMITTED ON MONDAYS OR FRIDAYS FOR FOLLOWING PERIODS: APRIL 1 - JUNE 30, & AUGUST 1 - OCTOBER 31.

## STRIPING REMOVAL:

STRIPING REMOVAL WILL NOT BE MEASURED FOR PAYMENT. IN ACCORDANCE WITH SECTION 112.04.14, REMOVING PAVEMENT STRIPING AND MARKINGS WILL BE CONSIDERED INCIDENTAL TO MAINTAIN AND CONTROL TRAFFIC.

## SPECIAL LIQUIDATED DAMAGES:

ANY SPECIAL LIQUIDATED DAMAGES ASSESSED DUE TO EXCEEDING ALLOWABLE TIME LIMITS FOR ROAD CLOSURES AND LANE CLOSURES AS SPECIFIED IN THE CONSTRUCTION PHASING NOTES WILL BE CUMULATIVE AND IN ADDITION TO ANY LIQUIDATED DAMAGES ASSESSED DUE TO EXCEEDING CONTRACT TIME.

MAINTENANCE OF TRAFFIC NOTES SHEET

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R34

# MOT CONSTRUCTION PHASING NOTES

NOTE: IN PHASES I THROUGH V ALL PAVEMENT CONSTRUCTION SHALL BE THROUGH THE TOP ASPHALT BASE COURSE UNLESS NOTED OTHERWISE.

**PHASE I:**  
MAINTAIN US 60 TRAFFIC ON EXISTING ROADS.

1. CONSTRUCT SEGMENT OF PROPOSED KY 1078 OUTSIDE OF THE EXISTING PAVEMENT (-STAS 47+70 - 49+88). EXCLUDE PORTION OF LEFT SHOULDER OF US 60 THAT IS IN THE DESIGNATED MINE GROUTING AREA.
2. CONSTRUCT PROPOSED STORM SEWER RT KY 1078 STAS 45+70 - 47+30.
3. CONSTRUCT PROPOSED PIPE AND ENTRANCE RT KY 1078 STA 42+62.
4. CONSTRUCT PROPOSED US 60 FROM STA 506+70 TO STA 507+75. CONSTRUCT 2 COURSES OF BASE (TOTAL OF 6") ON PROPOSED US 60 RT SHOULDER FOR THIS SECTION.
5. CONSTRUCT TEMPORARY KY 1078 RT TO EXISTING US 60 (8") TEMPORARY PAVEMENT.
6. CONSTRUCT TEMPORARY KY 1078 RT TO EXISTING US 60 (8") TEMPORARY PAVEMENT.
7. BEGIN CONSTRUCTION OF PROPOSED EMBANKMENT LEFT OF EXISTING ROADWAY FROM -STA 519+05 TO STA 529+50. CLOSE EXISTING US 60 LT SHOULDER AS NEEDED. (NOTE: SEE GEOTECHNICAL NOTES NOS. 17, 18, & 19 REGARDING EMBANKMENT SETTLEMENT, WAITING PERIOD, ETC.)

**PHASE II:**  
MAINTAIN US 60 TRAFFIC ON EXISTING ROAD.

**PHASE III:**  
TEMPORARILY CLOSE KY 1078 TO THROUGH TRAFFIC WITHIN PROJECT LIMITS (SEE SHEET R31A FOR TEMP. DETOUR ROUTE). KY 1078 CLOSURE IN THIS PHASE WILL BE LIMITED TO A MAXIMUM OF 5 WORKING DAYS. SHOULD CLOSURE EXCEED THE SPECIFIED TIME ALLOWED, SPECIAL LIQUIDATED DAMAGES SHALL BE ASSESSED AT A RATE OF \$1,000 PER CALENDAR DAY FOR ALL DAYS PAST THE TIME LIMIT UNTIL KY 1078 IS OPEN TO TRAFFIC.

1. CONSTRUCT KY 1078 FROM STA 45+00 TO STA 47+70.

**PHASE IIIB:**  
SHOULDER CLOSURES MAY BE UTILIZED AS NEEDED ON US 60. RE-OPEN KY 1078 TO TRAFFIC UTILIZING PROPOSED KY 1078 AND TEMPORARY TIE.

1. PERFORM MINE GROUTING FOR AREA LEFT (NORTH) OF EXISTING US 60 FOR ALL HOLES POSSIBLE WITHOUT INTERFERING WITH US 60 TRAFFIC SHOULDER CLOSURE MAY BE USED AS NEEDED.
2. CONSTRUCT KY 2243 TEMPORARY DIVERSION. (NOTE: SEE SHEET R39 FOR LAYOUT/ALIGNMENT OF DIVERSION.)

**PHASE III:**  
TEMPORARILY CLOSE KY 1078 TO TRAFFIC FROM INTERSECTION AT US60 BACK TO - STA 47+25. TEMPORARILY CLOSE THE EXISTING KY 2243/US 60 INTERSECTION, AND PLACE KY 2243 TRAFFIC ON KY 2243 TEMPORARY DIVERSION.  
MAINTAIN US 60 TRAFFIC ON EXISTING ROADWAY AS NOTED BELOW FOR PHASES IIIA & IIIB USING ALTERNATING TWO-WAY TRAFFIC TEMPORARILY CLOSE KY 1078 TO THROUGH TRAFFIC WITHIN PROJECT LIMITS (SEE SHEET R31A FOR TEMP. DETOUR ROUTE). KY 1078 CLOSURE IN THIS PHASE WILL BE LIMITED TO A MAXIMUM OF 5 WORKING DAYS. SHOULD CLOSURE EXCEED THE SPECIFIED TIME ALLOWED, SPECIAL LIQUIDATED DAMAGES SHALL BE ASSESSED AT A RATE OF \$1,000 PER DAY FOR EACH DAY OVER 25. IN ORDER TO ACCOMMODATE LOCAL FARMERS, LANE CLOSURES DURING THIS PHASE WILL NOT BE ALLOWED ON MONDAYS OR FRIDAYS FOR THE FOLLOWING PERIODS: AUGUST 1 THRU OCTOBER 31 AND APRIL 1 THRU JUNE 30

**PHASE IIIA:**  
CLOSE THE EXISTING WESTBOUND US 60 TRAFFIC LANE THROUGH THE PROPOSED MINE GROUTING AREA. MAINTAIN ALTERNATING TWO-WAY TRAFFIC ON THE EXISTING EASTBOUND LANE UTILIZING TEMPORARY TRAFFIC SIGNALS.

1. PERFORM ALL REMAINING MINE GROUTING ON LEFT SIDE (NORTH) OF THE EXISTING US 60 CENTERLINE. ENSURE ALL HOLES ARE FILLED TO EXISTING PAVEMENT SURFACE ELEVATION AND EXISTING PAVEMENT IS REPAIRED SUFFICIENTLY FOR TRAFFIC.

**PHASE IIIB:**  
SWITCH TEMPORARY LANE CLOSURE TO THE EXISTING EASTBOUND US 60 TRAFFIC LANE. MAINTAIN ALTERNATING TWO-WAY TRAFFIC ON THE EXISTING WESTBOUND LANE UTILIZING TEMPORARY TRAFFIC SIGNALS.

1. PERFORM ALL REMAINING MINE GROUTING ON RIGHT SIDE (SOUTH) OF THE EXISTING US 60 CENTERLINE. ENSURE ALL HOLES ARE FILLED TO EXISTING PAVEMENT SURFACE ELEVATION AND EXISTING PAVEMENT IS REPAIRED SUFFICIENTLY FOR TRAFFIC.

**PHASE IV:**  
MAINTAIN US 60 TRAFFIC ON EXISTING US 60. RE-OPEN PROPOSED KY 1078 AND EXISTING KY 2243.

1. CONSTRUCT (PARTIALLY) PROPOSED ENTRANCE RT STA 502+00 BEGINNING 60' RT OF US 60 C/L EDGE OF DIVERSION NO. 1 (PAVEMENT) TO END OF ENTRANCE.
2. CONSTRUCT EMBANKMENT BENCHES & PROPOSED US 60 EMBANKMENT ON RT SIDE FROM STA 531+00 TO STA 536+75 IN CONNECTION WITH DIVERSION NO. 1.
3. CONSTRUCT TEMPORARY DIVERSIONS NO. 1 AND 2. DURING EXCAVATION/WIDENING OPERATIONS ADJACENT TO EXISTING US 60, TEMPORARILY CLOSE EXISTING EASTBOUND TRAFFIC LANE DURING WORKING HOURS AND MAINTAIN 2-WAY ALTERNATING TRAFFIC UTILIZING FLAGGERS. PLACE TEMPORARY WEDGE ALONG DROP-OFF EDGE AS NEEDED PRIOR TO OPENING BACK TO TRAFFIC.

**PHASE V:**  
MAINTAIN US 60 TRAFFIC ON DIVERSION NO. 1, DIVERSION NO. 2, AND EXISTING US 60.

1. CONSTRUCT PROPOSED US 60 LEFT SIDE WIDENING FROM STA 496+75 BEGINNING TO STA 498+75.
2. CONSTRUCT PROPOSED US 60 FROM STA 498+75 TO STA 506+70, AND FROM STA 507+75 TO STA 534+25 (INCLUDING BRIDGE).
3. CONSTRUCT PROPOSED US 60 LT SIDE WIDENING FROM STA 534+25 TO STA 540+00 (END). SHORT-TERM LANE CLOSURE OF EXISTING US 60 RIGHT SIDE TRAFFIC LANE UTILIZING FLAGGERS WILL BE ALLOWED DURING WIDENING OPERATIONS FROM STA 538+00 TO STA 540+00.
4. NOTE FOR PREVIOUS TWO ITEMS: STAS 533+00 - 540+00, PAVEMENT STRUCTURE FOR PROPOSED LT US 60 SHOULDER WILL INCLUDE TWO COURSES OF ASPHALT BASE (SEE TYPICAL SECTION SHEET R24 WHICH WILL ACCOMMODATE TRAFFIC FOR MOT).
5. CONSTRUCT WIDENING/OVERLAY FOR KY 881 APPROACH UTILIZING PART-WIDTH CONSTRUCTION AND FLAGGERS.
6. LEVEL/WEDGE EXISTING PAVEMENT FROM STA 534+75 TO STA 537+00.

**PHASE VI:**  
SHIFT US 60 TRAFFIC ONTO PROPOSED TRAFFIC LANES THROUGHOUT PROJECT, AND TEMPORARILY UTILIZE PART OF LEFT PROPOSED SHOULDER FOR TRAFFIC FROM -STA 533+00 TO STA 540+00.

**PHASE VIIB:**

1. PERFORM REMAINING LEVELING/WEDGING OF EXISTING ROADWAY PAVEMENT IN OVERLAY SECTIONS UTILIZING FLAGGERS.
2. REMOVE DIVERSIONS NO. 1 & NO. 2, AND COMPLETE REMAINING RIGHT SIDE WIDENING AND GRADE/DRAIN WORK.
3. PLACE KY 2243 TRAFFIC ON TEMPORARY KY 2243 DIVERSION, AND CONSTRUCT PROPOSED KY 2243 FROM STA 50+12 TO STA 50+50.
4. WIDEN & OVERLAY PROPOSED KY 2243 FROM STA 50+50 TO STA 53+00 (INCLUDING PART-WIDTH CONSTRUCTION AND FLAGGERS).

**PHASE VIIB:**

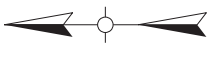
1. USING FLAGGERS, PERFORM MILLING/TEXTURING OF EXISTING US 60 PAVEMENT IN OVERLAY SECTIONS AS NEEDED TO PROVIDE MINIMUM 1.5" ASPHALT SURFACE LAYER.
2. CONSTRUCT FINAL ASPHALT SURFACE COURSE AND PAVEMENT STRIPING THROUGHOUT PROJECT AS MOBILE OPERATION UTILIZING FLAGGERS.

NOTE: CONSTRUCTION OF VARIOUS SEGMENTS MAY BE PERFORMED IN EARLIER PHASES THAN DESCRIBED ABOVE PROVIDED THAT IT DOES NOT INTERFERE WITH TRAFFIC FLOW.

MAINTENANCE OF TRAFFIC PHASING NOTES

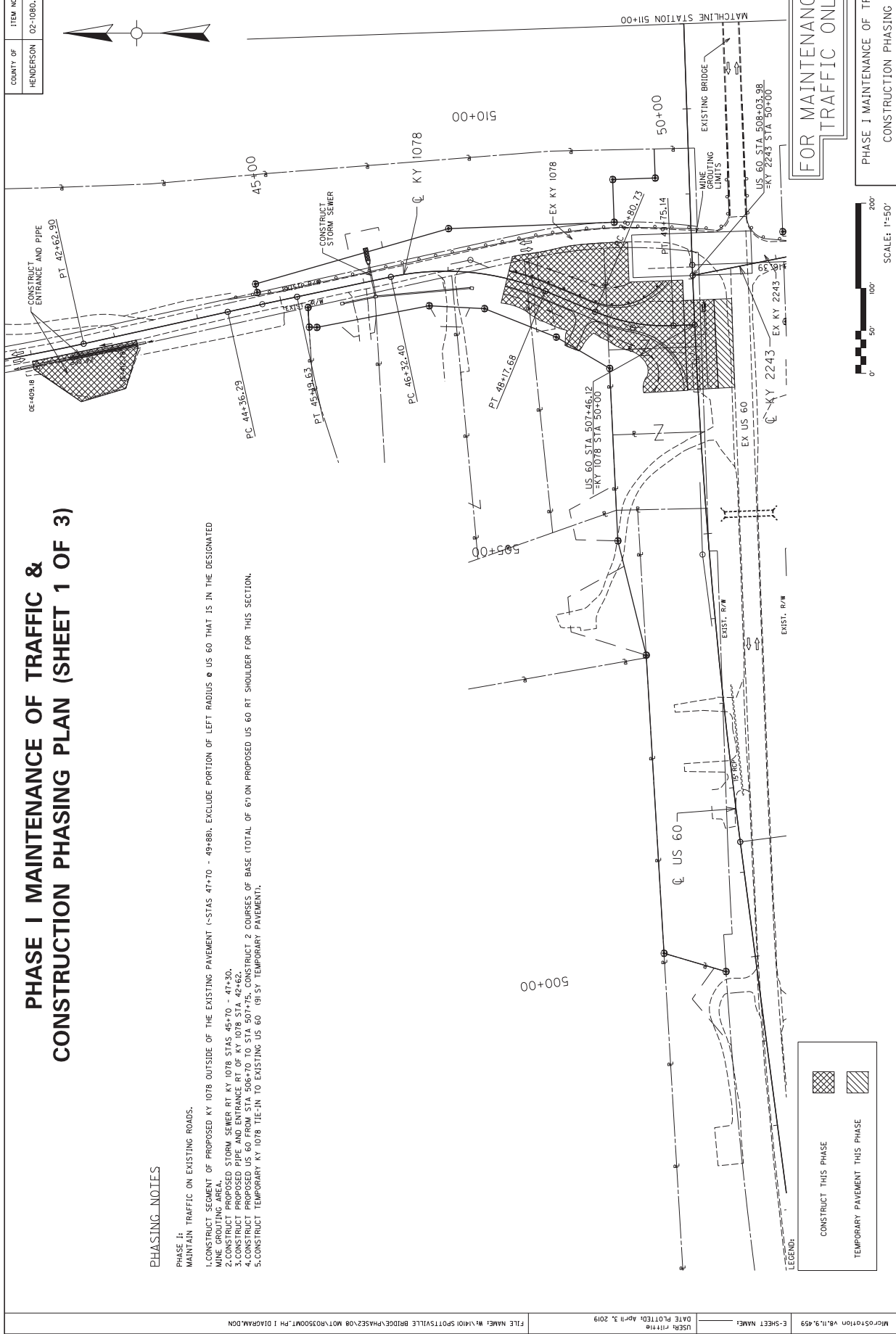
COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R35

# PHASE I MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 1 OF 3)



**PHASING NOTES**

- PHASE I:  
MAINTAIN TRAFFIC ON EXISTING ROADS.
1. CONSTRUCT SEGMENT OF PROPOSED KY 1078 OUTSIDE OF THE EXISTING PAVEMENT (STAS 47+70 - 49+88). EXCLUDE PORTION OF LEFT RADIUS @ US 60 THAT IS IN THE DESIGNATED MINE CROUTING AREA.
  2. CONSTRUCT PROPOSED STORM SEWER RT KY 1078 STAS 45+70 - 47+30.
  3. CONSTRUCT PROPOSED PIPE AND ENTRANCE RT OF KY 1078 STA 42+62.
  4. CONSTRUCT PROPOSED US 60 FROM STA 506+70 TO STA 507+75. CONSTRUCT 2 COURSES OF BASE (TOTAL OF 6") ON PROPOSED US 60 RT SHOULDER FOR THIS SECTION.
  5. CONSTRUCT TEMPORARY KY 1078 TIE-IN TO EXISTING US 60 (91 SY TEMPORARY PAVEMENT).

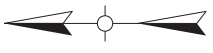


PHASE I MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN



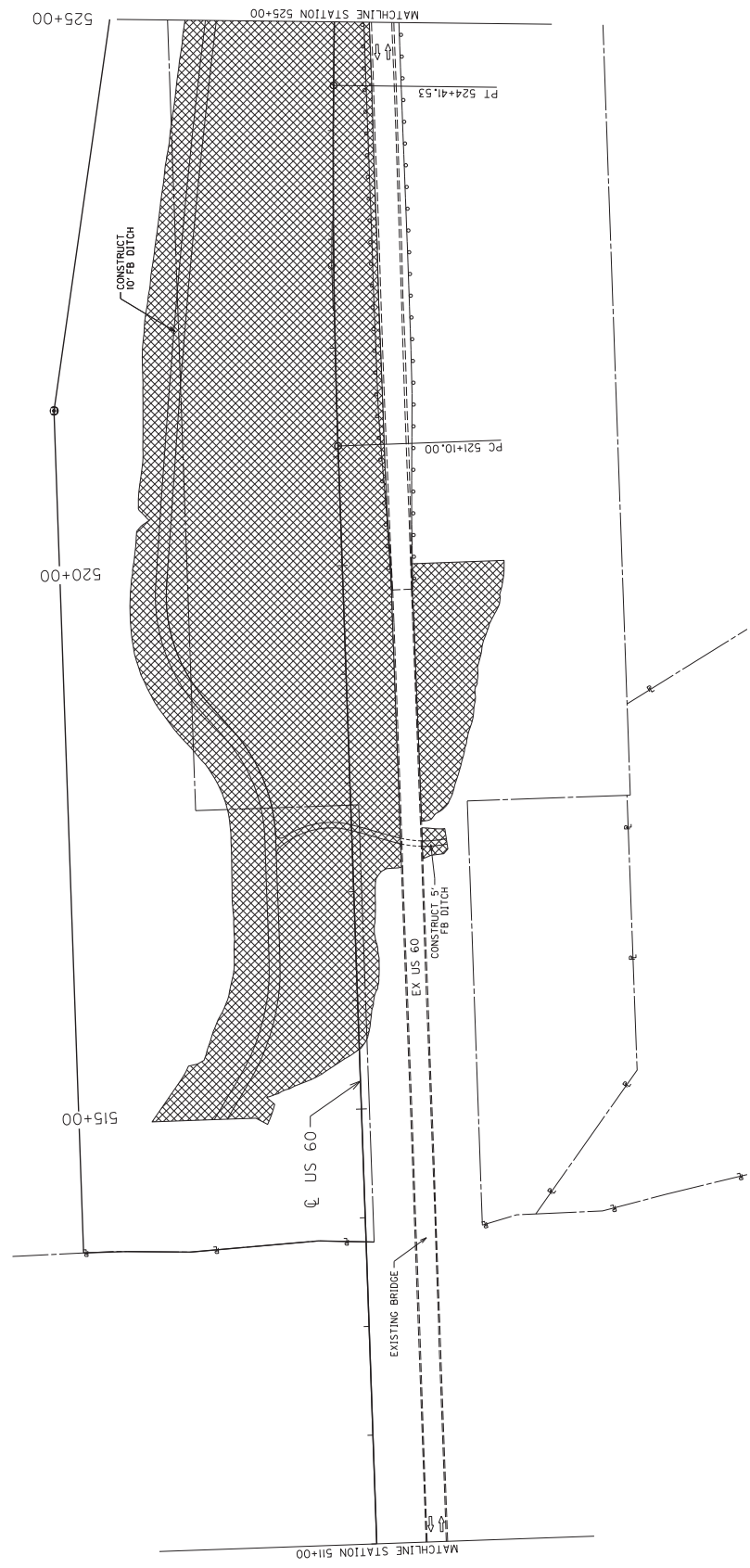
COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R36

# PHASE I MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 2 OF 3)



**PHASING NOTES**

- PHASE I: MAINTAIN TRAFFIC ON EXISTING ROADS
- 5. INSTALL PROPOSED ENTRANCE PIPE LT STA 530+30 AND CONSTRUCT 10' FLAT-BOTTOM CHANNEL LEFT OF STAS 517+35 - 531+90.
- 6. BEGIN CONSTRUCTION OF PROPOSED EMBANKMENT LEFT OF EXISTING ROADWAY FROM -STA 519+06 TO STA 525+50. CLOSE EXISTING US 60 LT SHOULDER AS NEEDED. (NOTE: SEE GEOTECHNICAL NOTES NOS. 17, 18, & 19 REGARDING EMBANKMENT SETTLEMENT, WAITING PERIOD, ETC.)



**LEGEND:**

	CONSTRUCT THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE



FOR MAINTENANCE OF  
TRAFFIC ONLY

PHASE I MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

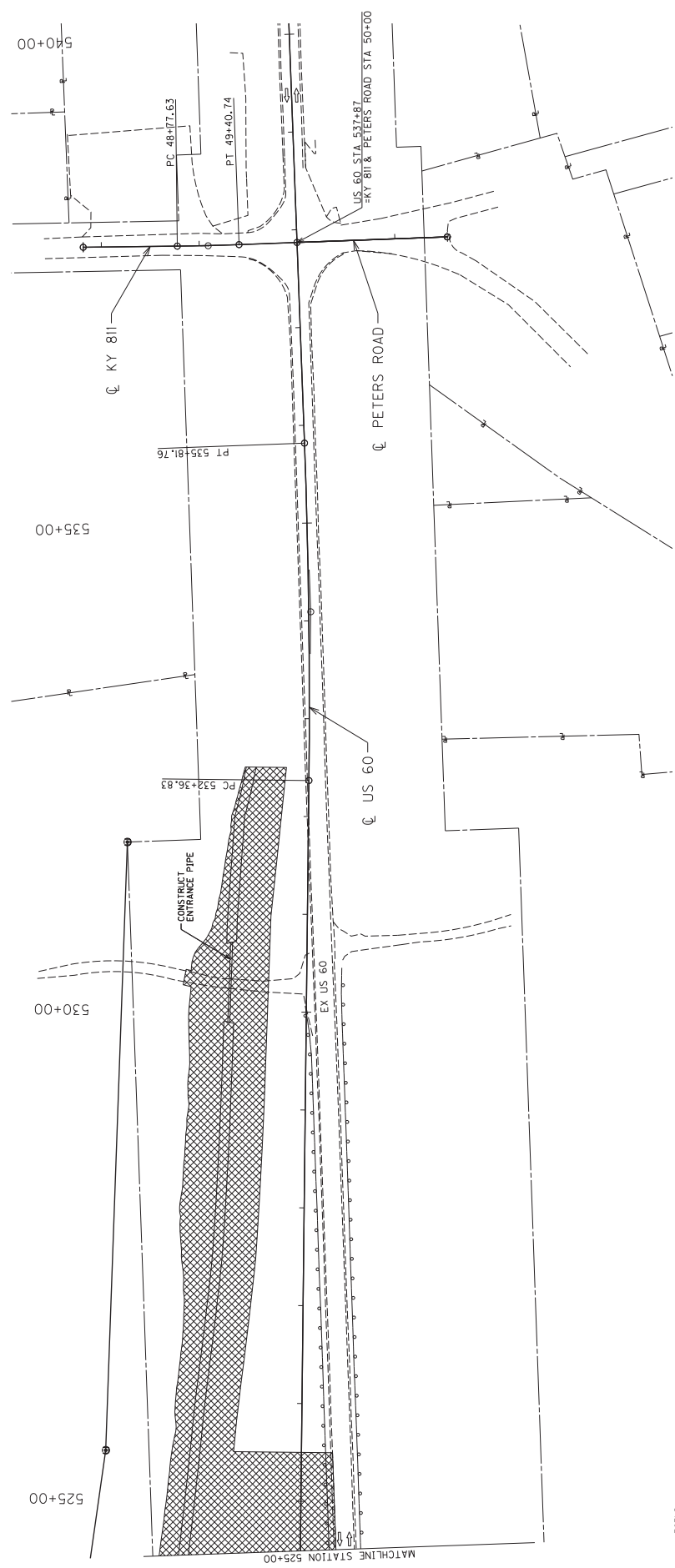


COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R37

# PHASE I MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 3 OF 3)

## PHASING NOTES

- PHASE I: TRAFFIC ON EXISTING ROADS  
 MAINTAIN  
 5. INSTALL PROPOSED ENTRANCE PIPE LT STA 530+30 AND CONSTRUCT 10' FLAT-BOTTOM CHANNEL LEFT OF STAS 517+35 - 531+90.  
 6. BEGIN CONSTRUCTION OF PROPOSED EMBANKMENT LEFT OF EXISTING ROADWAY FROM -STA 519+06 TO STA 525+50. CLOSE EXISTING US 60 LT SHOULDER AS NEEDED. (NOTE: SEE GEOTECHNICAL NOTES NOS. 17, 18, & 19 REGARDING EMBANKMENT SETTLEMENT, WAITING PERIOD, ETC.)



LEGEND:

	CONSTRUCT THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE



FOR MAINTENANCE OF  
TRAFFIC ONLY

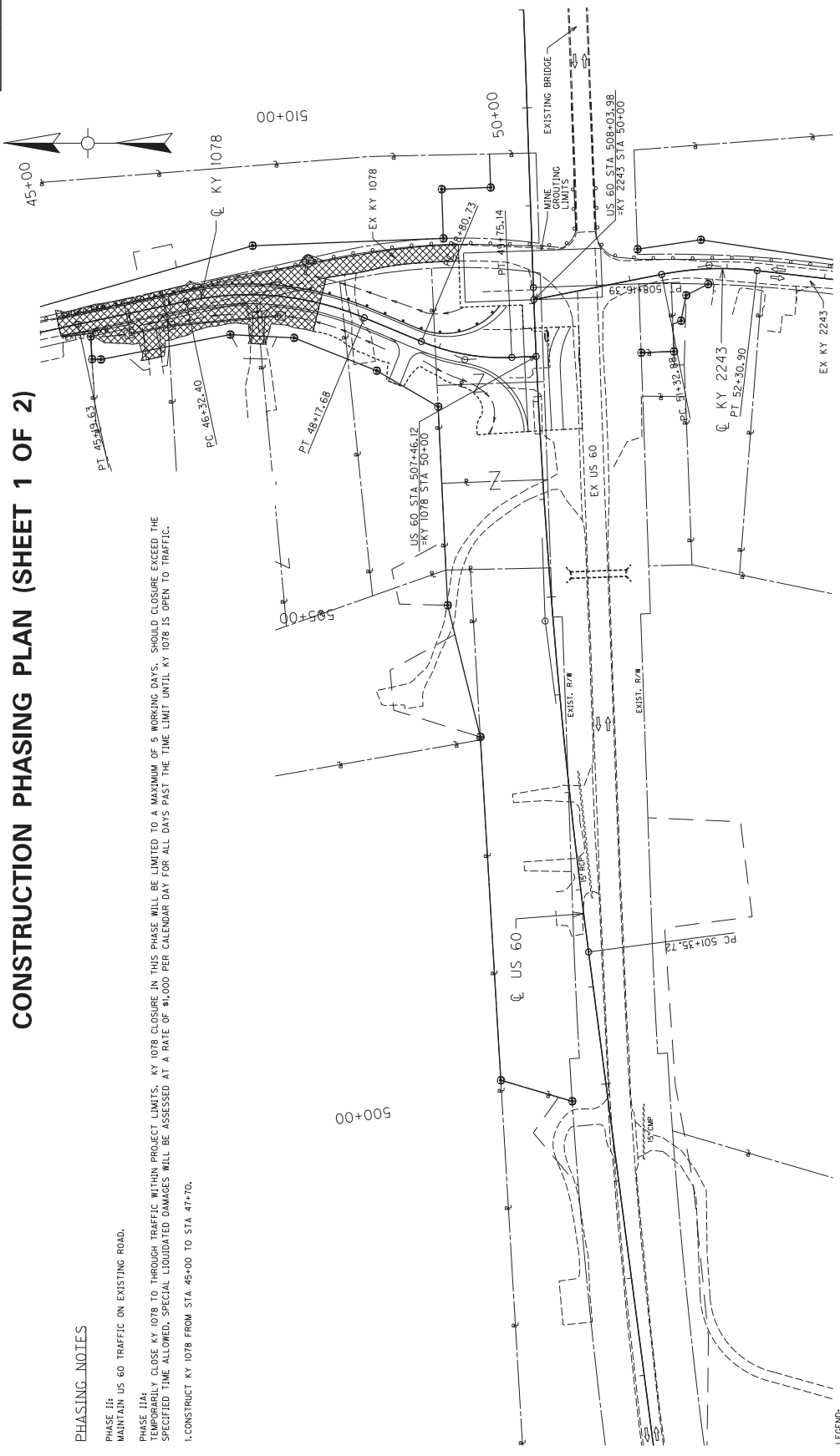
PHASE I MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R38

# PHASE II MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 1 OF 2)

**PHASING NOTES**

- PHASE II:  
MAINTAIN US 60 TRAFFIC ON EXISTING ROAD.
- PHASE IIA:  
TEMPORARILY CLOSE KY 1078 TO THROUGH TRAFFIC WITHIN PROJECT LIMITS. KY 1078 CLOSURE IN THIS PHASE WILL BE LIMITED TO A MAXIMUM OF 5 WORKING DAYS. SHOULD CLOSURE EXCEED THE SPECIFIED TIME ALLOWED, SPECIAL LIQUIDATED DAMAGES WILL BE ASSESSED AT A RATE OF \$1,000 PER CALENDAR DAY FOR ALL DAYS PAST THE TIME LIMIT UNTIL KY 1078 IS OPEN TO TRAFFIC.
- I. CONSTRUCT KY 1078 FROM STA. 45+00 TO STA. 47+70.

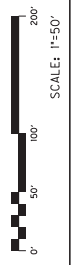


**LEGEND:**

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

FOR MAINTENANCE OF  
TRAFFIC ONLY

PHASE II MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

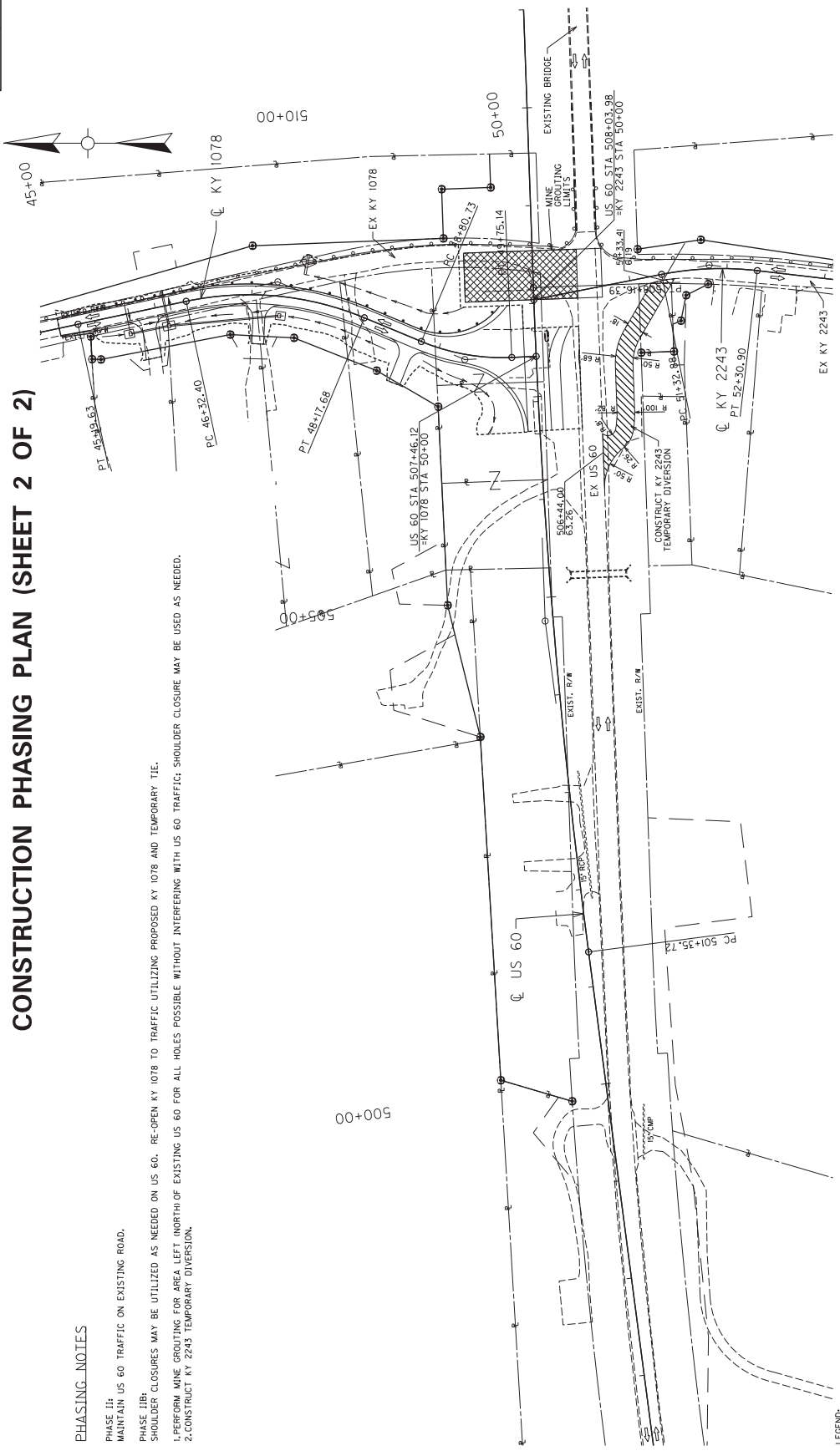


COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R39

# PHASE II MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 2 OF 2)

**PHASING NOTES**

- PHASE II:  
MAINTAIN US 60 TRAFFIC ON EXISTING ROAD.
- PHASE IIB:  
SHOULDER CLOSURES MAY BE UTILIZED AS NEEDED ON US 60. RE-OPEN KY 1078 TO TRAFFIC UTILIZING PROPOSED KY 1078 AND TEMPORARY TIE.
- PHASE IIA:  
PERFORM MINE CROUTING FOR AREA LEFT (NORTH) OF EXISTING US 60 FOR ALL HOLES POSSIBLE WITHOUT INTERFERING WITH US 60 TRAFFIC; SHOULDER CLOSURE MAY BE USED AS NEEDED.
- PHASE IIC:  
CONSTRUCT KY 2243 TEMPORARY DIVERSION.



**LEGEND:**

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

KY 2243 TEMPORARY DIVERSION:  
PERFORM MINOR GRADING AS NEEDED TO CONSTRUCT DIVERSION PAVEMENT BETWEEN SOUTH EDGE  
OF EXISTING PAVEMENT AND TEMPORARY DIVERSION PAVEMENT AS DEPICTED  
IN PLAN VIEW ABOVE. PAVEMENT WIDTH SHALL BE A MINIMUM OF 18' WIDE.



FOR MAINTENANCE OF  
TRAFFIC ONLY

PHASE II MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

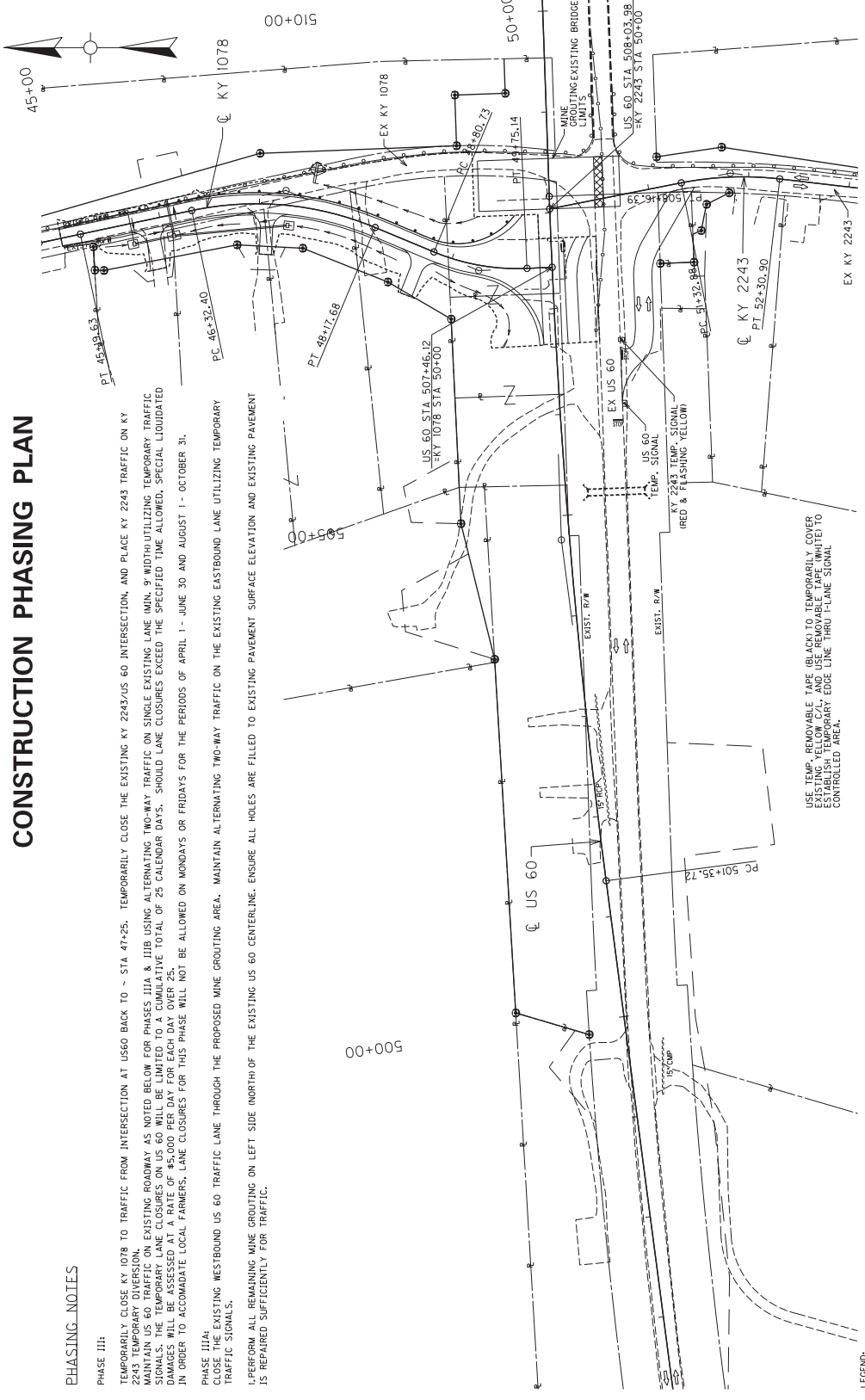
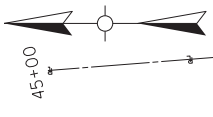
COURTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R40

# PHASE IIIA MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN

## PHASING NOTES

**PHASE IIIA:**  
TEMPORARILY CLOSE KY 1078 TO TRAFFIC FROM INTERSECTION AT US60 BACK TO STA. 47+25. TEMPORARILY CLOSE THE EXISTING KY 2243/US 60 INTERSECTION, AND PLACE KY 2243 TRAFFIC ON KY 2243 TEMPORARY DIVERSION.  
MAINTAIN US 60 TRAFFIC ON EXISTING ROADWAY AS NOTED BELOW FOR PHASES IIIA & IIIB USING ALTERNATING TWO-WAY TRAFFIC ON SINGLE EXISTING LANE (MIN. 9' WIDTH) UTILIZING TEMPORARY TRAFFIC SIGNALS. THE TEMPORARY LANE CLOSURES ON US 60 WILL BE LIMITED TO A CUMULATIVE TOTAL OF 28 CALENDAR DAYS. SHOULD LANE CLOSURES EXCEED THE SPECIFIED TIME ALLOWED, SPECIAL LIQUIDATED DAMAGES WILL BE ASSESSED AT A RATE OF \$5,000 PER DAY FOR EACH DAY OVER 25.  
IN ORDER TO ACCOMMODATE LOCAL FARMERS, LANE CLOSURES FOR THIS PHASE WILL NOT BE ALLOWED ON MONDAYS OR FRIDAYS FOR THE PERIODS OF APRIL 1 - JUNE 30 AND AUGUST 1 - OCTOBER 31.

**PHASE IIIA:**  
CLOSE THE EXISTING WESTBOUND US 60 TRAFFIC LANE THROUGH THE PROPOSED MINE GROUTING AREA. MAINTAIN ALTERNATING TWO-WAY TRAFFIC ON THE EXISTING EASTBOUND LANE UTILIZING TEMPORARY TRAFFIC SIGNALS.  
1. PERFORM ALL REMAINING MINE GROUTING ON LEFT SIDE (NORTH) OF THE EXISTING US 60 CENTERLINE. ENSURE ALL HOLES ARE FILLED TO EXISTING PAVEMENT SURFACE ELEVATION AND EXISTING PAVEMENT IS REPAIRED SUFFICIENTLY FOR TRAFFIC.



LEGEND:

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

FOR MAINTENANCE OF TRAFFIC ONLY



PHASE IIIA MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN

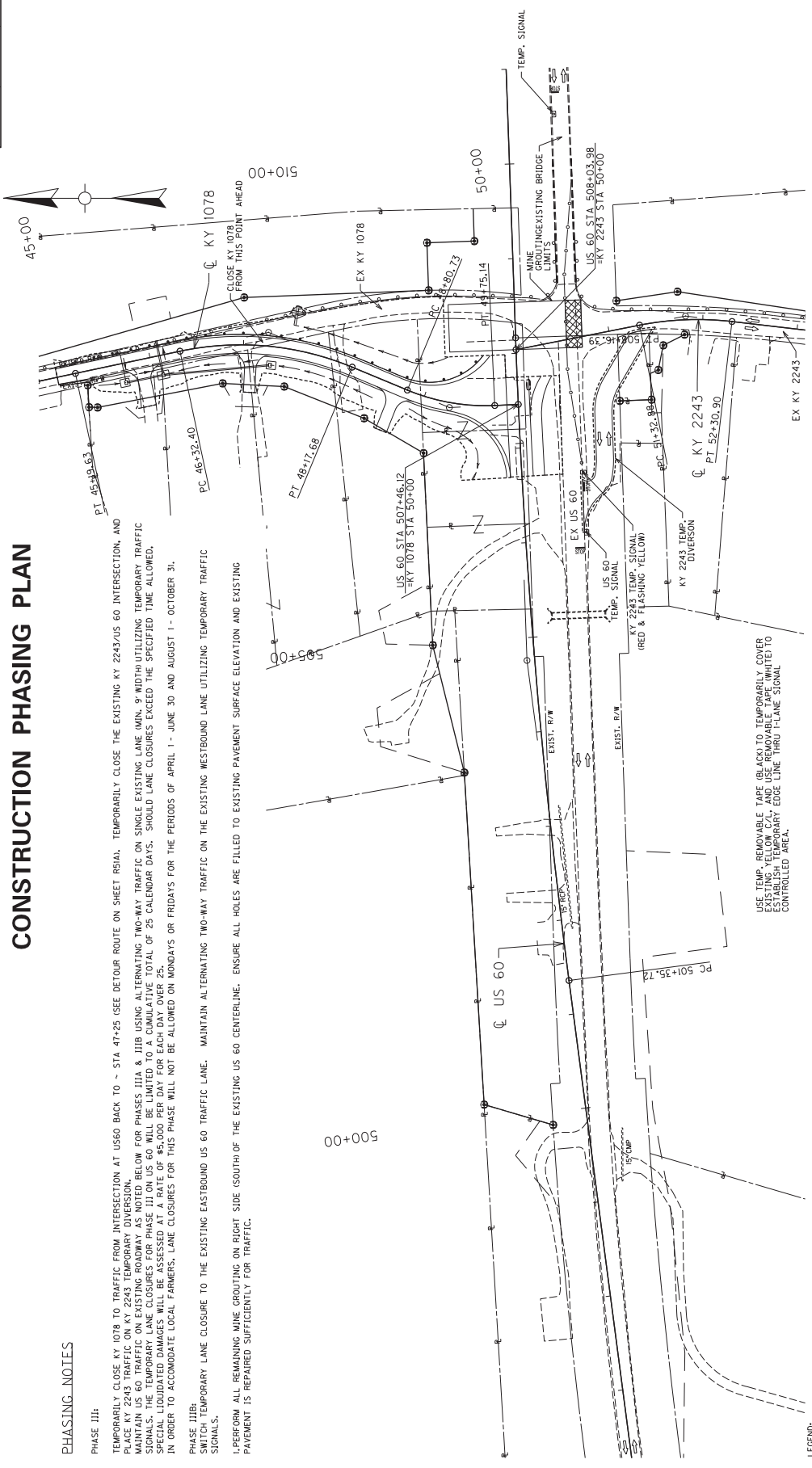
COURTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R41

# PHASE IIIB MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN

## PHASING NOTES

**PHASE III:**  
 TEMPORARILY CLOSE KY 1078 TO TRAFFIC FROM INTERSECTION AT US60 BACK TO STA. 47+25 (SEE DETOUR ROUTE ON SHEET R50A). TEMPORARILY CLOSE THE EXISTING KY 2243/US 60 INTERSECTION, AND PLACE KY 2243 TRAFFIC ON KY 2243 TEMPORARY DIVERSION.  
 MAINTAIN US 60 TRAFFIC ON EXISTING ROADWAY AS NOTED BELOW FOR PHASES IIIA & IIIB USING ALTERNATING TWO-WAY TRAFFIC ON SINGLE EXISTING LANE (MIN. 9' WIDTH) UTILIZING TEMPORARY TRAFFIC SIGNALS. THE TEMPORARY LANE CLOSURES FOR PHASE III ON US 60 WILL BE LIMITED TO A CUMULATIVE TOTAL OF 25 CALENDAR DAYS, SHOULD LANE CLOSURES EXCEED THE SPECIFIED TIME ALLOWED, SPECIAL LIQUIDATED DAMAGES WILL BE ASSESSED AT A RATE OF \$5,000 PER DAY FOR EACH DAY OVER 25.  
 IN ORDER TO ACCOMMODATE LOCAL FARMERS, LANE CLOSURES FOR THIS PHASE WILL NOT BE ALLOWED ON WEDNESDAYS OR FRIDAYS FOR THE PERIODS OF APRIL 1 - JUNE 30 AND AUGUST 1 - OCTOBER 31.

**PHASE IIIB:**  
 SWITCH TEMPORARY LANE CLOSURE TO THE EXISTING EASTBOUND US 60 TRAFFIC LANE. MAINTAIN ALTERNATING TWO-WAY TRAFFIC ON THE EXISTING WESTBOUND LANE UTILIZING TEMPORARY TRAFFIC SIGNALS.  
 1. PERFORM ALL REMAINING MINE GROUTING ON RIGHT SIDE (SOUTH) OF THE EXISTING US 60 CENTERLINE. ENSURE ALL HOLES ARE FILLED TO EXISTING PAVEMENT SURFACE ELEVATION AND EXISTING PAVEMENT IS REPAIRED SUFFICIENTLY FOR TRAFFIC.



LEGEND:

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

NOTE: THE TEMPORARY SIGNAL FOR KY 2243 SHALL BE INCLUDED IN THE COST OF THE TEMPORARY EMERGENCY TRAFFIC SIGNAL SYSTEM FOR US 60.



FOR MAINTENANCE OF TRAFFIC ONLY

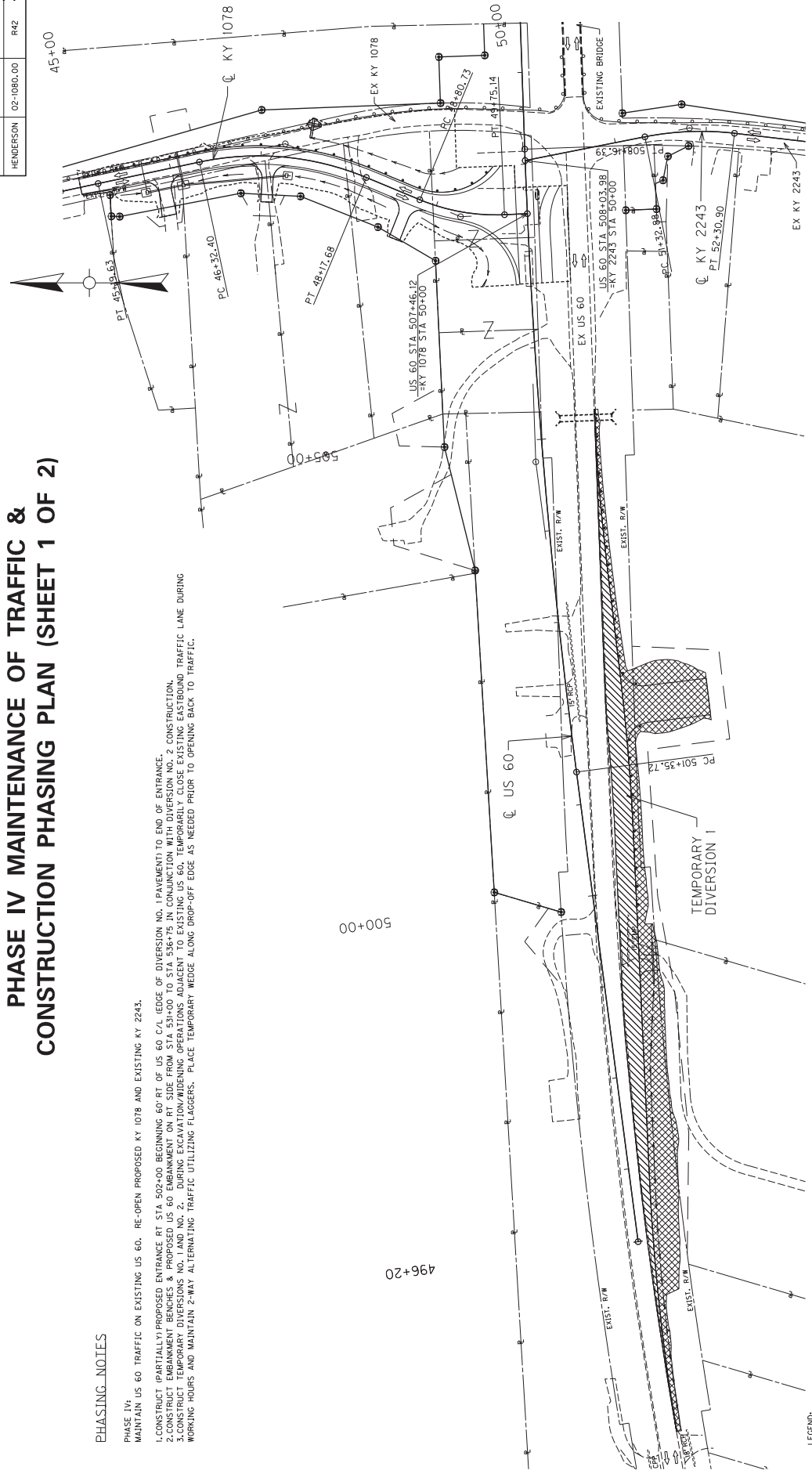
PHASE IIIB MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R42

# PHASE IV MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 1 OF 2)

**PHASING NOTES**

- 1. MAINTAIN US 60 TRAFFIC ON EXISTING KY 1078 AND EXISTING KY 2243.
- 2. CONSTRUCT (PARTIALLY) PROPOSED ENTRANCE RT STA 502+00 BEGINNING 60' FT. OF US 60 C/L (EDGE OF DIVERSION NO. 1 PAVEMENT) TO END OF ENTRANCE.
- 3. CONSTRUCT TEMPORARY DIVERSIONS & PROPOSED US 60 EMBANKMENT ON RT SIDE FROM STA 53+00 TO STA 536+75 IN CONJUNCTION WITH DIVERSION NO. 2 CONSTRUCTION.
- 4. CONSTRUCT TEMPORARY DIVERSIONS NO. 1 AND NO. 2 DURING EXCAVATION/WIDENING OPERATIONS ADJACENT TO EXISTING US 60. TEMPORARILY CLOSE EXISTING EASTBOUND TRAFFIC LANE DURING WORKING HOURS AND MAINTAIN 2-WAY ALTERNATING TRAFFIC UTILIZING FLAGGERS. PLACE TEMPORARY WEDGE ALONG DROP-OFF EDGE AS NEEDED PRIOR TO OPENING BACK TO TRAFFIC.



**LEGEND:**

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE



SCALE: 1"=50'

FOR MAINTENANCE OF  
TRAFFIC ONLY

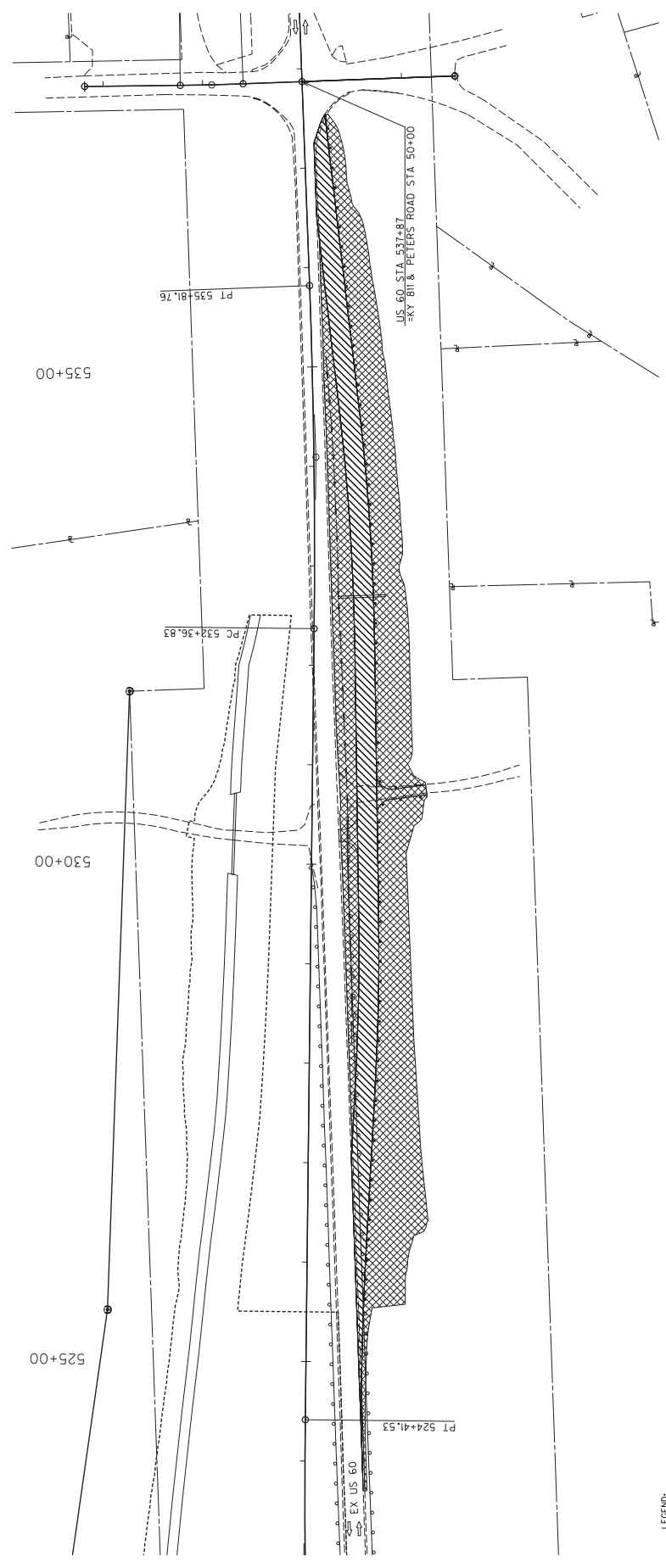
PHASE IV MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R43

# PHASE IV MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 2 OF 2)

### PHASING NOTES

- PHASE IV:  
 MAINTAIN US 60 TRAFFIC ON EXISTING US 60.  
 1. CONSTRUCT EMBANKMENT BENCHES & PROPOSED US 60 ON RT SIDE FROM STA 531+00 TO STA 536+75 IN CONJUNCTION WITH DIVERSION NO. 2 CONSTRUCTION.  
 2. CONSTRUCT TEMPORARY DIVERSIONS NO. 1 AND NO. 2. DURING EXCAVATION/WIDENING OPERATIONS ADJACENT TO EXISTING US 60, TEMPORARILY CLOSE EXISTING EASTBOUND TRAFFIC LANE DURING WORKING HOURS AND MAINTAIN 2-WAY ALTERNATING TRAFFIC UTILIZING FLAGGERS. PLACE TEMPORARY WEDGE ALONG DROP-OFF EDGE AS NEEDED PRIOR TO OPENING BACK TO TRAFFIC.



FOR MAINTENANCE OF  
TRAFFIC ONLY



PHASE IV MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

LEGEND:

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

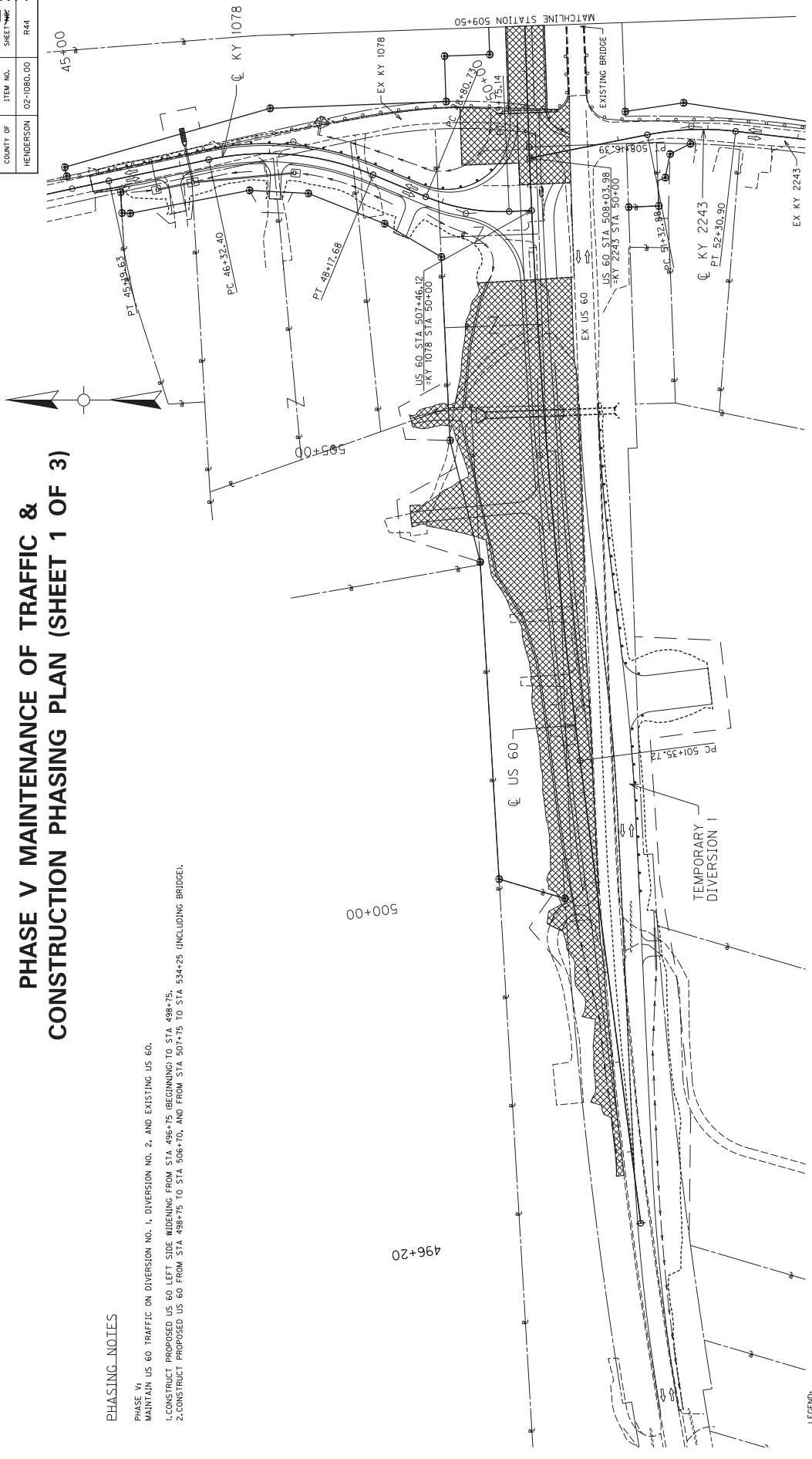


COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R44

# PHASE V MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 1 OF 3)

**PHASING NOTES**

- PHASE V:  
 MAINTAIN US 60 TRAFFIC ON DIVERSION NO. 1, DIVERSION NO. 2, AND EXISTING US 60.  
 1. CONSTRUCT PROPOSED US 60 LEFT SIDE WIDENING FROM STA 496+75 (BEGINNING) TO STA 498+75.  
 2. CONSTRUCT PROPOSED US 60 FROM STA 498+75 TO STA 506+70, AND FROM STA 507+75 TO STA 534+25 (INCLUDING BRIDGE).



FOR MAINTENANCE OF  
TRAFFIC ONLY



PHASE V MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

LEGEND:

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

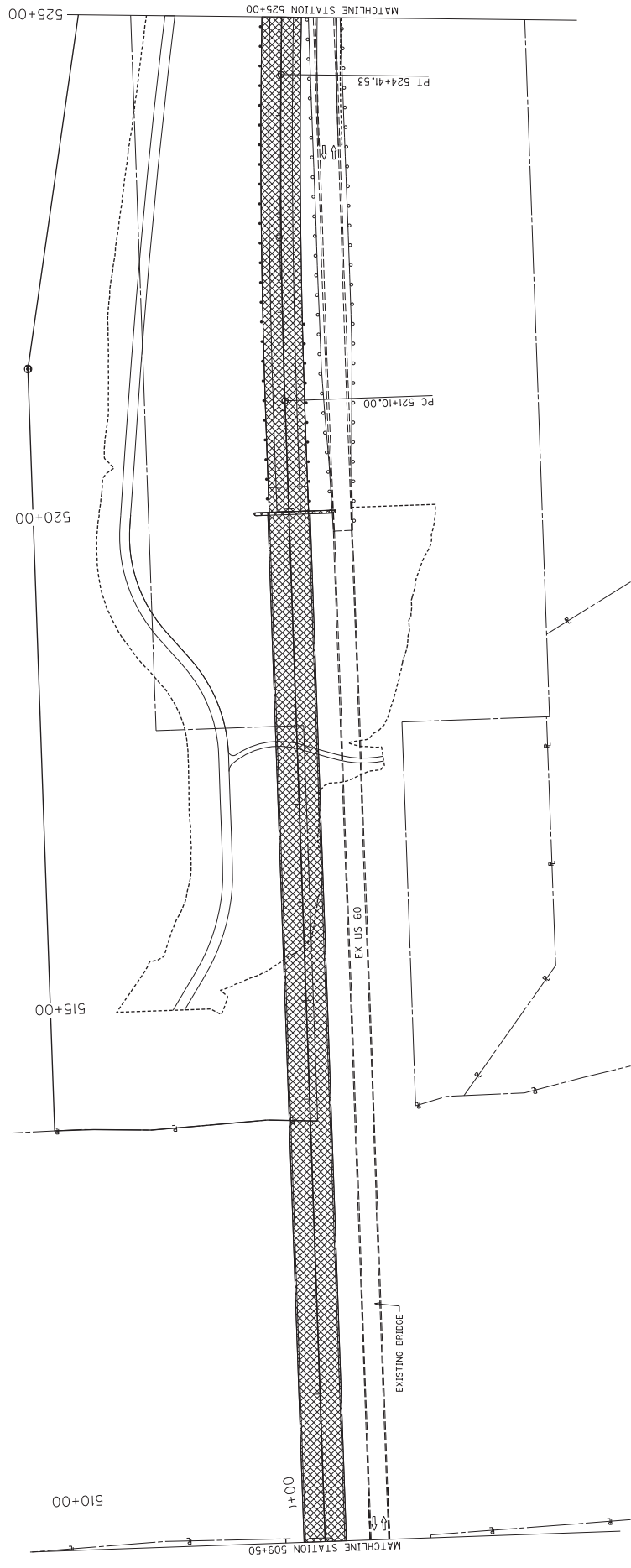
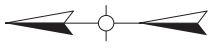


COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R45

# PHASE V MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 2 OF 3)

**PHASING NOTES**

PHASE V:  
MAINTAIN US 60 TRAFFIC ON DIVERSION NO. 1, DIVERSION NO. 2, AND EXISTING US 60.  
1. CONSTRUCT PROPOSED US 60 FROM STA 498+75 TO STA 506+70, AND FROM STA 507+75 TO STA 534+25 (INCLUDING BRIDGE).



LEGEND:

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

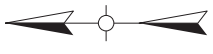
FOR MAINTENANCE OF  
TRAFFIC ONLY



PHASE V MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

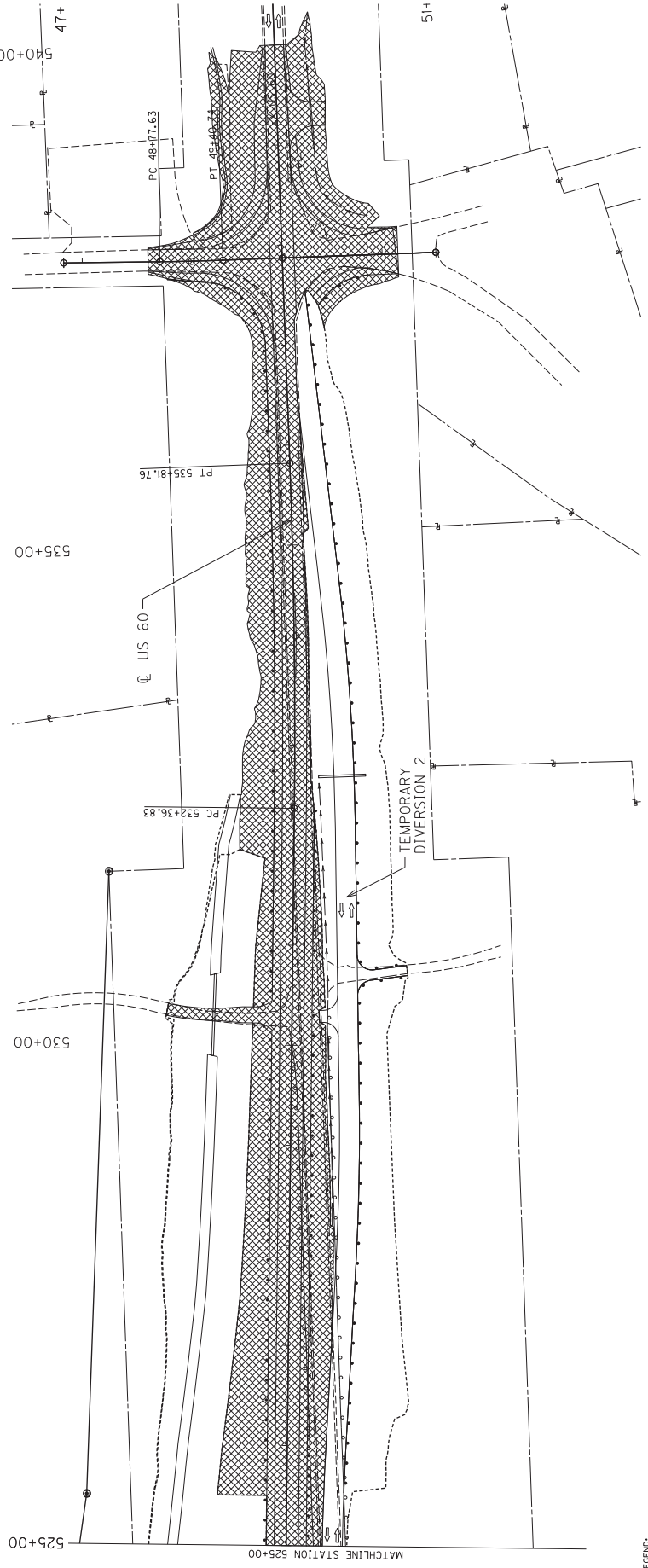
COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R46

# PHASE V MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 3 OF 3)



**PHASING NOTES**

- PHASE V:  
 MAINTAIN US 60 TRAFFIC ON DIVERSION NO. 1, DIVERSION NO. 2, AND EXISTING US 60.
- CONSTRUCT PROPOSED US 60 FROM STA 507+75 TO STA 534+25 (INCLUDING BRIDGE).
  - CONSTRUCT PROPOSED US 60 LT SIDE WIDENING FROM STA 534+25 TO STA 540+00 (END). A SHORT-TERM LANE CLOSURE OF EXISTING US 60 WESTBOUND TRAFFIC LANE UTILIZING FLAGGERS WILL BE ALLOWED DURING WIDENING OPERATIONS FROM STA 538+00 TO STA 540+00.  
 (NOTE: STAS 533+00 - 540+00 PAVEMENT STRUCTURE FOR PROPOSED LT US 60 SHOULDER WILL INCLUDE TWO COURSES OF ASPHALT BASE (SEE TYPICAL SECTION SHEET R24) WHICH WILL ACCOMMODATE TRAFFIC WIDENING/OVERLAY FOR KY 81 APPROACH UTILIZING PART-WIDTH CONSTRUCTION AND FLAGGERS.
  - CONSTRUCT WIDENING/OVERLAY FOR KY 81 APPROACH UTILIZING PART-WIDTH CONSTRUCTION AND FLAGGERS.
  - LEVEL/WEDGE EXISTING PAVEMENT FROM STA 534+75 TO STA 537+00 UTILIZING FLAGGERS.



LEGEND:

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

FOR MAINTENANCE OF  
TRAFFIC ONLY



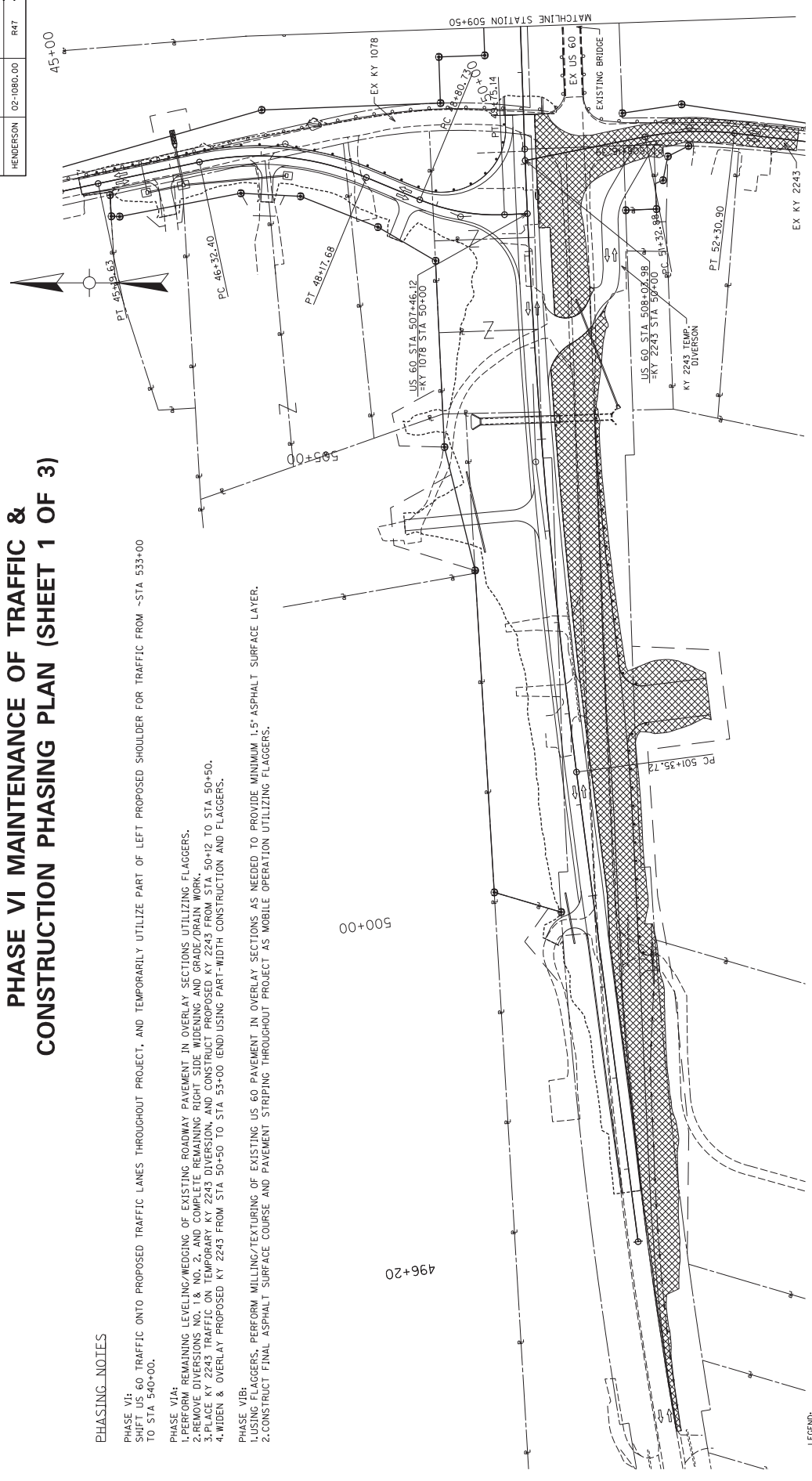
PHASE V MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-10880.00	847

# PHASE VI MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 1 OF 3)

**PHASING NOTES**

- PHASE VI:**  
SHIFT US 60 TRAFFIC ONTO PROPOSED TRAFFIC LANES THROUGHOUT PROJECT, AND TEMPORARILY UTILIZE PART OF LEFT PROPOSED SHOULDER FOR TRAFFIC FROM ~STA 533+00 TO STA 540+00.
- PHASE VIA:**  
1. PERFORM REMAINING LEVELING/WEDGING OF EXISTING ROADWAY PAVEMENT IN OVERLAY SECTIONS UTILIZING FLAGGERS.  
2. REMOVE DIVERSIONS NO. 1 & NO. 2, AND COMPLETE REMAINING RIGHT SIDE WIDENING AND GRADE/DRAIN WORK.  
3. PLACE KY 2243 TRAFFIC ON TEMPORARY KY 2243 DIVERSION, AND CONSTRUCT PROPOSED KY 2243 FROM STA 50+12 TO STA 50+50.  
4. WIDEN & OVERLAY PROPOSED KY 2243 FROM STA 50+50 TO STA 53+00 (END) USING PART-WIDTH CONSTRUCTION AND FLAGGERS.
- PHASE VIB:**  
1. CONSTRUCT FLAGGERS, PERFORM MILLING/TEXTURING OF EXISTING US 60 PAVEMENT IN OVERLAY SECTIONS, AS NEEDED TO PROVIDE MINIMUM 1.5" ASPHALT SURFACE LAYER.  
2. CONSTRUCT FINAL ASPHALT SURFACE COURSE AND PAVEMENT STRIPING THROUGHOUT PROJECT AS MOBILE OPERATION UTILIZING FLAGGERS.



**LEGEND:**

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

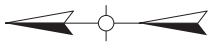
**FOR MAINTENANCE OF TRAFFIC ONLY**



PHASE VI MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R48

# PHASE VI MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 2 OF 3)

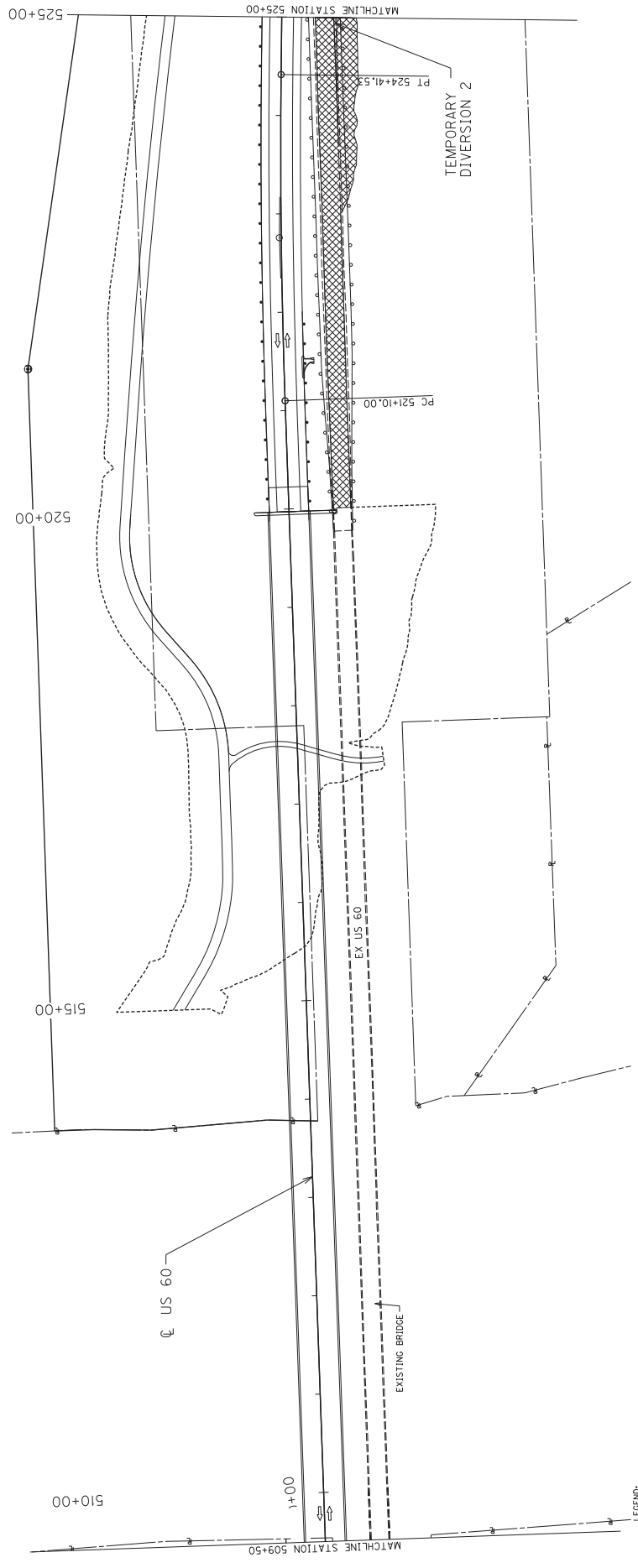


**PHASING NOTES**

**PHASE VI:**  
SHIFT US 60 TRAFFIC ONTO PROPOSED TRAFFIC LANES THROUGHOUT PROJECT, AND TEMPORARILY UTILIZE PART OF LEFT PROPOSED SHOULDER FOR TRAFFIC FROM STA 533+00 TO STA 540+00.

**PHASE VIA:**  
1. PERFORM REMAINING LEVELING/MEDGING OF EXISTING ROADWAY PAVEMENT IN OVERLAY SECTIONS UTILIZING FLAGGERS.  
2. REMOVE DIVERSIONS NO. 1 & NO. 2, AND COMPLETE REMAINING RIGHT SIDE WIDENING AND GRADE/DRAIN WORK.

**PHASE VIB:**  
1. USING FLAGGERS, PERFORM MILLING/TEXTURING OF EXISTING US 60 PAVEMENT IN OVERLAY SECTIONS AS NEEDED TO PROVIDE MINIMUM 1.5" ASPHALT SURFACE LAYER.  
2. CONSTRUCT FINAL ASPHALT SURFACE COURSE AND PAVEMENT STRIPING THROUGHOUT PROJECT AS MOBILE OPERATION UTILIZING FLAGGERS.



**LEGEND:**

	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE

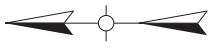
FOR MAINTENANCE OF  
TRAFFIC ONLY



PHASE VI MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN

COURTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	R49

# PHASE VI MAINTENANCE OF TRAFFIC & CONSTRUCTION PHASING PLAN (SHEET 3 OF 3)

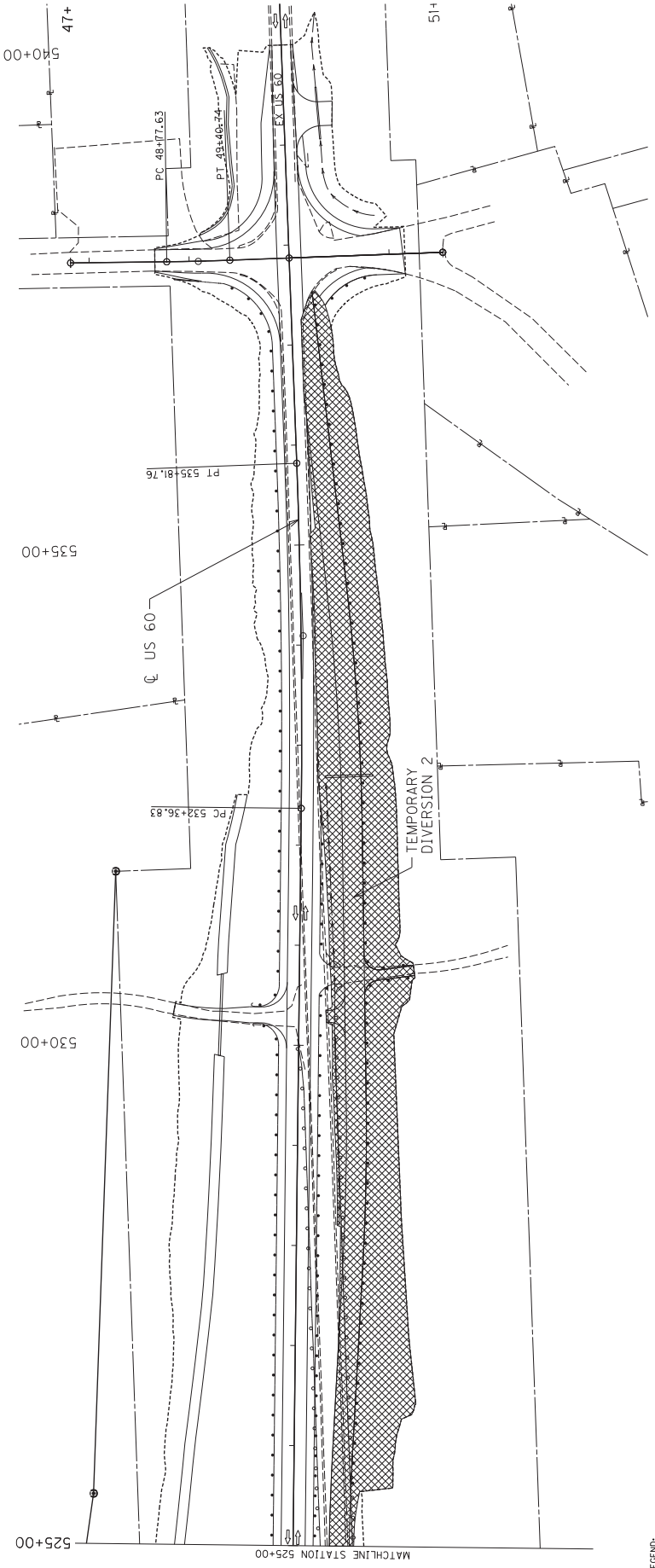


**PHASING NOTES**

**PHASE VI:**  
SHEFT US 60 TRAFFIC ONTO PROPOSED TRAFFIC LANES THROUGHOUT PROJECT, AND TEMPORARILY UTILIZE PART OF LEFT PROPOSED SHOULDER FOR TRAFFIC FROM -STA 533+00 TO STA 540+00.

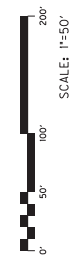
**PHASE VIA:**  
1. PERFORM REMAINING LEVELING/WEDGING OF EXISTING ROADWAY PAVEMENT IN OVERLAY SECTIONS UTILIZING FLAGGERS.  
2. REMOVE DIVERSIONS NO. 1 & NO. 2, AND COMPLETE REMAINING RIGHT SIDE WIDENING AND GRADE/DRAIN WORK.

**PHASE VIB:**  
1. USING FLAGGERS, PERFORM MILLING/TEXTURING OF EXISTING US 60 PAVEMENT IN OVERLAY SECTIONS AS NEEDED TO PROVIDE MINIMUM 1.5" ASPHALT SURFACE LAYER.  
2. CONSTRUCT FINAL ASPHALT SURFACE COURSE AND PAVEMENT STRIPING THROUGHOUT PROJECT AS MOBILE OPERATION UTILIZING FLAGGERS.



**LEGEND:**

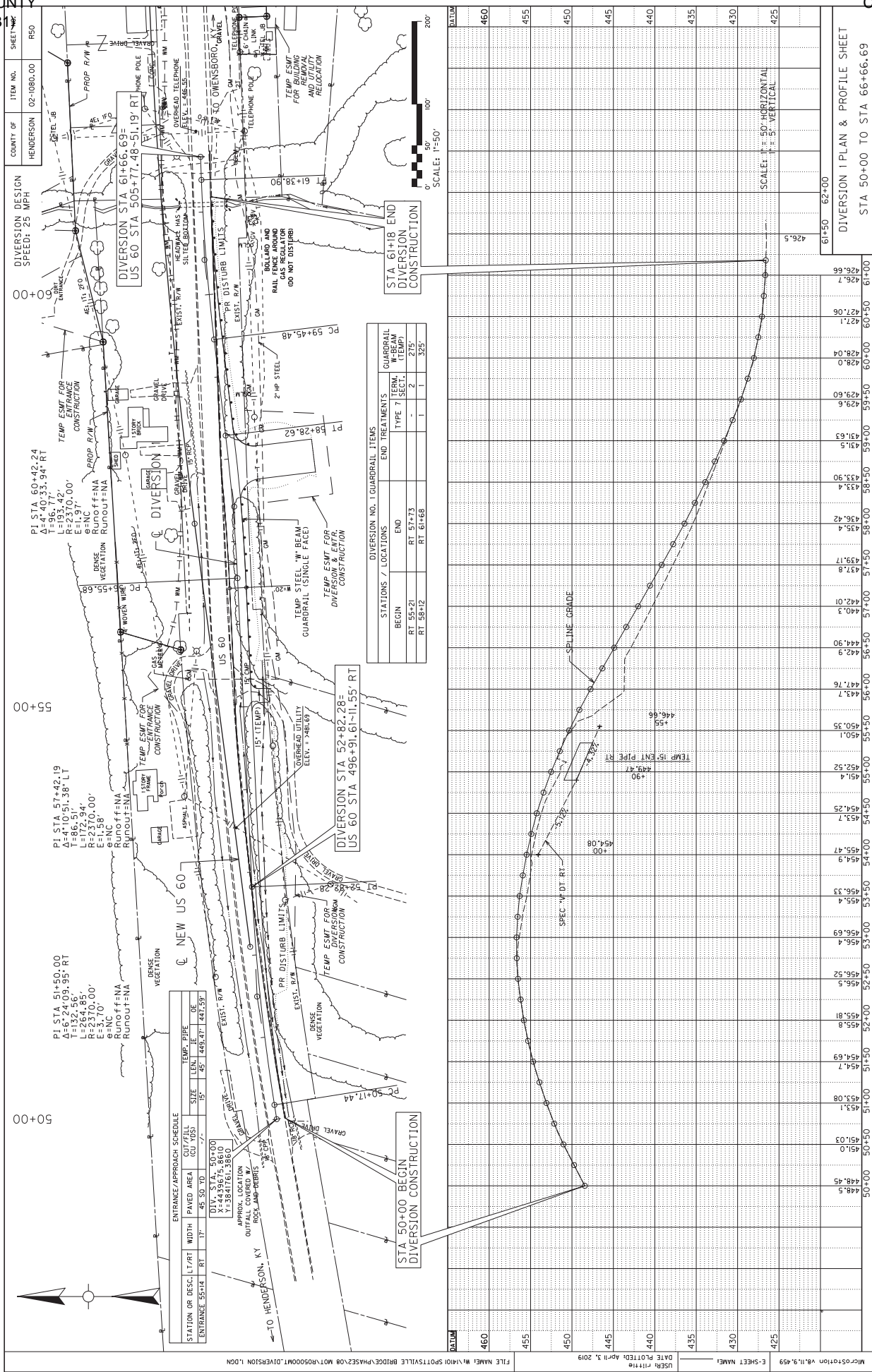
	CONSTRUCTION THIS PHASE
	TEMPORARY PAVEMENT THIS PHASE
	CONSTRUCTED IN PREVIOUS PHASE



FOR MAINTENANCE OF  
TRAFFIC ONLY

PHASE VI MAINTENANCE OF TRAFFIC &  
CONSTRUCTION PHASING PLAN





SHEET NO.	ITEM NO.	COUNTY OF
RS0	02-1080.00	HENDERSON

DIVERSION DESIGN SPEED: 25 MPH

PI STA 50+42.24  
A=140.35-34 RT  
T=96.77  
L=193.42  
R=2370.00  
G=NC  
Runoff=NA  
Runout=NA

PI STA 51+50.00  
A=140.35-34 RT  
T=96.77  
L=193.42  
R=2370.00  
G=NC  
Runoff=NA  
Runout=NA

PI STA 51+42.19  
A=140.35-34 RT  
T=96.77  
L=193.42  
R=2370.00  
G=NC  
Runoff=NA  
Runout=NA

PI STA 52+82.28  
A=140.35-34 RT  
T=96.77  
L=193.42  
R=2370.00  
G=NC  
Runoff=NA  
Runout=NA

PI STA 52+82.28  
A=140.35-34 RT  
T=96.77  
L=193.42  
R=2370.00  
G=NC  
Runoff=NA  
Runout=NA

PI STA 52+82.28  
A=140.35-34 RT  
T=96.77  
L=193.42  
R=2370.00  
G=NC  
Runoff=NA  
Runout=NA

STATION OR BESS. LT/RT	WIDTH	PAVED AREA	CUT/FILL	DE
ENTRANCE	SS/RT	FT	CU YDS	FT
ENTRANCE	SS/RT	17'	45	1.405-47

ENTRANCE/ APPROACH SCHEDULE	TEMP. PIPE
ENTRANCE	15"

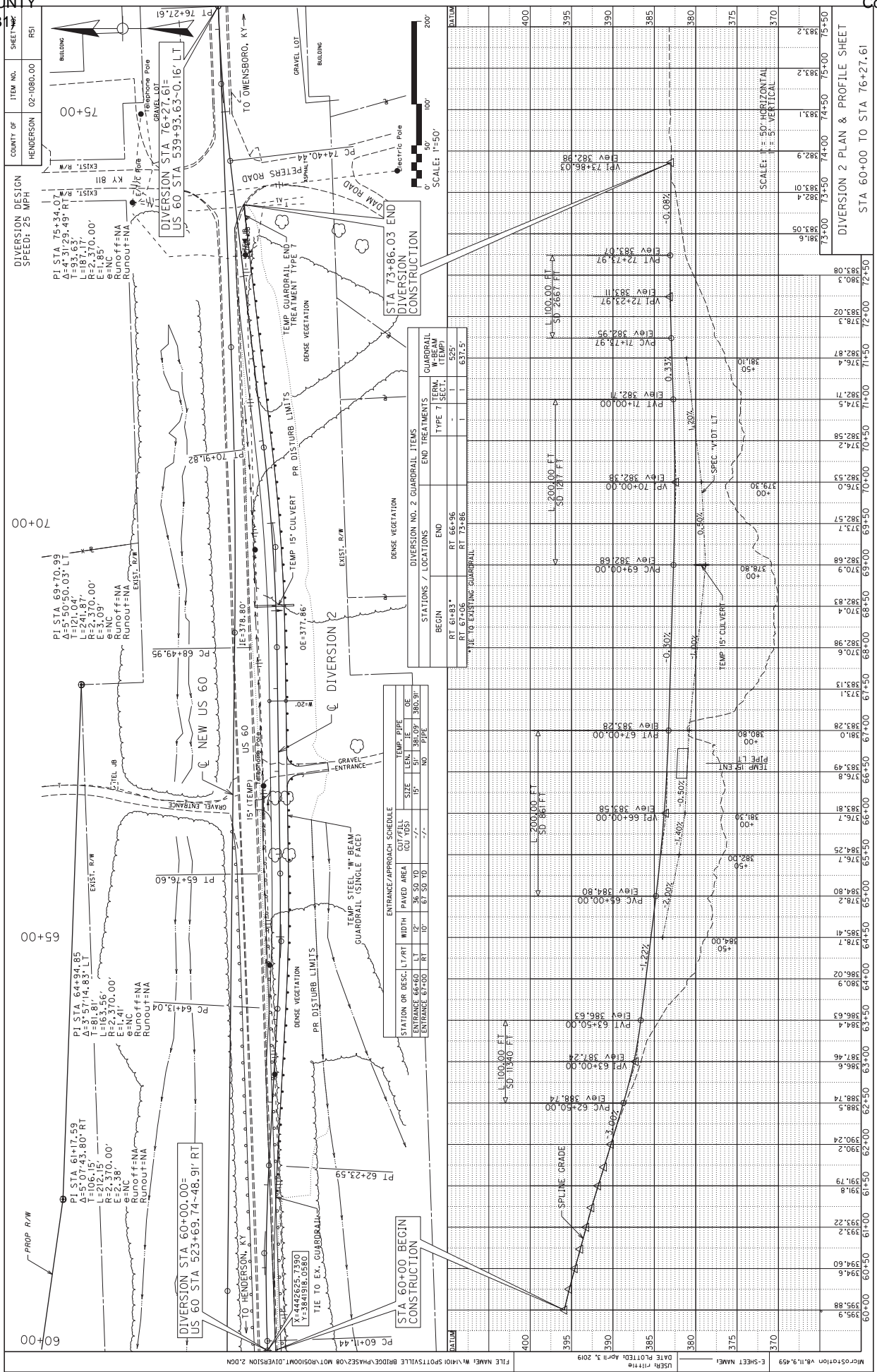
STATIONS / LOCATIONS	END TREATMENTS	GUARDRAIL
BEGIN	TYPE	TYPE
RT 55+21	RT 57+73	2
RT 58+12	RT 61+68	1
		275
		325

SCALE: 1"=50'

SCALE: 1"=5' HORIZONTAL  
1"=5' VERTICAL

DIVERSION I PLAN & PROFILE SHEET  
STA 50+00 TO STA 66+66.69

USBR PLOTTECH April 3, 2019  
DATE PLOTTED  
FILE NAME: W:\M101\SPOTTSVILLE BRIDGE\PHASE2\08\MT\085000MT\_DIVERSION 1.DGN



STATIONS / LOCATIONS	END TREATMENTS	GUARDRAIL TYPE	W-BEAM SECT.	(TEMP)
BEGIN RT 61+83.1	RT 66+396	TYPE 7	1	525
RT 66+396	RT 73+96	TYPE 7	1	525
RT 73+96	RT 73+96	TYPE 7	1	525
END				

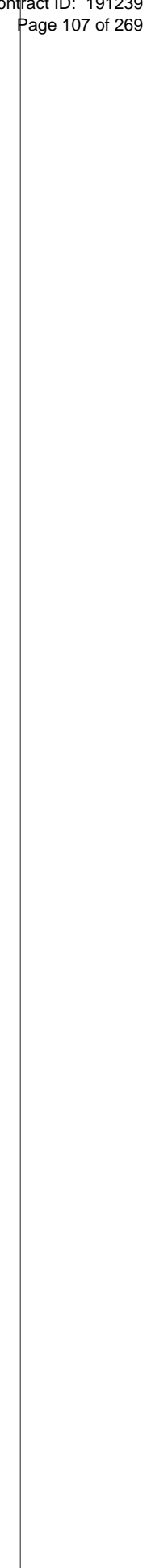
STATION OR DESC.	LT	RT	WIDTH	PAVED AREA	CUT/FILL	OR
ENTRANCE	67+00	RT	10'	12'	36	50
ENTRANCE	67+00	RT	10'	67	50	70
ENTRANCE	67+00	RT	10'	12'	36	50
ENTRANCE	67+00	RT	10'	67	50	70

STATION OR DESC.	LT	RT	WIDTH	PAVED AREA	CUT/FILL	OR
ENTRANCE	64+00	RT	10'	12'	36	50
ENTRANCE	64+00	RT	10'	67	50	70
ENTRANCE	64+00	RT	10'	12'	36	50
ENTRANCE	64+00	RT	10'	67	50	70

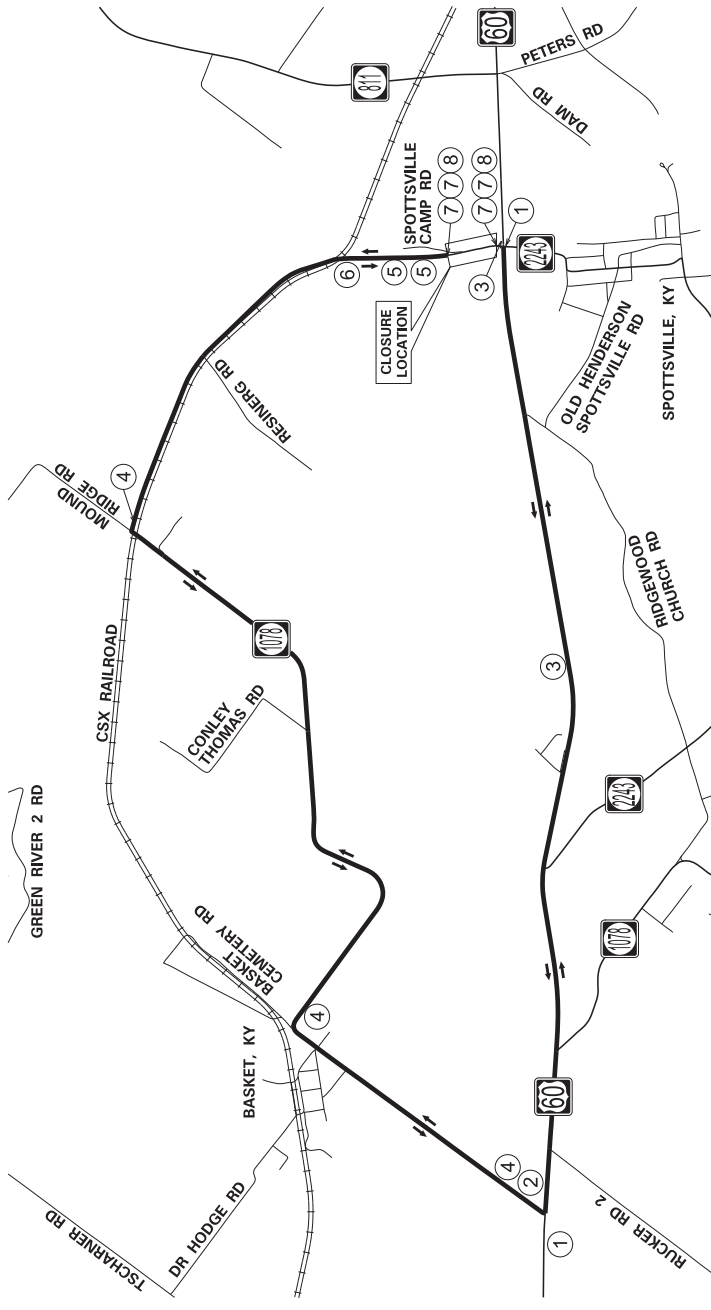
STATION OR DESC.	LT	RT	WIDTH	PAVED AREA	CUT/FILL	OR
ENTRANCE	62+00	RT	10'	12'	36	50
ENTRANCE	62+00	RT	10'	67	50	70
ENTRANCE	62+00	RT	10'	12'	36	50
ENTRANCE	62+00	RT	10'	67	50	70



USBR, p111e  
DATE PLOTTED: April 3, 2019  
FILE NAME: W:\11\SPOTSVILLE BRIDGE\PHASE2\08 MOT\085001\DIVERSION 2.DWG  
C-SHEET NAME:  
MICROSTATION V8.11.9.459

COUNTY OF	ITEM NO.	SHEET NO.
HENDERSON	02-1080.00	RS1A

CODE	SIZE	QUANTITY EACH	TOTAL SQ. FT.
M1-5 (3 of 4)	30" x 24"	5	25
M4-5	24" x 12"	5	10
M6-1 (L)	21" x 15"	2	4.4
M6-3	21" x 15"	2	4.4
R11-2	48" x 30"	2	20
R11-3a	60" x 30"	3	37.5
W20-3	48" x 48"	3	48
TYPE III BARRICADE			4
TOTAL SQ. FT.			151.5



①

DETOUR  
M4-5, 24" x 12"  
BLACK ON ORANGE

1078  
M1-5 (3 of 4), 30" x 24"  
BLACK ON WHITE

M6-1 (LEFT), 21" x 15"  
BLACK ON WHITE

②

DETOUR  
M4-5, 24" x 12"  
BLACK ON ORANGE

1078  
M1-5 (3 of 4), 30" x 24"  
BLACK ON WHITE

M6-1 (RIGHT), 21" x 15"  
BLACK ON WHITE

③

DETOUR  
M4-5, 24" x 12"  
BLACK ON ORANGE

1078  
M1-5 (3 of 4), 30" x 24"  
BLACK ON WHITE

M6-3, 21" x 15"  
BLACK ON WHITE

④

ROAD CLOSED  
XX MILES AHEAD  
LOCAL TRAFFIC ONLY

R11-3a, 60" x 30"  
BLACK ON WHITE  
XX = 1.5  
XX = 3.6  
XX = 4.6

⑤

ROAD CLOSED  
XX FT

W20-3, 48" x 48"  
BLACK ON ORANGE  
XX = 500  
XX = 1000

⑥

ROAD CLOSED  
AHEAD

W20-3, 48" x 48"  
BLACK ON ORANGE

⑦

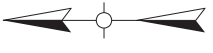
TYPE III BARRICADE

⑧

ROAD CLOSED

R11-2, 48" x 30"  
BLACK ON WHITE

NOTE: TO BE PLACED ON  
TYPE III BARRICADE



SCALE: 1"=1,000'

KY 1078  
MAINTENANCE OF TRAFFIC  
DETOUR PLAN



### **Special Note for Bridge Demolition, Renovation and Asbestos Abatement**

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

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



**TRANSPORTATION CABINET**

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

**Steven L. Beshear**  
Governor

**Michael W. Hancock, P.E.**  
Secretary

## Memorandum

**To:** Pamela Waggoner  
**CC:** Tony Vinegar  
**From:** O'Dail Lawson  
Environmental Scientist IV  
Division of Environmental Analysis  
**Date:** 11/24/2015  
**Re:** Asbestos Inspection Report for Henderson 02-1080

---

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

### **Project and Structure Information**

**Project #** Henderson 02-1080

**Bridge #** 051B00015N

**Location:** US 60 over Green River

**Description:** The samples collected were point counted below 1%. No abatement necessary.

**Inspection Date:** November 11, 2015

### **Results**

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



An Equal Opportunity Employer M/F/D

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

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

**BULK SAMPLE ASBESTOS ANALYSIS**

Analysis N #      211203 A      Address: 2 - 1080 B051B00015 N  
 Client Name:      KYTC  
 Sampled By:      Craig J. Craig

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

Methodology : EPA Method 600/R-93-116  
 Date Analyzed : 20-Nov-15  
 Analyst : Winterford Mensah      Reviewed By: *Winterford Mensah*  
Signature

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

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

332 West Broadway, Suite 613  
Louisville, Kentucky 40202

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

<b>Client:</b>	<u>KY Transportation Cabinet</u>	<b>Project No:</b>	<u>211203 B</u>
<b>Address:</b>	<u>200 Mero Street</u>	<b>Sample ID:</b>	<u># 3</u>
	<u>Frankfort, KY</u>	<b>Sampled:</b>	<u>10-Nov-15</u>
	<u>40601</u>	<b>Received:</b>	<u>18-Nov-15</u>
	<u>Attention Craig J Craig &amp;</u>	<b>Analyzed:</b>	<u>20-Nov-15 - Point Count -</u>
	<u>O'Dail Lawson</u>		

**Bulk Sample Analysis**

**Sampled by:** Craig J. Craig

**Facility/Location:** 2 - 1080 B051B00015N / US 60 Over Green River

**Field Description:** Handrail Putty - East Side

**Laboratory Description:**

Thick Black Material

**Asbestos Materials:**

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

**Non-asbestos Fibrous Materials & Matrix Materials:**

<u>Cellulose</u>	<u>0.25 %</u>
<u>Binders</u>	<u>99,25 %</u>

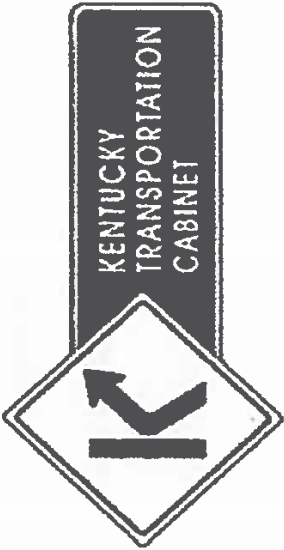
**Remarks:** The sample was analyzed for asbestos content following the EPA Methodology (600/R-93/116). The test relates only to the items tested. This report does not represent endorsement by NVLAP or any agency of the U.S. Government.

**Analyst:** Winterford Mensah      **Reviewed By:** *Winterford Mensah*  
Signature

# Chain of Custody Record

Kentucky Transportation Cabinet

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



**O'Dail Lawson** o'dail.lawson@ky.gov  
 KYTC  
 Address: 200 Mero Street  
 Frankfort KY  
 Phone: 502-564-7250 Fax: 502-564-5655  
 PO#:  
 Project or Subject Reference: **2-1080**

**Client Information** KY TRANS CABINET  
 Results Code:  
 ND = None Detected  
 FTD = Filter Tampering or Damaged  
 N/A = Not Applicable

Samplers (signature): *[Signature]*

Sample ID	Sample Description	Collected		Analysis Requested	Grab/Comp.	No. of Cont.	Cont. Type	Preservative
		Date	Time					
1	Brown Joint compound	11/10	12:30	Asbestos	G	1	bag	N/A
2	Grey joint compound - east span	1				1		
3	Hand on patchy - east side	1				1		

Relinquished By: *[Signature]* Date/Time:

Received By: *[Signature]* Date/Time: **11/18/15**

Relinquished By: *[Signature]* Date/Time:

Received at Lab By: Date/Time:

**ENVIRONMENTAL TRAINING CONCEPTS, INC**

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

Certification Number: ETC-AIR-071415-00276

**O'Dail Lawson**

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

**ASBESTOS INSPECTOR REFRESHER**

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

Conducted at: 1220 Kentucky Mills Drive, Louisville, KY


  
Name - Training Manager

Expiration Date: 07-14-2016

  
Name - Instructor



	KENTUCKY TRANSPORTATION CABINET Department of Highways DIVISION OF RIGHT OF WAY & UTILITIES	TC 62-226 Rev. 01/2016 Page 1 of 1
RIGHT OF WAY CERTIFICATION		

<input checked="" type="checkbox"/> <b>Original</b>		<input type="checkbox"/> <b>Re-Certification</b>		RIGHT OF WAY CERTIFICATION			
ITEM #		COUNTY		PROJECT # (STATE)		PROJECT # (FEDERAL)	
2-1080.00		Henderson		12FO FD52 051 8675901R		STP BRO 5053 (026)	
<b>PROJECT DESCRIPTION</b> US 60 Spotsville Bridge							
<input type="checkbox"/> <b>No Additional Right of Way Required</b> Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.							
<input checked="" type="checkbox"/> <b>Condition # 1 (Additional Right of Way Required and Cleared)</b> All necessary right of way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.							
<input type="checkbox"/> <b>Condition # 2 (Additional Right of Way Required with Exception)</b> The right of way has not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract							
<input type="checkbox"/> <b>Condition # 3 (Additional Right of Way Required with Exception)</b> The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction.							
Total Number of Parcels on Project		15		EXCEPTION (S) Parcel #		ANTICIPATED DATE OF POSSESSION WITH EXPLANATION	
Number of Parcels That Have Been Acquired							
Signed Deed		15					
Condemnation							
Signed ROE							
<b>Notes/ Comments (Use Additional Sheet if necessary)</b>							
LPA RW Project Manager				Right of Way Supervisor			
Printed Name				Printed Name		Jennifer K. Cox	
Signature				Signature		 Jennifer K Cox 2019.08.02 13:56:24 -05'00'	
Date				Date			
Right of Way Director				FHWA			
Printed Name				Printed Name			
Signature		2019.08.02		Signature		No Signature Required as per FHWA-KYTC Current Stewardship Agreement	
Date		14:33:08 -05'00'		Date			

## UTILITIES AND RAIL CERTIFICATION NOTE

### Henderson/Daviess County 2-1080 Spottsville Bridge

#### GENERAL PROJECT NOTE ON UTILITY PROTECTION

ATT, Kenergy, Atmos energy, Spectrum cable, Windstream, and Henderson County water have facilities on the subject project.

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

**\*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

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

**AT&T** will finish relocating to the old bridge by 12/31/19 once new the bridge is complete and conduit is installed they will relocate to the new bridge and remove the cables from the old bridge. This will take 3 months. Please give 30 day notice as to when the conduit will be available for transfer.

**Spectrum Cable** will finish relocating to the old bridge by 12/31/19 once new the bridge is complete and conduit is installed they will relocate to the new bridge and remove the cables from the old bridge. This will take 3 months. Please give 30 day notice as to when the conduit will be available for transfer.

**Windstream** will finish relocating to the old bridge by 12/31/19 once new the bridge is complete and conduit is installed they will relocate to the new bridge and remove the cables from the old bridge. This will take 3 months. Please give 30 day notice as to when the conduit will be available for transfer.

**Atmos Energy** will complete the required relocations by 12/31/19

**Kenergy** will complete the required relocations by 12/31/19



## UTILITIES AND RAIL CERTIFICATION NOTE

**Henderson/Daviess County  
2-1080 Spottsville Bridge**

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

**Henderson County Water** has included the relocation of the water in the road way contract.

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

**No Rail Involved**

**Minimal Rail Involved (See Below)**

**Rail Involved (See Below)**

### **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

## UTILITIES AND RAIL CERTIFICATION NOTE

### Henderson/Daviess County 2-1080 Spottsville Bridge

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.

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***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

**Henderson/Daviess County  
2-1080 Spottsville Bridge**

### AREA UTILITIES CONTACT LIST

<u>Utility Company/Agency</u>	<u>Contact Name</u>	<u>Contact Information</u>
Kenergy	Scott Atherton	270-316-3736
Atmos Energy	Kenny Nash	270-316-1571
Spectrum	Daryl Hulsey	812-253-2755
AT&T	Larry Crabtree	270-316-4192
Windstream	James Galvin	270-765-1818
Henderson County Water	Pete Conrad	270-826-9802

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

When the list of approved subcontractors for the utility work is not provided in these general notes, the utility work can be completed by the prime contractor. If the prime contractor chooses to subcontract the work, the subcontractor shall be prequalified with the KYTC Division of Construction Procurement in the

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

#### CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

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

#### SUBMITTALS AND CORRESPONDENCE

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

#### ENGINEER

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

### INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

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

### NOTICE TO UTILITY OWNERS OF THE START OF WORK

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

### UTILITY SHUTDOWNS

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

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

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

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

or corporation stop and/or capping or plugging the tap, digging down on a sewer tap at the main and plugging or capping the tap, digging down on a service line or lateral at a location shown on the plans or agreeable to the engineer and capping or plugging, or performing any other work necessary to abandon the service or lateral to satisfactorily accomplish the final utility relocation.

### STATIONS AND DISTANCES

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

### RESTORATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ready for use. This bid item is to pay for service installations 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 item 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 item 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.

# SPECIAL NOTE

## WATER RELOCATION

### US 60 (HENDERSON)

### ITEM NO. 02-1080.00

This Special Note will apply for all work related to furnishing, installing, testing and placing into service the newly relocated water main, services and appurtenances.

#### 1.0 SCOPE OF WORK

The scope of work shall include the relocation of water distribution facilities owned by the Henderson County Water District. The water line relocation work is shown on project drawings U1 through U11. The project includes the following major work items:

- Relocate existing watermain
- Installation of new watermain
- Installation of valves and hydrants
- New meters and services connections
- Connection of insulated DIP watermain to new US 60 bridge.

#### 2.0 MAINTENANCE OF TRAFFIC AND EROSION CONTROL

Any required maintenance of traffic and erosion control best management practices for the water line relocation work shall fall under the roadway project maintenance of traffic and erosion control and is not a separate pay item. See Traffic Control Sheets and Erosion Control Sheets.

#### 3.0 PIPELINE MATERIALS, CONSTRUCTION, TESTING AND TIE-INS

Unless otherwise indicated on the project drawings or modified by this special note, KYTC's specifications and the attached technical specifications shall apply to the water line relocation materials, installation, testing and tie-ins on this project.

#### 4.0 GENERAL UTILITY NOTES AND INSTRUCTIONS APPLICABLE TO WATER LINE RELOCATION WORK MADE A PART OF 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 technical 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, technical specifications or plans; the KYTC Standard Specifications for Road and Bridge Construction shall be referenced.

**4.1 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.

## 5.0 KYTC UTILITY BID ITEM DESCRIPTIONS

### 5.1 Standard Water Bid Item Descriptions

**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 KYTC's Specifications and the attached technical specifications. This item shall be paid EACH (EA) when complete.

**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 attached technical and KYTC specifications. 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 KYTC's Specifications and the technical specifications. This item shall be paid EACH (EA) when complete.

**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 attached technical and KYTC's specifications. 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 KYTC's Specifications and the attached technical specifications. This item shall be paid LINEAR FEET (LF) when complete.

**W TAPPING SLEEVE 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 KYTC's Specifications and the attached technical specifications. 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 technical and KYTC Specifications. This item shall be paid EACH (EA) 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 KYTC's Specifications and the attached technical specifications. 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 KYTC's Specifications and the attached technical specifications. This item shall be paid EACH (EA) when complete.

#### **6.0 CONTRACT ADMINISTRATION RELATIVE TO WATER RELOCATION 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.

#### **7.0 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 and/or utility owner engineer by the contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner/engineer 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.

#### **8.0 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.

#### **9.0 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.

#### **10.0 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.

#### **11.0 WATER SHUTDOWNS**

Shutdowns for tie-ins to the main shall be approved by the utility owner. Shutdown times will be limited to off peak periods and allowable durations will be determined 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 utility 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, as shown on the project drawings and specified in the Specifications. 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.

#### **12.0 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.

#### **13.0 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.

## **SECTION 02713 WATER DISTRIBUTION SYSTEM**

### **PART 1 – GENERAL**

#### **1.1 WORK INCLUDED**

Installation and testing of water lines and appurtenances.

### **PART 2 – MATERIALS, STORAGE AND HANDLING**

#### **2.1 MANUFACTURER’S RECOMMENDATION**

Care shall be exercised in the delivery, storage and handling of all materials prior to their incorporation into the work. Follow all manufacturers’ recommendations for delivery and storage (except where these specifications differ.) Acceptance of questionable material shall be based solely on the Engineer’s interpretation of fabrication, delivery, storage and installation practices of the material in question.

#### **2.2 STORED PIPE**

Contractor shall take special care to ensure that no foreign matter including, but not limited to soil, trash, trench water or other debris enters the pipe at any time. Upon arrival of pipe shipment, Contractor shall completely seal pipe openings in a manner acceptable to the Engineer.

#### **2.3 STORED FITTINGS**

Contractor shall take special care to ensure that no foreign matter including, but not limited to soil, trash, trench water or other debris enters pipe appurtenances at any time. Upon arrival of pipe shipment, Contractor shall completely seal pipe openings in a manner acceptable to the Engineer.

#### **2.4 INSTALLED PIPE**

The installed pipe in the trench shall be plugged at the close of work each day or during any prolonged break period, including anytime workers are absent from the job site (lunch breaks, etc.). The only acceptable method for plugging the installed pipe is with a watertight M.J. cap or M.J. plug.



## 2.5 FAILURE TO FOLLOW SPECIFICATIONS

Failure to take such preventative measures mentioned in these specifications, or flooding or contamination of the main for any reason, shall require the Contractor to clean the line with a hydraulically propelled foam pig (or other suitable pigging device acceptable to the Engineer) and slug chlorinate the line as specified in Subpart 4.8 of this Section. The Contractor shall also be required to take whatever other measures required by the Engineer in accordance with these specifications or AWWA C-651 to remove the contamination. All such procedures shall be fully documented and submitted for approval by the Engineer.

## PART 3 – PRODUCTS

### 3.1 DUCTILE IRON PIPE AND FITTINGS

- A. Pipe:
1. Manufactured in accordance with ANSI A21.51 (AWWA C151).
  2. A cement lining meeting the requirements of ANSI 21.4 (AWWA C104).
  3. A minimum of 1 mil thick bituminous coating on the outside surface.
  4. Clearly mark with manufacturer's name, D.I. or Ductile, weight, class or nominal thickness, and casting period.
  5. Unless otherwise specified or shown on the plans, ductile iron pipe shall be pressure class 350 for sizes up through 12-inch.
  6. All ductile iron pipe shall be furnished and installed with restrained joint locking gaskets, U.S. Pipe Field Lok 350 or approved equivalent.
- B. Fittings: All fittings and specials for pipe 3" in diameter and larger shall be cast or ductile iron.
1. Fittings 3" – 24": Pressure rated at 350 psi meeting the requirements of ANSI 21- 53/AWWA C153 for compact fittings.
  2. Joints meeting the requirements of ANSI 21.11/AWWA C111.
  3. All mechanical joint ductile iron fittings shall be equipped with mechanical joint restraint devices as specified in Subpart 3.9.

### 3.2 POLYETHYLENE ENCASEMENT

- A. All ductile iron pipe shall be furnished and installed with polyethylene encasement in accordance with the ANSI/AWWA C105/A21.5 standard. Encasement shall be low-density film with minimum thickness of 8 mils. Installation shall be per the manufacturer's instructions.

### 3.3 HIGH DENSITY POLYETHYLENE PIPE (HDPE) FOR HORIZONTAL DIRECTIONAL DRILLING

- A. HDPE pipe shall only be used for directional bores as approved by the Engineer.
- B. Pipe shall have a DR number 9 with a working pressure of 200 psi and be sized to provide inside diameter equal to or greater than the size shown on the plans.
- C. Materials: Polyethylene pipe and fittings shall be made from resin meeting the requirements of the Plastic Pipe Institute as PE 3408. The resin shall meet the requirements of ASTM D3350- 02 with a cell classification of 345464C. The requirements of this cell classification are:

<i>HDPE Resin Specifications</i>			
Property	Specification	Unit	Typical Value
Material Designation	PPI/ASTM		PE 3408
Material Approval	NSF #14		
Material Classification	ASTM D1248		III C5 P34
Cell Classification	ASTM D3350-02		345464C
o Density	ASTM D1505	g/cm <sup>3</sup>	0.955
o Melt Index	ASTM 1238	gm/10 min	0.11
o Flexural Modulus	ASTM D790	psi	135,000
o Tensile Strength	ASTM D638	psi	3,200
o Slow Crack Growth			
- ESCR	ASTM D1693	hours in 100% iqepal	>5,000
- PENT	ASTM F1473	hours	>100
- HDB @73 deq F	ASTM D1693	psi	1,600
- UV Stabilizer	ASTM D1603	%C	2.5%

- D. Butt Fusion Fittings: HDPE fittings shall be PE 3408, HDPE, Cell Classification of 346464C as determined by ASTM D3350-02, and approved for potable water use by the AWWA. Butt fusion fittings shall have a manufacturing standard of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified in the plans. Fabricated fittings are to be manufactured using data loggers. Temperature, fusion pressure and a graphic representation of the fusion cycle shall be part of the Quality Control records. All fittings shall be suitable for use as pressure conduit, and per AWWA C906, have a nominal burst value of 3.5 times the working pressure rating of the fitting.
- E. Pipe Manufacturer's Quality Control: The pipe manufacturer shall have an ongoing Quality Control program for incoming and outgoing materials. HDPE resins for manufacturing of pipe shall be checked for density, melt flow rate, and contamination. The manufacturer of the HDPE resin shall certify the Cell Classification as indicated in Subpart 3.2 C above. These incoming resins shall be approved by plant Quality Control and verified as approved by NSF before being

converted to pipe. Pipe shall be checked for outside diameter, wall thickness, length, roundness and surface finish on the inside, outside and end cut.

- F. HDPE pipe shall be joined together at the transition points to other mechanical joint adapters. Mechanical joint adapters shall have a manufacturing standard of ASTM D3261. They shall have a pressure rating equal to the pipe.
- G. A minimum of 100 feet of restrained joint ductile iron pipe shall be provided on the pipe preceding and the pipe following the HDPE. Appropriate restraint methods include using restrained joints equivalent to American Flex Ring or U.S. Pipe T.R. Flex.

### 3.4 SERVICE PIPE

#### A. Polyethylene Pipe:

Crosslinked Polyethylene pipe (Rehau Municipex) is acceptable for service lines from the main to the meter, and between the meter and the building in accordance with the Standard Plumbing Code. Crosslinked Polyethylene (PEXa) pipe shall meet the following criteria:

1. Manufactured using the high pressure peroxide method of crosslinking.
2. Certified to AWWA C 904 *Cross-linked Polyethylene (PEX) Pressure Pipe, ½ in. through 3 in. for Water Service* by approved testing agency. Certified to standards ASTM F876, CSA B137.5, NSF 14 and NSF 61, by approved testing agencies, with a standard materials designation code of 3306.
3. Demonstrates ability to satisfy the performance requirements of Section F.7 of Plastics Pipe Institute (PPI) Technical Report 3 (TR-3) for polyethylene materials in order to apply a 0.63 design factor resulting in a temperature/pressure rating of 200 psi @ 73.4°F (1380 kPa @ 23°C).
4. Shall be rated for 160 psi @ 73.4°F (1103 kPa @ 23°C) and 100 psi @ 180°F (690 kPa @ 82°C) per PPI TR-4.
5. Shall have co-extruded UV Shield made from UV-resistant high-density polyethylene, color Blue.
6. Shall have minimum recommended UV exposure time of one (1) year when tested in accordance with ASTM F2657, or as per manufacturer's recommendations.
7. Shall be compatible with cold-expansion compression-sleeve fittings certified to ASTM F2080 for installations as cold as -40°F.
8. Shall be approved for use with AWWA C800 fittings when using manufacturer's recommended insert.
9. Shall be approved by manufacturer for use with manual plastic pipe squeeze-off tools for temporary stoppage of flow.
10. Shall be approved by manufacturer to be repaired using hot air, if kinked in the field.

11. Shall have minimum markings: PEXa 3306, CSA B137.5, ASTM F876, F2023 and F2080, NSF-pw-g.

B. Copper Pipe:

1. Seamless copper tubing meeting the requirements of ASTM B88, Type K for 3/4" through 2". Copper tubing 1" and smaller shall be soft. Copper tubing larger than 1" may be hard or soft. All underground copper to copper connection is to be by compression coupling, no solder sweat joints.
2. Contain not less than 99.90% copper and not more than 0.04% phosphorous.
3. Suitable for use with a working water pressure of 160 psi.
4. 3/4" nominal diameter unless otherwise specified or shown on the Plans.
5. Service pipe shall be used to connect the corporation stop with the meter yoke. Use the minimum length required to make a straight-line connection including a goose neck. The minimum length of service shall be 5 feet in order to facilitate the location of the services with metallic pipe locators.
6. No 3" copper service pipe shall be allowed. No 3" piping on HCWD's side of the water meter shall be allowed.
7. All copper service piping shall be buried at a minimum depth of 24" below finished grade unless otherwise approved.

C. Ductile Iron Pipe:

For service lines 4-inches and larger, ductile iron pipe meeting the requirements set forth in Subpart 3.2 shall be used.

### 3.5 WATER SERVICE ASSEMBLIES

A. Water Meters (all water meters are issued by the Henderson County Water District):

1. AWWA C700.
2. 5/8" x 3/4" unless otherwise specified or shown on the Plans.
3. Frost proof with a cast bronze casing and a hinged cover.
4. Direct reading register, in gallons, unless otherwise specified.
5. Disc or piston operated with magnetic drive.
6. A suitable non-corrosive strainer located over the inlet to the measuring chamber.
7. The name of the manufacturer imprinted in the lid of the register box and the meter serial number imprinted thereon.
8. Meters shall be located in non-traffic areas.
9. Water services shall be located near the center of the lot in non-traffic areas so that they are not in driveways. Water meters shall be located in a landscaped area near the property line unless otherwise approved by the Engineer.

- B. Water Main Connections:
1. Tap water mains in the upper half of the pipe at a 45-degree angle.
  2. Do not exceed the pipe manufacturer's recommended maximum tap size.
  3. Use service saddles on all taps for PVC pipe. Water service tapping saddles for services 2" or less shall be of total brass or bronze construction with no ferrous materials. Saddles are to have double straps or extra wide single straps and shall employ a dual o-ring seal. Saddles shall be Ford or pre-approved equal.
  4. Service taps on line under construction that has not been tested and inspected by the City may be made by a qualified Contractor. Taps on existing City mains must be made by authorized City personnel unless specifically authorized by the Engineer's office.
  5. For all 2" taps on ductile iron lines, a ductile iron epoxy coated body saddle with double stainless steel straps shall be furnished. For ¾" to 1" connections, ductile iron mains shall be drilled and tapped with no need for a saddle.
- C. Corporation Stops/Service Valves: Corporation stops are required for all ¾" and 1" services. Services of 2" diameter shall use a 2" ball valve with a square operating nut. All corporation stops shall have a minimum rating of 200 psi. All service valves shall have a standard valve box installed and brought to grade. Corporation stops shall meet the following criteria:
1. AWWA C800
  2. Cast of certified waterworks red brass, composed of 85% copper and 5% each of tin, lead, and zinc.
  3. Water tight and individually tested for leaks.
  4. Waterway diameter approximately equal to the nominal size of the stop.
  5. Coat or cap all threads for protection prior to installation.
  6. Manufactured by Ford or pre-approved equal.
- D. Meter Yokes:
1. Copper tubing with an integral brace and meter stop.
  2. Minimum rise of 7".
  3. Provide with outlets designed for the use of polyethylene or copper service pipe.
  4. Manufactured by Ford. or pre-approved equal.
- E. Curb Valves: All water services less than 2" diameter must terminate with a curb ball valve immediately prior to the meter yoke location. Approved model is Ford or pre-approved equal. Curb ball valves that are buried prior to the installation of a yoke shall have a bolt or pin placed in the stop wing to prevent the ball valve from being accidentally opened during back fill.
- F. Meter Boxes:
1. Water meters shall be located in a landscaped area near the property line unless otherwise approved by the Engineer.
  2. The depth of the meter yoke inlet for 5/8" – 1" meters shall be 18" to 24".

3. The depth of the meter yoke inlet for 1 ½" – 6" meters shall be 24" to 36".
  4. Meter box to be of sufficient size to facilitate easy installation and removal of the water meter.
  5. Where the service assemblies include a pressure reducing valve, sufficiently size box for installation of the pressure reducing valve in the meter box.
- G. Pressure Reducing Valves for Service Assemblies: Pressure reducing valves are the responsibility of the customer and may be installed at any point downstream of the meter in accordance with the Standard Plumbing Code and the City's "Cross Connection Control Policy and Program". Pressure reducing valves are required where the static pressure is greater than 80 psi.
- H. Service Materials: No galvanized pipe, galvanized nipples, black iron, glued plastic or sweated fittings are to be used between the main and the meter yoke. Threaded brass, slip joints, mechanical joints, and bronze/brass compression fittings are allowed.

### **3.6 VALVES AND VALVE BOXES**

- A. Gate Valves
1. AWWA C509 or C515.
  2. Iron body, resilient seat, non-rising stem type.
  3. Stuffing boxes: O-ring seal type with two (2) rings in the stem located above the thrust collar.
  4. 2" square wrench nut for operation of the valve.
  5. Minimum design working water pressure of 200 psi for valves with diameters of 2" – 12" and 150 psi for valves with diameter of 14" – 54", unless otherwise specified or shown on the plans.
  6. Joints: ANSI A21.11 (AWWA C111).
  7. Bonnet or body markings: Manufacturer's name, year of casting, size, pressure rating, and open direction labeled with an arrow.
  8. Epoxy coat interior and exterior in accordance with AWWA C550.
  9. Shall be Mueller A-2360, M&H 7571, American Flow Control 2500 or pre-approved equal.
- B. Valve Boxes:
1. Cast iron, 2-piece or 3-piece, screw type with shaft diameter of not less than 5" (Tyler/Union 6850 or equal).
  2. Comply with AWWA M44.
  3. Heavy roadway type equipped with a cover containing the word "WATER" in raised letters on the top.
  4. Base of such size as to permit its installation without allowing it to come in contact with either the valve or the pipe.

5. In paved areas, the top of the box casting shall be made level with the adjacent pavement. In unpaved areas, the box shall be 1" above the adjacent ground and encircled with a concrete collar 4" thick and 2' in diameter. Pre-cast concrete valve collars may also be used around valve boxes.
- C. Tapping Valves and Sleeves:
1. Tapping valves shall meet all the requirements of Subpart 3.5 A above and shall be Mueller T2360-16, M&H 4751-01 or pre-approved equal.
  2. Tapping sleeves shall be Mueller H-304, Ford FTSS, JCM 452, Smith Blair 665, Dresser Style 630 or pre-approved equal.
  3. Tapping sleeves shall be two-piece fabricated stainless steel with adjusting/tightening bolts on each side. The fabricated sleeve must contain all stainless materials and be rated for the anticipated working pressure. Sleeves must have a stainless steel outlet flange. Sleeves with ductile iron or carbon steel flanges will not be accepted. Care must be used to assure that all bolts are equally tightened. The tapping valve is to be solidly supported with brick or block and carefully bedded to prevent shifting due to settling back fill.
  4. After valve is bolted to sleeve, and with valve closed, remove test plug from the tap on sleeve and air test sleeve to 100 psi prior to making tap.

### **3.7 FIRE HYDRANTS AND BLOW-OFF HYDRANTS**

- A. Fire Hydrants:
1. AWWA C502. Mueller Super Centurion, Kennedy Guardian K81-D, or Clow Medallion are the standard for HCWD.
  2. Cast iron bodies, fully bronze mounted, designed for operation at a working water pressure of 150 psi.
  3. Furnish with two 2-½" thread brass hose nozzles and one threaded 4-½" brass pumper nozzle.
  4. Compression type main valve 5-¼" diameter faced with a suitable yielding such as rubber.
  5. So designed that, when it is installed, no excavation is required to remove the main valve or the movable parts of the drain valve.
  6. Inside diameter of barrel: at least 120 percent of the hydrant valve size.
  7. Inlet connection: minimum of 6" mechanical joint on all lines, unless otherwise specified or shown on the Plans.
  8. Equipped with safety flange located not more than 10" above ground and a two-piece shaft break-away assembly.
  9. Shop paint and mark in accordance with AWWA C502. Open left hydrants yellow.
  10. Cast markings: manufacturer's name, size of the main valve, year of manufacture, and direction of opening.

11. Field touch-up, if the surface has been marred, with paint supplied by the manufacturer of the same color and type as that used during shop painting.
12. 4' bury hydrants are the standard. Where the line depth justifies additional depth, hydrant extensions shall be installed.
13. All hydrants shall be installed utilizing hydrant (swivel) tees. Unless otherwise shown on the plans, tees with all mechanical joint ends shall be used if field conditions require hydrant isolation valve to be placed away from the water main.
14. All hydrants shall be installed with a 6-inch isolation gate valve in valve box.
15. Fire hydrants shall not be installed on water lines less than 6-inch in diameter.
16. A fire hydrant shall not be located closer than five (5) feet from any driveway.

B. Blow-Off Hydrants:

1. Post type having cast iron bodies, fully bronze mounted and designed for operation at a working water pressure of 150 psi.
2. Furnish with either two 1-1/2" or 2-1/2" threaded brass hose nozzles.
3. Compression type main valve 2-1/8" minimum diameter faced with a suitable yielding material such as rubber, leather or balata.
4. So designed that, when it is installed, no excavation is required to remove the main valve or the movable part of the drain valve.
5. Inside diameter of the barrel: at least 3".
6. Inlet connection: 2" mechanical joint, unless otherwise specified or shown on the plans.
7. Equipped with a safety flange located not more than 2" above the ground.
8. Open on counter-clockwise operation, unless otherwise specified.
9. Cast markings: manufacturer's name, size of the main valve, year of manufacture, and direction of opening.
10. Field touch-up, if the surface has been marred, with paint supplied by the manufacturer of the same color type as that used during shop painting.
11. Type of post hydrant: Mueller A-411 or M & H (Style 33 or 233).

### 3.8 MECHANICAL JOINT RESTRAINT DEVICE

- A. Pipe restraint: It is the intention of these specifications that all mechanical joint fittings and valves be restrained at each opening with approved mechanical joint restraint devices. Restrained fittings **do not** eliminate or replace the requirement for sufficient concrete thrust blocking and/or restrained pipe joints.
- B. Ductile Iron Pipe Restraint Devices:
1. Restraint devices shall consist of multiple gripping wedges incorporated into a follower gland meeting the requirements of ANSI/AWWA C110/A21.10.
  2. Devices shall have a working pressure rating of 350 psi for 3" to 16" and 250 psi for 18" and larger. Ratings are for water pressure and must include a minimum safety factor of 2:1.



3. Restraint devices shall have torque bolts.
  4. Megalug Series 1100 produced by EBAA Iron or equal.
- C. Restraint Devices - General:
1. Gland body, wedges and wedge activating components shall be cast from grade 65-45- 12 ductile iron material in accordance with ASTM A536.
  2. Installation shall be performed using conventional tools and installation procedures as specified in AWWA C600 while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly.
  3. Proper activation of the gripping wedges shall be ensured with torque-limiting twist- off nuts.

### 3.9 CROSS CONNECTION

- A. All commercial properties must have backflow protection installed on incoming water lines (domestic, fire and irrigation). The type and location of commercial property backflow prevention devices shall be as follows:
1. Reduced Pressure Assemblies for domestic and irrigation.
  2. Double Check Assemblies (with fire meter) or Double Check Detector Assemblies (where approved by the Engineer without fire meter) for all fire systems unless the system contains chemicals or is connected to an alternate water source.
  3. Backflow prevention devices shall be installed downstream of the meter before the first branch off the main line serving the building(s). Outdoor installations require protective enclosures. Inside installations require adequate drains.
- B. **Except for fire systems**, all backflow prevention installations are required to have a strainer installed immediately upstream of the device.

## PART 4 - EXECUTION

### 4.1 PREPARATION

- A. Follow all material storage and handling requirements in accordance with Section 02713, Part 2.
- B. Prior to laying pipe, prepare a suitable bedding according to the standard details and specifications.
- C. Before placing pipe in the trench, remove temporary pipe plug, field inspect for cracks or other defect; remove defective pipe from the construction site.
- D. Swab the interior of the pipe to remove all undesirable material.

- E. Prepare the bell end and remove undesirable material from the gasket and gasket recess.
- F. Locate water lines in relation to other piped utilities.

#### **4.2 INSTALLING WATER LINES**

- A. Install ductile iron pipe (DIP) in accordance with AWWA C600.
- B. Lay all pipe on a uniform grade and with deflections not exceeding the pipe manufacturer's recommendations.
- C. After applying gasket lubricant, take extreme care to keep the spigot end from contacting the ground.
- D. Hone the pipe with suitable tools or equipment to provide a smooth beveled edge on plain end sections or field cut sections.
- E. Closely follow the manufacturer's instruction in laying and joining pipe.
- F. Cut pipe for inserting valves, fittings, etc., in a neat and workmanlike manner without damaging the pipe so as to leave a smooth end at right angles to the axis of the pipe.
- G. Cover pipe with a watertight mechanical joint cap or plug during each installation of pipe segment and at conclusion of each day's construction activities.
- H. The location of all water mains installed under these specifications shall be marked by the use of a continuous blue tape, minimum three inches in width, made of minimum 5 mil thick polyethylene plastic with a 0.5 mil thick aluminum metallic core or backing. The tape shall be buried in the trench, above the pipe, no more than two feet below the surface. The tape shall be marked indelibly with the words "Water Main Below" or similar wording to warn unwary excavators.
- I. An insulated minimum 12-gauge solid copper-coated steel tracer wire shall also be installed in the ditch immediately along the water line, either attached to or periodically wrapped around the line. Wire shall have HDPE insulating jacket. Care shall be taken to ensure the buried wire is not broken. The wire shall be branched off at intervals of 500' ± to connect to hydrants, valve boxes, or services to allow convenient surface access to the wire for pipe locator connection. Wire shall be terminated (unconnected) with a wire nut and enough "loose" wire to extend 24 inches outside the valve box. Tracer wire shall be installed on all water mains including ductile iron water main.

- J. The Contractor shall stamp the concrete curb with a “W” where water services are located. The end of each service stub shall be marked with a 6-foot long 4x4 wooden post or metal fence post embedded 2 feet in the ground and be marked with blue paint.
- K. Installing Crosslinked polyethylene (PEXa) municipal water service pipe: Follow manufacturer’s installation guide for handling pipe on the jobsite, preparing the trench, making connections, placing the pipe, and backfilling the trench. Install with tracer wire per Subpart 4.2 I of this specification.
- L. Installing HDPE Water Lines (directional drilling applications):
  - 1. HDPE pipe shall be assembled utilizing field-site butt fusion joints.
  - 2. Personnel performing butt fusion joining shall be certified by pipe manufacturer.
  - 3. Each piece of pipe must be held by a clamping device so it will not move.
  - 4. Pipe ends shall be faced to establish clean mating surfaces.
  - 5. Pipe profiles must be rounded and aligned with each other to prevent mismatch of pipe walls.
  - 6. Heat the ends of the pipe to the pipe manufacturer’s recommended temperature, interface pressure, and time duration.
  - 7. Keep heater faces clean to prevent molten plastic from sticking to the heater faces.
  - 8. After heating, remove heater tool and bring molten pipe ends together with sufficient pressure to form a homogenous joint.
  - 9. Hold the molten joint immobile under pressure until cooling has occurred and joint achieves strength.
  - 10. Test line per the requirements of this Section.

#### **4.3 SEPARATION OF WATER AND SEWER LINES**

- A. Maintain a 10-foot horizontal separation, measured edge to edge, between any new or proposed water main and any existing or proposed sanitary sewer.
- B. Where conditions cause the required horizontal separation to be impractical, the water main may be laid closer provided it is laid in a separate trench and the elevation of the top of the sewer is at least 18 inches below the bottom of the water main.
- C. Where a sewer crosses under a water main, the top of the sewer shall be at least 18 inches below the bottom of the main.
- D. Where conditions cause the required vertical separation to be impractical, the water main shall be relocated to provide the required separation or else reconstructed with mechanical joint ductile iron pipe for a distance of 10 feet on each side of the sewer with a full joint of the water main centered over the sewer.

- E. Where sewers must be constructed over water mains or less than 18 inches below the water main, the sewer shall be designed and constructed equal to water main standards and pressure tested to assure water tightness.
- F. Additional protection such as concrete encasement shall be installed where directed by the Engineer.

#### **4.4 INSTALLING APPURTENANCES**

- A. Set all valves, fittings, hydrants, and other special fittings in a neat workmanlike manner. Tapping valves are to be supported with blocking and surrounding bedding carefully compacted to prevent settlement.
- B. Use thrust blocks, pipe anchors, or other approved means to prevent displacement of other fittings as shown on the Project Documents. Do not allow concrete to cover nuts and bolts on fittings. Gate valves on fire hydrant leads are to be restrained or blocked independently of the hydrant blocking so that the hydrant may be excavated and removed with the valve closed. Mechanical restraint is to be by the use of MegaLug devices or other similar devices. Underground use of galvanized all thread rod is not allowed except unless specifically approved by the Engineer. Fittings for taps made on the reverse side of the main must be restrained joints. All mechanical joints are to be restrained with mechanical joint restraining devices as set forth in Paragraph 3.09. These restraining devices do not eliminate the requirement for sufficient concrete thrust blocking and/or restrained joint pipe.
- C. Erect hydrants to stand plumb with the pumper nozzle facing the road. Nozzles shall be installed a minimum of 18 inches above bury line.
- D. Enhance drainage of hydrants by using 6 cubic feet of gravel around base of hydrant. Do not allow concrete thrust block to obstruct drain holes.
- E. Close dead end pipe with a mechanical joint solid sleeve and plug, and equip with blow-off assemblies, where shown on the drawings.

#### **4.5 CONNECTING NEW SYSTEM TO EXISTING SYSTEM**

- A. Initial filling of the new line shall be made at only one point and shall be via a metered backflow prevention assembly (large sizes may not be metered at option of City), installed by the Contractor, and then removed by the Contractor and returned to the City after acceptance of the line. The Contractor is responsible for providing all necessary sleeves, reducers, or other fittings to install and remove the backflow assembly from the main.

- B. All connection of new main extensions to existing systems shall be valved to prevent existing customers from being included in the new system area during testing and disinfection procedures.
- C. Connections of new mains to existing mains shall normally be made by the use of a tapping valve in order to avoid disrupting service to existing customers.
- D. Any wet connections involving the shutdown of existing system valves shall be specifically approved by and coordinated with the Engineer's Office. Such coordination shall include the responsibility of the Contractor in notifying affected customers and scheduling shutdowns to minimize customer inconvenience. An authorized shutdown shall not relieve the Contractor from liabilities resulting from shutdowns such as damaged water heaters, discolored water, etc. The turning of valves shall be scheduled with the City's representative.
- E. Manipulation of valves for filling or flushing lines shall be minimized to avoid accumulations of air and discolored water in the affected areas. No water valves shall be operated by anyone other than HCWD personnel.
- F. Once new systems are fully activated, following disinfection, flushing and testing, the Contractor shall inspect each valve that has been installed or manipulated to ensure that all valves are in fully open position.
- G. The Contractor will be charged for the consumption volume of water by flushing, filling, leaks, etc. that exceeds twice the volume of the installed pipe.

#### **4.6 HIGHWAY AND RAILROAD CROSSINGS**

- A. Perform highway crossings by the open cut method, unless otherwise shown on the Drawings or required by the appropriate authorities.
- B. Boring and jacking, tunneling, or horizontal directional drilling of crossings, if necessary, will be performed in accordance with the appropriate specification sections.

#### **4.7 WATER LINE PRESSURE TEST**

- A. All newly laid pipe or any valved section thereof shall be subjected to hydrostatic pressure testing. Conduct hydrostatic testing in accordance with AWWA C600 for ductile iron pipe or AWWA C605 for PVC pipe.
- B. Where practicable, pipelines shall be tested in lengths between line valves or plugs of no more than 3,000 feet.

- C. Hydrostatic testing shall be conducted only with potable water. Due to the inherent safety hazard potential associated with testing components and systems with compressed air or other compressed gases, pressure testing shall never be accomplished using compressed air.
- D. The Contractor shall furnish all gauges, recording devices, meters, pumps, pipe, connections and other equipment required to conduct the test and shall maintain said equipment in condition for accurate testing as determined by the Owner. Gauges used for pressure tests shall be oil-filled gauges.
- E. Hydrostatic test results shall be recorded on an appropriate chart recorder. The Contractor shall furnish a recording gauge and water meter for recording pressure charts and for measuring makeup water used during the hydrostatic testing. Recording pressure charts shall be submitted to the Owner at the conclusion of testing. The pressure recording device shall be suitable for outside service, with a range from 0–300 psig, 24-hour spring wound clock, designed for 9-inch charts, and shall be approved by the Engineer. For Contractor's information only, such pressure recording devices may be available from Foxboro Company, Foxboro, Massachusetts; Bristol Division of ACCO, Waterbury, Connecticut; or Weksler Instruments Corporation, Freeport, New York.
- F. Prior to testing, the Contractor shall place sufficient backfill to prevent pipe movement. When local conditions require that the trenches be backfilled immediately after the pipe has been laid, the testing may be carried out after backfilling has been completed but before placement of permanent surfacing. The Contractor shall ensure that thrust blocking or other types of restraining systems will provide adequate restraint prior to pressurizing the pipeline.
- G. Cross Connection Control: When existing water mains are used to supply test water, they should be protected from backflow contamination by temporarily installing a double check valve assembly between the test and supply main or by other means approved by the Engineer. Prior to pressure and leakage testing, the temporary backflow protection should be removed and the main under test isolated from the supply main.
- H. Test Pressure Requirements:
  - 1. The test pressure shall not be less than 1.25 times the stated working pressure of the pipeline measured at the highest elevation along the test section and not less than 1.5 times the stated working pressure at the lowest elevation of the test section, but not greater than 200 psi.
  - 2. The test pressure shall not exceed the thrust restraint design pressure or 1.5 times the pressure rating of the pipe or joint, whichever is less (as specified by the manufacturer).

3. The test pressure shall not exceed the rated working pressure of the valves when the pressure boundary of the test section includes closed, resilient seated gate valves or butterfly valves.
  4. Valves shall not be operated in either direction at a differential pressure exceeding the rated valve working pressure. A test pressure greater than the rated valve working pressure can result in trapped test pressure between the gates of a double-disc gate valve. For tests exceeding the rated valve working pressure, the test setup should include a provision, independent of the valve, to reduce the line pressure to the rated valve working pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or the valve can be fully opened if desired.
- I. Test Procedure:
1. Each valved section of pipeline shall be slowly filled with potable water using a metered backflow-protected assembly. When venting air from pipelines, it is important to limit the pipeline fill rate to avoid excessive surge pressures when the water reaches the air venting opening(s).
  2. Before applying the specified test pressure, air shall be expelled completely from the pipeline section under test. If permanent air vents are not located at all high points, corporation cocks shall be installed at such points to expel air as the line is filled with water. After all the air has been expelled, close the corporation cocks and apply the test pressure. At the conclusion of the pressure test, remove the corporation cocks and plug or leave in place at the discretion of the Engineer.
  3. The specified test pressure shall be applied using a suitable pump connected to the pipeline in a manner satisfactory to the Engineer. The specified test pressure shall be based on the elevation of the lowest point of the pipeline or section under test and corrected to the elevation of the test gauge, in accordance with test pressure requirements specified herein.
  4. The pipeline shall be allowed to stabilize at the test pressure before conducting the hydrostatic test. This may require several cycles of pressurizing and bleeding trapped air prior to beginning the test. It is recommended that the line remain pressurized for a minimum of 24 hours before testing in order for joints to tighten and pockets of air to dissolve in the water.
  5. The hydrostatic test shall be at least 2 hours in duration after reaching the specified test pressure where joints are exposed and at least 8 hours where joints are covered.
  6. The test pressure shall not vary by more than +/- 5 psi for the duration of the test. Test pressure shall be maintained within this tolerance by adding makeup water through the pressure test pump into the pipeline. The amount of makeup water added shall be accurately measured (in gallons per hour) by suitable methods and shall not exceed the applicable testing allowance as specified herein.

J. Visual Inspection:

Any exposed pipe, fittings, valves, hydrants and joints shall be examined carefully during the hydrostatic pressure test. Any damaged or defective materials that are discovered during or following the pressure test shall be repaired or replaced at the Contractor's expense, and the test shall be repeated until satisfactory results are obtained. Water main repair and replacement shall be in accordance with Subpart 4.7 L.

K. Testing Allowance:

1. Testing allowance shall be defined as the maximum quantity of makeup water that is added into a pipeline undergoing hydrostatic pressure testing, or any valved section thereof, in order to maintain pressure within +/- 5 psi of the specified test pressure (after the pipeline has been filled with water and the air has been expelled).
2. No pipe installation will be accepted if the quantity of makeup water is greater than that determined by the following formula:

$$\frac{L = S * D * (P)^{1/2}}{148,000}$$

Where:

L = testing allowance (makeup water), in gallons per hour  
S = length of pipe tested, in feet

D = nominal diameter of the pipe, in inches

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

3. This formula is based on a testing allowance of 10.5 gpd/mile/inch of nominal diameter at a pressure of 150 psi. Values of testing allowance at various pressures are shown in the following table. When testing against closed metal-seated valves, an additional testing allowance per closed valve of 0.0078 gal/hr/inch of nominal valve size shall be allowed. When hydrants are in the test section, the test shall be made against the main valve of the hydrant.



Hydrostatic Testing Allowance per 1,000 feet of pipeline (gallons per hour)*											
Average Test Pressure (psi)	Nominal Pipe Diameter (inches)										
	4	6	8	10	12	14	16	18	20	24	30
250	0.43	0.64	0.85	1.07	1.28	1.50	1.71	1.92	2.14	2.56	3.21
225	0.41	0.61	0.81	1.01	1.22	1.42	1.62	1.82	2.03	2.43	3.04
200	0.38	0.57	0.76	0.96	1.15	1.34	1.53	1.72	1.91	2.29	2.87
175	0.36	0.54	0.72	0.89	1.07	1.25	1.43	1.61	1.79	2.15	2.68
150	0.33	0.50	0.66	0.83	0.99	1.16	1.32	1.49	1.66	1.99	2.48
125	0.30	0.45	0.60	0.76	0.91	1.06	1.21	1.36	1.51	1.81	2.27
100	0.27	0.41	0.54	0.68	0.81	0.95	1.08	1.22	1.35	1.62	2.03
75	0.23	0.35	0.47	0.59	0.70	0.82	0.94	1.05	1.17	1.40	1.76
50	0.19	0.29	0.38	0.48	0.57	0.67	0.76	0.86	0.96	1.15	1.43

*\*If the pipeline under test contains sections of various diameters, the allowable leakage will be the sum of the computed leakage for each size.*

- L. Acceptance of the installation shall be determined on the basis of testing allowance only. Should any test of pipe laid disclose leakage greater than that specified, the Contractor shall, at his own expense, locate and repair the defective joints until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the allowance used for testing. Hydrostatic test results shall be recorded on an appropriate chart recorder as specified herein. A copy of the test chart shall be provided to the Engineer.
  
- M. To repair or replace damaged or defective water main pipe, the Contractor shall maintain positive pressure on the main (valves left partially open) while he excavates around and under (2' clearance) the pipe so that water can be pumped out of the excavation pit before it enters the newly constructed main during the repair process. Contractor shall have adequate pumping capacity to prevent any trench water or debris from entering the main during this process. The interior of all pipe and fittings shall be sprayed with a 1% hypochlorite solution before they are installed in the repair process. To produce this one percent hypochlorite solution, one gallon of 5% hypochlorite bleach can be diluted with four (4) gallons of water. Flooding or contamination of the main during this process shall invoke Paragraph 2.5 of Section 02713.

## STANDARD OPERATION PROCEDURES FOR WATER MAIN DISINFECTION

### 4.8 CLEANING AND DISINFECTING OF WATER LINES

- A. Disinfection Tests: Conduct disinfection tests in accordance with AWWA C-651.
  - 1. During construction, take precautions to protect pipe interiors, fittings, and valves against contamination. Follow all Material Storage and Handling Requirements in Section 02713 Part 2.
  - 2. All chlorine products shall be NSF approved chlorine. Pool chlorine products shall not be used.
  - 3. The Granular Method shall be used as the standard disinfection method on all newly installed pipelines unless prior approval for the continuous feed or slug method is obtained from the Engineer or his representative.
  - 4. Granular Method (Standard Method):
    - a) Chlorine product shall be OxyChem ACL 60 Disinfecting Granules (sodium dichloroisocyanurate) with approximately 62% available chlorine or approved equal.
    - b) Place granular chlorine in the pipe at the beginning of the line, beginning of each branch line, and at 500-foot intervals (every 25 pipe joints).
    - c) Place enough granular chlorine in the pipe to achieve a 25 ppm dosage in the pipeline. Contractor shall obtain granular chlorine in pre-measured bottles from the HCWD to ensure proper dosage is achieved (see Table I).
    - d) Slowly fill the pipeline with water and eliminate all air pockets. Hold the disinfection solution in the pipeline for 24 hours.
    - e) Flush thoroughly to clear the strong chlorine solution from the pipelines before bacteriological sampling (see Item 8 of this section).

TABLE I - GRANULAR METHOD	
GRANULAR CHLORINE DOSE SIZE FOR 500 FT OF PIPE AT 25 PPM (MG/L)	
Pipe Diameter (in)	Dose Size (oz)
2	0.5
4	2
6	4
8	7
10	11
12	16
16	28
24	63
30	99
36	142

5. Continuous Feed Method (Special Approval Required):
  - a) Granular chlorine may be placed (optional) in the pipeline during construction (see Granular Method).
  - b) Thoroughly flush the pipeline to remove all sediments and air pockets.
  - c) Add a continuous dose of chlorine while flowing water slowly into the new main until a 25 ppm chlorine concentration is reached throughout the new pipelines. Contractor shall use Sodium Hypochlorite to obtain the 25 ppm dosage (see Table II for total amount of Sodium Hypochlorite to be fed to establish 25 ppm dosage for 500 feet of pipe). In the alternative, granular chlorine can be mixed to obtain the 25 ppm concentration (see Table I for total amount of granular chlorine to be fed to establish 25 ppm concentration for 500 feet of pipe). Measure the chlorine residual at various locations to confirm proper residual has been achieved.
  - d) Hold the disinfection solution in the lines for 24 hours and confirm that the chlorine residual is at least 10 ppm after 24 hours.
  - e) Flush thoroughly to clear the strong solution from the pipelines before bacteriological sampling (see Subpart 4.8 A.8.)

<b>TABLE II – CONTINUOUS FEED METHOD</b>			
<b>SODIUM HYPOCHLORITE DOSE SIZE FOR 500 FT OF PIPE AT 25 PPM (MG/L)</b>			
<b>Pipe Diameter (in)</b>	<b>Sodium Hypochlorite Volume (gal)</b>		
	<b>5.0%</b>	<b>6.15%</b>	<b>10.0%</b>
2	0.04	0.03	0.02
4	0.16	0.13	0.08
6	0.37	0.30	0.18
8	0.65	0.53	0.33
10	1.0	0.83	0.51
12	1.5	1.2	0.73
16	2.6	2.1	1.3
24	5.9	4.8	2.9
30	9.2	7.5	4.6
36	13.2	10.7	6.6

6. Slug Method (Special Approval Required):
  - a) Granular chlorine may be placed (optional) in the pipeline during construction (see Granular Method).
  - b) Thoroughly flush the line to remove all sediments and air pockets.
  - c) Admit water to the new main very slowly and dose with enough chlorine to produce a residual of at least 100 ppm. Contractor shall use Sodium Hypochlorite or granular chlorine according to Table III to obtain the 100 ppm concentration. The objective is to produce a column of 100 ppm chlorine solution which will move slowly as a slug through the new pipeline. The column or slug of highly chlorinated water must be long enough to contact all surfaces of the pipe interior for at least 3 hours. Measure chlorine residuals in the slug as it moves down the pipeline. The residual must be maintained over 50 ppm.
  - d) For emergency line repair situations only, to be performed only by, or in the presence of, authorized City personnel, and where no service connections exist, the standard 100 ppm concentration can be substituted for a 300 ppm solution and the contact time can be reduced from the standard 3 hours to 15 minutes. Table IV indicates the Sodium Hypochlorite and granular chlorine dose sizes to be used for this method. Refer to Paragraph 4.08B for appropriate situations and procedures.
  - e) Flush thoroughly to clear the strong chlorine solution from the pipelines before bacteriological sampling.

<b>TABLE III – SLUG METHOD</b>				
<b>CHLORINE DOSE SIZE FOR 500 FT OF PIPE AT 100 PPM (MG/L)</b>				
<b>Pipe Diameter (in)</b>	<b>Sodium Hypochlorite Volume (gal) (oz. of weight)</b>			<b>Granular Chlorine</b>
	<b>5.0%</b>	<b>6.15%</b>	<b>10.0%</b>	<b>62%</b>
2	0.2	0.1	0.1	2.1
4	0.7	0.5	0.3	7.1
6	1.5	1.2	0.7	16
8	2.6	2.1	1.3	28
10	4.1	3.3	2.0	44
12	5.9	4.8	2.9	63
16	10	8.5	5.2	112
24	23	19	12	253
30	37	30	18	395
36	53	43	26	569

<b>TABLE IV – SLUG METHOD</b>				
<b>CHLORINE DOSE SIZE FOR 500 FT OF PIPE AT 300 PPM (MG/L)</b>				
<b>Pipe Diameter (in)</b>	<b>Sodium Hypochlorite Volume (gal) (oz. of weight)</b>			<b>Granular Chlorine</b>
	<b>5.0%</b>	<b>6.15%</b>	<b>10.0%</b>	<b>62%</b>
2	0.5	0.4	0.2	6.3
4	2.0	1.6	1.0	21
6	4.4	3.6	2.2	48
8	7.8	6.4	3.9	84
10	12	10	6.1	132
12	18	14	8.8	190
16	31	25	16	336
24	70	57	35	758
30	110	90	55	1185
36	159	129	79	1706

7. While chlorine is being applied, do not manipulate valves so that the treatment dosage will not flow back into the line that is supplying the water. Continue application of chlorine until the entire line being treated is filled with the chlorine solution.
8. Final Flushing: Conduct final flushing in accordance with AWWA C651.
  - a) After applicable retention period, flush heavily chlorinated water from the line until chlorine concentration in water leaving the main is no higher than that generally prevailing in the system, or less than 2 mg/l. Unless special approval is obtained from Engineer, all water shall be flushed through de-chlorinating diffusers rated to remove the appropriate chlorine concentration (Arden Industries' Bazooka with Liquid Calcium Thiosulfate Feed or pre-approved equal). The City may, at its option, provide such devices to the

Contractor while the line is flushed. The Contractor must contact the Inspector prior to flushing any water from the newly constructed line. The Inspector shall provide de-chlorinating diffuser(s) to the Contractor before flushing. If no diffusers are available through the city, the Contractor shall be required to provide diffusers. The Inspector shall approve the flushing location. The Inspector shall also check the chlorine level in the main before final flushing. If the residual chlorine level is out of the effective range of the de-chlorinating diffuser, the Inspector shall require the Contractor to wait until the residual level has dropped to within the range of the de-chlorinating diffuser before flushing.

- b) In the alternative, but only with special approval from the Engineer, neutralizing chemicals may be applied externally as the water reaches the ground. Perform such flushing only at sites where Engineer has approved. If no approved point of discharge is available, neutralizing chemicals must be applied to the water in order to neutralize the chlorine residual. The amount of chemicals required to neutralize various residual chlorine concentrations in 100,000 gallons of water are shown in Table V.
- c) Flushing Velocity: The velocity of water used to flush the line shall be at least 2 fps. The flow rates required to produce this velocity varies depending on pipe diameter. To approximate this velocity; refer to Table VI to select the proper number of taps or 2-½" Fire Hydrant Nozzles to open at the end of the line.
- d) Minimum Flushing Time: At minimum, the line shall be flushed to remove two complete volumes of water through the newly constructed pipeline, approximately 7 minutes per 500 ft. The Disinfection, Flushing, and Pressure Testing Worksheet presents the minimum flushing time for various lengths of pipe.
- e) Additional Flushing: After flushing pipe for minimum time specified in Item d, check for trapped air at Air Release Valves, Blow-offs and services at high points. Verify that all mud, air cloudiness, or other discoloration is absent from flushing stream. If such problems exist, continue to flush line until the stream is clear.
- f) Once a line has been flushed, test to make certain that the residual chlorine in the water is within acceptable limits.
- g) It must be noted that flushing is no substitute for taking preventative measures before and during the laying of water lines. Certain contaminants – especially those in caked deposits – are difficult or even impossible to remove by flushing, no matter how high the velocity. Furthermore, in pipe with diameters of 16" or more, it can be difficult to achieve even the minimum recommended flushing velocity of 2.5 fps.

Residual Chlorine Concentration (mg/L)	Sulfur Dioxide (SO <sub>2</sub> ) lb	Sodium Bisulfite (NaHSO <sub>3</sub> ) lb	Sodium Sulfite (Na <sub>2</sub> SO <sub>3</sub> ) lb	Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ·5H <sub>2</sub> O) lb
1	0.08	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
3	8.3	12.5	14.6	12.0
4	41.7	62.6	73.0	60.0

Pipe Diameter (in)	Number of 1" Taps	Number of 2" Taps	Number of 2-1/2" FH Nozzles
2	1	---	---
4	1	1	1
6	---	1	1
8	---	1	1
10	---	2	1
12	---	2	2
16	---	4	2
24	---	-	4
30	---	---	6
36	---	---	8

9. Bacteriological Testing:  
**Contractor to coordinate with City's Water Personnel regarding the bacteriological testing and procedure.**

**Section B and C below are for Authorized City Personnel or Contractors working under direct supervision of Authorized City Personnel.**

- B. Positive Pressure Method:
  1. Contact 811 to have all other utilities located; notify Service Department and Water Treatment Plant of areas affected.
  2. All attempts will be made to repair line under "wet" conditions to avoid or eliminate possible contaminants from entering the system.
  3. Close nearest isolation valves on the downstream side of the leak. Reduce the flow from the upstream side of the leak by throttling back the remaining valve, leaving positive pressure on the line. **DO NOT OPEN ANY FIRE HYDRANTS TO REDUCE LINE PRESSURE PRIOR TO OPENING THE TRENCH TO A DEPTH OF AT LEAST 18-INCHES BELOW THE LINE.** This will prevent contaminants from entering the system. Complete the repair trench excavation.

4. After excavation of the repair trench is complete (to a depth of at least 18-inches below the line) close the remaining valve after removing the standing water to fully expose the pipe 360 degrees. Treat any standing water now remaining in the repair trench with ½ oz. of Granular Chlorine (62% purity) for every one hundred gallons of trench water to achieve a 25-ppm solution.
  5. To ensure a clean repair, inspect around the pipe in and near the damaged area and remove any debris, soil, or other material from the damaged area. Swab or spray the damaged area of the pipe and interior of all repair clamps or other appropriate devices with a 1% hypochlorite solution (5.2 fluid oz. of 6.15% bleach/quart of water) before installation. Complete the repair.
  6. Open the appropriate valve(s) and flush the water main toward the repair location from both directions if valve and hydrant locations permit. Continue flushing until all discolored water is eliminated and satisfactory chlorine residual is reached.
  7. Before the water main is returned to full service, collect a single water sample at a point nearest the repaired section. If direction of flow can be determined, the sample should be collected from downstream of the break repair. If direction of flow cannot be determined, samples should be collected from above and below the break repair. These samples should be coded "D". This sample is to be delivered as soon as possible to the Water Treatment Plant for bacteriological testing.
  8. Check all valves to insure they have been returned to the open position.
  9. If the test results are negative, the test results will serve as a record of compliance and no future work is required.
  10. Fill out all appropriate forms indicating disinfection procedures.
  11. If the test results are positive, then additional sampling should be undertaken immediately. A total of three (3) additional samples should be taken. The first additional sample should be taken from the original sampling location and the other two additional samples should be taken above and below the original sampling location. These three samples should be coded "R". If all three samples are negative, then no further work is required. If any of the additional samples is positive, then follow the normal repeat monitoring procedure.
- C. Dewatered Method: If it is not possible to maintain positive pressure as stated above and the pipe must be dewatered prior to opening and preparing the repair trench, then the entire section of pipe must be disinfected in accordance with Section 6 of this document (Slug Method), which is derived from Section 4.7.4 of AWWA C651-99.
1. Contact Kentucky One Call to have all other utilities located; notify the Service Department and Water Treatment Plant of areas affected.
  2. Close the nearest isolation valves on all sides of main break.
  3. If there are customers in the isolated area, turn off all services at the lock wing on the meter yokes. Remove the meters. This will prevent the disinfectant from entering the customer's premises.



4. In order to lessen the possibility of additional contaminants from entering the exposed line, after excavation of the repair trench is complete, pump the water down below the main line. Treat the standing water in the repair trench with ½ oz. of granular chlorine for every one hundred gallons of trench water to achieve a 25-ppm solution.
5. Clean the area around the pipe. Swab or spray the interior of all repair pipe and fittings with a 1 percent hypochlorite solution (5.2 fluid oz. of 6.15% bleach/quart of water) before installation.
6. The line should be properly disinfected by the slug method using a chlorine dosage of 100 mg/L and a contact time of at least 3 hours for areas where service connections are present.
7. In areas where no service connections exist the line can be properly disinfected by the slug method using a chlorine dosage of 300 mg/L and a contact time of at least 15 minutes.
8. After the disinfectant has been added to the line by using a sodium hypochlorite solution or calcium hypochlorite granules, an upstream valve should be opened slightly, along with an opened downstream hydrant, to allow air and highly discolored contaminated water to be removed. The slow flowing concentrated slug will gradually move through the pipe allowing all parts to be exposed to the disinfectant.
9. Once the highly discolored contaminated water has been flushed, the valve and flushing hydrant should be closed to allow for the prescribed disinfectant contact time.
10. After the prescribed contact time has been reached, prepare to treat (de-chlorinate) the highly chlorinated water to be flushed from the isolated line if there is a possibility that the discharge will cause any damage to the environment.
11. Open the upstream valve and the downstream hydrant and flush until all discolored water is eliminated, de-chlorinating the discharge if necessary. Test for highly chlorinated water remaining in the line and continue flushing if necessary until elimination is successful and the concentration is no higher than that in the prevailing water in the surrounding area.
12. Before the water main is returned to full service, collect a single water sample at a point nearest the repaired section. If direction of flow can be determined, the sample should be collected from downstream of the break repair. If direction of flow cannot be determined, samples should be collected from above and below the break repair. These samples should be coded "D". This sample is to be delivered as soon as possible to the Water Treatment Plant for bacteriological testing.
13. Open the customer's services at the lock wings and flush the service lines. Reinstall meters.
14. Open the remaining valves in the isolated area.
15. Flush the area again at the highest hydrant in the area to insure the elimination of any discolored water.

16. If the test results are negative, the test results will serve as a record of compliance and no future work is required.
17. Fill out all appropriate forms indicating disinfection procedures.
18. If the test results are positive, then additional sampling should be undertaken immediately. A total of three (3) additional samples should be taken. The first additional sample should be taken from the original sampling location and the other two additional samples should be taken above and below the original sampling location. These three samples should be coded "R". If all three samples are negative, then no further work is required. If any of the additional samples is positive, then follow the normal repeat monitoring procedure.

**END OF SECTION**

U.S. Department of  
Homeland Security

United States  
Coast Guard



Commander  
Eighth Coast Guard District

1222 Spruce Street, Room 2.102D  
St. Louis, MO 63103-2832  
Staff Symbol: dwb  
Phone: (314)269-2382  
Email: rob.e.mccaskeyi@uscg.mil

16591.1/8.61 GRN  
August 12, 2019

**CERTIFIED RECEIPT REQUESTED – CERTIFIED MAIL**

Mr. John Rudd, P.E.  
Kentucky Transportation Cabinet  
District 2  
1840 North Main Street  
Madisonville, Ky.  
42431-5003

Subj: US-60 BRIDGE, MILE 8.61, GREEN RIVER

Dear Mr. Rudd:

Your application requesting approval of the location and plans for a proposed bridge at mile 8.61 over the Green river has been approved. Bridge Permit (2-19-8) dated August 1, 2019 is enclosed.

It is essential that we be kept informed of any events that could affect navigation during construction of the bridge. A representative from your office should be specifically instructed to keep our office informed of the progress of construction with particular reference to any and all events that may have an effect on navigation. The information received regarding the work will be disseminated to mariners by radio and written notices.

Your attention is directed to Condition (2) of the permit that requires plans for cofferdams, temporary causeways, or any other temporary structures that will be placed in the water to facilitate construction of the pier protection cells to be approved by this office. Construction of the pier protection cells must be accomplished with minimal interference to navigation. To this end, construction schedules, plans and erection schemes should be submitted to us at the earliest possible time so that approval can be assured prior to commencing work.

Navigation lights and retro-reflective panels for the bridge are prescribed in enclosure (2a). The lights and reflective panels, prescribed in accordance with Title 33, Code of Federal Regulations, Part 118, shall be installed at the locations and in the manner shown in enclosure (2b), which is a marked-up copy of the permit drawings.

Subj: US-60 BRIDGE, MILE 8.61, GREEN RIVER

16591.1/8.61 GRN

August 12, 2019

Please acknowledge receipt of the Permit. If you have any questions concerning our jurisdiction or requirements, you can contact Rob McCaskey at 314-269-2381.

Sincerely,



ERIC A. WASHBURN  
Bridge Administrator, Western Rivers  
By direction of the District Commander

Enclosure: (1) USCG Bridge Permit (2-19-8), dtd August 1, 2019 w/approved dwgs  
(2) a. Navigation Lights Narrative  
b. Navigation Lighting Scheme

Copy: CDRUSAED Louisville w/o encls  
USCGC OBION w/o encls  
SECTOR OHV w/o encls



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## BRIDGE PERMIT

(2-19-8)

---

AUG 1 2019

**WHEREAS** by Title V of an act of Congress approved August 2, 1946, entitled "General Bridge Act of 1946," as amended (33 U.S.C. 525-533), the consent of Congress was granted for the construction, maintenance and operation of bridges and approaches thereto over the navigable waters of the United States;

**AND WHEREAS** the Secretary of Homeland Security has delegated the authority of Section 502(b) of that act to the Commandant, U.S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

**AND WHEREAS** before construction is commenced, the Commandant must approve the location and plans of any such bridge and may impose any specific conditions relating to the construction, maintenance and operation of the structure deemed necessary in the interest of public navigation, such conditions to have the force of law;

**AND WHEREAS** the Commandant of the Coast Guard has further delegated to the District Commanders, by Section 1.01-60(b) of Title 33, Code of Federal Regulations, authority to issue permits of the construction, reconstruction, or alteration of bridges across navigable waters of the United States.

**AND WHEREAS** the - STATE OF KENTUCKY - has submitted for approval the location and plans of a bridge to be constructed across the Green River near Spottsville, Kentucky;

**NOW THEREFORE**, This is to certify that the location and plan sheets 1-4 dated January 14, 2019 are hereby approved by the Commander, Eighth Coast Guard District subject to the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structure unless the modification of said plans has previously been submitted to and received the approval of the District Commander.

2. The construction of falsework, pilings, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the District Commander prior to construction of the bridge. All work shall be so conducted that the free navigation of the waterway is not unreasonably interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during construction of the bridge. The channel or channels through the structure shall be promptly cleared of all obstructions placed therein or caused by the construction of the bridge to the satisfaction of the District Commander, when in the judgment of the District Commander the construction work has reached a point where such action should be taken, but in no case

Continuation Sheet

Bridge across the Green River  
near Spottsville, Kentucky

BRIDGE PERMIT

P(2-19-8)

later than 90 days after the bridge has been opened to traffic.

3. Issuance of this permit does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of any federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge.

4. A bridge fendering system shall be installed and maintained in good condition by and at the expense of the owner of the bridge when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.

5. All parts of the existing to-be-replaced US 60 Highway Bridge across the Green River, mile 8.60, not utilized in the new bridge, which are located within the waterway shall be removed down to, or below, 325.6 feet NGVD29.

6. When the proposed bridge is no longer used for transportation purposes, it shall be removed in its entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridge upon due notice from the District Commander.

7. The approval hereby granted shall cease and be null and void unless construction of the bridge is commenced within three years and completed within five years after the date of this permit.



Paul F. Thomas  
Rear Admiral U.S. Coast Guard  
Commander, Eighth Coast Guard District

## NAVIGATION LIGHTS FOR US 60 BRIDGE MILE 8.61, GREEN RIVER

The center the channel spans shall be marked by a range of two green lights. Each green light shall show through a horizontal arc of 360 degrees and shall be securely mounted just below the outermost edge of the bridge span structure in line with the axis of the channel. The green lights shall be mounted so as to be visible from an approaching vessel.

The upstream and downstream sides of the right descending channel margin and margin of the left descending channel shall be marked with red lights. Each red light shall show through a horizontal arc of 180 degrees and shall be securely mounted on the pier as low as practicable but no lower than two feet above navigable high water to show 90 degrees on either side of a line parallel to the axis of the channel so as to be visible from an approaching vessel.

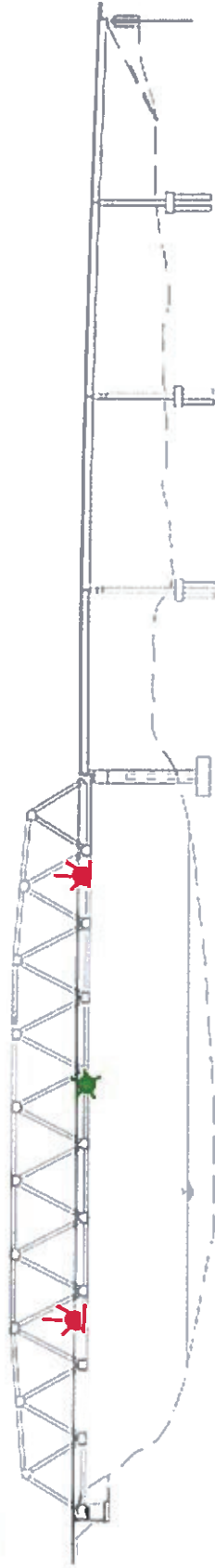
The upstream and downstream sides of the navigation channel shall be marked with red, high intensity grade, retro-reflective square panels which measure two feet per side. These retro-reflective panels should be placed near the red lights, without obstructing them, so as to effectively reflect the searchlight of an approaching vessel.

The lights and retro-reflective panels prescribed above shall be displayed from sunset to sunrise each night of the year and at other times when the visibility is less than one mile. The lights shall be of sufficient candlepower as to be visible against the background lighting at a distance of at least 2,000 yards 90% of the nights of the year.

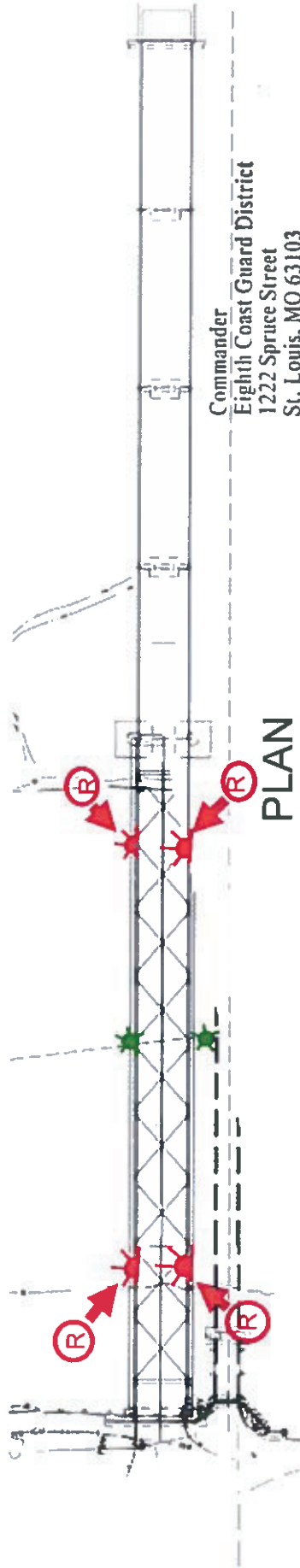
Responsibility of the owner does not cease upon installation of the prescribed lights and retro-reflective panels. Provisions for maintaining all lights and panels prescribed herein should be included in the planning for initial installation. A continuing program of inspection and maintenance is necessary to insure that the lights and reflectors are properly displayed.



# NAVIGATION LIGHTING PLAN US 60 BRIDGE MILE 8.61, GREEN RIVER



ELEVATION



PLAN

### MARKING/LIGHTING LEGEND

-  = 360 DEGREE GREEN CHANNEL CENTER LIGHT
-  = 180 DEGREE RED MARGIN OF CHANNEL LIGHT AND PIER PROTECTION CELL LIGHTS
-  = RED RETRO-REFLECTIVE PANEL

Commander  
Eighth Coast Guard District  
1222 Spruce Street  
St. Louis, MO 63103

Navigation lights and/or other signals  
Prescribed per Title 33 CFR Part 118

*5/27/19*  
(Date)

ERIC A. WASIBURN  
Bridge Administrator

US 60 BRIDGE  
MILE 8.61, GREEN RIVER  
SPOTTSVILLE, KENTUCKY





MATTHEW G. BEVIN  
GOVERNOR

CHARLES G. SNAVELY  
SECRETARY

**ENERGY AND ENVIRONMENT CABINET**  
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

AARON B. KEATLEY  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

August 16, 2017

David Waldner  
Kentucky Transportation Cabinet (KYTC)  
200 Mero St  
Frankfort, KY 40622

Re: Letter of Permission No.: 2017-048-7  
AI No.: 134238; Activity ID: APE20170001  
KYTC Item No.: 02-1080  
USACE ID No.: LRL-2017-561-LET  
Green River and Unnamed Tributaries  
Henderson County, Kentucky

Dear Mr. Waldner:

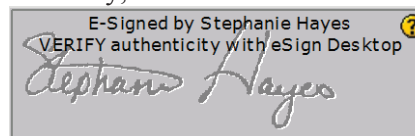
This letter transmits to you a copy of our General Water Quality Certification for the Letter of Permission Authorizing Transportation Projects for the Kentucky Transportation Cabinet – US 60 Bridge Replacement in Henderson County, Kentucky, in accordance with plans included in the amended “Application for Permit to Construct Across or Along a Stream and/or Water Quality Certification” received June 30, 2017 and the additional information received via email on July 20, 2017 and July 21, 2017 including temporary impacts to 50 linear feet of perennial stream and permanent impacts to 211 linear feet of intermittent stream, 1,172 linear feet of ephemeral stream, and 1.7 acre of wetland.

An individual Water Quality Certification is not necessary for this activity provided that this project has satisfied the Transportation Letter of Permission from the U.S. Army Corps of Engineers (Letter of Permission for Transportation Projects, Corps ID No. LRL-2006-259, issued October 03, 2007 and revised October 28, 2010) and all conditions of the attached General Water Quality Certification - Letter of Permission Authorizing Transportation Projects are met.

Although an Individual WQC is not needed, other permits from the Division of Water may be required. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) stormwater permit shall be required from the Surface Water Permits Branch. This permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include erosion prevention and sediment control measures. Contact: Surface Water Permits Branch (SWPB) Support (502-564-3410 or [SWPBsupport@ky.gov](mailto:SWPBsupport@ky.gov))

All future correspondence on this project must reference **AI No. 109456**. If you should have any questions concerning this letter, please contact Samantha Kaiser of my staff, at (502) 782-6995 or [Samantha.Kaiser@ky.gov](mailto:Samantha.Kaiser@ky.gov).

Sincerely,



**Stephanie Hayes, Supervisor**  
Water Quality Certification Section  
Kentucky Division of Water

Attachment

cc: Tyler Reynolds, KYTC: Frankfort (via email: Tyler.Reynolds@ky.gov)  
Danny Peake, KYTC: Frankfort (via email: Danny.Peake@ky.gov)  
Dave Harmon, KYTC: Frankfort (via email: Dave.Harmon@ky.gov)  
Layna Thrush, USACE: Louisville (via email: Layna.E.Thrush@usace.army.mil)  
Lee Andrews, USFWS: Frankfort (via email: Teresa\_Hyatt@fws.gov)  
Joanna Ashford, Green and Tradewater River Basin Coordinator (via email: Joanna.Ashford@ky.gov)



**Matthew G. Bevin**  
Governor

**Charles G. Snavely**  
Secretary

**ENERGY AND ENVIRONMENTAL PROTECTION CABINET**

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

200 FAIR OAKS LANE

FRANKFORT, KENTUCKY 40601

[www.kentucky.gov](http://www.kentucky.gov)

**General Certification -- Letter of Permission Authorizing Transportation  
Projects (LRL-2006-259-pgj- Date: 28 Oct 2010)**

This general certification is issued February 26, 2016, by the Kentucky Division of Water, 401 Water Quality Certification Program in conformity with the requirements of Sections 301, 302, 304, 306 and 401, as amended (33 U.S.C. §1341), of the Clean Water Act, as well as Kentucky Statute KRS 224.16-050 and Kentucky Administrative Regulations Title 401, Chapter 9 and 10.

For this and all general permits, the definition of surface water is as per 401 KAR 10:001 Chapter 10, Section 1(80): Surface Waters mean those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered surface waters of the commonwealth.

In addition to all the restrictions and conditions of the U.S. Army Corps of Engineers, Louisville District Letter of Permission Issuance (LRL-2006-259-pgj) hereby incorporated into this general certification (included herein), the following 401 Water Quality Certification criteria applies to all transportation projects certified under a Certified Letter of Permission issued by the Kentucky Division of Water, 401 Water Quality Certification Program:

1. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified by the Kentucky Division of Water as Outstanding State or National Resource Water, Cold Water Aquatic Habitat, or Exceptional Water.
2. The activity will not qualify for this general certification if it is proposed to occur within surface waters of the Commonwealth identified as perpetually-protected (e.g. deed restriction, conservation easement) stream and/or wetland mitigation sites permitted by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

## Certification of Transportation Letter of Permission

### Page 2

3. The Kentucky Division of Water may require an individual certification for any project if the project is likely to have adverse impacts to water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.
4. Activities qualifying for coverage under this General Water Quality Certification are subject to the following conditions:
  - The proposed relocation of an existing stream or channel will be designed and constructed to ensure the stability of the relocated stream or channel. Stream habitat enhancements, such as bioengineering methods and/or best management practices for protecting water quality will be considered, on a case-by-case basis, during the design process. Documentation must be provided if stream habitat enhancements will not be used for the proposed stream relocation.
  - Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that state water quality are maintained (401 KAR Chapter 10).
  - Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without notifying the Kentucky Division of Water. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities.
  - Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
  - Removal of riparian vegetation in the right-of-way shall be limited to that necessary.
  - To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions.
  - Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it should be performed in low-flow or no-flow instances or in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation.

**Page 3**

- Fill shall not be of such composition that it will adversely affect the biological, chemical, or physical properties of the receiving waters and associated water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement.
- If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the public supply system when such work will be done.
- Should evidence of stream and/or wetland pollution impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Environmental Response Team (ERT) shall be notified immediately by calling 1-800-928-2380 or 502-564-2380.

This general certification does not have an expiration date, however if the need for changes develop or if the U.S. Army Corps of Engineers, Louisville District makes modifications to the Letter of Permission (LRL-2006-259-pgj- Date: 28 Oct 2010) then a certification modification may be issued. Non-compliance with the conditions of this general certification or failure to maintain Kentucky state water quality standards may result in civil penalties.

## GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project if the project has been determined to likely have a significant adverse effect upon water quality or degrade the waters of the Commonwealth so that existing uses of the water body or downstream waters are precluded.
2. Nationwide permits issued by the U.S. Army Corps of Engineers for projects in Outstanding State Resource Waters, Cold Water Aquatic Habitats, and Exceptional Waters as defined by 401 KAR 10:026 shall require individual water quality certifications.
3. Projects requiring in-stream stormwater detention/retention basins shall require individual water quality certifications.
4. Erosion and sedimentation pollution control plans and Best Management Practices must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur.
5. Sediment and erosion control measures (e.g., check-dams, silt fencing, or hay bales) shall not be placed within surface waters of the Commonwealth, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, placement shall not be conducted in such a manner that may cause instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control measures shall be removed and the natural grade restored prior to withdrawal from the site.
6. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.
7. To the maximum extent practicable, all in-stream work under this certification shall be performed during low flow.
8. Heavy equipment (e.g. bulldozers, backhoes, draglines, etc.), if required for this project, should not be used or operated within the stream channel. In those instances where such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize re-suspension of sediments and disturbance to the channel, banks, or riparian vegetation.
9. If there are water supply intakes located downstream that may be affected by increased turbidity, the permittee shall notify the operator when work will be performed.
10. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

11. Should stream pollution, wetland impairment, and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling 800/564-2380.



**DEPARTMENT OF THE ARMY**  
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE  
CORPS OF ENGINEERS  
P.O. BOX 59  
LOUISVILLE KY 40201-0059  
FAX: (502) 315-6677  
<http://www.lrl.usace.army.mil/>

August 20, 2019

Regulatory Division  
South Branch (RDS)  
ID No. LRL-2017-00561-ncc

Mr. Roy Collins  
Kentucky Transportation Cabinet  
200 Mero Street  
Frankfort, Kentucky 40622

Dear Mr. Collins:

This is in regard to your application for a Department of the Army (DA) permit concerning a proposal to realign approximately 0.8 miles of US 60 and replace the bridge that carries US 60 over the Green River (Bridge #051-0060-B00015N, KYTC Item No. 2-1080). The proposed project is located near Spotsville in Henderson County, Kentucky. We have reviewed your application and have made the following determinations: the work is minor in nature, will not have a significant impact on the environment, and should encounter no opposition.

Based on these determinations, your proposed work satisfies the Letter of Permission criteria, as specified in our regulations. Therefore, you are authorized, in accordance with 33 USC 403, to place fill material into approximately 211 linear feet of intermittent stream, 1,172 linear feet of ephemeral stream, 1.7 acre of forested wetland and temporarily impact 50 feet of perennial stream. This permission is granted with the following Special Conditions:

- a. The project shall be constructed in accordance with the plans included in the August 14, 2019 application for KYTC Item No. 2-1080 and all subsequent information received regarding changes to the original submittal.
- b. To compensate for the removal of potential summer roosting habitat for the Indiana bat and NLEB, the permittee shall comply with the processes identified in the 2015 Interim Programmatic Agreement for Forest Dwelling bats between the FHWA, KYTC and the USFWS Kentucky Field Office.
- c. To minimize potential adverse effects on gray bat foraging habitat, the permittee shall comply with the sediment and erosion control measures outlined in the project's biological



assessment (BA).

- d. To compensate for stream impacts, the Corps will debit 211 AMUs from the Excel Clark Mitigation Bank ledger in the Regulatory In-Lieu Fee and Bank Information Tracking System (RIBITS).
- e. To compensate for wetland impacts, the permittee shall provide a receipt from the Kentucky Stream and Wetland Mitigation Fund for the purchase of 4.1 forested wetland AMUs. AMUs must be purchased prior to the discharge of fill into "waters of the U.S." The Corps ID number LRL-2017-561-ncc must accompany the payment.
- f. To compensate for impacts to Bridge #051-0060-B00015N, the permittee shall comply with the terms and conditions MOA, dated September 29, 2015, between the FHWA, KYTC and KYSHPO.
- g. The time limit for completing the work authorized ends on **August 20, 2024**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.
- h. Upon completion of construction you are to notify the District Engineer. The enclosed Completion Report form must be completed and returned to this office.
- i. You must agree to comply with the enclosed General Conditions.
- j. You must comply with the conditions in the attached permit from the U.S. Coast Guard.

This authorization will be effective as soon as we receive your signed acceptance of these conditions. Please sign and date the duplicate copy of this letter in the space provided and return the signed copy in the enclosed envelope. Note that we also perform periodic inspections to ensure compliance with our permit conditions and appropriate Federal laws.

Copies of this letter will be sent to the appropriate coordinating agencies (see enclosure for addresses).

FOR THE DISTRICT ENGINEER:




Date: 2019.08.20  
13:01:18 -04'00'

David Baldridge  
Chief, South Branch  
Regulatory Division

**Enclosures**

(I accept the conditions of this authorization):

  
\_\_\_\_\_  
Kentucky Transportation Cabinet

  
\_\_\_\_\_  
Date

## COORDINATING AGENCIES

Mr. Duncan Powell  
USEPA, Region 4  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8960

Mr. Lee Andrews  
U.S. Fish & Wildlife Service  
JC Watts Federal Building  
330 West Broadway, Room 265  
Frankfort, KY 40601

Director  
Kentucky Energy & Environment Cabinet  
Division of Water  
300 Sower Boulevard, 3rd Floor  
Frankfort, KY 40601

Mr. Craig Potts  
State Historic Preservation Officer  
Kentucky Heritage Council  
The Barstow House, 410 High Street  
Frankfort, KY 40601

Commissioner  
Kentucky Department of Fish and Wildlife Resources  
#1 Sportsman's Lane  
Frankfort, KY 40601

GENERAL CONDITIONS:

1. Discharges of dredged or fill material into “waters of the U.S.” must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site). In determining the minimal impact threshold, the Districts will consider the direct, secondary, and cumulative impacts of the fill or work and any mitigation measures.
2. The permittee shall provide a mitigation/monitoring plan for impacts resulting from the placement of fill into “waters of the U.S.” in excess of 300 linear feet of intermittent or perennial stream; the filling of greater than 0.10 acre (4,356 sq. feet) of waters of the U.S; or work causing more than minimal effects, to compensate for impacts to the “waters of the U.S.” These impact thresholds are applied for each crossing. When mitigation is required, the permittee will develop the mitigation site concurrently with, or in advance of, the site construction unless the Corps determines on a project specific basis that it is not practical to do so. This will ensure that aquatic functions are not lost for long periods of time (e.g. temporal loss) which could adversely affect water quality and wildlife. The requirement for conservation easements or deed restrictions will be determined on a project specific basis.
3. The permittee shall ensure that sedimentation and soil erosion control measures are in place prior to commencement of construction activities. These measures will remain in place and be properly maintained throughout construction. Sedimentation and soil control measures shall include the installation of straw bale barriers, silt fencing and/or other approved methods to control sedimentation and erosion. Sedimentation and erosion controls will not be placed in “waters of the U.S.” except if specifically approved by the District.
4. The permittee shall ensure that areas disturbed by any construction activity, including channel and stream banks, are immediately stabilized and revegetated with a combination of non-invasive plants (grasses, legumes and shrubs) which are compatible with the affected area and will not compete with native vegetation.
5. The permittee shall ensure that no in-stream construction activity is performed during periods of high stream flow or during the fish spawning season (April 1 through June 30) without first contacting the Kentucky Department of Fish and Wildlife Resources (KDFWR) for their expertise on impacts to the fishery resource. Additionally, the discharge of dredged and/or fill material in known waterfowl breeding and wintering areas must be avoided to the maximum extent practicable.
6. The permittee will ensure that the activity authorized will not disrupt movement of those aquatic species indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's specific purpose is to impound water.

7. The permittee shall ensure that all construction equipment is refueled and maintained on an upland site away from existing streams, drainageways and wetland areas. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.
8. The permittee must comply with any case specific special conditions added by the Corps or by the State Section 401 Water Quality Certification (WQC). The conditions imposed in the State Section 401 WQC are also conditions of this LOP.
9. The permittee shall ensure that no activity authorized by the LOP may cause more than a minimal adverse effect on navigation.
10. The permittee shall ensure proper maintenance of any structure or fill authorized by the LOP, in good condition and in conformance with the terms and conditions of the LOP, including maintenance to ensure public safety. The permittee is not relieved of this requirement if the permitted activity is abandoned, although the permittee may make a good faith transfer to a third party. Should the permittee wish to cease to maintain the authorized activity or desire to abandon it without a good faith transfer, the permittee must obtain a modification to the LOP from the Corps, which may require restoration of the area.
11. The permittee shall not perform any work within any Wild and Scenic Rivers or in any river officially designated as a "study river" for possible inclusion in the system, unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity authorized by the LOP will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal Land Management agency in the area (e.g. U.S. Forest Service, Bureau of Land Management, the National Parks Service, or the U.S. Fish and Wildlife Service).
12. The permittee shall not perform any work under the LOP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. The permittee shall notify the Corps and coordinate the proposed action with the USFWS to determine if any listed species or critical habitat might be affected and/or adversely modified by the proposed work. No activity is authorized under the LOP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. At the direction of the Corps, the permittee shall complete the necessary consultation with the USFWS, satisfying the requirements of Section 7(a)(2) of the Endangered Species Act. The permittee shall not begin work until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Authorization of an activity

under the LOP does not authorize the "take" of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. Fish and Wildlife Service, both lethal and non-lethal "takes" of protected species are in violation of the Endangered Species Act.

Obligations under Section 7 of the Act must be reconsidered by the Corps Districts if (1) new information reveals impacts of the proposed action may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

13. The permittee shall not perform any activity under the LOP which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The permittee must notify the District Engineer if the activity authorized by the LOP may affect any historic properties listed, determined to be eligible or which the permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin construction until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the Kentucky Heritage Council.

If the permittee discovers any previously unknown historic or archaeological remains while accomplishing the activity authorized by the LOP, work must be immediately stopped and this office immediately notified regarding the discovery. The District will initiate the Federal, Tribal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

14. The permittee shall not perform any work under the LOP where the discharge of dredged and/or fill material will occur in the proximity of a public water supply intake.

15. No activity, including structures or work in "waters of the U.S." or discharges of dredged or fill material may consist of unsuitable materials (e.g. trash, debris, car bodies, asphalt, etc.) and that materials used for construction or discharge must be free from toxic pollutants in toxic amounts.

16. The permittee shall, to the maximum extent practicable, design the project to maintain pre-construction downstream flow conditions. Furthermore, the work must not permanently restrict or impede the passage of normal or expected high flows and the structure or discharge of fill must withstand expected high flows. The project must provide, to the maximum extent practicable, for retaining excess flows from the site and for establishing flow rates from the site

similar to pre-construction conditions.

17. The permittee shall ensure that all temporary fills, authorized under the LOP, be removed in their entirety and the affected areas returned to pre-construction elevation.

18. Representatives from the Corps of Engineers and/or the State of Kentucky may inspect any authorized activity or mitigation site at any time deemed necessary to ensure compliance with the terms and conditions of the LOP, Section 401 WQC, and applicable laws.

19. All work authorized by this LOP must be completed within five years after the date of the Corps authorization letter. If you find you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least three months before the expiration date.

20. The permittee, after completion of work under the LOP, shall submit a signed certification letter regarding the completed work and required mitigation, if applicable. The certification letter will include a statement that the work was done in accordance with the LOP authorization including compliance with all general and special conditions and completion of mitigation work.

21. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of the LOP.

22. For Section 10 waters, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

## ***SPECIAL NOTE***

### **Filing of eNOI for KPDES Construction Stormwater Permit**

**County: Henderson**  
**Item No.: 2-1080.00**

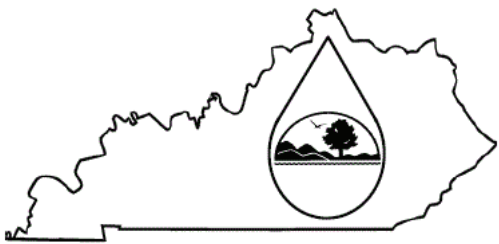
**Route: US 60**  
**KDOW Submittal ID:**  
0f604dcd-901d-4a0a-871a-  
a53665dfc061

**Project Description:** Replace Bridge on US 60 over Green River at Intersection with KY 1078 MP 19.236 to MP 19.444, in Henderson County.

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

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



	<h2 style="margin: 0;">KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)</h2> <p style="margin: 5px 0;">Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000</p> <p style="margin: 5px 0; text-align: center;"> <a href="#">Click here for Instructions (Controls/KPDES_FormKYR10_Instructions.htm)</a> </p> <p style="margin: 5px 0; text-align: center; font-size: small;"> <a href="http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf">Click here to obtain information and a copy of the KPDES General Permit. (http://dep.ky.gov/formslibrary/Documents/KYR10PermitPage.pdf)</a> </p> <p style="margin: 5px 0; text-align: center; font-size: x-small;">                     (*) indicates a required field; (✓) indicates a field may be required based on user input or is an optionally required field                 </p>
---	---

Reason for Submittal:(*) <input type="text" value="Application for New Permit Coverage"/>	Agency Interest ID: <input type="text" value="Agency Interest ID"/>	Permit Number:(✓) <input type="text" value="KPDES Permit Number"/>
--	--	---

If change to existing permit coverage is requested, describe the changes for which modification of coverage is being sought:(✓)

**ELIGIBILITY:**  
 Stormwater discharges associated with construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.

**EXCLUSIONS:**  
 The following are excluded from coverage under this general permit:  
 1) Are conducted at or on properties that have obtained an individual KPDES permit for the discharge of other wastewaters which requires the development and implementation of a Best Management Practices (BMP) plan;  
 2) Any operation that the DOW determines an individual permit would better address the discharges from that operation;  
 3) Any project that discharges to an Impaired Water listed in the most recent Integrated Report, §305(b) as impaired for sediment and for which an approved TMDL has been developed.

**SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)**

Company Name:(✓) <input type="text" value="Kentucky Transportation Cabinet - District 2"/>	First Name:(✓) <input type="text" value="Deneatra"/>	M.I.: <input type="text" value="MI"/>	Last Name:(✓) <input type="text" value="Henderson"/>
Mailing Address:(*) <input type="text" value="1840 N. Main St."/>	City:(*) <input type="text" value="Madisonville"/>	State:(*) <input type="text" value="Kentucky"/>	Zip:(*) <input type="text" value="42431"/>
eMail Address:(*) <input type="text" value="Deneatra.Henderson@ky.gov"/>	Business Phone:(*) <input type="text" value="270 824 7080"/>	Alternate Phone: <input type="text" value="270 791 4396"/>	

**SECTION II -- GENERAL SITE LOCATION INFORMATION**

Project Name:(*) <input type="text" value="Henderson County - Spottsville Bridge - US 60"/>	Status of Owner/Operator(*) <input type="text" value="State Government"/>	SIC Code(*) <input type="text" value="1611 Highway and Street Const"/>	
Company Name:(✓) <input type="text" value="Kentucky Transportation Cabinet - District 2"/>	First Name:(✓) <input type="text" value="Deneatra"/>	M.I.: <input type="text" value="MI"/>	Last Name:(✓) <input type="text" value="Henderson"/>
Site Physical Address:(*) <input type="text" value="US 60 over Green River at Intersection with KY 1078 MP 19.236 to MP 19.444"/>			
City:(*) <input type="text" value="Spottsville"/>	State:(*) <input type="text" value="Kentucky"/>	Zip:(*) <input type="text" value="42458"/>	
County:(*) <input type="text" value="Henderson"/>	Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal) <input type="text" value="37.862500"/>	Longitude(decimal degrees)(*) <input type="text" value="-87.411389"/>	

**SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION**

Project Description:(\*)

a. For single projects provide the following information

Total Number of Acres in Project:(✓) <input style="width:95%;" type="text" value="29.59"/>	Total Number of Acres Disturbed:(✓) <input style="width:95%;" type="text" value="13.71"/>
Anticipated Start Date:(✓) <input style="width:95%;" type="text"/>	Anticipated Completion Date:(✓) <input style="width:95%;" type="text"/>

b. For common plans of development provide the following information

Total Number of Acres in Project:(✓) <input style="width:95%;" type="text" value="# Acre(s)"/>	Total Number of Acres Disturbed:(✓) <input style="width:95%;" type="text" value="# Acre(s)"/>
Number of individual lots in development, if applicable:(✓) <input style="width:95%;" type="text" value="# lot(s)"/>	Number of lots in development:(✓) <input style="width:95%;" type="text" value="# lot(s)"/>
Total acreage of lots intended to be developed:(✓) <input style="width:95%;" type="text" value="Project Acres"/>	Number of acres intended to be disturbed at any one time:(✓) <input style="width:95%;" type="text" value="Disturbed Acres"/>
Anticipated Start Date:(✓) <input style="width:95%;" type="text"/>	Anticipated Completion Date:(✓) <input style="width:95%;" type="text"/>

List Building Contractor(s) at the time of Application:(\*)

	Company Name		
+			

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

Discharge Point(s):

	Unnamed Tributary?	Latitude	Longitude	Receiving Water Name	
1	No	37.862163	-87.416289	Green River	Delete
2	Yes	37.862194	-87.414481	Green River	Delete
3	No	37.862212	-87.417413	Green River	Delete
4	No	37.862766	-87.402344	Green River	Delete
5	Yes	37.862878	-87.414528	Green River	Delete
6	No	37.862917	-87.411483	Green River	Delete
7	No	37.863026	-87.402474	Green River	Delete
8	No	37.863167	-87.413384	Green River	Delete
9	No	37.863589	-87.413437	Green River	Delete
+					

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

Name of MS4: <input style="width:95%;" type="text"/>											
Date of application/notification to the MS4 for construction site permit coverage: <input style="width:95%;" type="text" value="Date"/>	Discharge Point(s):(*) <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:5%;"></th> <th style="width:20%;">Latitude</th> <th style="width:20%;">Longitude</th> <th style="width:20%;"></th> <th style="width:20%;"></th> </tr> </thead> <tbody> <tr> <td style="text-align:center;">+</td> <td colspan="4" style="height: 50px;"></td> </tr> </tbody> </table>		Latitude	Longitude			+				
	Latitude	Longitude									
+											

SECTION VI -- WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY OR THE RIPARIAN ZONE?

Will the project require construction activities in a water body or the riparian zone?: (*)	<input style="width:95%;" type="text" value="Yes"/>
If Yes, describe scope of activity: (✓)	<input style="width:95%;" type="text" value="Construction in the floodplain for the new bridge and roadway."/>
Is a Clean Water Act 404 permit required?:(*)	<input style="width:95%;" type="text" value="Yes"/>

Is a Clean Water Act 401 Water Quality Certification required?:(*)	Yes
--	-----

SECTION VII -- NOI PREPARER INFORMATION

First Name:(*) Jean	M.I.: MI	Last Name:(*) Jones	Company Name:(*) KYTC D-02
Mailing Address:(*) 1840 N. Main St.	City:(*) Madisonville	State:(*) Kentucky	Zip:(*) 42431
eMail Address:(*) JeanR.Jones@ky.gov	Business Phone:(*) 270 824 7080	Alternate Phone: Phone	

SECTION VIII -- ATTACHMENTS

Facility Location Map:(*)	<input type="button" value="Upload file"/>
Supplemental Information:	<input type="button" value="Upload file"/>

SECTION IX -- CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:(*) Deneatra Henderson	Title:(*) Chief District Engineer		
First Name:(*) Deneatra	M.I.: MI	Last Name:(*) Henderson	
eMail Address:(*) Deneatra.Henderson@ky.gov	Business Phone:(*) 270 824 7080	Alternate Phone: 270 791 4396	Signature Date:(*) Date

<input type="button" value="Click to Save Values for Future Retrieval"/>	<input type="button" value="Click to Submit to EEC"/>
--	---

KyTC BMP Plan for Project CID ## - #####



**Kentucky Transportation Cabinet**

**Highway District 2 (1)**

**And**

**\_\_\_\_\_ (2), Construction**

**Kentucky Pollutant Discharge Elimination System  
Permit KYR10**

**Best Management Practices (BMP) plan**

**Groundwater protection plan**

**For Highway Construction Activities**

**For**

**Replace bridge on US 60 (MP 19.236 to MP 19.444)  
over Green River at Intersection with KY 1078  
051B00015N (12CCR) in Henderson County (1)**

**Project: CID ## - #####**

KPDES BMP Plan Page 1 of 14

Revised 3/4/2016

## KyTC BMP Plan for Project CID ## - #####

### Project information

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

1. Owner – Kentucky Transportation Cabinet, District 2 (1)
2. Resident Engineer: (2)
3. Contractor name: (2)  
Address: (2)  
  
Phone number: (2)  
Contact: (2)  
Contractors: agent responsible for compliance with the KPDES permit requirements (3):
4. Project Control Number (2)
5. Route (Address) US 60 (1)
6. Latitude/Longitude (project mid-point) 37.862500, 87.411389 (1)
7. County (project mid-point) Henderson (1)
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

## KyTC BMP Plan for Project CID ## - #####

### A. Site description:

1. Nature of Construction Activity (from letting project description)  
Replace bridge on US 60 over Green River (MP 19.236 to MP 19.444) at Intersection with KY 1078 - 051B00015N (12CCR) in Henderson County  
(1)
2. Order of major soil disturbing activities (2) and (3)
3. Projected volume of material to be moved 139,151 CY (1)
4. Estimate of total project area (acres) 29.59 (1)
5. Estimate of area to be disturbed (acres) 13.71 (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) See Geotech report if available. See Roadway Plans
8. Data describing existing discharge water quality (if any) No existing water quality information available (1) & (2)
9. Receiving water name Green River (1)
10. TMDLs and Pollutants of Concern in Receiving Waters: (1 DEA)
11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

## KyTC BMP Plan for Project CID ## - #####

### 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.

## KyTC BMP Plan for Project CID ## - #####

- 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



## KyTC BMP Plan for Project CID ## - #####

- 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 : Seeding and Protection, Erosion Control Blanket. (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 Section 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.

## KyTC BMP Plan for Project CID ## - #####

### 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:**

## KyTC BMP Plan for Project CID ## - #####

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:

## KyTC BMP Plan for Project CID ## - #####

- 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. No other local requirements are being added to this project. (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

## KyTC BMP Plan for Project CID ## - #####

the purpose of post construction storm water management with specific guidance for any non-routine maintenance. No features of this project will require post construction maintenance over and above normal maintenance procedures. (1)

### F. Inspections

Inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have successfully completed the KEPSC-RI course as required by Section 213.02.02 of the Standard Specifications for Road and Bridge Construction, current edition.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 50 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.

## KyTC BMP Plan for Project CID ## - #####

### **G. Non – Storm Water discharges**

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

- Water from water line flushings.
- Water form cleaning concrete trucks and equipment.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- Uncontaminated groundwater and rain water (from dewatering during excavation).

All non-storm water discharges will be directed to the sediment basin or to a filter fence enclosure in a flat vegetated infiltration area or be filtered via another approved commercial product.

### **H. Groundwater Protection Plan (3)**

This plan serves as the groundwater protection plan as required by 401 KAR 5:037.

- Contractors statement: (3)

The following activities, as enumerated by 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan, will or may be may be conducted as part of this construction project:

\_\_\_\_\_ 2. (e) land treatment or land disposal of a pollutant;

\_\_\_\_\_ 2. (f) Storing, ..., or related handling of hazardous waste, solid waste or special waste, ..., in tanks, drums, or other containers, or in piles, (This does not include wastes managed in a container placed for collection and removal of municipal solid waste for disposal off site);

\_\_\_\_\_ 2. (g) .... Handling of materials in bulk quantities (equal or greater than 55 gallons or 100 pounds net dry weight transported held in an individual container) that, if released to the environment, would be a pollutant;

KyTC BMP Plan for Project CID ## - #####

\_\_\_\_\_ 2. (j) Storing or related handling of road oils, dust suppressants, ....., at a central location;

\_\_\_\_\_ 2. (k) Application or related handling of road oils, dust suppressants or deicing materials, (does not include use of chloride-based deicing materials applied to roads or parking lots);

\_\_\_\_\_ 2. (m) Installation, construction, operation, or abandonment of wells, bore holes, or core holes, (this does not include bore holes for the purpose of explosive demolition);

Or, check the following only if there are no qualifying activities

\_\_\_\_\_ There are no activities for this project as listed in 401 KAR 5:037 Section 2 that require the preparation and implementation of a groundwater protection plan.

The contractor is responsible for the preparation of a plan that addresses the

401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

- (a) General information about this project is covered in the Project information;
- (b) Activities that require a groundwater protection plan have been identified above;
- (c) Practices that will protect groundwater from pollution are addressed in section C. Other control measures.
- (d) Implementation schedule – all practices required to prevent pollution of groundwater are to be in place prior to conducting the activity;
- (e) Training is required as a part of the ground water protection plan. All employees of the contractor, sub-contractor and resident engineer personnel will be trained to understand the nature and requirements of this plan as they pertain to their job function(s). Training will be accomplished within one week of employment and annually thereafter. A record of training will be maintained by the contractor with a copy provide to the resident engineer.
- (f) Areas of the project and groundwater plan activities will be inspected as part of the weekly sediment and erosion control inspections
- (g) Certification (see signature page.)







KyTC BMP Plan for Project CID ## - #####

### Sub-Contractor Certification

The following sub-contractor shall be made aware of the BMP plan and responsible for implementation of BMPs identified in this plan as follows:

Subcontractor

Name:  
Address:  
Address:

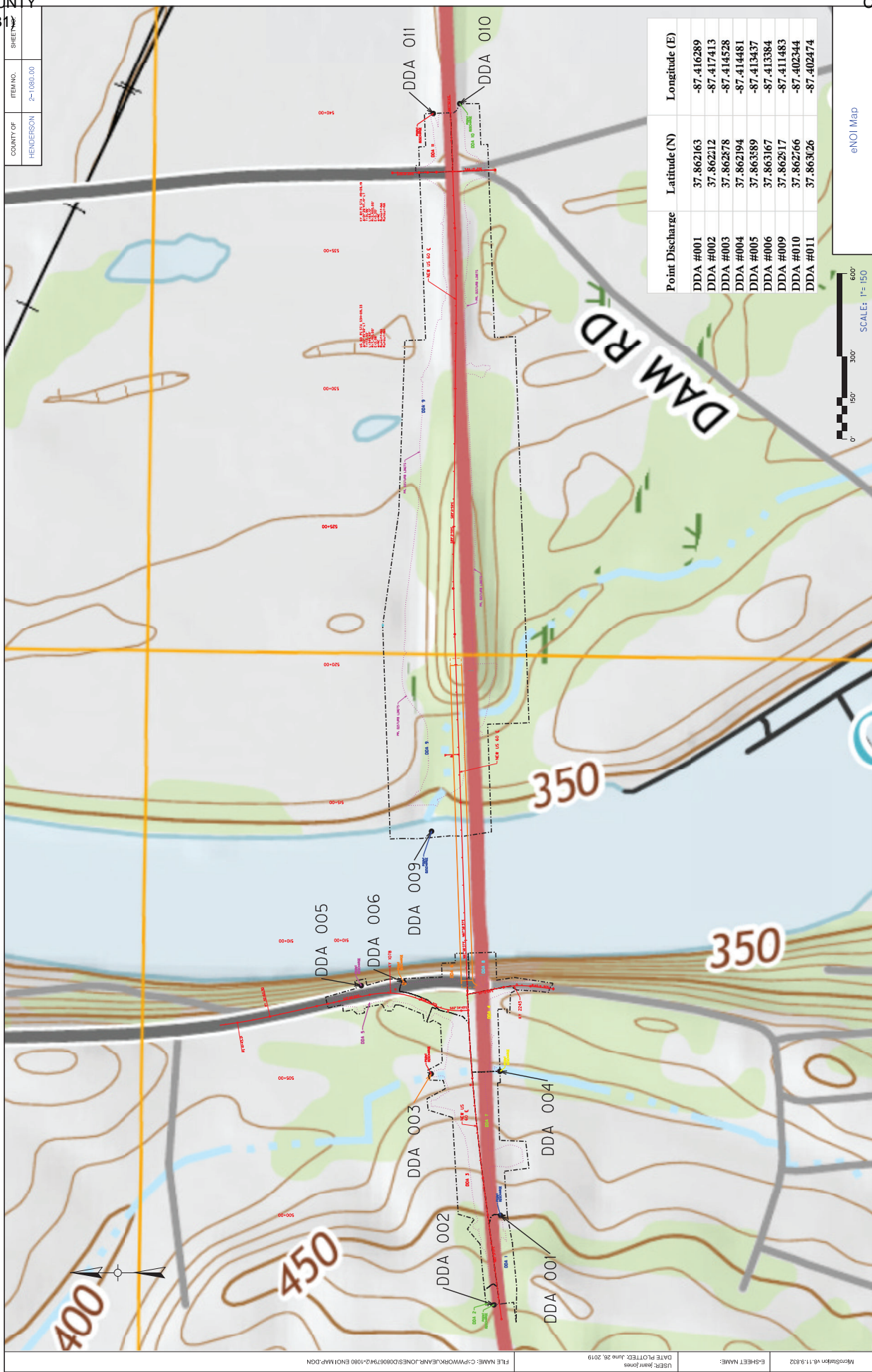
Phone:

The part of BMP plan this subcontractor is responsible to implement is:

I certify under penalty of law that I understand the terms and conditions of the general Kentucky Pollutant Discharge Elimination System permit that authorizes the storm water discharges, the BMP plan that has been developed to manage the quality of water to be discharged as a result of storm events associated with the construction site activity and management of non-storm water pollutant sources identified as part of this certification.

Signed \_\_\_\_\_ title \_\_\_\_\_,  
Typed or printed name<sup>1</sup> 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.



21 AUG 2019

<u>Item No.</u>	2 - 1080			<u>Project Mgr.</u>	KYTC\JOHN.RUDD	
			<u>County</u>	HENDERSON	<u>Route</u>	US-60
<u>CAP #</u>	<u>Date of Promise</u>	<u>Promise made to:</u>	<u>Location of Promise</u>			
1	31-JUL-19	John Rudd	Parcel 1			
<b><u>CAP Description</u></b>						
THE CONTRACTOR SHALL MOVE AND RESET THE MAILBOX, AS NEEDED. THE LARGE SHRUBBERY AND BRUSH EAST OF THE ENTRANCE IS TO BE REMOVED AS SHOWN ON THE PLANS. THE EXISTING LIGHT POLE WILL BE REPLACED IN KIND, AS NEEDED, AT NO EXPENSE TO THE PROPERTY OWNER.						
2	31-JUL-19	John Rudd	Parcel 6			
<b><u>CAP Description</u></b>						
THE MATURE TREE LOCATED WITHIN THE DISTURB LIMITS IS TO BE REMOVED IN THE CONSTRUCTION PHASE AT NO EXPENSE TO THE PROPERTY OWNERS.						
3	31-JUL-19	John Rudd	Parcel 7			
<b><u>CAP Description</u></b>						
THE MATURE TREE LOCATED WITHIN THE AREA ACQUIRED IS TO BE REMOVED DURING THE CONSTRUCTION PHASE. THIS IS UNDERSTOOD TO INCLUDE REMOVAL OF THE STUMP AS WELL.						
4	31-JUL-19	John Rudd	Parcel 8			
<b><u>CAP Description</u></b>						
INSTALL 10 LINEAR FEET OF 15" DRAIN PIPE ALONG THE SOUTHERN PORTION OF THE GATED ENTRANCE TO THAT PROPERTY REFERRED TO AS PARCEL 8 OF HENDERSON COUNTY ITEM #2-1080.00. INSTALL 80 LINEAR FEET OF 15" SLOTTED DRAIN PIPE WITH CONCRETE APRON, AND AN ADDITIONAL 60 LINEAR FEET OF 15" DRAIN PIPE ALONG THE NORTHERN PORTION OF THE SAME GATED ENTRANCE. REFERENCE IS MADE TO THE ATTACHED ENGINEERING DRAWING, WHICH IS INCORPORATED BY REFERENCE. IT IS UNDERSTOOD BETWEEN THE PARTIES AND MADE A COVENANT HEREIN THAT 1.5" OF ASPHALT WILL BE LAID OVER THE AREA AS SHOWN ON THE ATTACHMENT. IT IS ALSO UNDERSTOOD THAT THE EXISTING FENCE AND GATE WILL NOT BE DISTURBED.						
5	21-AUG-19	John Rudd	Parcel 4			
<b><u>CAP Description</u></b>						
CONTRACTOR MAY ENCOUNTER NON-REGISTERED UNDERGROUND STORAGE TANKS (USTS) AND PETROLEUM CONTAMINATED SOILS ON THIS PARCEL. KYTC WILL BE RESPONSIBLE FOR REMOVAL OF USTS AND CONTAMINATED SOILS IF DISCOVERED.						
6	21-AUG-19	John Rudd	Parcel 10			
<b><u>CAP Description</u></b>						
CONTRACTOR MAY ENCOUNTER NON-REGISTERED UNDERGROUND STORAGE TANKS (USTS) AND PETROLEUM CONTAMINATED SOILS ON THIS PARCEL. KYTC WILL BE RESPONSIBLE FOR REMOVAL OF USTS AND CONTAMINATED SOILS IF DISCOVERED.						

**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 2019* and *Standard Drawings, Edition of 2016*.

## **SUPPLEMENTAL SPECIFICATIONS**

The contractor shall use the Supplemental Specifications that are effective at the time of letting.  
The Supplemental Specifications can be found at the following link:

<http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx>

### **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



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the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

**5.0 PAYMENT.** The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

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

Effective June 15, 2012

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### SPECIAL NOTE FOR DRILLED SHAFTS

**1.0 DESCRIPTION.** Furnish all equipment, materials and labor necessary for constructing reinforced concrete drilled shafts in cylindrically excavated holes according to the details shown on the plans or as the Engineer directs. Construct the shaft to the lines and dimensions shown on the plans, or as the Engineer directs. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction, current edition.

#### **2.0 MATERIALS.**

**2.1 Concrete.** Use Class A Modified concrete unless otherwise shown on the plans. The slump at the time of placement shall be 6.5 to 9.5 inches, the coarse aggregate shall be size 67, 68, 78, 8 or 9M, and the water/cementitious material ratio shall not exceed 0.45. Include water reducing and retarding admixtures. Type F high range water reducers used in combination with retarding admixtures or Type G high range water reducers fully meeting trial batch requirements are permitted and Class F fly ash is permitted in conformance with Section 601. Design the mix such that the concrete slump exceeds 4 inches at 4 hours after batching. If the estimated concrete transport, plus time to complete placement, exceeds 4 hours, design the concrete to have a slump that exceeds 4 inches or more for the greater time after batching and demonstrate that the slump requirement can be achieved after the extended time period using a trial batch.

Perform trial batches prior to beginning drilled shaft construction in order to demonstrate the adequacy of the proposed concrete mix. Demonstrate that the mix to be used will meet the requirements for temperature, slump, air content, water/cementitious material ratio, and compressive strength. Use the ingredients, proportions and equipment (including batching, mixing, and delivery) to be used on the project. Make at least 2 independent consecutive trial batches of 3 cubic yards each using the same mix proportions and meeting all specification requirements for mix design approval. Submit a report containing these results for slump, air content, water/cement ratio, temperature, and compressive strength and mix proportions for each trial batch to the Engineer for review and approval. Failure to demonstrate the adequacy of the concrete mix, methods, or equipment to the Engineer is cause for the Engineer to require appropriate alterations in concrete mix, equipment, and/or method by the Contractor to eliminate unsatisfactory results. Perform additional trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment.

**2.2 Steel Reinforcement.** Provide Grade 60 deformed bars conforming to Section 811 of the Standard Specifications. Rail steel is permitted for straight bars only. Place according to Section 602 of the Standard Specifications, this Special Note, and the plans. Use non-corrosive centering devices and feet to maintain the specified reinforcement clearances.

**2.3 Casings.** Provide casing meeting the requirements of ASTM A 252 Grade 2 or better unless otherwise specified. Ensure casing is smooth, clean, watertight, true and straight, and of ample strength to withstand handling, installation, and extraction stresses and the pressure of both concrete and the surrounding earth materials. Ensure the outside diameter of casing is not less than the specified diameter of shaft.

Use only continuous casings. Cut off the casing at the prescribed elevation and trim to within tolerances prior to acceptance. Extend casing into bedrock a sufficient distance to stabilize the shaft excavation against collapse, excessive deformation, and/or flow of water if required and/or shown on the plans.

Install from the work platform continuous casing meeting the design thickness requirements, but not less than 3/8 inch, to the elevations shown on the plans. When drilled

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shafts are located in open water areas, extend casings above the water elevation to the plan tip elevation to protect the shaft concrete from water action during concrete placement and curing. All casing is permanent unless temporary casing is specified in the contract drawings or documents. Permanent casing is incidental to the applicable drilled shaft unit bid price unless noted otherwise in the contract. Temporary casing may be required for drilled shafts not socketed into bedrock. If temporary surface casings are used, extend each casing up to the work platform. Remove all temporary surface casing prior to final acceptance unless otherwise permitted by the Central Office Construction Engineer.

Ensure casing splices have full penetration butt welds conforming to the current edition of AWS D1.1 with no exterior or interior splice plates and produce true and straight casing.

**2.4 Slurry.** When slurry is to be used for installation of the Drilled Shaft, submit a detailed plan for its use and disposal. The plan should include, but not be limited to the following:

- 1) Material properties
- 2) Mixing requirements and procedures
- 3) Testing requirements
- 4) Placement procedures
- 5) Disposal techniques

Obtain the Central Office Division of Construction's approval for the slurry use and disposal plan before installing drilled shafts.

**2.5 Tremies.** Provide tremies of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. Ensure the tremie diameter is least 6 times the maximum size coarse aggregate to be used in the concrete mix and no less than 10 inches. Provide adequate wall thickness to prevent crimping or sharp bends that restrict concrete placement. Support tremies used for depositing concrete in a dry drilled shaft excavation so that the free fall of the concrete does not cause the shaft excavation to cave or slough. Maintain a clean and smooth tremie surface to permit both flow of concrete and unimpeded withdrawal during concrete placement. Do not allow any aluminum parts to contact the concrete. Construct tremies used to deposit concrete for wet excavations so that they are watertight and will readily discharge concrete.

**2.6 Concrete Pumps.** Provide pump lines with a minimum diameter of 5 inches and watertight joints.

**2.7 Drop Chutes.** Do not use aluminum drop chutes.

### **3.0 CONSTRUCTION.**

#### **3.1 Preconstruction.**

**3.1.1 Prequalification.** The Department will require prequalification by the Division of Construction Procurement before accepting a bid for the construction of Drilled Shafts.

**3.1.2 Pre-Bid Inspection.** Inspect both the project site and all subsurface information, including any soil or rock samples, prior to submitting a bid. Contact the Geotechnical Branch (502-564-2374) to schedule a viewing of the subsurface information. Failure to inspect the project site and view the

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subsurface information will result in the forfeiture of the right to file a claim based on site conditions and may result in disqualification from the project.

**3.1.3 Drilled Shaft Installation Plan.** Upon request, the Department will review a Drilled Shaft Installation Plan. Submit the plan no later than 45 calendar days prior to constructing drilled shafts. Items covered in this plan should include, but not be limited to the following:

- 1) Name and experience record of jobsite drilled shaft superintendent and foremen in charge of drilled shaft operations for each shift.
- 2) List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, de-sanding equipment, slurry pumps, core sampling equipment, tremies or concrete pumps, casings, etc.
- 3) Details of overall construction operation sequence and the sequence of shaft construction in the bents or groups.
- 4) Details of shaft excavation methods including methods to over-ream or roughen shaft walls, if necessary.
- 5) Details of slurry when the use of slurry is anticipated. Include methods to mix, circulate, and de-sand the proposed slurry. Provide details of proposed testing, test methods, sampling methods, and test equipment.
- 6) Details of proposed methods to clean shaft and inside of casing after initial excavation.
- 7) Details of reinforcement handling, lifting, and placement including support and method to center in shaft. Also include rebar cage support during concrete placement and temporary casing removal.
- 8) Details of concrete placement including procedures for concrete tremie or pump. Include initial placement, raising during placement, and overfilling of the shaft to expel contaminated concrete.
- 9) Required submittals including shop drawings and concrete design mixes.
- 10) Other information shown in the plans or requested by the Engineer.
- 11) Special considerations for wet construction.
- 12) Details of environmental control procedures to protect the environment from discharge of excavation spoil, slurry (natural and mineral), and concrete over-pour.

The Division of Construction will review the submitted procedure and provide comments and recommendations. The Contractor is responsible for satisfactory construction and ultimate performance of the Drilled Shaft.

**3.2 General Construction.** Construct drilled shafts as indicated in the plans or described in this Special Note by either the dry or wet method. When the plans describe a particular method of construction, use this method unless the Engineer permits otherwise. When the plans do not describe a particular method, propose a method on the basis of its suitability to the site conditions. Approval of this proposed method is contingent upon the satisfactory results of the technique shaft.

The construction of the first drilled shaft or technique shaft will be used to determine if the methods and equipment used by the contractor are sufficient to produce a completed shaft meeting the requirements of the plans and specifications. Ability to control dimensions and alignment of excavations within tolerances; to seal the casing into impervious materials; to prevent caving or deterioration of subsurface materials by the use of slurry or other means; to

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properly clean the completed shaft excavation; to construct excavations in open water areas when required by the plans; to establish methods for bellling or over-reaming when required by the plans; to determine the elevation of ground water; to satisfactorily handle, lift, place, and support the reinforcement cage; to satisfactorily place concrete meeting the specifications within the prescribed time frame; and to satisfactorily execute any other necessary construction operations will be evaluated during construction of the first shaft(s). Revise the methods and equipment as necessary at any time during the construction of the first shaft when unable to satisfactorily carry out any of the necessary operations described above or unable to control the dimensions and alignment of the shaft excavation within tolerances. Accurately locate technique so they may be used in the finished structure unless directed otherwise in the contract document or by the Engineer.

If at any time the Contractor fails to satisfactorily demonstrate, to the satisfaction of the Engineer, the adequacy of methods or equipment and alterations are required, additional technique shafts will be required at no additional cost to the Department and with no extension of contract time. Additional technique shafts shall be located as near as possible to the proposed production shafts but in a location as not to interfere with other construction activities. Once approval has been given to construct production shafts, no changes will be permitted in the methods or equipment used to construct the satisfactory shaft without written approval of the Engineer.

Do not make a claim against the Department for costs of construction delays, or any materials, labor, or equipment that may be necessary due to the Contractor's failure to furnish drilled shafts of a length sufficient to obtain the required bearing values, or for variations in length due to subsurface conditions that may be encountered. Soundings, boring logs, soil profiles, or other subsurface data included in the Contract documents are used by the Department for design and making preliminary estimates of quantities and should be used only at the risk of the Contractor for determining equipment, materials, or labor necessary for drilling shafts as required by the contract.

When necessary, set temporary removable surface casing. Use surface casing of sufficient length to prevent caving of the surface soils and to aid in maintaining shaft position and alignment. Pre-drilling with slurry and/or over-reaming to the outside diameter of the casing may be required to install the surface casing at some sites.

Provide equipment capable of constructing shafts to the deepest shaft depth shown in the plans plus 15 feet, 20 percent greater than the longest shaft (measured from the ground or water surface to the tip of the shaft), or 3 times the shaft diameter, whichever is greater. Blasting excavation methods are not permitted.

Use permanent casing unless otherwise noted in the Contract. Place casing as shown on the plans before beginning excavation. If full penetration cannot be attained, the Engineer may direct that excavation through the casing be accomplished and the casing advanced until reaching the plan tip elevation. In some cases, over-reaming to the outside diameter of the casing may be required before placing the casing. Cut off the casing at the prescribed elevation and leave the remainder of the casing in place. Do not use vibratory hammers for casing installation within 50 feet of shafts that have been completed less than 24 hours.

**3.2.1 Dry Construction Method.** Use the dry construction method only at sites where the ground water table and soil conditions (generally stiff to hard clays or rock above the water table) make it feasible to construct the shaft in a relatively dry excavation and where the sides and bottom of the shaft are stable and may be visually inspected by the Engineer prior to placing the concrete. The dry construction method consists of drilling the shaft excavation, removing accumulated seepage water and loose material from the excavation, and placing the shaft concrete in a relatively dry excavation.

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**3.2.2 Wet Construction Method.** Use the wet construction method at all sites where it is impractical to excavate by the dry method. The wet construction method consists of drilling the shaft excavation below the water table, keeping the shaft filled with water (including natural slurry formed during the drilling process) or slurry as defined in part 2.4 of this Special Note, desanding and cleaning the slurry as required, final cleaning of the excavation by means of a bailing bucket, air lift, submersible pump or other approved devices and placing the shaft concrete (with a tremie or concrete pump beginning at the shaft bottom) which displaces the water or slurry as concrete is placed.

Where drilled shafts are located in open water areas, construct the shafts by the wet method using casings extending from above water elevation to the plan casing tip elevation to protect the shaft concrete from water action during placement and curing. Install the casing in a manner that will produce a positive seal at the bottom of the casing.

**3.3 Slurry.** When the Contractor elects to use slurry, adjust construction operations so that the slurry is in contact with the bottom 5 feet of the shaft for less than 4 hours unless the Engineer approves otherwise. If the 4-hour limit is exceeded, over-ream the bottom 5 feet of shaft.

**3.4 Cleaning.** Over-reaming, cleaning, or wire brushing the sidewalls of the shaft excavation and permanent casings may be necessary to remove the depth of softening or to remove excessive slurry cake buildup as indicated by sidewall samples or other test methods employed by the Engineer. Over-ream around the perimeter of the excavation a minimum depth of 1/2 inch and maximum depth of 3 inches.

**3.5 Subsurface Exploration.** Take subsurface exploration borings when shown on the plans or as the Engineer directs to determine the character of the material that the shaft extends through and the material directly below the shaft excavation. Complete subsurface exploration borings prior to beginning excavation for any drilled shaft in a group. Unless directed otherwise, extend subsurface exploration borings a minimum depth of 3 shaft diameters but not less than 10 feet below the bottom of the anticipated tip of drilled shaft excavation as shown on the plans. For subsurface exploration borings where soil sampling is required use thin-wall tube samples and perform standard penetration tests according to the Department's current Geotechnical Manual. When shafts extend into bedrock, soil samples are not required unless otherwise specified. Perform rock core drilling according to the Department's Geotechnical Manual. When the Engineer directs, perform additional subsurface exploration borings prior to drilled shaft construction. Measure soil samples and/or rock cores and visually identify and describe them on the subsurface log according to the Department's current Geotechnical Manual. Subsurface exploration borings must be performed by contractors/consultants prequalified by the Department's Division of Professional Services for Geotechnical Drilling Services at the time that field work begins.

The Engineer or geotechnical branch representative may be on-site during the subsurface exploration process to evaluate the soil and/or rock core samples. The Engineer or geotechnical branch representative will determine the need to extend the borings to depths greater than the depths previously specified. Handle, label, identify, and store soil and/or rock samples according to the Department's current Geotechnical Manual and deliver them with the subsurface logs to the geotechnical branch's rock core lab in Frankfort within 24-hours of completing the borings, unless directed otherwise.

The Engineer will inspect the soil samples and/or cores and determine the final depth of required excavation (final drilled shaft tip elevation) based on evaluation of the material's suitability. The Engineer will establish the final tip elevations for shaft locations, other than

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those for which subsurface exploration borings have been performed, based on the results of the subsurface exploration. Within 15 calendar days after completion of the subsurface exploration borings, the Engineer will notify the contractor of the final tip elevations for shaft locations.

**3.6 Excavations.** The plans indicate the expected depths, the top of shaft elevations, and the estimated bottom of shaft elevations between which the drilled shaft are to be constructed. Drilled shafts may be extended deeper when the Engineer determines that the material encountered while drilling the shaft excavation is unsuitable and/or is not the same as anticipated in the design of the drilled shaft. Drilled shafts may be shortened when the Engineer determines the material encountered is better than that anticipated.

Begin drilled shaft excavation the excavation, excavation inspection, reinforcement placement, and concrete placement can be completed as one continuous operation. Do not construct new shafts within 24 hours adjacent to recently completed shafts if the center-to-center spacing is less than 3 shaft diameters.

Dispose of excavated material removed from the shaft according to the Standard Specifications or the contract documents.

Do not allow workmen to enter the shaft excavation for any reason unless both a suitable casing has been installed and adequate safety equipment and procedures have been provided to the workmen entering the excavation. Recommended Procedures for the Entry of Drilled Shaft Foundation Excavations, prepared by ADSC: The International Association of Foundation Drilling provides guideline recommendations for down-hole entry of drilled excavations.

**3.7 Obstructions.** Remove subsurface obstructions at drilled shaft locations. Such obstructions may include man-made materials such as old concrete foundations or natural materials such as boulders. Blasting is not permitted.

**3.8 Inspections of Excavations.** Provide equipment for checking the dimensions and alignment of each shaft excavation. Determine the dimensions and alignment of the shaft excavation under the observation and direction of the Engineer. Provide equipment necessary to verify shaft cleanliness for the method of inspection selected by the Engineer.

Measure final shaft depths with a weighted tape or other approved methods after final cleaning. Ensure the base of each shaft has less than ½ inch of sediment at the time of concrete placement. For dry excavations, do not allow the depth of water to exceed 3 inches for tremie or pump methods of concrete placement. Verify shaft cleanliness to the Engineer using direct visual inspection or other method the Engineers determines acceptable. Video camera or underwater inspection procedures may be used if specified in the plans. Inspect the side surfaces of rock sockets to ensure they are rough and of such condition to ensure bond between the shaft concrete and the rock. Calipers, bent rods, or other devices may be used to inspect the diameter and roughness of rock sockets. When the Engineer directs, mechanically roughen surfaces found to be smooth.

**3.9 Reinforcing Steel Cage Fabrication and Placement.** Assemble the reinforcing steel cage, consisting of longitudinal bars, ties, spirals, cage stiffener bars, spacers, centering devices, and other necessary appurtenances and place as a prefabricated unit immediately after the shaft excavation is inspected and accepted, and just prior to concrete placement.

Tie the reinforcing steel with 100 percent double-wire ties and provide support so that it will remain within allowable tolerances for position. Locate splices as shown on the plans. Splice no more than 50 percent of the longitudinal reinforcing within 2-lap splice lengths of any location or within 3 feet of the splice location if approved mechanical connectors are used. All splices are to be in accordance with plan details. Use bands, temporary cross ties,

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etc. as required to provide a reinforcement cage of sufficient rigidity to prevent racking, permanent deformations, etc. during installation.

Use concrete centering devices or other approved non-corrosive centering devices at sufficient intervals along the length of the reinforcement cage to ensure concentric spacing for the entire cage length. As a minimum, provide a set of non-corrosive centering devices at intervals not exceeding 5 feet throughout the length of the shaft. When the size of the longitudinal reinforcement exceeds one inch in diameter the minimum spacing may be increased to 10 feet. As a minimum, provide a set of centering devices within 2 feet of the top and 2 feet of the bottom of the shaft. In addition provide one set of centering devices 2 feet above and 2 feet below each change in shaft diameter. Provide feet (bottom supports) at the bottom of the shaft on vertical bars. As a minimum, provide non-corrosive centering devices at 60 degree intervals around the circumference of the shaft to maintain the required reinforcement clearances. Ensure the centering devices maintain the specified annular clearance between the outside of the reinforcing cage and the side of the excavated hole or casing.

Concrete centering devices and feet will be constructed of concrete equal in quality and durability to the concrete specified for the shaft. Use epoxy coated centering devices fabricated from reinforcing steel. Use feet (bottom supports) of adequate size and number to assure the rebar cage is the proper distance above the bottom as determined by part 3.11 3) of this Special Note. The feet are not intended to support the weight of the cage. In the event that the shaft has been excavated below the anticipated tip elevation, extend the reinforcing cage at the tip (low) end by lap splices, mechanical connectors, or welded splices conforming to the Standard Specifications. In this instance, splices need not be staggered and 100 percent of the reinforcing bars may be spliced at a given location. The bottom 12 inches of the shaft may not be reinforced when below plan tip elevation.

During concrete placement, support the reinforcing cage at or near the top of shaft such that the concrete feet are positioned approximately one inch above the bottom of shaft excavation. Not sooner than 24 hours after the completion of concrete placement, remove temporary supports. Provide the needed equipment, including extra cranes if necessary, to provide this cage support.

Prior to placing the reinforcement cage, demonstrate to the satisfaction of the Engineer that the fabrication and handling methods to be used will result in a reinforcing cage placed in the proper position, with the proper clearances, and without permanent bending, squashing, or racking of the reinforcement cage. During this demonstration bring the cage to an upright position, lower into a shaft excavation, and support as if for concrete placement.

Check the elevation of the top of the reinforcing cage before and after the concrete is placed. If the reinforcing cage is not maintained within the specified tolerances, correct to the satisfaction of the Engineer. Do not construct additional shafts until the contractor has modified his reinforcing cage support to obtain the required tolerances.

**3.10 Concrete Placement.** Place concrete according to the applicable portions of the Standard Specifications and with the requirements set forth herein. Do not apply the provisions of the Special Note 6U for Structural Mass Concrete.

Place concrete as soon as practical after reinforcing steel placement but no later than 4 hours after completion of the shaft excavation. Place concrete continuously from the bottom to above the top elevation of the shaft. For shafts that extend above ground or water surface, place concrete continuously after the shaft is full until good quality concrete is evident at the top of the shaft. Form any portion of the shaft above ground with a removable form or other approved method to the dimensions shown on the plans.

For shafts constructed in the wet with the top of the shaft below the water surface and below top of casing, place concrete to approximately one shaft diameter but no less than 2 feet above the top of shaft elevation. Remove contaminated concrete and deleterious material, as



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determined by the Engineer, accumulated above the top of shaft elevation immediately after completing concrete placement. Deleterious material and contaminated concrete may be airlifted under a head of water or slurry provided that the head is maintained at or near the exterior water surface elevation. Carefully remove any concrete remaining above plan top of shaft after curing and excess casing removal.

Place concrete either by free fall, through a tremie, or concrete pump. Use the free fall placement method in dry holes only. The maximum height of free fall placement is 20 feet. Do not allow concrete placed by free fall to contact either the reinforcing cage or hole sidewall. Drop chutes may be used to direct concrete to the base during free fall placement.

Place concrete in the shaft in one continuous operation. Maintain a minimum slump of 4 inches or more throughout the placement for 4 hours after batching. Adjust approved admixtures in the concrete mix for the conditions encountered on the job so that the concrete remains in a workable plastic state throughout the placement. Perform slump loss tests to demonstrate that the concrete will maintain a 4-inch or greater slump for a period of time equal to the estimated transport plus the 2-hour placement time, but not less than 4 hours.

When the Engineer determines the concrete placement methods and/or equipment during construction of any technique and/or production shafts to be inadequate, make appropriate alterations to eliminate unsatisfactory results.

Drilled shafts not meeting the concrete placement requirements of this Special Note or contract plans are unacceptable. Correct all unacceptable completed shafts to the satisfaction of the Engineer.

**3.10.1 Tremie Placement.** Tremies may be used for concrete placement in either wet or dry holes. Extend the tremie to the shaft base elevation before starting underwater placement. Valves, bottom plates, or plugs may be used only if concrete discharge can begin approximately 2 inches above the excavation bottom. Remove plugs from the excavation unless otherwise approved by the Engineer. Maintain tremie discharge at or near the bottom of excavation as long as practical during concrete placement. Immerse tremie discharge end as deep as practical in the concrete but not less than 10 feet.

If at any time during the concrete pour the tremie line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete surface, the entire drilled shaft is considered defective. In such case, remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or over-reaming as directed by the Engineer, and repour the shaft.

**3.10.2 Pumped Concrete.** Concrete pumps and lines may be used for concrete placement in either wet or dry excavations. Do not begin concrete placement until the pump line discharge orifice is at the shaft base elevation.

For wet excavations, use a plug or similar device to separate the concrete from the fluid in the hole until pumping begins. Remove the plug unless otherwise approved by the engineer.

Ensure the discharge orifice remains at least 10 feet below the surface of the fluid concrete. When lifting the pump line during concrete placement, reduce the line pressure until the orifice has been repositioned at a higher level in the excavation.

If at any time during the concrete pour the pump line orifice is removed from the fluid concrete column and discharges concrete above the rising concrete level, the Department will consider the shaft defective. In such case, remove the reinforcing cage and concrete, complete any necessary sidewall cleaning or over-reaming as the Engineer directs, and repour the shaft.

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**3.10.3 Drop Chutes.** Drop chutes may be used to direct placement of free fall concrete in excavations where the maximum depth of water does not exceed one inch. Do not use the free fall method of placement in wet excavations. Concrete may be placed through either a hopper at the top of the tube or side openings as the drop chute is retrieved during concrete placement. Reduce the height of free fall and/or reduce the rate of concrete flow into the excavation if the concrete placement causes the shaft excavation to cave or slough, or if the concrete strikes the reinforcing cage or sidewall. When the Engineer determines free fall placement cannot be accomplished satisfactorily, use either tremie or pumping to accomplish the pour.

**3.11 Construction Tolerances.** The following construction tolerances apply to drilled shafts unless otherwise stated in the contract document:

- 1) Construct drilled shaft within 3 inches of plan position in the horizontal plane at the top of the shaft.
- 2) Do not vary the vertical alignment of a shaft excavation from the plan alignment by more than 1/4 inch per foot of depth or 6 inches total.
- 3) Maintain the top of the reinforcing steel cage no more than 6 inches above and no more than 3 inches below plan position.
- 4) All casing diameters shown on the plans refer to O.D. (outside diameter) dimensions. The casing dimensions are subject to American Pipe Institute tolerances applicable to regular steel pipe. A casing larger in diameter than shown in the plans may be used, at no additional cost, with prior approval by the Department.
- 5) Maintain the top of shaft concrete within  $\pm 3$  inches from the plan top of shaft elevation, measured after excess shaft concrete has been removed.
- 6) Design excavation equipment and methods so that the completed shaft excavation will have a planar bottom. Maintain the cutting edges of excavation equipment normal to the vertical axis of the equipment within a tolerance of  $\pm 3/8$  inch per foot of diameter. The tip elevation of the shaft has a tolerance of  $\pm 6$  inches from final shaft tip elevation unless otherwise specified in the plans.

Drilled shaft excavations and completed shafts not constructed within the required tolerances are unacceptable. Correct all unacceptable shaft excavations and completed shafts to the satisfaction of the Engineer. When a shaft excavation is completed with unacceptable tolerances, present corrective measures designed by a registered Professional Engineer for approval.

#### **4.0 MEASUREMENT.**

**4.1 Drilled Shafts.** The Department will not measure for payment any trial batches required to demonstrate the adequacy of the concrete mix, method, or equipment; concrete required to fill an oversized casing or oversized excavation; obstruction removal; over-reaming or sidewall cleaning; inspection work or inspection equipment; materials or work necessary, including engineering analyses and redesign, to alter unacceptable work methods or to complete corrections for unacceptable work; and will consider them incidental to the Drilled Shaft. Unless noted otherwise in the contract documents, casing is incidental to the drilled shaft.

**4.1.1 Drilled Shaft, Common.** The Department will measure the length, in linear feet, of drilled shaft above the top of rock elevation shown on the plans. The

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Department will consider this quantity Drilled Shaft, Common regardless of the character of material actually encountered.

**4.1.2 Drilled Shafts, Solid Rock.** The Department will measure the length, in linear feet, of drilled shaft below the top of rock elevation shown on plans. The Department will consider this quantity Drilled Shafts, Solid Rock regardless of the character of material actually encountered during excavation.

**4.2 Technique Shaft.** The Department will pay for technique shaft at the contract unit price per each as detailed on the plans or as directed by the Engineer. This will constitute full compensation for all costs incurred during installation as described herein for 'Drilled Shaft' or in the contract documents. No additional compensation beyond the number of technique shafts allowed for in the plans will be permitted for additional technique shafts required because of failure to demonstrate adequacy of methods.

**4.3 Rock Coring and Rock Sounding.** The Department will measure Rock Sounding and Rock Coring shown on the plans, as specified in part 3.5 of this Special Note, and as the Engineer directs, in linear feet to the nearest 0.1-foot. If soil samples are specified in the contract documents they will be incidental to the unit price bid for Rock Sounding. The Department will not measure or pay for subsurface exploration performed deeper than the elevations indicated on the plans and/or in this Special Note, unless directed by the Engineer, and will consider it incidental to these items of work. Additionally, the Department will consider all mobilization, equipment, labor, incidental items, and operations necessary to complete the boring operations incidental to these items of work.

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

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
----	Drilled Shaft, Diameter*, Common	Linear Foot
----	Drilled Shaft, Diameter*, Solid Rock	Linear Foot
----	Technique Shaft	Each
20745ED	Rock Sounding	Linear Foot
20746ED	Rock Coring	Linear Foot

\* See Plan Sheets for sizes of shafts.

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

June 15, 2012

## **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 Standard Specifications for Road and Bridge Construction, current edition.

### **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 <sup>1</sup>	Type 1	Type 2	Type 3	Type 4	Test Method
Minimum tensile Strength lbs/ft	125	150	175	3000 by 1500	ASTM D6818 <sup>2</sup>
UV stability (minimum % tensile retention)	80	80	80	90	ASTM D4355 <sup>3</sup> (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 <sup>2</sup> Channel applications	6.0 <sup>4</sup>	8.0 <sup>4</sup>	10.0 <sup>4</sup>	12.0 <sup>4</sup>	ASTM D6459 ASTM D6460-07

<sup>1</sup> For TRMs containing degradable components, all physical property values must be obtained on the non-degradable portion of the matting alone.

<sup>2</sup>Minimum Average Roll Values for tensile strength of sample material machine direction.

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

<sup>4</sup>Maximum permissible shear design values based on short-term (0.5 hr) vegetated data obtained by full scale flume testing ASTM D6459, D6460-07. Based on nondegradable components exclusively. Testing will be done at Independent Hydraulics Facility such as Colorado State University hydraulics laboratory, Utah State University hydraulics laboratory, Texas Transportation Institute (TTI) hydraulics and erosion control laboratory.

### 2.3 Quality Assurance Sampling, Testing, and Acceptance

- A) Provide TRM listed on the Department’s List of Approved Materials. Prior to inclusion on the LAM, the manufacturer of TRM must meet the physical and performance criteria as outlined in the specification and submit a Letter Certifying compliance of the product under the above ASTM testing procedures and including a copy of report from Full Scale Independent Hydraulics Facility that Fully Vegetated Shear Stress meets shear stress requirements tested under D6459 and D6460-07.
- B) Contractors will provide a Letter of Certification from Manufacturer stating the product name, manufacturer, and that the product MARV product unit testing results meets Department criteria. Provide Letters once per project and for each product.
- C) Acceptance shall be in accordance with ASTM D-4759 based on testing performed by a Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP) accredited laboratory using Procedure A of ASTM D-4354.

Current mats meeting the above criteria are shown on the Department's List of Approved Materials.

**2.4 Fasteners.** When the mat manufacturer does not specify a specific fastener, use steel wire U-shaped staples with a minimum diameter of 0.09 inches (11 gauge), a minimum width of one inch and a minimum length of 12 inches. Use a heavier gauge when working in rocky or clay soils and longer lengths in sandy soils as directed by Engineer or Manufacturer's Representative. Provide staples with colored tops when requested by the Engineer.

**3.0 CONSTRUCTION.** When requested by the Engineer, provide a Manufacturer's Representative on-site to oversee and approve the initial installation of the mat. When requested by the Engineer, provide a letter from the Manufacturer approving the installation. When there is a conflict between the Department's criteria and the Manufacturer's criteria, construct using the more restrictive. The Engineer and Manufacturer's Representative must approve all alternate installation methods prior to execution. Construct according to the Manufacturer's recommendations and the following as minimum installation technique:

**3.1 Site Preparation.** Grade areas to be treated with matting and compact. Remove large rocks, soil clods, vegetation, roots, and other sharp objects that could keep the mat from intimate contact with subgrade. Prepare seedbed by loosening the top 2 to 3 inch of soil.

**3.2 Installation.** Install mats according to Standard Drawing Sepias "Turf Mat Channel Installation" and "Turf Mat Slope Installation." Install mats at the specified elevation and alignment. Anchor the mats with staples with a minimum length of 12 inches. Use longer anchors for installations in sandy, loose, or wet soils as directed by the Engineer or Manufacturer's Representative. The mat should be in direct contact with the soil surface.

**4.0 MEASUREMENT.** The Department will measure the quantity of Turf Reinforcement Mat by the square yard of surface covered. The Department will not measure preparation of the bed, providing a Manufacturer's Representative, topsoil, or seeding for payment and will consider them incidental to the Turf Reinforcement Mat. The Department will not measure any reworking of slopes or channels for payment as it is considered corrective work and incidental to the Turf Reinforcement Mat. Seeding and protection will be an incidental item.

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

<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

June 15, 2012

**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.



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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

May 7, 2014

### **SPECIAL PROVISION FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES**

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

**1.0 DESCRIPTION.** Construct a soil, granular, or rock embankment with soil, granular or cohesive pile core and place structure granular backfill, as the Plans require. Construct the embankment according to the requirements of this Special Provision, the Plans, Standard Drawing RGX 100 and 105, and the Standard Specifications, Current Edition.

#### **2.0 MATERIALS.**

**2.1 Granular Embankment.** Conform to Subsection 805.10. When Granular Embankment materials are erodible or unstable according to Subsection 805.03.04, use the Special Construction Methods found in 3.2 of the Special Provision.

**2.2 Rock Embankment.** Provide durable rock from roadway excavation that consists principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone.

**2.3 Pile Core.** Provide a pile core in the area of the embankments where deep foundations are to be installed unless otherwise specified. The Pile Core is the zone indicated on Standard Drawings RGX 100 and 105 designated as Pile Core. Material control of the pile core area during embankment construction is always required. Proper Pile Core construction is required for installation of foundation elements such as drilled or driven piles or drilled shafts. The type of material used to construct the pile core is as directed in the plans or below. Typically, the pile core area will be constructed from the same material used to construct the surrounding embankment. Pile Core can be classified as one of three types:

**A) Pile Core -** Conform to Section 206 of the Standard Specifications. Provide pile core material consisting of the same material as the adjacent embankment except the material in the pile core area shall be free of boulders or particle sizes larger than 4 inches in any dimension or any other obstructions that may hinder pile driving operations. If the pile core material hinders pile driving operations, take the appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

**B) Granular Pile Core.** Granular pile core is required only when specified in the plans. Select a gradation of durable rock to facilitate pile driving that conforms to Subsection 805.11. If granular pile core material hinders pile driving operations, take appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

**C) Cohesive Pile Core.** Cohesive Pile Core is required only when specified in the plans. Conform to Section 206 of the Standard Specifications and use soil with at least 50 percent passing a No. 4 sieve having a minimum Plasticity Index (PI) of 10. In addition, keep the cohesive pile core free of boulders, larger than 4 inches in any dimension, or any other obstructions, which would interfere with drilling operations. If cohesive pile core material interferes with drilling operations, take appropriate means necessary to maintain

excavation stability, at no expense to the Department.

**2.4 Structure Granular Backfill.** Conform to Subsection 805.11

**2.5 Geotextile Fabric.** Conform to Type I or Type IV in Section 214 and 843.

### **3.0 CONSTRUCTION.**

**3.1 General.** Construct roadway embankments at end bents according to Section 206 and in accordance with the Special Provision, the Plans, and Standard Drawings for the full embankment section. In some instances, granular or rock embankment will be required for embankment construction for stability purposes, but this special provision does not prevent the use of soil when appropriate. Refer to the plans for specific details regarding material requirements for embankment construction.

Place and compact the pile core and structure granular backfill according to the applicable density requirements for the project. If the embankment and pile core are dissimilar materials (i.e., a granular pile core is used with a soil embankment or a cohesive pile core is used with a granular embankment), a Geotextile Fabric, Type IV, will be required between the pile core and embankment in accordance with Sections 214 and 843 of the Standard Specifications.

When granular or rock embankment is required for embankment construction, conform to the general requirements of Subsection 206.03.02 B. In addition, place the material in no greater than 2-foot loose lifts and compact with a vibrating smooth wheel roller capable of producing a minimum centrifugal force of 15 tons. Apply these requirements to the full width of the embankment for a distance of half the embankment height or 50 feet, whichever is greater, as shown on Standard Drawing RGX-105.

When using granular pile core, install 8-inch perforated underdrain pipe at or near the elevation of the original ground in the approximate locations depicted on the standard drawing, and as the Engineer directs, to ensure positive drainage of the embankment. Wrap the perforated pipe with a fabric of a type recommended by the pipe manufacturer.

After constructing the embankment, excavate for the end bent cap, drive piling, install shafts or other foundation elements, place the mortar bed, construct the end bent, and complete the embankment to finish grade according to the construction sequence shown on the Plans or Standard Drawings and as specified hereinafter.

Certain projects may require widening of existing embankments and the removal of substructures. Construct embankment according to the plans. Substructure removal shall be completed according to the plans and Section 203. Excavation may be required at the existing embankment in order to place the structure granular backfill as shown in the Standard Drawings.

After piles are driven or shafts installed (see design drawings), slope the bottom of the excavation towards the ends of the trench as noted on the plans for drainage. Using a separate pour, place concrete mortar, or any class concrete, to provide a base for forming and placing the cap. Place side forms for the end bent after the mortar has set sufficiently to support workmen and forms without being disturbed.

Install 4-inch perforated pipe in accordance with the plans and Standard Drawings. In the event slope protection extends above the elevation of the perforated pipe, extend the pipe through the slope protection.

After placing the end bent cap and achieving required concrete cylinder strengths, remove adjacent forms and fill the excavation with compacted structure granular backfill material (maximum 1' loose lifts) to the level of the berm prior to placing beams for the bridge. Place Type IV geotextile fabric between embankment material and structure granular backfill. After completing the end bent backwall, or after completing the span end

wall, place the compacted structure granular backfill (maximum 1' loose lifts) to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill (maximum 1' loose lifts) at no expense to the Department. Do not place backfill before removing adjacent form work. Place structure granular backfill material in trench ditches at the ends of the excavation. Place Geotextile Fabric, Type IV over the surface of the compacted structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means approved by the Engineer. Thoroughly compact the backfill under the overhanging portions of the structure to ensure that the backfill is in intimate contact with the sides of the structure.

Do not apply seeding, sodding, or other vegetation to the exposed granular embankment.

**3.2 Special Construction Methods.** Erodible or unstable materials may erode even when protected by riprap or channel lining; use the special construction method described below when using these materials.

Use fine aggregates or friable sandstone granular embankment at "dry land" structures only. Do not use them at stream crossings or locations subject to flood waters.

For erodible or unstable materials having 50 percent or more passing the No. 4 sieve, protect with geotextile fabric. Extend the fabric from the original ground to the top of slope over the entire area of the embankment slopes on each side of, and in front of, the end bent. Cover the fabric with at least 12 inches of non-erodible material.

For erodible or unstable materials having less than 50 percent passing a No. 4 sieve, cover with at least 12 inches of non-erodible material.

Where erodible or unstable granular embankment will be protected by riprap or channel lining, place Type IV geotextile fabric between the embankment and the specified slope protection.

#### **4.0 MEASUREMENT.**

**4.1 Granular Embankment.** The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment any Granular Embankment that is not called for in the plans.

The Department will not measure for payment any special construction caused by using erodible or unstable materials and will consider it incidental to the Granular Embankment regardless of whether the erodible or unstable material was specified or permitted.

**4.2 Rock Embankment.** The Department will not measure for payment any rock embankment and will consider it incidental to roadway excavation or embankment in place, as applicable. Rock embankments will be constructed using granular embankment on projects where there is no available rock present within the excavation limits of the project.

**4.3 Pile Core.** Pile core will be measured and paid under roadway excavation or embankment in place, as applicable. The Department will not measure the pile core for separate payment. The Department will not measure for payment the 8-inch perforated underdrain pipe and will consider it incidental to the Pile Core.

**4.4 Structure Granular Backfill.** The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure any additional material required for backfill outside the limits shown on the Plans and Standard Drawings for payment and will

consider it incidental to the work.

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

**4.5 Geotextile Fabric.** The Department will not measure the quantity of fabric used for separating dissimilar materials when constructing the embankment and pile core and will consider it incidental to embankment construction.

The Department will not measure for payment the Geotextile Fabric used to separate the Structure Granular Backfill from the embankment and aggregate base course and will consider it incidental to Structure Granular Backfill.

The Department will not measure for payment the Geotextile Fabric required for construction with erodible or unstable materials and will consider it incidental to embankment construction.

**4.6 End Bent.** The Department will measure the quantities according to the Contract. The Department will not measure furnishing and placing the 2-inch mortar or concrete bed for payment and will consider it incidental to the end bent construction.

**4.7 Structure Excavation.** The Department will not measure structure excavation on new embankments for payment and will consider it incidental to the Structure Granular Backfill or Concrete as applicable.

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

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02223	Granular Embankment	Cubic Yards
02231	Structure Granular Backfill	Cubic Yards

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

September 16, 2016

**PART III**

**EMPLOYMENT, WAGE AND RECORD REQUIREMENTS**

FHWA-1273 -- Revised May 1, 2012

### REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

#### ATTACHMENTS

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

#### I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

#### II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are



applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

**III. NONSEGREGATED FACILITIES**

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

**IV. DAVIS-BACON AND RELATED ACT PROVISIONS**

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

**1. Minimum wages**

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (ii) The classification is utilized in the area by the construction industry; and
- (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

## 2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

## 3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-

Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### 4. Apprentices and trainees

##### a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly

rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

##### b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination: debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the 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 (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

### 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 (7) provides:

No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.

KRS 11A.040 (9) states:

A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:

- a) The date of leaving office or termination of employment; or
- b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

**TRANSPORTATION CABINET  
DIVISION OF CONSTRUCTION PROCUREMENT  
PROJECT WAGE RATES**

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HENDERSON COUNTY, STP BRO 5053 (031)

US60 – Spottsville Bridge (051B00015N) over Green River #27516

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**NOTICE:**

There are two (2) sets of wage rates established for this project. The contractor shall use federal wage rate decision number KY20190071 when bridge work is performed on the US60 (051B00015N). Wage rate decision number KY2019040 shall apply for all other road and bridge work performed.

"General Decision Number: KY20190071 02/01/2019

Superseded General Decision Number: KY20180150

State: Kentucky

Construction Type: Heavy

County: Henderson County in Kentucky.

HEAVY CONSTRUCTION PROJECTS (including sewer/water construction).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the



Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/04/2019
1	02/01/2019

CARP0090-001 04/01/2014

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 24.24	17.20

ELEC1701-001 06/01/2018

	Rates	Fringes
ELECTRICIAN.....	\$ 31.04	15.74

ENGI0181-050 07/01/2016

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 31.05	14.65
GROUP 2.....	\$ 28.28	14.65
GROUP 4.....	\$ 27.97	14.65

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - Crane; Drill; Loader; Mechanic; Pumpcrete

GROUP 2 - Bobcat/Skid Steer/Skid Loader; Concrete Pump

GROUP 4 - Pump

Operators on cranes with booms 150 feet and over (including jib) shall receive \$1.00 above Group 1 rate; 250 feet and over including jib shall receive \$1.50 above Class 1 rate.

Combination Rate: All crane operators operating cranes, where the length of the boom in combination with the length of the piling leads equal or exceeds 150 feet, shall receive \$1.00 above the Group 1 rate.

Employees assigned to work below ground level are to be paid 10% above basic wage rate. This does not apply to open cut work.

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IRON0070-001 06/01/2018

	Rates	Fringes
IRONWORKER (ORNAMENTAL AND REINFORCING) .....	\$ 28.79	22.50

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LABO0265-015 05/01/2015

	Rates	Fringes
LABORER Flagger.....	\$ 28.72	9.85

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LABO0561-013 07/01/2018

	Rates	Fringes
LABORER Backfiller, Common or General, Concrete Worker, Form Stripping & Grade		

Checker.....	\$ 22.71	15.00
Concrete Finishing.....	\$ 23.61	15.00
Jack Hammer, Pipelayer& Tamper (Hand Held/Walk Behind).....	\$ 22.96	15.00

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 LAB01392-003 07/01/2018

Rates Fringes

LABORER

Concrete Saw (Hand Held/Walk Behind).....	\$ 24.49	13.04
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 \* UAVG-KY-0005 01/01/2019

Rates Fringes

OPERATOR: Forklift.....	\$ 31.43	15.75
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 \* UAVG-KY-0006 01/01/2019

Rates Fringes

OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 32.70	15.75
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 SUKY2011-027 06/25/2014

Rates Fringes

IRONWORKER, STRUCTURAL.....	\$ 25.46	17.49
OPERATOR: Bulldozer.....	\$ 23.63	10.98
OPERATOR: Oiler.....	\$ 24.34	13.00

OPERATOR: Roller.....	\$ 20.21	13.00
OPERATOR: Trencher.....	\$ 26.34	12.58
TRUCK DRIVER: Dump Truck.....	\$ 16.69	6.20

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

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)).

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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.

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#### 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"



## PROJECT WAGE RATES / FEDERAL FUNDED

The contractor shall use the Davis-Bacon Act Wage Determinations for Highway construction that are effective 10 calendar days prior to the letting date. The project wage determinations can be found at the following link.

[https://beta.sam.gov/search?index=wd&date\\_filter\\_index=0&date\\_rad\\_selection=date&wdType=dbra&construction\\_type=Highway&state=KY&page=1](https://beta.sam.gov/search?index=wd&date_filter_index=0&date_rad_selection=date&wdType=dbra&construction_type=Highway&state=KY&page=1)

The Division of Construction Procurement will post the official Wage Determinations for each Letting at <https://transportation.ky.gov/Construction-Procurement/Pages> under Lettings - Proposal Information - Wage Determinations.

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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 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 to an employee at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek. 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

**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:

<b>GOALS FOR MINORITY PARTICIPATION IN EACH TRADE</b>	<b>GOALS FOR FEMALE PARTICIPATION IN EACH TRADE</b>
4.8%	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 Henderson County.

**PART IV**  
**INSURANCE**

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

**PART V**  
**BID ITEMS**

**PROPOSAL BID ITEMS**

191239

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Report Date 8/29/19

**Section: 0001 - PAVING**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	9,290.00	TON		\$	
0020	00100		ASPHALT SEAL AGGREGATE	67.00	TON		\$	
0030	00103		ASPHALT SEAL COAT	8.00	TON		\$	
0040	00190		LEVELING & WEDGING PG64-22	173.00	TON		\$	
0050	00212		CL2 ASPH BASE 1.00D PG64-22	2,980.00	TON		\$	
0060	00214		CL3 ASPH BASE 1.00D PG64-22	3,143.00	TON		\$	
0070	00301		CL2 ASPH SURF 0.38D PG64-22	1,170.00	TON		\$	
0080	00324		CL3 ASPH SURF 0.50B PG64-22	787.00	TON		\$	
0090	00356		ASPHALT MATERIAL FOR TACK	16.00	TON		\$	
0100	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
0110	02677		ASPHALT PAVE MILLING & TEXTURING	66.00	TON		\$	
0120	20071EC		JOINT ADHESIVE	3,872.00	LF		\$	
0130	22861EN		HIGH STRENGTH GEOTEXTILE FABRIC TY V	11,864.00	SQYD		\$	

**Section: 0002 - ROADWAY**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0140	00078		CRUSHED AGGREGATE SIZE NO 2	21,585.00	TON		\$	
0150	01891		ISLAND HEADER CURB TYPE 2	2,331.00	LF		\$	
0160	01895		VALLEY GUTTER	80.00	LF		\$	
0170	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	56.00	EACH		\$	
0180	01990		DELINEATOR FOR BARRIER WALL-B/W	24.00	EACH		\$	
0190	02014		BARRICADE-TYPE III	16.00	EACH		\$	
0200	02091		REMOVE PAVEMENT	677.00	SQYD		\$	
0210	02159		TEMP DITCH	2,687.00	LF		\$	
0220	02160		CLEAN TEMP DITCH	1,343.00	LF		\$	
0230	02230		EMBANKMENT IN PLACE	95,595.00	CUYD		\$	
0240	02242		WATER (FOR DUST CONTROL)	280.00	MGAL		\$	
0250	02351		GUARDRAIL-STEEL W BEAM-S FACE	3,500.00	LF		\$	
0260	02360		GUARDRAIL TERMINAL SECTION NO 1	8.00	EACH		\$	
0270	02363		GUARDRAIL CONNECTOR TO BRIDGE END TY A	4.00	EACH		\$	
0280	02367		GUARDRAIL END TREATMENT TYPE 1	3.00	EACH		\$	
0290	02371		GUARDRAIL END TREATMENT TYPE 7	2.00	EACH		\$	
0300	02381		REMOVE GUARDRAIL	2,988.00	LF		\$	
0310	02397		TEMP GUARDRAIL	1,762.50	LF		\$	
0320	02429		RIGHT-OF-WAY MONUMENT TYPE 1	30.00	EACH		\$	
0330	02432		WITNESS POST	16.00	EACH		\$	
0340	02483		CHANNEL LINING CLASS II	743.00	TON		\$	
0350	02484		CHANNEL LINING CLASS III	197.00	TON		\$	
0360	02545		CLEARING AND GRUBBING (APPROXIMATELY 30 ACRES)	1.00	LS		\$	
0370	02562		TEMPORARY SIGNS	678.00	SQFT		\$	
0380	02596		FABRIC-GEOTEXTILE TYPE I	1,360.00	SQYD		\$	
0390	02599		FABRIC-GEOTEXTILE TYPE IV	23,841.00	SQYD		\$	

**PROPOSAL BID ITEMS**

191239

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Report Date 8/29/19

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0400	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0410	02651		DIVERSIONS (BY-PASS DETOURS) (KY 2243)	1.00	LS		\$	
0420	02651		DIVERSIONS (BY-PASS DETOURS) (NO. 2: US 62 STA. 523+70 - 537+52)	1.00	LS		\$	
0430	02651		DIVERSIONS (BY-PASS DETOURS) (NO.1: US 62 STA. 496+91 - 505+28)	1.00	LS		\$	
0440	02653		LANE CLOSURE	2.00	EACH		\$	
0450	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		\$	
0460	02692		SETTLEMENT PLATFORM	1.00	EACH		\$	
0470	02696		SHOULDER RUMBLE STRIPS	5,677.00	LF		\$	
0480	02701		TEMP SILT FENCE	2,687.00	LF		\$	
0490	02703		SILT TRAP TYPE A	30.00	EACH		\$	
0500	02704		SILT TRAP TYPE B	30.00	EACH		\$	
0510	02705		SILT TRAP TYPE C	30.00	EACH		\$	
0520	02706		CLEAN SILT TRAP TYPE A	30.00	EACH		\$	
0530	02707		CLEAN SILT TRAP TYPE B	30.00	EACH		\$	
0540	02708		CLEAN SILT TRAP TYPE C	30.00	EACH		\$	
0550	02726		STAKING	1.00	LS		\$	
0560	02731		REMOVE STRUCTURE (2 SPAN STEEL THRU TRUSS BRIDGE, STA. 514+64)	1.00	LS		\$	
0570	03340		STEEL PIPE-2 1/2 IN	42.00	LF		\$	
0580	03343		STEEL PIPE-4 IN	42.00	LF		\$	
0590	04933		TEMP SIGNAL 2 PHASE	1.00	EACH		\$	
0600	05950		EROSION CONTROL BLANKET	4,091.00	SQYD		\$	
0610	05952		TEMP MULCH	78,889.00	SQYD		\$	
0620	05953		TEMP SEEDING AND PROTECTION	59,165.00	SQYD		\$	
0630	05963		INITIAL FERTILIZER	6.10	TON		\$	
0640	05964		MAINTENANCE FERTILIZER	6.10	TON		\$	
0650	05985		SEEDING AND PROTECTION	108,084.00	SQYD		\$	
0660	05990		SODDING	4,314.00	SQYD		\$	
0670	05992		AGRICULTURAL LIMESTONE	72.50	TON		\$	
0680	06510		PAVE STRIPING-TEMP PAINT-4 IN	31,698.00	LF		\$	
0690	06514		PAVE STRIPING-PERM PAINT-4 IN	2,828.00	LF		\$	
0700	06542		PAVE STRIPING-THERMO-6 IN W	6,249.00	LF		\$	
0710	06543		PAVE STRIPING-THERMO-6 IN Y	6,896.00	LF		\$	
0720	06549		PAVE STRIPING-TEMP REM TAPE-B	600.00	LF		\$	
0730	06550		PAVE STRIPING-TEMP REM TAPE-W	600.00	LF		\$	
0740	06556		PAVE STRIPING-DUR TY 1-6 IN W	2,286.00	LF		\$	
0750	06557		PAVE STRIPING-DUR TY 1-6 IN Y	2,286.00	LF		\$	
0760	06568		PAVE MARKING-THERMO STOP BAR-24IN	175.00	LF		\$	
0770	06588		PAVEMENT MARKER TY IVA-BY TEMP	152.00	EACH		\$	
0780	06600		REMOVE PAVEMENT MARKER TYPE V	35.00	EACH		\$	
0790	10020NS		FUEL ADJUSTMENT	35,096.00	DOLL	\$1.00	\$	\$35,096.00
0800	10030NS		ASPHALT ADJUSTMENT	32,360.00	DOLL	\$1.00	\$	\$32,360.00
0810	20191ED		OBJECT MARKER TY 3	3.00	EACH		\$	
0820	20458ES403		CENTERLINE RUMBLE STRIPS	2,796.00	LF		\$	
0830	20550ND		SAWCUT PAVEMENT	2,293.00	LF		\$	
0840	21289ED		LONGITUDINAL EDGE KEY	1,813.00	LF		\$	
0850	23010EN		PAVE MARK TEMP PAINT STOP BAR-24 IN	238.00	LF		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0860	23274EN11F		TURF REINFORCEMENT MAT 1	479.00	SQYD		\$	
0870	23911EC		GROUT (LOW SLUMP)	314.00	CUYD		\$	
0880	24843EC		VIBRATING WIRE PIEZOMETER	2.00	EACH		\$	
0890	24999EC		DRILLING	15,840.00	LF		\$	
0900	25000EC		MOBILIZATION FOR GROUTING	1.00	L S		\$	

**Section: 0003 - DRAINAGE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0910	00440		ENTRANCE PIPE-15 IN	173.00	LF		\$	
0920	00441		ENTRANCE PIPE-18 IN	274.00	LF		\$	
0930	00443		ENTRANCE PIPE-24 IN	87.00	LF		\$	
0940	00521		STORM SEWER PIPE-15 IN	147.00	LF		\$	
0950	00522		STORM SEWER PIPE-18 IN	46.00	LF		\$	
0960	00981		SLOTTED DRAIN PIPE-15 IN	80.00	LF		\$	
0970	01000		PERFORATED PIPE-4 IN	23.00	LF		\$	
0980	01010		NON-PERFORATED PIPE-4 IN	8.00	LF		\$	
0990	01370		METAL END SECTION TY 1-15 IN	2.00	EACH		\$	
1000	01371		METAL END SECTION TY 1-18 IN	2.00	EACH		\$	
1010	01535		DROP BOX INLET TYPE 6F	3.00	EACH		\$	
1020	01690		FLUME INLET TYPE 1	2.00	EACH		\$	
1030	01691		FLUME INLET TYPE 2	3.00	EACH		\$	
1040	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	308.00	SQYD	\$2.00	\$	\$616.00
1050	24575ES610		HEADWALL (SLOPED & MITERED-18 IN)	2.00	EACH		\$	

**Section: 0004 - BRIDGE - GREEN RIVER - DWG. 27516**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1060	01001		PERFORATED PIPE-6 IN	95.00	LF		\$	
1070	01021		PERF PIPE HEADWALL TY 1-6 IN	1.00	EACH		\$	
1080	02231		STRUCTURE GRANULAR BACKFILL	734.00	CUYD		\$	
1090	02403		REMOVE CONCRETE MASONRY	4.00	CUYD		\$	
1100	02555		CONCRETE-CLASS B	120.00	CUYD		\$	
1110	02612		HANDRAIL-TYPE A-2	105.00	LF		\$	
1120	03299		ARMORED EDGE FOR CONCRETE	160.00	LF		\$	
1130	04795		CONDUIT-2 IN	1,300.00	LF		\$	
1140	04799		CONDUIT-4 IN	4,000.00	LF		\$	
1150	08001		STRUCTURE EXCAVATION-COMMON	5,671.00	CUYD		\$	
1160	08002		STRUCTURE EXCAV-SOLID ROCK	1,200.00	CUYD		\$	
1170	08019		CYCLOPEAN STONE RIP RAP	2,105.00	TON		\$	
1180	08020		CRUSHED AGGREGATE SLOPE PROT	115.00	TON		\$	
1190	08033		TEST PILES	71.00	LF		\$	
1200	08048		PILES-STEEL HP12X74	923.00	LF		\$	
1210	08094		PILE POINTS-12 IN	14.00	EACH		\$	
1220	08100		CONCRETE-CLASS A	2,487.00	CUYD		\$	
1230	08104		CONCRETE-CLASS AA	1,639.30	CUYD		\$	

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1240	08134		MECHANICAL REINF COUPLER #9	180.00	EACH		\$	
1250	08137		MECHANICAL REINF COUPLER #14	108.00	EACH		\$	
1260	08150		STEEL REINFORCEMENT	334,946.00	LB		\$	
1270	08151		STEEL REINFORCEMENT-EPOXY COATED	504,533.00	LB		\$	
1280	08160		STRUCTURAL STEEL (APPROXIMATELY 3,014,330 LBS)	1.00	LS		\$	
1290	08170		SHEAR CONNECTORS (APPROXIMATELY 11,040 EA)	1.00	LS		\$	
1300	08500		APPROACH SLAB	254.00	SQYD		\$	
1310	08752		PAINT CLEARANCE GAUGES	1.00	LS		\$	
1320	14048		W PIPE DCTL IRON RSTRND JOINT 08 IN	1,145.00	LF		\$	
1330	20745ED		ROCK SOUNDINGS	154.00	LF		\$	
1340	20746ED		ROCK CORINGS	162.00	LF		\$	
1350	21532ED		RAIL SYSTEM TYPE III	2,279.00	LF		\$	
1360	23849EC		BICYCLE RAIL	2,279.00	LF		\$	
1370	23859EC		FINGER EXPANSION JOINT	40.00	LF		\$	
1380	23868EC		STRUCTURE LIGHTNING PROTECTION	1.00	LS		\$	
1390	24614EC		DISC EXPANSION BEARING	2.00	EACH		\$	
1400	24804EC		PPC I-BEAM 4N 78 49	2,288.00	LF		\$	
1410	24874EC		TIP TESTING	6.00	EACH		\$	
1420	24875EC		CSL TESTING (8 TUBES)	6.00	EACH		\$	
1430	25003EC		DRILLED SHAFT - 96 IN (COMMON)	154.00	LF		\$	
1440	25004EC		DRILLED SHAFT - 90 IN (SOLID ROCK)	102.00	LF		\$	
1450	25046EC		DISC FIXED BEARING	2.00	EACH		\$	
1460	25047EC		STRIP SEAL EXPANSION JOINT - 4 INCH	43.00	LF		\$	

**Section: 0005 - BRIDGE - CULVERT - RCBC 6' X 5' - DWG. 27589**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1470	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1480	08100		CONCRETE-CLASS A	81.30	CUYD		\$	
1490	08150		STEEL REINFORCEMENT	6,300.00	LB		\$	

**Section: 0006 - BRIDGE - GREEN RIVER - EXISTING BRIDGE REPAIR**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1500	03301		REPAIR CONCRETE HANDRAIL	15.00	LF		\$	
1510	23304EC		REPAIR TRUSS MEMBER (TYPE 1)	1.00	EACH		\$	
1520	23304EC		REPAIR TRUSS MEMBER (TYPE 2)	2.00	EACH		\$	
1530	23304EC		REPAIR TRUSS MEMBER (TYPE 3)	1.00	EACH		\$	
1540	24084EC		STRINGER REPAIR	7.00	EACH		\$	
1550	24182EC		VERTICAL MEMBER REPAIR	1.00	EACH		\$	

**Section: 0007 - LIGHTING - NAVIGATION & MONITORING SYSTEM**



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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1560	04775		NAVIGATION LIGHT 360 DEG GREEN	2.00	EACH		\$	
1570	04776		NAVIGATION LIGHT 180 DEG RED	4.00	EACH		\$	
1580	04793		CONDUIT-1 1/4 IN	180.00	LF		\$	
1590	06406		SBM ALUM SHEET SIGNS .080 IN	16.00	SQFT		\$	
1600	20410ED		MAINTAIN LIGHTING	1.00	LS		\$	
1610	23365EC		LIGHTING-NAV MONITORING SYSTEM	1.00	LS		\$	
1620	24838EC		SOLAR POWERED NAV LIGHTING SYSTEM (MAINTAIN LIGHTING)	3.00	EACH		\$	

#### Section: 0008 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1630	14003		W CAP EXISTING MAIN	3.00	EACH		\$	
1640	14019		W FIRE HYDRANT ASSEMBLY	1.00	EACH		\$	
1650	14021		W FIRE HYDRANT REMOVE	2.00	EACH		\$	
1660	14028		W METER 3/4 INCH	6.00	EACH		\$	
1670	14058		W PIPE PVC 04 INCH	245.00	LF		\$	
1680	14059		W PIPE PVC 06 INCH	356.00	LF		\$	
1690	14060		W PIPE PVC 08 INCH	1,928.00	LF		\$	
1700	14061		W PIPE PVC 10 INCH	1,020.00	LF		\$	
1710	14089		W TAPPING SLEEVE AND VALVE SIZE 1 (4-IN)	2.00	EACH		\$	
1720	14089		W TAPPING SLEEVE AND VALVE SIZE 1 (6-IN)	1.00	EACH		\$	
1730	14090		W TAPPING SLEEVE AND VALVE SIZE 2 (10-IN)	1.00	EACH		\$	
1740	14095		W TIE-IN 08 INCH	2.00	EACH		\$	
1750	14104		W VALVE 04 INCH	1.00	EACH		\$	
1760	14105		W VALVE 06 INCH	2.00	EACH		\$	
1770	14107		W VALVE 10 INCH	2.00	EACH		\$	
1780	14148		W SERV COPPER LONG SIDE 3/4 IN	1.00	EACH		\$	
1790	14152		W SERV COPPER SHORT SIDE 3/4 IN	5.00	EACH		\$	
1800	14156		W METER REMOVE	6.00	EACH		\$	

#### Section: 0009 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1810	02568		MOBILIZATION	1.00	LS		\$	
1820	02569		DEMOBILIZATION	1.00	LS		\$	