



**CALL NO. 100**

**CONTRACT ID. 241018**

**CHRISTIAN COUNTY**

**FED/STATE PROJECT NUMBER NHPP 0801(107)**

**DESCRIPTION US-68**

**WORK TYPE ASPHALT PAVEMENT & ROADWAY REHAB**

**PRIMARY COMPLETION DATE 10/1/2027**

**LETTING DATE: December 12,2024**

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN STANDARD TIME December 12,2024. Bids will be publicly announced at 10:00 AM EASTERN STANDARD TIME.

**PLANS AVAILABLE FOR THIS PROJECT.**

**DBE CERTIFICATION REQUIRED - 4%**

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

## TABLE OF CONTENTS

PART I	SCOPE OF WORK
	<ul style="list-style-type: none"><li>• PROJECT(S), COMPLETION DATE(S), &amp; LIQUIDATED DAMAGES</li><li>• CONTRACT NOTES</li><li>• FEDERAL CONTRACT NOTES</li><li>• ASPHALT MIXTURE</li><li>• DGA BASE</li><li>• DGA BASE FOR SHOULDERS</li><li>• INCIDENTAL SURFACING</li><li>• ASPHALT PAVEMENT RIDE QUALITY CAT B</li><li>• FUEL AND ASPHALT PAY ADJUSTMENT</li><li>• COMPACTION OPTION A</li><li>• TREE REMOVAL</li><li>• WASTE AND BORROW SITES</li><li>• PIPELINE INSPECTION</li><li>• NON-TRACKING TACK COAT</li><li>• RIGHT OF WAY CERTIFICATION</li><li>• UTILITY IMPACT &amp; RAIL CERTIFICATION NOTES</li><li>• GENERAL UTILITY NOTES</li><li>• WATER STANDARD UTILITY BID ITEMS</li><li>• SEWER STANDARD UTILITY BID ITEMS</li><li>• UTILITY SPECIFICATIONS</li><li>• DEPT OF ARMY - NATIONWIDE PERMIT</li><li>• KPDES STORM WATER PERMIT, BMP AND ENOI</li><li>• GUARDRAIL DELIVERY VERIFICATION SHEET</li></ul>
PART II	SPECIFICATIONS AND STANDARD DRAWINGS
	<ul style="list-style-type: none"><li>• STANDARD AND SUPPLEMENTAL SPECIFICATIONS</li><li>• [SN-1I] PORTABLE CHANGEABLE MESSAGE SIGNS</li><li>• [SN-11M] BARCODE LABEL ON PERMANENT SIGNS</li></ul>
PART III	EMPLOYMENT, WAGE AND RECORD REQUIREMENTS
	<ul style="list-style-type: none"><li>• FEDERAL-AID CONSTRUCTION CONTRACTS - FHWA 1273</li><li>• NONDISCRIMINATION OF EMPLOYEES</li><li>• EXECUTIVE BRANCH CODE OF ETHICS</li><li>• PROJECT WAGE RATES LOCALITY 1 / FEDERAL</li><li>• NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EEO CHRISTIAN</li></ul>
PART IV	INSURANCE
PART V	BID ITEMS

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

## ADMINISTRATIVE DISTRICT - 02

**CONTRACT ID - 241018**

**NHPP 0801(107)**

**COUNTY - CHRISTIAN**

**PCN - DE02400682418**

**NHPP 0801(107)**

US-68 (MP 9.22) ADDRESS CONGESTION AND MOBILITY OF US-68 FROM KY-91 TO KY-1007 IN HOPKINSVILLE (MP 10.13), A DISTANCE OF 01.07 MILES.ASPHALT PAVEMENT & ROADWAY REHAB SYP NO. 02-00899.00.

GEOGRAPHIC COORDINATES LATITUDE 36:52:36.00 LONGITUDE 87:30:20.00

ADT

**COMPLETION DATE(S):**

COMPLETED BY 10/01/2027

APPLIES TO ENTIRE CONTRACT

COMPLETED BY 05/15/2026

INTERMEDIATE COMPLETION DATE



## **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 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/construction-procurement](http://www.transportation.ky.gov/construction-procurement)). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

### **HARDWOOD REMOVAL RESTRICTIONS**

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

### **INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES**

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

### **ACCESS TO RECORDS**

The state agency certifies that it is in compliance with the provisions of KRS 45A.150, "Access to contractor's books, documents, papers, records, or other evidence directly pertinent to the contract." The Contractor, as defined in KRS 45A.030, agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this agreement for

the purpose of financial audit or program review. The Contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the agreement and shall be exempt from disclosure as provided in KRS 61.878(1)(c).

### **BOYCOTT PROVISIONS**

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

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

### **LOBBYING PROHIBITIONS**

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

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

Revised: 9/1/2024

## **1.0 BUY AMERICA REQUIREMENT.**

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

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

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

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

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

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

Use foreign materials only under the following conditions:

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

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

## **2.0 – BUILD AMERICA, BUY AMERICA (BABA)**

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

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

BABA permits FHWA participation in the Contract only if all “construction materials” as defined in the Act are made in the United States. The Buy America preference applies to the following construction materials

incorporated into infrastructure projects: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); Fiber optic cable; optical fiber; lumber; engineered wood; and drywall. Contractor will be required to use construction materials produced in the United States on this Project. The Contractor shall submit a certification stating that all construction materials are certified to be BABA compliant.

Finally, BABA permits the continuation of FHWA's current general applicability waivers for manufactured products, raw materials, and ferryboat parts, but these waivers are subject to reevaluation, specifically the general applicability waiver for manufactured products.

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

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

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

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

[Buy America - Construction Program Guide - Contract Administration - Construction - Federal Highway Administration \(dot.gov\)](#)

October 26, 2023 Letting

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

10/26/2023

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

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

Date Submitted: \_\_\_\_\_

Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

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

### **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 Transportation Cabinet, Department of Highways, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, sex, age (over 40), religion, sexual orientation, gender identity, veteran status, disability, income- level, or Limited English Proficiency (LEP) in consideration for an award.

### **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 are acceptable per Section 108.01 of the Standard Specifications for Road and Bridge Construction. Sub-Contractors fulfilling a disadvantaged business enterprise goal on a project may enter into a 2<sup>nd</sup> tier subcontract with a Non-DBE Subcontractor. However, in this instance, none of the work subcontracted to the Non-DBE Contractor will count toward fulfilling the established Disadvantaged Goal for the project.

### **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.

**AFTER PROJECT AWARD AND BEFORE NOTICE TO PROCEED/WORK ORDER IS ISSUED (SEE SECTION 103.06, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION**

Prime Contractors awarded a federally funded project with a DBE Goal greater than zero will be required to submit a fully executed DBE Subcontract, along with the attached FHWA 1273 and Certificate of Liability Insurance for each DBE Firm submitted as part of the previously approved DBE Utilization Plan (TC 14-35). A signed quote or purchase order shall be attached when the DBE subcontractor is a material supplier or broker.

The Certificate of Liability Insurance submitted must meet the requirements outlined in Section 107.18 of the Standard Specifications for Road and Bridge Construction.

Changes to **APPROVED** DBE Participation Plans must be approved by the Office for Civil Rights & Small Business Development. 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 for 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:

- Suspension of Prequalification;
- 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 and Non-DBE Subcontractors 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 for 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 for 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. Tony Youssefi. Mr. Youssefi's current contact information is email address – [tyousseffi@ky.gov](mailto:tyousseffi@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.

### **PROHIBITION ON TELECOMMUNICATIONS EQUIPMENT OR SERVICES**

In accordance with the FY 2019 National Defense Authorization Act (NDAA), 2 CFR 200.216, and 2 CFR 200.471, Federal agencies are prohibited, after August 13, 2020, from obligating or expending financial assistance to obtain certain telecommunications and video surveillance services and equipment from specific producers. As a result of these regulations, contractors and subcontractors are prohibited, on projects with federal funding participation, from providing telecommunication or video surveillance equipment, services, or systems produced by:

- Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities)
- Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities)

**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.

### **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.

### **DGA BASE**

Unless otherwise noted, the Department estimates the rate of application for DGA Base to be 115 lbs/sy per inch of depth.

### **DGA BASE FOR SHOULDERS**

Unless otherwise noted, the Department estimates the rate of application for DGA Base for Shoulders to be 115 lbs/sy per inch of depth. The Department will not measure necessary grading and/or shaping of existing shoulders prior to placing of DGA Base, but shall be incidental to the Contract unit price per ton for DGA Base.

Accept payment at the Contract unit price per ton as full compensation for all labor, materials, equipment, and incidentals for grading and/or shaping of existing shoulders and furnishing, placing, and compacting the DGA Base.

### **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.

### **ASPHALT PAVEMENT RIDE QUALITY CATEGORY B**

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

### **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.

***SPECIAL NOTE***

**For Tree Removal**

**Christian County  
ADDRESS CONGESTION AND MOBILITY OF US 68  
FROM KY 91 TO KY 1007 IN HOPKINSVILLE  
Item No. 2-899**

NO CLEARING OF TREES 5 INCHES OR GREATER (DIAMETER BREAST  
HEIGHT) FROM MAY 15 - 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.**



## **SPECIAL PROVISION FOR WASTE AND BORROW SITES**

Obtain U.S. Army Corps of Engineer's approval before utilizing a waste or borrow site that involves "Waters of the United States". The Corps of Engineers defines "Waters of the United States" as perennial or intermittent streams, ponds or wetlands. The Corps of Engineers also considers ephemeral streams, typically dry except during rainfall but having a defined drainage channel, to be jurisdictional waters. Direct questions concerning any potential impacts to "Waters of the United States" to the attention of the appropriate District Office for the Corps of Engineers for a determination prior to disturbance. Be responsible for any fees associated with obtaining approval for waste and borrow sites from the U.S. Army Corps of Engineer or other appropriate regulatory agencies.

1-296 Waste & Borrow Sites  
01/02/2012

## **SPECIAL NOTE FOR PIPELINE INSPECTION**

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

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

### **2.1 INSPECTION FOR DEFECTS AND DISTRESSES**

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

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

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

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

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

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

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

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

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

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

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

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

**3.6** AASHTO Nominal Diameters and Maximum Deflection Limits.

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

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

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

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

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

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

**4.2** Record and submit all data.

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

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

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

<b>RIGID PIPE REMEDIATION TABLE PIPE</b>	
Crack Width (inches)	Payment
≤ 0.1	100% of the Unit Bid Price
Greater than 0.1	Remediate or Replace <sup>(1)</sup>

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

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

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

**SPECIAL NOTE FOR NON-TRACKING TACK COAT**

1. DESCRIPTION AND USEAGE. This specification covers the requirements and practices for applying a non-tracking tack asphalt coating. Place this material on the existing pavement course, prior to placement of a new asphalt pavement layer. Use when expedited paving is necessary or when asphalt tracking would negatively impact the surrounding area. This material is not suitable for other uses. Ensure material can “break” within 15 minutes under conditions listed in 3.2.
2. MATERIALS, EQUIPMENT, AND PERSONNEL.

2.1 Non-Tracking Tack. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide a tack conforming to the following material requirements:

Property	Specification	Test Procedure
Viscosity, SFS, 77 ° F	20 – 100	AASHTO T 72
Sieve, %	0.3 max.	AASHTO T 59
Asphalt Residue <sup>1</sup> , %	50 min.	AASHTO T 59
Oil Distillate, %	1.0 max.	AASHTO T 59
Residue Penetration, 77 ° F	0 - 30	AASHTO T 49
Original Dynamic Shear (G*/sin δ), 82 ° C	1.0 min.	AASHTO T 315
Softening Point, ° F	149 min.	AASHTO T 53
Solubility, %	97.5 min.	AASHTO T 44

<sup>1</sup> Bring sample to 212 °F over a 10-15 minute period. Maintain 212 °F for 15-20 minutes or until 30-40 mL of water has distilled. Continue distillation as specified in T59.

- 2.2. Equipment. Provide a distributor truck capable of heating, circulating, and spraying the tack between 170 °F and 180 °F. Do not exceed 180 °F. Circulate the material while heating. Provide the correct nozzles that is recommend by the producer to ensure proper coverage of tack is obtained. Ensure the bar can be raised to between 14” and 18” from the roadway.
- 2.3. Personnel. Ensure the tack supplier has provided training to the contractor on the installation procedures for this product. Make a technical representative from the supplier available at the request of the Engineer.

3. CONSTRUCTION.

3.1 Surface Preparation. Prior to the application of the non-tracking tack, ensure the pavement surface is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the surface by scraping, sweeping, and the use of compressed air. Ensure this preparation process occurs shortly before application to prevent the return of debris on to the pavement. If rain is expected within one hour after application, do not apply material. Apply material only when the surface is dry, and no precipitation is expected.

3.2 Non-tracking Tack Application. Placement of non-tracking tack is not permitted from October 1<sup>st</sup> to May 15<sup>th</sup>. When applying material, ensure the roadway temperature is a minimum of 40°F and rising. Prior to application, demonstrate competence in applying the tack according to this note to the satisfaction of the Engineer. Heat the tack in the distributor to between 170 – 180 °F. After the initial heating, between 170 – 180 °F, the material may be sprayed between 165 °F and 180 °F. Do not apply outside this temperature range. Apply material at a minimum rate of 0.70 pounds (0.08 gallons) per square yard. Ensure full coverage of the material on the pavement surface. Full coverage of this material is critical. Increase material application rate if needed to achieve full coverage. Schedule the work so that, at the end of the day's production, all non-tracking tack is covered with the asphalt mixture. If for some reason the non-tracking tack cannot be covered by an asphalt mixture, ensure the non-tracking tack material is clean and reapply the non-tracking tack prior to placing the asphalt mixture. Do not heat material more than twice in one day.

3.3 Non-tracking Tack Certification. Furnish the tack 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 sample of non-tracking tack be taken from the distributor at a rate of one sample per 15,000 tons of mix. Take two 1 gallon samples of the heated material and forward the sample to the Division of Materials for testing within 7 days. Ensure the product temperature is between 170 and 180 °F at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of non-tracking tack in tons. 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 non-tracking tack, the cleaning of the pavement surface, or furnishing and placing the non-tracking tack. The Department will consider all such items incidental to the non-tracking tack.
5. PAYMENT. The Department will pay for the non-tracking tack 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. Non-tracking tack will not be permitted for use from October 1<sup>st</sup> to May 15<sup>th</sup>. During this timeframe, the department will allow the use of an approved asphalt emulsion in lieu of a non-tracking tack product but will not adjust the unit bid price of the material. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

Non-Tracking Tack Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Viscosity, SFS, 77 ° F	20 – 100	19 - 102	17 - 18	15 - 16	14	≤13
			103 - 105	106 - 107	108 - 109	≥ 110
Sieve, %	0.30 max.	≤ 0.40	0.41 - 0.50	0.51 - 0.60	0.61 - 0.70	≥ 0.71
Asphalt Residue, %	50 min.	≥49.0	48.5 – 48.9	48.0 – 48.4	47.5-47.9	≤ 47.4
Oil Distillate, %	1.0 max.	≤1.0	1.1-1.5	1.6 - 1.7	1.8-1.9	>2.0
Residue Penetration, 77 ° F.	30 max.	≤ 31	32 - 33	34 - 35	36 - 37	≥ 38
Original Dynamic Shear (G*/sin δ), 82 ° C	1.0 min.	≥0.95	0.92 – 0.94	0.90 – 0.91	0.85 - 0.89	≤ 0.84
Softening Point, ° F	149 min.	≥145	142 - 144	140 - 141	138 - 139	≤ 137
Solubility, %	97.5 min.	≥ 97.0	96.8 – 96.9	96.6 – 96.7	96.4 – 96.5	≤ 96.3

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24970EC	Asphalt Material for Tack Non-Tracking	Ton

Revised: May 23, 2022





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>	<b>RIGHT OF WAY CERTIFICATION</b>			
<b>ITEM #</b>		<b>COUNTY</b>		<b>PROJECT # (STATE)</b>		<b>PROJECT # (FEDERAL)</b>	
2-899.00		Christian		12F0 FD52 024 9334501R		NHPP 0801 (107)	
<b>PROJECT DESCRIPTION</b>							
Address congestion and mobility of US 68 from KY 91 to KY 1007 in Hopkinsville.							
<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		61	EXCEPTION (S) Parcel #		ANTICIPATED DATE OF POSSESSION WITH EXPLANATION		
Number of Parcels That Have Been Acquired							
Signed Deed		61					
Condemnation							
Signed ROE							
<b>Notes/ Comments (Use Additional Sheet if necessary)</b>							
<b>LPA RW Project Manager</b>				<b>Right of Way Supervisor</b>			
Printed Name				Printed Name		Digitally signed by Jennifer K. Cox	
Signature				Signature			
Date				Date		Date: 2024.11.06 05:49:18 -06'00'	
<b>Right of Way Director</b>				<b>FHWA</b>			
Printed Name				Printed Name			
Signature				Signature			
Date		Date: 2024.11.06 07:41:09 -05'00'		Date			

## UTILITIES AND RAIL CERTIFICATION NOTE

**Christian County**  
**0NHPP0801107**  
**FD52 024 9334501U**  
**Mile point: 9.220 TO 10.130**  
**ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN**  
**HOPKINSVILLE. (18CCN) (2020CCR)**  
**ITEM NUMBER: 02-899.00**

### PROJECT NOTES ON UTILITIES

The contractor should be aware that there is UTILITY WORK INCLUDED IN THIS ROAD CONSTRUCTION CONTRACT. The Contractor shall review the GENERAL UTILITY NOTES AND INSTRUCTIONS which may include KYTC Utility Bid Item Descriptions, utility owner supplied specifications, plans, list of utility owner preapproved subcontractors, and other instructions. Utility contractors may be added via addendum if KYTC is instructed to do so by the utility owner. Potential contractors must seek prequalification from the utility owner. Any revisions must be sent from the utility owner to KYTC a minimum of one week prior to bid opening.

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

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs. The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

## UTILITIES AND RAIL CERTIFICATION NOTE

**Christian County  
0NHPP0801107  
FD52 024 9334501U  
Mile point: 9.220 TO 10.130  
ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN  
HOPKINSVILLE. (18CCN) (2020CCR)  
ITEM NUMBER: 02-899.00**

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. The contractor is instructed to contact KY 811 for the location of existing underground utilities. Contact shall be made a minimum of two (2) and no more than ten (10) business days prior to excavation. The contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY 811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom are to be contacted through their individual Protection Notification Center. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area. Non-compliance with these directives can result in the enforcement of penalties.

**NOTE: DO NOT DISTURB THE FOLLOWING FACILITIES LOCATED WITHIN THE PROJECT  
DISTURB LIMITS**

### **Overhead Electric Facilities**

**Hopkinsville Electric System** has existing facilities along the northside of US 68 with several service feeds crossing over to the southside throughout the limits of the project. The existing overhead electric facilities cross over to the southside of US 68 near Earl Drive and continue on the southside through the terminating limit of the project. The Contractor

## UTILITIES AND RAIL CERTIFICATION NOTE

**Christian County**  
**0NHPP0801107**  
**FD52 024 9334501U**  
**Mile point: 9.220 TO 10.130**  
**ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN**  
**HOPKINSVILLE. (18CCN) (2020CCR)**  
**ITEM NUMBER: 02-899.00**

is to use caution when working around the existing facilities, coordinating with the company and notifying them of the beginning of construction.

### **Communication Facilities**

**AT&T and Spectrum** have existing overhead communication facilities along the northside and southside of US 68 before all facilities cross over to the southside of US 68 near Earl Drive for the remaining limits of the project. The Contractor is to use caution when working around the existing facilities, coordinating with the company and notifying them of the beginning of construction.

### **Gas Facilities**

**Atmos Energy** has an existing 4" HDPE gas line along the southside of US68 throughout the limits of the project with several service lines crossing over to the northside of US 68. The Contractor is to use caution when working around the existing facilities, coordinating with the company and notifying them of the beginning of construction.

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

**THE FOLLOWING FACILITY OWNERS ARE RELOCATING/ADJUSTING THEIR FACILITIES  
WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO 04/01/2025**

**AT&T-AT&T KY** has aerial copper facilities along the southside of US 68 up to Rose Drive where the copper facilities cross over to the northside attaching to the power poles. The aerial fiber facilities are attached the entire length of the project to the power poles. The AT&T owned poles along the southside will be relocated further south away from the roadway. The power poles will be relocated further north of the roadway.

## UTILITIES AND RAIL CERTIFICATION NOTE

**Christian County**  
**0NHPP0801107**  
**FD52 024 9334501U**  
**Mile point: 9.220 TO 10.130**  
**ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN**  
**HOPKINSVILLE. (18CCN) (2020CCR)**  
**ITEM NUMBER: 02-899.00**

**Atmos Energy Corporation** has existing underground gas facilities along both sides of US 68 within the disturbed limits and these facilities are to be relocated solely to the southside of US 68 through the existing and proposed permanent utility easements outside of the roadway construction.

**Charter Communications Holdings, LLC DBA Spectrum** has aerial facilities along the northside of US 68 attached to the power poles. They plan to relocate further north along with the relocated power poles.

**Hopkinsville Electric System** has exiting overhead facilities along US 68 within the disturbed limits and these facilities are to be relocated either further north or south away from the roadway.

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

**Hopkinsville Water Environment Authority** has an 8" water main and 4" water main along the northside and southside of US 68 that is within the disturbed limits. The water main is to be relocated along the north side of US 68 within an existing utility easement and existing/proposed right of way detailed in the plan set for the project.

**Hopkinsville Water Environment Authority** has an 8" sanitary sewer line along the southside of US 68 that is within the disturbed limits of the project. The sanitary line is to be relocated through the proposed permanent utility easement along the southside of US 68 as detailed in the plan set. There is also a 4" force main along the northside of US 68 that is within the disturbed limits of the project. The force main is to be relocated through the existing permanent utility easement along the northside of US 68 as detailed in the plan set.

## UTILITIES AND RAIL CERTIFICATION NOTE

<p><b>Christian County</b> <b>0NHPP0801107</b> <b>FD52 024 9334501U</b> <b>Mile point: 9.220 TO 10.130</b> <b>ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN</b> <b>HOPKINSVILLE. (18CCN) (2020CCR)</b> <b>ITEM NUMBER: 02-899.00</b></p>
--

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

**No Rail Involvement**    **Rail Involved**    **Rail Adjacent**

## UTILITIES AND RAIL CERTIFICATION NOTE

**Christian County**  
**0NHPP0801107**  
**FD52 024 9334501U**  
**Mile point: 9.220 TO 10.130**  
**ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN**  
**HOPKINSVILLE. (18CCN) (2020CCR)**  
**ITEM NUMBER: 02-899.00**

### AREA FACILITY OWNER CONTACT LIST

Facility Owner	Address	Contact Name	Phone	Email
AT&T-AT&T KY - Communication	350 E 5th Street Russelville KY 42276	Michael D. Forrest	2708899782	mf6322@att.com
Atmos Energy Corporation - Natural Gas	3275 Highland Pointe Drive Owensboro KY 42303	Chase Downing	6157718363	chase.downing@atmosenergy.com
Charter Communications Holdings, LLC DBA Spectrum - CATV	12405 Powerscourt Drive Saint Louis MO 63131	Michael C. Vincent	2705578951	Michael.Vincent@charter.com
Hopkinsville Electric System - Electric	1820 E 9th Street Hopkinsville KY 42241	Dustin Love	2708870775	dlove@hop-electric.com

## UTILITIES AND RAIL CERTIFICATION NOTE

**Christian County**  
**0NHPP0801107**  
**FD52 024 9334501U**  
**Mile point: 9.220 TO 10.130**  
**ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN**  
**HOPKINSVILLE. (18CCN) (2020CCR)**  
**ITEM NUMBER: 02-899.00**

Hopkinsville Water Environment Authority - Sewer	401 East Ninth Street Hopkinsville KY 42241	Trey Pollock	2708874132	tPollock@hwea-ky.com
Hopkinsville Water Environment Authority - Water	401 East Ninth Street Hopkinsville KY 42241	Jim Taylor	2708874090	jtaylor@hwea-ky.com
Spectrum Mid-America LLC - Communication	1900 N Fares Evansville IN 47711	John Wade	8122532767	John.Wade@charter.com



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

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

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

## **PROTECTION OF EXISTING UTILITIES**

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

## **PREQUALIFIED UTILITY CONTRACTORS**

Some utility owners may require contractors that perform relocation work on their respective facilities as a part of the road contract be prequalified or preapproved by the utility owner. **Utility contractors may be added via addendum if KYTC is instructed to do so by the utility owner. Potential contractors must seek prequalification from the utility owner. Any revisions must be sent from the utility owner to KYTC a minimum of one week prior to bid opening.** Those utility owners with a prequalification or preapproval requirement are as follows:

*Clear Construction, Inc.  
Darren Cleary, President and CEO  
270-487-1784  
2006 Edmonton Road  
Thompkinsville, KY 42167*

*Scott and Ritter, Inc.*  
*David Bayles, Vice President*  
[Dbayles@scottandritter.com](mailto:Dbayles@scottandritter.com)  
270-871-9988  
2385 Barren River Road  
Bowling Green, KY 42101

*Twin States Utilities, Inc.*  
*Chris Adams, Superintendent*  
[Cadams@twinstatesinc.com](mailto:Cadams@twinstatesinc.com)  
270-427-5300  
P.O. Box 14  
Mount Hermon, KY 42157

*Infrastructure Systems, Inc.*  
*John Stalker, Owner*  
[Jstalker@infrastructuresystems.com](mailto:Jstalker@infrastructuresystems.com)  
812-865-3309  
260 Vincennes Street  
Orleans, IN 47452

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

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

#### CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

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

#### SUBMITTALS AND CORRESPONDENCE

All submittals and correspondence of any kind relative to utility work included in the road contract shall be directed to the KYTC Section Engineer, a copy of which may also be supplied to the utility owner by the

contractor to expedite handling of items like material approvals and shop drawings. All approvals and correspondence generated by the utility owner shall be directed to the KYTC Section Engineer. The KYTC Section Engineer will relay any approvals or correspondence to the utility contractor as appropriate. At no time shall any direct communication between the utility owner and utility contractor without the communication flowing through the KYTC Section Engineer be considered official and binding under the contract.

### ENGINEER

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

### INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

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

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

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

### UTILITY SHUTDOWNS

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

Notice to customers of utility shut downs is sometimes required to be performed by the utility contractor. The contractor may be required; but, is not limited to, making notice to utility customers in a certain

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

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

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

#### STATIONS AND DISTANCES

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

#### RESTORATION

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

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

---

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

#### MATERIAL

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

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

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

#### SECURITY OF SUPPLIED MATERIALS

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

# Standard Water Bid Item Descriptions

**THESE BID ITEM DESCRIPTIONS SHALL SUPERCEDE ANY BID ITEM DESCRIPTIONS CONTAINED IN UTILITY OWNER SUPPLIED SPECIFICATIONS PROVIDED ELSEWHERE IN THIS PROPOSAL.**

**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. 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 is 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 2134IND.*

**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 on an existing main to be left in service at the location shown on the plans or as directed, in accordance with the specifications. This item is not to be paid to cap new main installations or mains that are to be abandoned. This pay item is only to be paid to cap existing mains to be left in service. Caps on new mains are to be considered incidental to the new main, as are other fittings, and are not to be paid under this item. All caps on existing mains shall be paid under this 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.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**W CATHODIC PROTECTION** This item is for providing and installing all cathodic protection materials to iron pipe and fittings, as specified in plans and specifications, complete and ready-for-use. Materials to be supplied and installed by the contractor shall include, but are not limited to, anodes, wire, fusion kits, test stations, and/or marker posts. All cathodic protection required for the entire project shall be paid under this one 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 LUMP SUM (LS) when complete.

**W DIRECTIONAL BORE** Payment under this item is made whenever the plans or specifications specifically show directional boring is to be utilized to minimize the impact of open-cut for the installation of water main under streets, creeks, etc. Payment under this item shall include the specified bore pipe, labor, and equipment. No separate payment shall be made for bore pipe installed in the bore, whether used as a carrier pipe or an encasement of a separate carrier pipe. This item shall also include pipe anchors at

each end of the bore, when specified, to prevent the creep or contraction of the bore pipe. Carrier pipe installed within a bore pipe shall be paid separately under pipe items. Payment under this item shall not be size specific and no separate bid items will be established for size variations. The bore pipe sizes to be included under this item shall be as shown on the plans and/or in the specifications. Any and all directional bores in each contract shall be paid under one directional bore bid item included in the contract, regardless of size. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**W ENCASUREMENT CONCRETE** This item shall include all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, etc., to construct the concrete encasement of the water main as shown on the plans, and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe, as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasements 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** This item 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** This item 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 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 to reinstall 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 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 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, as 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. 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 LINE STOP SIZE 1 OR 2** This item shall include the line stop saddle/sleeve, valve, completion plug and any other material, labor, and equipment necessary to complete the line stop as indicated in the plans and/or specifications. This installation shall allow the waterline system to operate as usual without any interruption of service. The size shall be the measured internal diameter of the live pipe to be tapped. The line stop size 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 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 location 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 specifications 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 in diameter or less as specified on the plans. This item shall include all labor, equipment, meter, meter box, casting, yoke, and any other associated materials 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, 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, etc., to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, etc., from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. The new service pipe (if required) will be paid under the short side or long side service bid item. 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 in diameter 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 large 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 in diameter or less,

as specified on the plans. This item shall include all labor, equipment, meter, PRV, meter box, casting, yoke, and any other associated materials 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 item shall apply to all pipe of every size and type material 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 specifications), polyethylene wrap (when specified), labor, equipment, excavation, bedding, backfill, restoration, testing, sanitizing, 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, as well as 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. When owner specifications require, this bid item shall include contractor preparation of as-built drawings to be provided to the engineer and/or utility owner at the end of construction. 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 mechanical anchoring, labor, equipment, excavation, backfill, and restoration required to install the plug on an existing main to be left in service at the location shown on the plans or as directed, in accordance with the specifications. This item is not to be paid to plug new main installations or mains that are to be abandoned. This pay item is only to be paid to plug existing mains that are to be left in service. Plugs on new mains are to be considered incidental to the new main, as are other fittings, and are not to be paid under this item. All plugs on existing mains left in service shall be paid under this 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.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

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

drawings, complete and ready-for-use. If required on the 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 item 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), 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 plans or specifications), 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 item 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 plans or specifications), 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. Placement of a service lateral across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. 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 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 ABANDONMENT** This item is to be used to pay for abandonment of larger above or below ground water structures such as meter vaults, fire pits, pump stations, tanks, etc. Payment under this 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 complete restoration. 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, 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 complete restoration. 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 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 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 item 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.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**W VALVE** This item 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 specifications), labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, concrete pad around valve box (if required by specifications), restoration, testing, disinfection, etc., required to install the specified valve at the location shown on the plans, in accordance with the specifications and standard drawings, complete and ready-for-use. If required on plans and/or proposed adjoining DIP is restrained, valves shall be restrained. Valve restraint shall be considered incidental to the valve and adjoining pipe. This description does not apply to cut-in valves. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

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

**W VALVE BOX REMOVE** This item is in payment for all labor, equipment, restoration materials, disposal, and any other effort for removal of a valve box, leaving the valve in place. 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 item 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 REMOVE** This item is in payment for all labor, equipment, and restoration materials for cutting of existing pipe and any other effort necessary for total removal of an existing valve and valve box. This bid item shall include disposal of the valve and box, unless plans or specifications state the valve and box are to be salvaged and delivered to the utility owner for reuse. No separate pay items are to be established for size variations. All valve removals, regardless of size, shall be paid under this one pay 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.

*If plugging of existing abandoned mains is needed after valve removal, the work shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**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 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 EACH (EA) when complete.

# Standard Sanitary Sewer Bid Item Descriptions

**THESE BID ITEM DESCRIPTIONS SHALL SUPERCEDE ANY BID ITEM DESCRIPTIONS CONTAINED IN UTILITY OWNER SUPPLIED SPECIFICATIONS PROVIDED ELSEWHERE IN THIS PROPOSAL.**

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

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

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

**S CIPP LINER** This item is to pay for rehabilitation of existing sanitary sewers using the Cured-In-Place-Pipe method. This bid item description applies to all CIPP sizes included in the contract. All CIPP Liner items, of all varying sizes, shall include all labor, materials, customer notification, testing, necessary permits,



ingress and egress procedures, bypass pumping, pre-construction video, sediment and root removal, dewatering, traffic control, erosion and sediment control, excavation pits, removal and replacement of manhole frames and covers as necessary to facilitate the lining work, sealing at manholes and service connections, clearing and grubbing, pipeline cleaning, re-cleaning, video inspection as many times as necessary, debris collection and disposal, root removal, pre- and post-construction video inspection, all digital inspection footage, final report preparation and approval, the cost of potable water from the Owner, required compliance tests, site restoration, site cleanup, sealing of liner at manholes, acceptance testing, and all other rehabilitation work and incidentals not included under other pay items, necessary to complete the rehabilitation per the plans and specifications. There will be no separate payment for acceptance testing of the lined pipe but shall be considered incidental to this item. Pay under this item shall be by each size bid in the contract. Pay measurement shall be from center of manhole to center of manhole. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

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

**S CONCRETE PIPE ANCHOR** This item shall be constructed on the sewer pipe at the locations shown on the plans, in accordance with sanitary sewer specifications and standard drawings. Payment for concrete anchors will be made at the contract unit price each, in place, complete and ready-for-use. Each concrete anchor of sewer pipe or force main shall be paid under one bid item per contract regardless of the sizes of carrier pipe being anchored in the contract. No separate bid items will be established for size variations. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

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

**S ENCASEMENT CONCRETE** This item includes all labor, equipment, excavation, concrete, reinforcing steel, backfill, restoration, etc. to construct the concrete encasement of the sewer or force main, as shown on the plans and in accordance with the specifications and standard drawings. Payment under this item shall be in addition to the carrier pipe, as paid under separate bid items. Carrier pipe is not included in this bid item. Any and all concrete encasements shall be paid under one bid item, included in the contract, regardless of the size of the carrier pipe or the volume of concrete or steel reinforcement as-specified in the plans and specifications. No separate bid items will be established for size variations. Measurement of

pay quantity shall be from end of concrete to end of concrete. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF) when complete.

**S 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).

**S 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 install the encasement, in accordance with the plans and specifications, complete and ready-for-use. The size shall be the measured internal diameter of the encasement pipe. The size encasement to be paid under the size ranges specified in the bid items shall be as follows:

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

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

**S FORCE MAIN** This item description shall apply to all PVC, ductile iron, and polyethylene/plastic pipe bid items of every size and type, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, bends, tees, reducers, plugs, and caps), tracing wire with test stations (if required by specifications), polyethylene wrap (when specified), labor, equipment, excavation, bedding, restoration, testing, backfill, etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. No additional payment will be made for rock excavation. This bid item includes material and placement of flowable fill under existing and

proposed pavement, and wherever else specified on the plans or in the specifications. This item shall also include pipe anchors on polyethylene pipe runs, as shown on the plans or required by the specifications, to prevent the creep or contraction of the pipe. Measurement of quantities under this item shall be through fittings, encasements, and directional bores (only when a separate carrier pipe is specified within the directional bore pipe). No separate payment will be made under pipe items when the directional bore pipe is the carrier pipe. Measurements shall be further defined to be to the center of tie-in where new pipe contacts existing pipe at the center of connecting fittings, to the outside face of vault or structure walls, or to the point of main termination at dead ends. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

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

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

**S FORCE MAIN POINT RELOCATE** This item is intended for payment for horizontal and/or vertical relocation of a short length of an existing main at the location shown on the plans. This bid item is to be used when the existing pipe material is to be reused when relocating an existing force main at point locations, such as to clear a conflict at a proposed drainage structure, pipe, or any other similar short relocation situation. 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 specifications as those that exist. Substitution of alternative materials shall be approved by the engineer in advance on a case-by-case basis. New polyethylene wrap is to be provided (if wrap exists or is specified in the specifications to be used). If it is necessary that the pipe be disassembled for relay, payment under this item shall also include replacement of joint gaskets as needed. Bedding and backfill shall be provided and performed the same as with any other pipe installation, as detailed in the plans and specifications. Payment under this item shall be for each location requiring an existing main to be relocated horizontally or vertically, regardless of pipe size or relocation length. No separate pay items will be established for pipe size variations or relocation segment length variations. Force Main Relocate shall not be paid on a linear feet

basis, but shall be paid EACH (EA) at each location when complete and placed in service. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced.

**S FORCE MAIN TAP SLEVE/VALVE RANGE 1 OR 2** This item shall include the specified tapping sleeve, valve, valve box, concrete pad around valve box (when required in specifications or plans), labor, and equipment to install the specified tapping sleeve and valve, complete and ready-for-use, in accordance with the plans and specifications. The size shall be the measured internal diameter of the live pipe to be tapped. The size tapping sleeve and valve to be paid under sizes 1 or 2 shall be as follows:

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

Range 2 = All live tapped main sizes greater than 8 inches

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

**S FORCE MAIN TIE-IN** This item description shall be used for all force main tie-in bid items of every size, except those defined as "Special". This item includes all labor, equipment, excavation, fittings, sleeves, reducers, couplings, blocking, anchoring, restoration, testing, and backfill required to make the force main tie-in as shown on the plans and in accordance with the specifications, complete and ready-for-use. This bid item shall include purge and sanitary disposal of any sewage from any abandoned segments of force main. Pipe for tie-ins shall be paid under separate bid items. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

*Plugging of existing abandoned mains shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

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

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

**S LAMPHOLE** Payment under this item is for the installation of a lamphole along or at the end of a gravity sewer pipe for inspection and cleaning of a sewer pipe. Lampholes shall include, but are not limited

to bends, tees, vertical pipe, casting, any other materials specified, excavation, backfilling, air testing, restoration, and cleanup in accordance with the plans, specifications, and standard drawings, complete and ready-for-use. Payment shall be made under this bid item regardless of lamphole size. No separate pay items will be established for size variations. All materials shall be new and unused. No additional compensation will be paid for lamphole height variations. All vertical pipe required to construct the lamphole, regardless of height, shall be considered incidental to this item. No additional payment will be made for rock excavation. Cleanouts on pipes 6 inches or less are not considered lampholes and are not to be paid under this item. Only lampholes on pipes 8 inches or larger are to be paid under this item. Cleanouts on pipes 6 inches or less are to be paid under pay item S LATERAL CLEANOUT. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S LATERAL CLEANOUT** This item shall be for payment for installation of a cleanout in a service lateral line. This item shall include furnishing and installation of a tee, vertical pipe of whatever length required, and threaded cap. The cleanout shall extend from the lateral to final grade elevation. The size of the cleanout shall be equivalent to the size of the lateral. The cleanout materials shall meet the same specification as those for the lateral. The cleanout shall be installed at the locations shown on the plans or as directed by the engineer. Only one pay item shall be established for cleanout installation. No separate pay items shall be established for size or height variations. Payment under this item is for cleanouts on pipe of 6 inches or less. Cleanouts on pipes of 8 inches or greater are considered lampholes and shall be paid under the S LAMPHOLE 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.

**S LATERAL LOCATE** This item description is to pay for all labor, equipment, and materials needed in locating an existing sanitary sewer service lateral for tie-in of the lateral to new mainline sewers and/or for the relocation of a lateral. This bid item shall be inclusive of all methods and efforts required to locate the lateral for tie-in or relocation of the lateral. Locating methods to be included under this item shall include, but are not limited to those efforts employing the use of video cameras from within an existing sanitary sewer main or lateral, electronic locating beacons and/or tracers inserted into the sanitary sewer main or lateral, careful excavation as a separate operation from mainline sewer or lateral excavation, the use of dyes to trace the flow of a lateral, or any combination of methods required to accurately locate the lateral. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA).

**S LATERAL LONG SIDE** This item description shall apply to all service lateral installations of every size up to and including 6-inch internal diameter, except those lateral bid items defined as "Special". This item includes the specified piping material, main tap, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. This bid item is to pay for service lateral installations where the ends of the lateral connection are on opposite sides of the public roadway. The new lateral must cross the centerline of the public roadway to qualify for payment as a long side lateral. The length of the service lateral is not to be specified. Payment under this item shall not be restricted by a minimum or maximum length. The contractor shall draw his own conclusions as to the length of piping that may be needed. Payment under this item shall include boring, jacking, or excavating across the public roadway for placement. Placement of a service lateral across a private residential or commercial entrance alone shall not be reason to make payment under this item. Private or commercial entrances shall not be considered a public roadway in defining payment under this item. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S LATERAL SHORT SIDE** This item description shall apply to all service lateral installations of every size up to and including 6-inch internal diameter, except those lateral bid items defined as “Special”. This item includes the specified piping material, main tap tee, bends, clean outs, labor, equipment, excavation, backfill, testing, and restoration, at the locations shown on the plans or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. This bid item is to pay for lateral installations where both ends of the lateral connection are on the same side of the public roadway, or when an existing lateral crossing a public roadway will remain and is being extended, reconnected, or relocated, with all work on one side of the public roadway centerline as shown on the plans. The length of the service lateral is not to be specified and shall not be restricted to any minimum or maximum length. Placement of a service lateral across a private residential or commercial entrance along 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. The contractor shall draw his own conclusions as to the length of piping that may be needed. No additional payment will be made for rock excavation or for bedding required in rock excavation. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

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

**S MANHOLE** Payment under this item is for the installation of new 4-foot interior diameter sanitary sewer manhole. Payment for manholes will be at the contract unit price, in-place, complete and ready-for-use at the locations shown on plans, in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup, in accordance with the specifications and standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused when available and shall be considered incidental to this item. When an existing casting is unavailable or a new casting is specified on plans or elsewhere in the contract, a new casting shall be paid as a separate bid item. Anchoring of a casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. In cases where a manhole is to be located within a grade-sensitive area such as roadway pavement, sidewalks, shared-use-paths, etc., the final casting grade given on plans shall be considered approximate. Any readjustment of a manhole casting to meet field conditions shall be incidental to this item. No additional payment shall be made for casting adjustments on new manholes. Please refer to the Utility Company’s Specifications. If the Company does not have specifications, KYTC’s Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE ABANDON/REMOVE** Payment under this item is for the full or partial removal, disposal, and/or filling of any sanitary sewer manhole, regardless of size or depth, that no longer serves any purpose. All manholes partially removed shall be removed to a point at least 12 inches below final grade, 12 inches below roadway subgrade, or 12 inches clear of any other underground infrastructure, whichever is lowest. If partial removal of an abandoned manhole is elected, the remaining manhole structure shall be filled with flowable fill. Flowable fill shall be considered incidental to this bid item. Plugging of pipes entering and exiting within an abandoned manhole that is left in place partially or in whole shall be considered incidental to this item. All sanitary sewer castings shall be salvaged and securely stockpiled for reuse on new sanitary sewer manholes. Salvage of manhole castings for reuse on the project shall be considered incidental to this

bid item. Any casting that is not needed for reuse, is not reusable, or is directed by the engineer not to be reused shall be disposed of by the contractor. 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.

*Plugging or safeloading of pipes required at locations outside of manholes when manholes are removed in total shall be performed and paid in accordance with Section 708.03.05 of KYTC Standard Specifications for Road and Bridge Construction, using Bid code 01314, Plug Pipe.*

**S MANHOLE ADJUST TO GRADE** Payment under this item is for the adjustment of sanitary sewer casting elevation on all sizes of existing sanitary manholes. This work shall be performed in accordance with the sanitary sewer specifications. Payment shall be made under this bid item regardless of the amount of adjustment necessary to a sanitary sewer manhole casting or diameter of the manhole. Work under this pay item may be as simple as placing a bed of mortar under a casting, but shall also be inclusive of installation of adjusting rings, and /or addition, removal, or replacement of barrel sections. The existing casting is to be reused unless a new casting is specified on the plans. New casting, when specified, shall be paid as a separate bid item. Anchoring of the casting shall be incidental to this item. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE CASTING STANDARD** Payment under this item is for the furnishing of a new, standard, traffic-bearing casting for sanitary manholes that meets the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

**S MANHOLE CASTING WATERTIGHT** Payment under this item is for the furnishing of a new, watertight, traffic-bearing casting for sanitary manholes that meets the requirements of the sanitary sewer specifications and standard drawings. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when installed.

**S MANHOLE OVERSIZED** Payment under this item is for the installation of a new manhole greater than the standard 4-foot interior diameter. Payment for oversized manholes will be made at the contract unit price in-place, complete and ready-for-use at the locations shown on plans, in accordance with specifications and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup, in accordance with the specifications and standard drawings. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused when available and shall be considered incidental to this item. When an existing casting is unavailable or a new casting is specified on plans or elsewhere in the contract, a new casting shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. In cases where a manhole is to be located within a grade-sensitive area such as roadway pavement, sidewalks, shared-use-paths, etc., the final casting grade given on plans shall be considered approximate. Any readjustment of a manhole casting to meet field conditions shall be incidental to this item. No additional payment shall be made for casting adjustments on new manholes. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE RECONSTRUCT INVERT** This item is to pay for all labor, equipment, and material for

the rework of an existing manhole bench to redirect or eliminate flow, such as when the flow of a pipe or pipes are being removed or redirected. This work will be as specified in the plans, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in elimination or redirect of flow. This item shall also include providing and placement of a rubber seal or boot, as required by utility specifications, standard drawings, or plans. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. No payment shall be made under this bid when MANHOLE TAP EXISTING or MANHOLE TAP EXISTING ADD DROP are being paid at the same location, as this type of work is included in those items. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

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

**S MANHOLE TAP EXISTING ADD DROP** This item is to pay for all labor, equipment, and material for coring one opening in an existing manhole base and one opening in a manhole wall for cleanout, addition of rubber seals as specified, addition of a vertical drop pipe to the outside of the manhole, placement of reinforcing steel and concrete to encase vertical pipe, and rework of the manhole bench to direct the additional pipe flow. This bid item shall be paid for each drop added to a single manhole. This bid item shall also include any rework of the existing manhole bench due to the elimination of other existing pipes and flow. This work will be as specified in the plans, standard drawings, specifications, or directed by the engineer. This work may consist of, but is not limited to, removal of concrete and/or placement of concrete in the addition, elimination, or redirect of flow. The contractor shall draw his own conclusions as to the effort and scope of work needed to comply with the specifications, standard drawings, and plans. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE WITH DROP** Payment under this item is for the installation of new 4-foot interior diameter sanitary sewer manhole with drop. Payment for drop manholes will be made at the contract unit price, in-place, complete and ready-for-use at the locations shown on plans, in accordance with specifications, and standard drawings. Drop manholes shall include concrete base, barrel sections, drop materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting salvaged from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE WITH LINING** Payment under this item is for the installation of a new 4-foot interior



diameter sanitary sewer manhole with corrosion-resistant lining. Payment for manholes with lining will be made at the contract unit price, in-place, complete and ready-for-use at the locations shown on plans, in accordance with specifications, and standard drawings. Manholes shall include concrete base, barrel sections, cone section or slab top, steps, lining, excavation, backfilling, air testing, restoration, and cleanup. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). All materials, except casting, shall be new and unused. An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be paid for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S MANHOLE WITH TRAP** Payment under this item is for the installation of a new manhole with trap. Payment for trap manholes will be made at the contract unit price each, in-place, complete and ready-for-use at the locations shown on plans, in accordance with specifications, and standard drawings. Trap manholes shall include concrete base, manhole structure and trap materials, cone section or slab top, steps, excavation, backfilling, air testing, restoration, and cleanup. All materials, except casting, shall be new and unused. Payment shall be made under this item regardless of whether the base is to be precast or cast-in-place (doghouse). An existing casting from an existing abandoned or removed manhole is to be reused and shall be considered incidental to this item. When a new casting is specified, or an existing casting is unavailable, it shall be paid as a separate bid item. Anchoring of casting, new or used, shall be considered incidental to this bid item. No additional compensation will be made for manhole height variations. No additional payment will be made for rock excavation. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid EACH (EA) when complete.

**S PIPE** This item description shall apply to all gravity and force-main sewer pipe bid items, of every size and type of material 8 inches internal diameter and larger, except those bid items defined as "Special". This item includes the pipe specified by the plans and specifications, all fittings (including, but not limited to, tap tees and couplings for joining to existing similar or dissimilar pipes), polyethylene wrap (if required by specification), labor, equipment, excavation, bedding, backfill, restoration, pressure or vacuum testing, temporary testing materials, video inspection, etc., required to install the specified new pipe and new fittings at the locations shown on the plans, or as directed, in accordance with the specifications and standard drawings, complete and ready-for-use. This bid item shall include material and placement of flowable fill under existing and proposed pavement, and wherever specified on the plans or in the specifications. No additional payment will be made for rock excavation. Measurement of quantities under this item shall be through fittings and encasements to a point at the outside face of manhole barrels, or to the point of main termination at dead ends or lampholes. Carrier pipe placed within an encasement shall be paid under this item and shall include casing spacers and end seals. Please refer to the Utility Company's Specifications. If the Company does not have specifications, KYTC's Specifications shall be referenced. This item shall be paid LINEAR FEET (LF).

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

This bid item shall include bypass pumping when required. Measurement shall be from contact point to contact point of old and new 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).

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

**S STRUCTURE ABANDON** This item is to be used to pay for abandonment of larger above or below ground sewer structures such as air release/vacuum valve vaults, pump stations, tanks, etc. Payment under this 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 sewer construction (i.e., abandonment of standard air release/vacuum valves, up to and including 2 inches, would not be paid under this item). Payment under this item shall include all labor, equipment, and compacted fill or flowable fill for abandonment of the structure in place and complete restoration. 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.

*Manhole abandonment shall not be paid under this item but shall be paid under the bid item S MANHOLE ABANDON/REMOVE.*

**S STRUCTURE REMOVAL** This item is to be used to pay for removal of larger above or below ground sewer structures, such as air release/vacuum valve vaults, pump stations, tanks, 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 sewer construction (i.e., removal of standard air release/vacuum valves and their structures, 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 complete restoration. 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.

*Manhole removal shall not be paid under this item but shall be paid under the bid item S MANHOLE ABANDON/REMOVE.*

PROJECT MANUAL  
FOR  
US 68 – WEST 7<sup>th</sup> STREET  
WATER & SEWER RELOCATIONS

HWEA CONTRACT # 141-2023-05  
KYTC PROJECT 2-899.00 – HOPKINSVILLE

HOPKINSVILLE WATER ENVIRONMENT AUTHORITY  
Hopkinsville, Kentucky



July 2024  
Project No. 60686380

All inquiries and correspondence to the Engineer  
shall be directed to:

AECOM  
Attention: Jared Slemmons, PE

**AECOM**

1000 Corporate Centre Suite 250  
Franklin, TN 37067  
Telephone: (615) 771-2480



**SECTION 000100**

**PROJECT TITLE PAGE**

Title and Location of Work:

HWEA Contract # 141-2023-05 – US 68 W. 7th Street Water and  
Sewer Relocation  
Hopkinsville, KY

Name and Address of Owner:

Hopkinsville Water Environment Authority  
401 East 9<sup>th</sup> Street  
Hopkinsville, KY 42241-0628  
Telephone: (270) 887-4246  
Fax: (270) 887-4244

Name and Address of Architectural and Engineering Services:

AECOM  
1000 Corporate Centre, Suite 250  
Franklin, TN 37067  
Telephone: (615) 771-2480  
Fax: (615) 771-2459

Jared Slemmons, P.E.  
E-Mail: [Jared.Slemmons@aecom.com](mailto:Jared.Slemmons@aecom.com)

**END OF SECTION**



SECTION 000200

TABLE OF CONTENTS

000100 Title Page  
000200 Table of Contents

**DIVISION C – GENERAL SPECIFICATIONS, BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT**

C-00820 Special Conditions

**DIVISION S – CONSTRUCTION MATERIALS AND METHODS**

020120 Protecting Existing Underground Utilities  
020130 Connections to Existing Buried Pipelines  
023219 Subsurface Utility Locating (Potholing)  
033000 Cast-In-Place Concrete  
311000 Site Clearing  
312200 Grading  
312300 Excavation and Fill  
312319 Dewatering  
312333 Trenching and Backfill  
313700 Riprap  
321200 Flexible Paving  
321545 Gravel Roadway  
329010 Planting  
330148 By-Pass Pumping and Haul Off Flow Control for Lift Station  
330523.16 Pipe Encasement by Jack and Bore  
331000 Water Utilities  
331300 Disinfecting of Water Utility Distribution  
333000 Sanitary Sewerage Utilities  
333915 Manholes and Structures  
402319.04 Ductile Iron Pipe and Fittings

**APPENDICES**

Appendix A Geotechnical Report

END OF SECTION





SECTION C-00820  
SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF THE WORK; DESIGNATION OF OWNER AND ENGINEER

- A. These Specifications and the accompanying Drawings describe the work to be done and the materials to be furnished for the construction of Contract 141-2023-05, US 68 W. 7<sup>th</sup> Street – Water and Sewer Relocation, Hopkinsville Water Environment Authority (HWEA), Hopkinsville, Kentucky.
- B. All references to the OWNER in these Specifications, Contract Documents and Drawings shall mean the Hopkinsville Water Environment Authority.
- C. All references to the ENGINEER in these Specifications, Contract Documents and Drawings shall mean AECOM.

1.02 AVAILABLE FUNDS:

- A. The attention of all Bidders is directed to the fact that funds will be made available for the award of this Contract from the following source:
  - 1. Kentucky Transportation Cabinet (KYTC) Transportation Funds

1.03 TIME OF COMPLETION:

- A. The time allowed for completion of this Contract and/or portions thereof shall be as provided in the KYTC contract.
- B. The time allowed for completion shall begin at midnight, local time, 10 calendar days from the date on which the OWNER, or his authorized representative, the ENGINEER, shall instruct the CONTRACTOR in writing to start work. In case of awarding more than one Contract to a CONTRACTOR, periods of construction are not additive, but will run concurrently. The same applies to divisions within a Contract.

1.04 LIQUIDATED DAMAGES:

- A. It is understood that time is of the essence of this Contract, and that the OWNER will sustain damages, monetary and otherwise, in the event of delay in completion of the work hereby contracted.

- B. Therefore, if the said CONTRACTOR shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the OWNER, then the CONTRACTOR does hereby agree, as a part consideration for the awarding of this Contract, to pay to the OWNER the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the CONTRACTOR shall be in default after the time stipulated in the Contract for completing the work.
- C. The said amount is fixed and agreed upon by and between the CONTRACTOR and the OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain, and said amount is agreed to be the amount of damages which the OWNER would sustain and said amount shall be retained from time to time by the OWNER from current periodical estimates.
- D. Liquidated damages are fixed at the following amounts per calendar day of overrun beyond the date set for completion or authorized extension thereof for each of the Contracts, divisions, sections, or combinations thereof:
  - 1. Liquidated damages shall be as set in the KYTC contract.

#### 1.05 METHOD OF BIDDING

- A. The Form of Proposal and the Project are in 1 Contract and shall be bid by unit price, the sum of extension of unit prices determining the amount of the bid. The sum of the unit price extensions shall cover the complete construction of the work as estimated, planned and specified.
- B. The CONTRACTOR must bid all divisions and all listed unit price items and/or lump sums to complete a Contract. The OWNER will not award the work on divisions or sections within a Contract separately. Each Contract shall be bid separately and in full on the Form of Proposal provided.
- C. In the case of major equipment item bidding, the CONTRACTOR must bid the base bid item.
- D. The OWNER reserves the right, should financing considerations require or allow, to delete or add physical units to the unit price items bid. However, the monetary value of such deletions or additions shall not exceed 25 percent of the total amount bid for the Contract without specific approval of the CONTRACTOR.
- E. If deletions or additions are made, comparison of bids will be made on the basis of portions of the Contract to be awarded and not on the total of the base bid made by the CONTRACTOR.

## 2.01 VIDEOTAPING AND PHOTOGRAPHS:

- A. Continuous video recording of preconstruction surface conditions is required for this Contract. All recording and photographs **must be completed and submitted to the ENGINEER for approval before any construction activity will be allowed.** Recording must be performed by persons experienced with this type equipment and must be acceptable to the ENGINEER. Recording and photography equipment used shall utilize digital media that the CONTRACTOR shall transfer to high-capacity USB media sticks. The digital recording format shall be a file type that is viewable on any standard Microsoft Windows based computer.
- B. All locations, streets and/or easements on or in which construction activity will occur shall be video recorded for the complete length or boundary of the construction area.
- C. An index shall be furnished for each USB media stick coordinating the location of the recorded area with the location of the proposed facilities as shown on the Drawings.
- D. The CONTRACTOR shall be responsible for providing access to all areas to be recorded. All recordings shall be viewed by the ENGINEER before any construction is started. The CONTRACTOR shall provide USB media stick viewing equipment for the duration of the project.
- E. The cost of preconstruction audio/video recording shall be at no additional cost to the OWNER, the cost being incorporated into the CONTRACTOR's unit price or lump sum bid for the items of work as listed on the Form of Proposal.
- F. The CONTRACTOR is also urged to document on video any structure within a reasonable distance of his blasting or other work operations for reference and file.
- G. Digital color print still photographs shall be used to supplement the continuous video recording of preconstruction conditions and/or pertinent construction items.
  1. All photographs shall be compiled and saved onto a standard high- capacity USB media stick, along with an index coordinating the pictures with the location of the work shown on the drawings. Individual pictures shall be a minimum of 3 MB each.
- H. The CONTRACTOR shall submit to the ENGINEER a number of copies of the documentation media in accordance with the Contract Documents.
  1. Video recordings or photography on high-capacity USB media sticks shall be submitted in a quantity greater than or equal to 4 copies.

## 2.02 BEFORE STARTING CONSTRUCTION (EJCDC C-700, Article 2.03)

- A. Preliminary Schedules: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.03 ELECTRONIC TRANSMITTALS (EJCDC C-700, Article 2.06)

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

## 3.01 MINIMUM WAGE RATES:

- A. Minimum wage rates shall be as determined by the KYTC.

## 3.02 EXCAVATION

- A. It is to be specifically noted that no separate payment for solid rock excavation will be made under this Contract. All excavation shall be considered unclassified, and payment for same included in the appropriate furnishing and laying or other items containing excavation.

3.03 PERMISSION TO USE PROPERTY OTHER THAN THAT PROVIDED BY OWNER:

- A. Should the CONTRACTOR desire or elect to use, pass over and/or encroach on private property other than that provided by the OWNER, either by fee simple title or right-of-way for a specific purpose, he shall obtain such rights and permission from the individual property owner at his own expense and risk.

3.04 EXTRA FILL MATERIAL

- A. Extra fill material required to complete the finished grading to the line and grade shown on the Drawings shall be obtained by the CONTRACTOR at no extra cost to the OWNER above that included in his lump sum bid.

3.05 USE OF SPECIALS IN VERTICAL PLANE OPTIONAL

- A. Where specials (fittings) are shown at change in grade of pipeline, the CONTRACTOR, at his option, may use fittings as shown with blocking, or he may, where possible without exceeding maximum allowable deflection in pipe joints, avoid the use of specials at grade changes, by increasing the trench depth, provided the pipe installed to such extra depth is designed to withstand the extra depth cover and the maximum internal pressure specified. No additional compensation will be given for installing the pipe at an extra depth to avoid the use of fittings and thrust blocking.

3.06 ACCESS TO THE WORK

- A. The representatives of the OWNER, the ENGINEER, and KYTC shall have access to the work wherever it is in preparation or progress, and the CONTRACTOR shall provide proper facilities for such access and inspection.

3.07 PREFERRED CONTRACTORS

- A. The following water utility contractors are approved to work on the HWEA water utility project:

1. Cleary Construction, Inc.  
Darren Cleary, President & CEO  
270-487-1784  
2006 Edmonton Rd.  
Tompkinsville, KY 42167
2. Scott & Ritter, Inc.  
David Bayles, Vice President  
dbayles@scottandritter.com

270-781-9988  
2385 Barren River Rd.  
Bowling Green, KY 42101

3. Twin State Utilities, Inc.  
Chris Adams, Superintendent  
jstalker@infrastructuresystems.com  
812-865-3309  
260 Vincennes Street  
Orleans, IN 47452

4. Infrastructure Systems, Inc.  
John Stalker, Owner  
cadams@twinstatesinc.com  
270-427-5300  
P.O. Box 14  
Mount Hermon, KY 42157

3.08 INTENT (EJCDC C-700, Article 3.01)

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.09 REFERENCE STANDARD (EJCDC C-700, Article 3.02)

- A. Standards Specifications, Codes, Laws and Regulations
  - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or

Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.10 REPORTING AND RESOLVING DISCREPANCIES (MODIFIED EJCDC C-700, Article 3.03)

A. Reporting Discrepancies:

1. Contractor's Verification of Figures and Field Measurements: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to *KYTC*.
2. Contractor's Review of Contract Documents: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by *Section 5.05*) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to *KYTC*.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.



B. Resolving Discrepancies:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
  - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.11 REQUIREMENTS OF THE CONTRACT DOCUMENTS (MODIFIED EJCDC C-700, Article 3.04)

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

4.01 USE OF SITE AND OTHER AREAS (MODIFIED EJCDC C-700, Article 5.02)

A. Limitation on Use of Site and Other Areas:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any



such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (b) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. **Removal of Debris During Performance of the Work:** During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. **Cleaning:** Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. **Loading of Structures:** Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

#### 4.02 SUBSURFACE AND PHYSICAL CONDITIONS (MODIFIED EJCDC C-700, Article 5.03)

- A. **Reports and Drawings:** The Supplementary Conditions identify:
  1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
  3. Technical Data contained in such reports and drawings.
- B. Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
  2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.
- 4.03 DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS (MODIFIED EJCDC C-700, Article 5.04)
- A. Notice by Contractor: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:
1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in *Section 4.02* is materially inaccurate; or
  2. is of such a nature as to require a change in the Drawings or Specifications; or
  3. differs materially from that shown or indicated in the Contract Documents; or
  4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection

therewith (except in an emergency as required by *Section 5.05*), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. **Engineer's Review:** After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in *Section 4.03.A* above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. **Owner's Statement to Contractor Regarding Site Condition:** After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. **Possible Price and Times Adjustments:**
  - 1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. such condition must fall within any one or more of the categories described in *Section 4.03.A*;
    - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price *will be based on unit prices providing during the bidding process*; and,
    - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
  - a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or
  - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
  - c. Contractor failed to give the written notice as required by *Section 4.03.A*.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

#### 4.04 UNDERGROUND FACILITIES (MODIFIED EJCDC C-700, Article 5.05)

- A. Contractor's Responsibilities: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:
  1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and
  2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
    - a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
    - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

- c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
      - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. Notice by Contractor: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by *Section 5.05*), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.
- C. Engineer's Review: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. Owner's Statement to Contractor Regarding Underground Facility: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. Possible Price and Times Adjustments:
  1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
    - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

- b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price *will be based on unit prices providing during the bidding process*;
      - c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and
      - d. Contractor gave the notice required in *Section 4.04.B*.
    2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
    3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
- 4.05 HAZARDOUS ENVIRONMENTAL CONDITIONS AT SITE (MODIFIED EJCDC C-700, Article 5.06)
  - A. Reports and Drawings: The Supplementary Conditions identify:
    1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
    2. Technical Data contained in such reports and drawings.
  - B. Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
    1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or



2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by *Section 5.05*); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by *Section 4.05.F*. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

- H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in *Section 8.01*.
- I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to *Section 4.05.B*, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this *Section 4.05.I* shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this *Section 4.05.J* shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of *Sections 4.02, 4.03, and 4.04* do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.
- 5.01 SUPERVISION AND SUPERINTENDENCE (EJCDC C-700, Article 7.01)
- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.



- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

5.02 “OR EQUALS” (MODIFIED EJCDC C-700, Article 7.04)

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

- 1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an “or equal” item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
  - a. in the exercise of reasonable judgment Engineer determines that:
    - i. it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
    - ii. it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
    - iii. it has a proven record of performance and availability of responsive service; and
    - iv. it is not objectionable to Owner.
  - b. Contractor certifies that, if approved and incorporated into the Work:
    - i. there will be no increase in cost to the Owner or increase in Contract Times; and
    - ii. it will conform substantially to the detailed requirements of the item named in the Contract Documents.

- B. Contractor's Expense: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. Engineer's Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. Effect of Engineer's Determination: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding and may not be reversed through an appeal under any provision of the Contract Documents.
- E. Treatment as a Substitution Request: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the proposed item as a substitute pursuant to *Section 5.03*.

5.03 SUBSTITUTES (MODIFIED EJCDC C-700, Article 7.05)

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
  - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
  - 2. The requirements for review by Engineer will be as set forth in *Section 5.03.B*, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
  - 3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

- a. shall certify that the proposed substitute item will:
    - a. perform adequately the functions and achieve the results called for by the general design,
    - b. be similar in substance to that specified, and
    - c. be suited to the same use as that specified.
  - b. will state:
    - a. the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
    - b. whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c. whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
  - c. will identify:
    - a. all variations of the proposed substitute item from that specified, and
    - b. available engineering, sales, maintenance, repair, and replacement services.
    - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

- C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under *Section 5.03.D*, by timely submittal of a Change Proposal.

#### 5.04 RECORD DOCUMENTS (EJCDC C-700, Article 7.11)

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

#### 5.05 EMERGENCIES (EJCDC C-700, Article 7.15)

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

5.06 SHOP DRAWINGS, SAMPLES, AND OTHER SUBMITTALS (EJCDC C-700, Article 7.16)

A. Shop Drawing and Sample Submittal Requirements:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. Submittal Procedures for Shop Drawings and Samples: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. Shop Drawings:
  - a. Contractor shall submit the number of copies required in the Specifications.
  - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials,

and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by *Section 5.06.D*.

2. Samples:
  - a. Contractor shall submit the number of Samples required in the Specifications.
  - b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by *Section 5.06.D*.
3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. Other Submittals: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.
- D. Engineer's Review:
  1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.
  3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
  4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of *Section 5.06.A.3* and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of *Section 5.06.A and B*.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of *Section 5.06.D.4*.

E. Resubmittal Procedures:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

5.07 CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE. (EJCDC C-700, Article 7.17)

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.



- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;
  3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
  4. use or occupancy of the Work or any part thereof by Owner;
  5. any review and approval of a Shop Drawing or Sample submittal;
  6. the issuance of a notice of acceptability by Engineer;
  7. any inspection, test, or approval by others; or
  8. any correction of defective Work by Owner.
- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

6.01 COMMUNICATION TO CONTRACTORS (EJCDC C-700, Article 9.01)

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

6.02 INSPECTIONS, TESTS, AND APPROVALS (MODIFIED EJCDC C-700, Article 9.08)

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in *Section 9.01.B*.



6.03 LIMITATIONS ON OWNER'S RESPONSIBILITIES (EJCDC C-700, Article 9.09)

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

7.01 OWNER'S REPRESENTATIVE (EJCDC C-700, Article 10.01)

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

7.02 VISITS TO SITE (EJCDC C-700, Article 10.02)

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in *Section 7.05*. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

7.03 PROJECT REPRESENTATIVE (EJCDC C-700, Article 10.03)

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in *Section 7.05*. If

Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

7.04 DECISIONS ON REQUIREMENTS OF CONTRACT DOCUMENTS AND ACCEPTABILITY OF WORK (EJCDC C-700, Article 10.07)

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

7.05 LIMITATIONS ON ENGINEER'S AUTHORITY AND RESPONSIBILITIES (MODIFIED EJCDC C-700, Article 10.08)

- A. Neither Engineer's authority or responsibility under this *Section 7.05* or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. The limitations upon authority and responsibility set forth in this *Section 7.05* shall also apply to the Resident Project Representative, if any.

8.01 OWNER AUTHORIZED CHANGES IN WORK (EJCDC C-700, Article 11.02)

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change

involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

9.01 TESTS, INSPECTIONS, AND APPROVALS (MODIFIED EJCDC C-700, Article 14.02)

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of *Section 9.04*.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:
  - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
  - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
  - 3. by manufacturers of equipment furnished under the Contract Documents;
  - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

#### 9.02 DEFECTIVE WORK (EJCDC C-700, Article 14.03)

- A. Contractor's Obligation: It is Contractor's obligation to assure that the Work is not defective.
- B. Engineer's Authority: Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. Notice of Defects: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. Correction, or Removal and Replacement: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. Preservation of Warranties: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. Costs and Damages: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the

measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due.

9.03 ACCEPTANCE OF DEFECTIVE WORK (MODIFIED EJCDC C-700, Article 14.04)

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

9.04 UNCOVERING WORK (EJCDC C-700, Article 14.05)

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.
  - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
  - 2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing,

replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

#### 10.01 SUBSTANTIAL COMPLETION (EJCDC C-700, Article 15.03)

1. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
2. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
3. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
4. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.



5. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
6. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

#### 10.02 PARTIAL USE OF OCCUPANY (MODIFIED EJCDC C-700, Article 15.04)

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
  1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of *Section 10.01.A through E* for that part of the Work.
  2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
  3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of *Section 10.01* will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

#### 10.03 FINAL INSPECTION (EJCDC C-700, Article 15.05)

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

10.04 CORRECTION PERIOD (EJCDC C-700, Article 15.08)

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. correct the defective repairs to the Site or such other adjacent areas;
  2. correct such defective Work;
  3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

Citation:



EJCDC® C-700 (Rev. 1), Standard General Conditions of the Construction Contract.  
Copyright © 2013 National Society of Professional Engineers, American Council of  
Engineering Companies, and American Society of Civil Engineers. All rights reserved.

END OF SECTION



## SECTION 02 01 20

### PROTECTING EXISTING UNDERGROUND UTILITIES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Protecting existing underground utilities.
  - 1. Removing and plugging abandoned lines.
  - 2. Compaction.
  - 3. Alternative support methods.
  - 4. Protecting thrust blocks.

##### 1.02 DEFINITIONS:

- A. Controlled Low Strength Fill: Refer to Section 31 23 00.
- B. Class C Concrete: Refer to Section 03 30 00.

##### 1.03 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Contracting Documents.
  - 1. Record drawings to include record survey coordinates and elevations.
  - 2. Proposed locations for test pits.

##### 1.04 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.

##### 1.05 PROJECT/SITE CONDITIONS:

- A. Pipelines will be indicated on the drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing utilities.

## PART 2 - PRODUCTS

### 2.01 MATERIALS:

- A. Except as indicated, or as specifically authorized by the Engineer, where existing utilities to remain must be removed, reconstruct utilities with new material of the same size, type, and quality as that removed.

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Comply with the requirements in Contracting Documents.
- B. Comply with the requirements and guidelines of the Kentucky Transportation Cabinet (KYTC), Railway Authorities, Utility Companies, and Technical and Safety Standards, including those pertaining to protective work, inspection and safety.
- C. Notify Kentucky 811 at least 72 hours before digging operations are scheduled to begin.
- D. Test Pits: Excavate test pits to field verify the locations, depth of bury, diameter, and pipe material of existing underground utilities at crossings and at tie-in points before ordering materials or commencing excavation. Immediately notify the Engineer if conflicts are encountered.

### 3.02 PREPARATION:

- A. Where utilities are parallel to or cross work, but do not conflict with work, notify the utility owner at least 48 hours in advance of construction at the crossing. Coordinate the construction schedule with the utility owner.

### 3.03 PROCEDURES:

- A. Protect in Place: Protect utilities in place, unless abandoned, and maintain the utility in service, unless otherwise indicated or specified.
- B. Damage to Utilities to Remain: If existing utilities to remain are damaged, immediately notify utility owner, and repair to owner's satisfaction.

### 3.04 COMPACTION:

- A. Protecting Existing Utilities:
  - 1. Backfill and compact under and around utilities. Compaction shall conform to Section 31 23 33. Where compaction cannot adequately be performed around

utility due to the presence of encroaching existing utilities, utilize controlled low strength fill.

B. Protection of thrust blocks:

1. Protect thrust blocks on existing waterlines or sewer force mains in place or shore to resist the thrust by a means accepted by the Engineer, and reconstruct. If the thrust blocks are exposed or rendered to be ineffective in the opinion of the Engineer, reconstruct them to bear against firm unexcavated or backfill material.
2. Provide firm support by backfilling affected portion of the trench for a distance of 2 feet on each side of the thrust block to be reconstructed from the pipe bedding to the pavement subgrade with controlled low strength fill.
3. Excavate the backfill material for construction of the thrust block.
4. Test compaction of the backfill material before pouring any concrete thrust block. Concrete shall conform to Section 03 30 00.

3.05 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



## SECTION 02 01 30

### CONNECTIONS TO EXISTING BURIED PIPELINES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Connecting to Existing Buried Pipelines
  - 1. Tapping existing buried ductile iron and PVC pipelines.
  - 2. Line stopping.

##### 1.02 REFERENCES:

- A. American National Standards Institute (ANSI):
  - 1. B16.1: Gray Iron Pipe Flanges and Flanged Fittings
- B. American Society for Testing and Materials International (ASTM):
  - 1. A36: Standard Specification for Carbon Structural Steel
  - 2. A325: Standard Specification for Structural Bolts, Steel, Heat-Treated 120/105 ksi Minimum Tensile Strength
  - 3. A536: Standard Specification for Ductile Iron Castings
- C. American Water Works Association (AWWA):
  - 1. C110: Ductile Iron and Gray Iron Fittings
  - 2. C213: Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines
  - 3. C509: Resilient Seated Gate Valves for Water Service
  - 4. C550: Protective Interior Coatings for Valves and Hydrants
  - 5. C800: Underground Service Line Valves and Fittings
- D. Manufacturer's Standardization Society (MSS):
  - 1. SP-60: Connecting Flange Joint Between Tapping Sleeves and Tapping Valves
  - 2. SP-111: Gray Iron and Ductile Iron Tapping Sleeves

3. SP-113: Connection Joint Between Tapping Machine and Tapping Valve

E. NSF International (NSF):

1. 61: Drinking Water System Components Health Effects

1.03 SUBMITTALS:

A. Submit the following shop drawings in accordance with Contracting Documents.

1. Manufacturer's catalog data for products to be used.

1.04 QUALITY ASSURANCE:

A. Comply with the requirements specified in Contracting Documents.

1.05 DELIVERY STORAGE AND HANDLING:

A. Comply with the requirements specified in Contracting Documents.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Tapping Sleeves (for tapping outlets 4-inch to 16-inch diameter) for Ductile Iron and PVC Pipe:

1. Manufacturers:

a. Ford Meter Box Company

b. Mueller

2. Products:

a. Complies with MSS SP-111.

b. Ductile Iron.

c. Bolts, Nuts, and Washers: Type 304 Stainless Steel, coated to protect from galvanic corrosion.

d. Outlet: Recessed for tapping valve per MSS SP-60.

e. Pressure Rating: To match or exceed rating of existing piping.

3. Coating:



- a. Epoxy coated in accordance with AWWA C213.
- B. Tapping Valves (4-inch to 16-inch diameter):
- 1. Manufacturers:
    - a. Mueller
    - b. US Pipe
    - c. American Cast Iron Pipe Company
  - 2. Products:
    - a. Conforms to AWWA C509.
    - b. Ends: Conform to ANSI B16.1, Class 125, and MSS SP-60 and MSS SP-113.
    - c. Wedge: Iron, fully encapsulated in rubber.
    - d. Stem: Non-rising.
    - e. Bonnet and Stuffing Box: 304 stainless steel.
    - f. Nuts and Bolts: 304 stainless steel.
  - 3. Coating:
    - a. Fusion bonded epoxy, conforming to AWWA C550.
    - b. Certified to meet NSF 61 standard.
- C. Tapping Saddles (4 inch diameter and smaller) for Ductile Iron and PVC Pipe:
- 1. Manufacturers:
    - a. Smith-Blair
    - b. Or approved equal
  - 2. Products:
    - a. Conforms to AWWA C800 and NSF 61.
    - b. Body: Ductile Iron, ASTM A536.
    - c. Outlet: Threaded NPT.

- d. Gasket: Buna-N, conforming to NSF 61.
  - e. Straps: Stainless Steel Double Bale, each 1.5-inches wide.
  - f. Studs, Nuts, and Washers: Type 304 Stainless Steel, coated to protect from galvanic corrosion.
  - g. Pressure Rating: To match or exceed rating of existing piping.
3. Coating:
- a. Fusion-bonded epoxy coating.
- D. Line Stop Fittings:
- 1. Manufacturers:
    - a. ADS, Hydra-Stop
    - b. Furmanite, IPSCO Flo-Stop
    - c. Or approved equal
  - 2. Products:
    - a. Type 304 Stainless Steel split sleeve.
    - b. Seals: Rubber gasket constructed of Buna-N.
    - c. Bolts and Nuts: Steel, ASTM A325.
  - 3. Rubber Stopper:
    - a. Fully expandable rubber, minimum 100 psi pressure rating, or
    - b. Carbon steel pivoting head with Buna-N sealing element, minimum 100 psi pressure rating.

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Line Stopping: Expose the existing pipeline and determine the pipe wall thickness prior to ordering the line stop materials. If wall thickness cannot be visually ascertained, utilize pipe thickness testing using ultrasonic technology.
- B. Tapping: Expose the existing pipeline to be tapped. Verify material of construction and outside diameter prior to ordering tapping materials.

3.02 PREPARATION:

- A. Coordinate work to be performed with pipeline Owner.

3.03 INSTALLATION:

A. Line Stopping:

1. Install concrete and support thrust blocking before installing the temporary pressure tapping machinery and valve.
2. The tapping of an existing main shall be a minimum of 4 feet from the nearest pipe end and/or fitting.
3. After tapping and line stopping operations have been completed, seal the tee fitting with an ASTM A36 steel pin-locked completion plug with Buna-N O-ring seal.
4. Close the fitting with a blind flange meeting the requirements of AWWA C110.
5. Repair any damage that occurs to line stop fitting, accessories, or existing pipeline.
6. Dispose of water and existing pipeline at no additional cost to Owner.

3.04 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



## SECTION 02 32 19

### SUBSURFACE UTILITY LOCATING (POTHOLING)

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. This section includes materials and procedures for performing pothole operations to locate existing underground utilities.

##### 1.02 REFERENCES:

- A. American Society of Civil Engineers (ASCE):
  - 1. 38-02: Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

##### 1.03 SUBMITTALS:

- A. Submit the following in accordance with Contracting Documents.
- B. Submit request for premarking of pothole locations at least seven calendar days prior to the commencement of field activities.
- C. Submit a traffic control/protection plan at least 14 calendar days prior to the commencement of field activities.
- D. Submit proposed method of potholing, including description of equipment to be used, and schedule for potholing for acceptance at least 14 calendar days prior to the commencement of field activities. Obtain Owner's approval of pothole locations prior to commencement of field activities.
- E. Submit field logs to the Owner within two working days after the completion of pothole excavations in each area. Include dates of potholing operations and any additional discovered information or pertinent data. Include for each pothole excavation field log:
  - 1. Pothole number.
  - 2. Date of pothole.
  - 3. Depths to top and bottom of utility (measured from existing grade over utility at pothole).
  - 4. Miscellaneous Contractor's notes.

- F. Submit temporary steel cap and/or steel plate bridging shop drawings at least seven calendar days prior to the commencement of field activities.
- G. Submit asphalt concrete mix design at least seven calendar days prior to the commencement of field activities.

#### 1.04 PROCEDURES:

- A. Subsurface utility-locating (potholing) services shall conform to CI/ASCE 38-02. For the purpose of this scope, “locate” means to obtain the horizontal and vertical position of the utility line by excavating a circular test hole or narrow trench (where approved of and/or requested by the Owner). Construct test holes using vacuum excavation or comparable nondestructive equipment in a manner that will cause no damage to the utility.
- B. Subsurface utility locating shall consist of test hole excavations at locations indicated on the pothole plans as approved by the Owner. Narrow trench excavations (slot potholes) may be required at locations approved by the Owner or to locate multiple parallel utilities.
- C. Cost for subsurface utility-location (potholing) will be considered incidental to other items.

#### 1.05 TIME OF COMPLETION/SCHEDULE:

- A. The Contractor shall diligently prosecute the work to completion before the expiration of 15 working days immediately following the date of the project kick-off meeting.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS:

- A. Asphalt Concrete Pavement Repair at Exploratory Trenches and at Test Holes
  1. Asphalt concrete paving shall conform to Kentucky Transportation Cabinet (KYTC) Standards and Specifications for Road and Bridge Design, Division 400, 2019 edition.
  2. Asphalt shall be as per KYTC Standards and Specifications for Road and Bridge Design, Division 400, Section 403. Asphalt content in the pavement shall be 5.5 percent to 6.0 percent.
  3. Areas to be paved shall receive prime coat. Prime coat shall be as per KYTC Standards and Specifications for Road and Bridge Design, Division 400, Section 403.

4. Aggregate shall be as per KYTC Standards and Specifications for Road and Bridge Design, Division 400, Section 403.
5. Paving thickness shall match existing plus 1 inch.

### PART 3 - EXECUTION

#### 3.01 POTHOLING OPERATIONS:

- A. Underground Service Alert Requirements: Comply with Kentucky 811 requirements for notification prior to excavation. Contact Kentucky 811 at 1-800-752-6007 (or dial 811) no less than two and no more than 10 days prior to the start of exploratory excavation. Verify whether or not a representative of each utility or agency will be present during excavation, and coordinate with said individual(s). Take any precautions required by the utility owner.
- B. Furnish, install, maintain, and remove necessary traffic signs, barricades, lights, signals, cones, pavement markings, and other traffic control devices. Perform traffic control in accordance with KYTC, AECOM Healthy and Safety Protocols, and OSHA Regulations for Construction Projects.
- C. Conduct potholing operations in a manner that minimizes the damage potential to existing underground utilities in order to ensure that the existing facilities will remain in operation without interruption. Contractor shall be responsible for and repair to pre-existing condition (at Contractor's expense) any existing underground utilities damaged by potholing operations.
- D. Backfill and repair test hole excavations immediately after obtaining the measurement data. Backfill and repair trench excavations requiring use of temporary steel plate bridging within four working days. Promptly provide notice to the Owner for scheduling field survey activities. Advise Owner of number of pothole excavations completed and number remaining.
- E. Coordinate and cooperate with and facilitate field data collection by Owner's surveyor. Pothole excavations shall sufficiently expose subsurface utilities to allow surveyor to easily determine and measure the following data:
  1. Elevation at top and bottom of utility.
  2. Elevation of existing grade over utility at pothole.
  3. Coordinates at surface.
  4. Utility type.
  5. Outside diameter of utility or width of duct banks.

6. Utility material and condition.

- F. Location and Depiction of Existing Utilities: Existing utility plans shall be present and utilized during potholing activities. The plans shall be compared to utility/agency paint markings following Underground Service Alert notification as well as locations premarked by the Owner's surveyor. If discrepancies are found between the plans and paint markings, promptly notify the Owner prior to commencement of any excavation.

3.02 EXCAVATION:

- A. Protect utilities or underground structures from damage during potholing. Immediately report any damaged utilities to the affected utility's owner and the Owner. Repair immediately any damaged utilities in accordance with the respective utility owner's requirements. Neatly cut and remove existing pavement. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, or other protective coverings, utilizing vacuum excavation or hand digging.
- B. Methods: Backhoe excavation is not permitted except for trench excavations. Use the following methods for pothole excavations:
1. Hand Digging: Hand digging is the method of excavating a pothole by manual means with hand-held, nonmechanical equipment such as a shovel.
  2. Vacuum Excavation: Vacuum excavation shall consist of air or water pressure to break up the soil and a vacuum device to collect the spoil. Determine if air or water vacuum excavation shall be used depending upon specific site and environmental characteristics. Soil type such as heavy clay may require water vacuum excavation. Utilize air vacuum excavators if mud from water vacuum excavators cannot be disposed properly. Use air vacuum excavators if damage to utilities, such as cutting through cables, will occur with the use of water vacuum excavators.
    - a. Air: Air vacuum excavators shall utilize a high velocity air stream to penetrate, expand, and break up the soil. Remove the loosened particles of soil and rock from the excavation through the use of a vacuum.
    - b. Water: Water vacuum excavation systems shall excavate the pothole using high-pressure water to reduce and loosen the soil. Remove the wet soil and mud slurry to a spoil tank using a vacuum.
- C. Size of Test Hole Excavation: Maximum test hole size shall be 8 inches in diameter at surface, unless indicated otherwise, or approved by Owner due to subsurface conditions.
- D. Size of Exploratory Trench Excavation: Trench width and length shall be as approved by the Owner. Width and length may be affected by existing subsurface conditions. Trench depth shall be as required to accurately locate subsurface utilities.



3.03 TEMPORARY STEEL PLATE BRIDGING, WITH A NONSKID SURFACE  
(WHERE REQUIRED FOR APPROVED TRENCHES)

- A. Provide steel plate bridging with a nonskid surface and shoring to preserve unobstructed traffic flow. In such cases, the following conditions shall apply:
  - 1. Steel plates used for bridging shall extend a minimum of 12 inches beyond the edges of the trench.
  - 2. Install steel plate bridging to operate with minimum noise.
  - 3. Shore the trench to support the bridging and traffic loads.
  - 4. Secure bridging against displacement by using adjustable cleats, shims, or other devices.
- B. Install steel plate bridging and shoring using the following method:
  - 1. Attach approach plate(s) and ending plate (if longitudinal placement) to the driveway by a minimum of two dowels predrilled into the corners of the plate and drilled 2 inches into the pavement. Butt subsequent plates to each other. Compact fine graded asphalt concrete to form ramps, maximum slope 8.5 percent with a minimum 12-inch taper to cover all edges of the steel plates. When steel plates are removed, backfill the dowel holes in the pavement with either graded fines of asphalt concrete mix or concrete slurry.
- C. Maintain the steel plates, shoring, and asphalt concrete ramps.
- D. Unless specified, use of steel plate bridging at any given location shall not exceed four consecutive working days in any given week. Cover backfilling of excavation with a minimum of 3 inches of temporary layer of cold mix asphalt concrete.
- E. The following table shows the required minimal thickness of steel plate bridging required for a given trench width. In addition, plate thickness shall be sufficient for all anticipated loads.

<b>Trench Width (feet) (cm)</b>	<b>Minimum Plate Thickness (inches) (cm)</b>
1 (30)	1/2 (15)
1-1/2 (47)	3/4 (23)

- F. The Contractor may use standard steel plate with known coefficient of friction equal or exceeding 0.35.

- G. Use a “Rough Road” sign (W8-8) with black lettering on an orange background in advanced of steel plate bridging. This is to be used along with any other required construction signing.

3.04 POTHOLE REPAIR:

- A. After excavating a test hole or trench, provide and install a temporary steel cap (over test hole) or temporary steel plate bridging (over trench) to facilitate data gathering by Owner’s surveyor.
- B. Following data gathering by surveyor, remove temporary steel caps and/or steel plate bridging, and backfill excavation with accepted material as follows:
  - 1. Test Hole Excavations:
    - a. Backfill with native soil. Bring to grade with asphalt cement pavement per Part 2 of this section. Match existing pavement thickness plus 1 inch.
    - b. Test hole excavations in pavement shall be backfilled with crushed stone.
  - 2. Exploratory Trenches: Backfill per Part 2 of this section. Match existing pavement thickness plus 1 inch.
- C. The finished surface of the repair shall be of like material and constructed to the same finished grade as the adjacent pavement. The finished surface shall be such that it does not allow water to pond. There shall be no discernable difference in surface level at the joint between the existing pavement and the completed repair.

3.05 DISPOSAL OF CUTTINGS:

- A. Dispose of cuttings off-site.

3.06 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

SECTION 03 30 00  
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide cast-in-place concrete as indicated and in compliance with Contract Documents, including reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.02 REFERENCES:

A. American Concrete Institute (ACI):

1. 117: Specifications for Tolerances for Concrete Construction and Materials
2. 301: Standard Specifications for Structural Concrete
3. 302.1R: Guide to Concrete Floor and Slab Construction
4. 304R: Guide for Measuring, Mixing, Transporting and Placing Concrete
5. 305R: Hot Weather Concreting
6. 306R: Cold Weather Concreting
7. 308: Standard Practice for Curing Concrete
8. 309R: Guide for Consolidation of Concrete
9. 318: Building Code Requirements for Structural Concrete
10. 350: Code Requirements For Environmental Engineering Concrete Structures

B. American Society for Testing and Materials International (ASTM):

1. C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field
2. C33: Standard Specification for Concrete Aggregates
3. C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

4. C42: Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
  5. C94: Standard Specification for Ready-Mixed Concrete
  6. C138: Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
  7. C143: Standard Test Method for Slump of Hydraulic Cement Concrete
  8. C150: Standard Specification for Portland Cement
  9. C157: Standard Test Method for Length Change of Hardened Hydraulic Cement, Mortar and Concrete
  10. C172: Standard Practice for Sampling Freshly Mixed Concrete
  11. C231: Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
  12. C595: Standard Specification for Blended Hydraulic Cements
  13. C881: Standard Test Method for Epoxy Resin Base Bonding Systems for Concrete
  14. E1745: Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
- C. C1064: Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete National Sanitation Foundation (NSF):
1. 61: Drinking Water System Components – Health Effects
- 1.03 SUBMITTALS:
- A. Submit the following shop drawings in accordance with Contracting Documents.
  - B. Product Data:
    1. Manufacturer's specifications and instructions including Material Safety Data Sheets (MSDS) for admixtures and curing materials. Manufacturer's certification of compatibility of all admixtures.
  - C. Shop Drawings:
    1. Provide certificate that cement used complies with ASTM C150 and these specifications.

2. Provide certificates that aggregates comply with ASTM C33. Submit gradation analysis with concrete mix designs.
3. Provide certificate of compliance with these specifications from the manufacturer of the concrete admixtures.
4. For each formulation of concrete proposed, prepare mix designs in accordance with ACI 318, Chapters 4 and 5, except as modified herein. Submit mix design for review by the Engineer at least 15 days before placing of any concrete.
5. For potable water service, provide certification that materials used in concrete, or the curing and repair of concrete, meet the requirements of ANSI/NSF 61 for contact with potable water.
6. Proposed special procedures for protection of concrete under wet weather placement conditions.
7. Proposed special procedures for protection and curing of concrete under hot and cold weather conditions.

D. Test and Evaluation Reports

1. Provide results of drying shrinkage tests from trial concrete mixes by the Contractor's testing laboratory firm.

E. Manufacturers' Instructions

1. Provide epoxy bonding compound manufacturer's specific instructions for use. Provide manufacturer's data sheets as to suitability of product to meet job requirements with regard to surface, pot life, set time, vertical or horizontal application, and forming restrictions.

F. Field Quality Control Submittals

1. Provide delivery tickets for ready-mix concrete or weighmasters certificate per ASTM C94, including weights of cement and each size aggregate and amount of water added at the plant and record of pours. Record the amount of water added on the job on the delivery ticket. Water added at the plant shall account for moisture in both coarse and fine aggregate.

1.04 SHRINKAGE TESTS:

- A. The testing laboratory shall perform drying shrinkage tests for the trial batches as specified in ACI 301.

- B. If the trial batch specimens do not meet the shrinkage requirements, revise the mix design and/or materials and retest.

1.05 QUALITY ASSURANCE:

- A. Provide in accordance with Contracting Documents.
- B. Unless otherwise indicated, materials, workmanship, and practices shall conform to the following standards:
  - 1. Local building codes.
  - 2. ACI 301, "Structural Concrete for Buildings."
  - 3. ACI 318, "Building Code Requirements for Reinforced Concrete."
  - 4. ACI 350, "Code Requirements For Environmental Engineering Concrete Structures."
  - 5. ANSI/NSF 61, "Drinking Water System Components – Health Effects."
  - 6. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- C. Where provisions of pertinent codes and standards conflict with this specification, the more stringent provisions govern.
- D. Concrete not meeting the minimum specified 28-day design strength shall be cause for rejection and removal from the work.
- E. Perform concrete work in conformance with ACI 301 unless otherwise specified.
- F. Do not use admixtures, including calcium chloride, which will cause accelerated setting of cement in concrete.
- G. Do not place concrete until design mix, material tests and trial concrete batch mix compression test results are accepted by the Engineer.
- H. Employ an independent testing laboratory, acceptable to the Engineer, to develop concrete mix designs and testing. Concrete testing shall be performed by an ACI Concrete Field Technician, Grade I or equivalent.
- I. Methods of Sampling and Testing:
  - 1. Fresh Concrete Sampling: ASTM C172

2. Specimen Preparation: ASTM C31
  3. Compressive Strength: ASTM C39
  4. Air Content: ASTM C231
  5. Slump: ASTM C143
  6. Temperature: ASTM C1064
  7. Unit Weight: ASTM C138
  8. Obtaining Drilled Cores: ASTM C42
  9. Drying Shrinkage: ASTM C157
- J. Acceptance of Structure: Acceptance of completed concrete work requires conformance with dimensional tolerances, appearance and strength as indicated or specified.
- K. Hot weather concrete to conform to ACI 305R and as specified herein.
- L. Cold weather concrete to conform to ACI 306R and as specified herein.
- M. Reject concrete delivered to job site that exceeds the time limit or temperature limitations specified.
- N. Do not place concrete in water or on frozen or uncompacted ground.
- O. Workability
1. Concrete shall be of such consistency and composition that it can be worked readily into the forms and around the reinforcement without excessive vibrating and without permitting the materials to segregate or free water to collect on the surface.
  2. Adjust the proportions to secure a plastic, cohesive mixture, and one that is within the specified slump range.
  3. To avoid unnecessary changes in consistency, obtain the aggregate from a source with uniform quality, moisture content, and grading. Handle materials to minimize variations in moisture content that would interfere with production of concrete of the established degree of uniformity and slump.
- 1.06 DELIVERY, STORAGE, AND HANDLING:
- A. Provide in conformance with Contracting Documents and as specified herein.

- B. Deliver concrete to discharge locations in watertight agitator or mixer trucks without altering the specified properties of water-cement ratio, slump, air entrainment, temperature and homogeneity.
- C. Reject concrete not conforming to specification, unsuitable for placement, exceeding the time or temperature limitations or not having a complete delivery batch ticket.

1.07 SITE CONDITIONS:

- A. Do not place concrete until conditions and facilities for making and curing control test specimens are in compliance with ASTM C 31 and as specified herein.

1.08 MEASUREMENT AND PAYMENT:

- A. Concrete provided shall be considered incidental to the work and shall be included in the unit costs of other bid items. No separate payment for concrete shall be made unless specifically included as a pay item.
- B. Heating of water and aggregates and providing cold weather protection will not be measured and will be considered incidental to the work.
- C. Cooling of concrete and providing hot weather protection will not be measured and will be considered incidental to the work.
- D. Coordination with other trades for the supply of hardware, pipe sleeves, and other embedded materials, including the related layout drawing provided by the supplier, and installation of those materials will not be measured and will be considered incidental to the work.
- E. Supply and installation of waterstops in construction joints and expansion joints will not be measured and will be considered incidental to the work.
- F. Repair of any deficiencies in the concrete work will not be measured and will be considered incidental to the work.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Cement:
  - 1. Portland Cement, ASTM C150, or Type I.
  - 2. Use only one brand of cement in any individual structure. Use no cement that has become damaged, partially set, lumpy, or caked. Reject the entire contents of the



sack or container that contains such cement. Use no salvaged or reclaimed cement.

B. Fly Ash:

1. Provide fly ash conforming to the following requirements:
  - a. Class F or Class C fly ash conforming to ASTM C618 for chemical and physical properties.
2. Fly ash used in concrete that contacts potable water shall be certified as meeting the requirements of ANSI/NSF 61.

C. Fine Aggregates:

1. Clean, sharp, natural sand conforming to requirements of ASTM C33.
2. Conform to Section 804 of KYTC Standard Specifications, latest edition.

D. Coarse Aggregate:

1. Well graded crushed stone, natural rock conforming to requirements of ASTM C33 and Section 805 of KYTC Standard Specifications, latest edition.
2. Limit deleterious substances in accordance with ASTM C33, Table 3, Severe Weathering Regions, limit clay lumps not to exceed 1.0 percent by weight, and limit loss when tested for soundness using magnesium sulfate to 12 percent.

E. Water and Ice:

1. Use water and ice free from injurious amounts of oil, acid, alkali, salt, organic matter or other deleterious substances and conforms to requirements of ASTM C94.
2. Heat or cool water to obtain concrete temperatures specified, and in conformance with ACI 305R and ACI 306R.

F. Concrete Admixtures:

1. Air-Entraining Admixture: Conform to Section 802 of KYTC Standard Specifications, latest edition.
2. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride. Conform to Section 844 of KYTC Standard Specifications, latest edition.

G. Epoxy Bonding Agent:

1. Epoxy bonding agent shall conform to ASTM C881 Type I, II, IV or V; Grade 2 for epoxy resin adhesives. The class of epoxy bonding agent shall be suitable for ambient and substrate temperatures.

H. Vapor Retarder:

1. Polyethylene sheet conforming to ASTM E1745.

I. Curing Compound:

1. Clear, Waterborne, Membrane-Forming Curing Compound: Conform to Section 823 of KYTC Standard Specifications, latest edition.
2. Provide a copy of manufacturer's certification that the curing compound meets the requirements of ANSI/NSF 61 for concrete surfaces that will be in contact with potable water.
3. Evaporation Retarder: Conform to Section 823 of KYTC Standard Specifications, latest edition.
4. Moisture-Retaining Cover: Conform to Section 823 of KYTC Standard Specifications, latest edition.

2.02 MIXES:

A. Comply with ACI 301 requirements for concrete mixtures.

B. Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301, as follows:

1. Minimum Compressive Strength: 3500 psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: Conform to Section 601 of KYTC Standard Specifications, latest edition, Class A concrete.
3. Slump Limit: Conform to Section 601 of KYTC Standard Specifications, latest edition, Class A concrete.
4. Air Content: Conform to Section 601 of KYTC Standard Specifications, latest edition, Class A concrete.

C. Supply concrete to meet the project performance requirements. Structural Concrete specified herein is required to be "High Performance Concrete" for increased durability and water-tightness with reduced shrinkage and cracking, compared to regular structural concrete.

- D. Utilize the same mix proportions throughout the project.
- E. Where the performance of a mix deteriorates to values below the Contract requirements, cease supply of that mix. Re-evaluate the mix, propose revised proportions to meet the performance requirements for the mix, submit trial mix results, and, after the review and accelerated testing, as required by the Engineer, utilize the revised mix.
- F. Conform to ASTM C94, except as modified by these specifications.

## PART 3 - EXECUTION

### 3.01 STANDARDS OF WORKMANSHIP:

- A. Undertake all aspects of the Work to meet watertight requirements.
- B. Cracking of concrete in the structure is generally considered to be detrimental to the long term performance of the structure. Therefore, all cracks resulting in any visible leakage must be repaired using approved methods. In addition, although low shrinkage concrete and specialized curing procedures have been specified to minimize cracking resulting from shrinkage and thermal shock, some cracking will occur and must be repaired by the Contractor at no cost to the Owner.

### 3.02 INSPECTION:

- A. Examine the subgrade and the conditions under which work is to be performed and notify the Engineer in writing of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions are corrected to comply with specified subgrade conditions in a manner acceptable to the Engineer.

### 3.03 MIXING AND TRANSPORTING CONCRETE:

- A. General: Conform to concreting procedures set forth in ASTM C94, ACI 304R and as specified herein.
  - 1. Transport concrete to discharge locations without altering the specified properties of water-cement ratio, slump, air entrainment, temperature and homogeneity.
  - 2. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  - 3. Keep a record showing time and place of each pour of concrete, together with transit-mix delivery slips certifying the contents of the pour.
  - 4. Consolidate concrete with mechanical vibrating equipment.

### 3.04 CONCRETE ACCEPTANCE:

- A. Accept or reject each batch of concrete delivered to the point of agitator or mixer truck discharge. Sign delivery batch tickets to indicate concrete acceptance.
- B. Reject concrete delivered without a complete concrete delivery batch ticket as specified herein. The concrete supplier will furnish copies of the signed batch ticket to the Contractor and Engineer.
- C. Accept or reject concrete on the basis of conformity with slump, air content and temperature specified.
- D. Testing Frequency: One composite sample shall be obtained for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.
- E. The testing agency shall inspect concrete transit truck's barrel revolution counter and gauge for measuring water added to the concrete. Reject concrete that has water content exceeding the specified water-cement ratio.
- F. Reject concrete not conforming to specification before discharging into the forms.

### 3.05 PREPARATION AND COORDINATION:

- A. Pre-planning Requirements
  - 1. Two weeks (14 calendar days) prior to placing of concrete, obtain Engineer's approval of the proposed method for the protection of the concrete during placing and curing in adverse weather.
  - 2. Submit the proposed sequence of casting for review by the Engineer including the location of the proposed construction joints. Where possible sequence the casting schedule so that walls are placed as soon as possible after their supporting footings or slabs were placed.
  - 3. Provide three (3) working days' notice, including scheduled start time, prior to concrete placement. The Contractor will be responsible for the Engineer's testing companies standby time costs in the event a concrete pour does not commence within 90 minutes of the proposed time indicated in the three (3) day notice.
  - 4. Obtain the Engineer's approval before placing concrete.
  - 5. Coordinate with the concrete supplier with respect to the workability requirements for the concrete. Do not add water to the concrete after the initial batching unless approved by the Engineer, and the concrete supplier. If approval is granted, a record of the amount of water added must be kept and a copy submitted to the Engineer within three (3) days for their records.

6. Establish and maintain accurate records of poured concrete items to indicate date, location and size of pour, temperature of the air, the concrete being placed, the previously placed concrete, the batch ticket number and the test samples taken.
- B. Anchor Bolts:
1. Set anchor bolts to templates under supervision of appropriate trade prior to placing concrete.
  2. Under special circumstances, with approval of the Engineer, grouted anchor bolts may be installed into preformed holes or holes drilled after concrete has set. Formed holes or sleeves shall be a minimum 4" diameter and be deformed or dovetailed.
  3. Protect anchor bolt holes from water accumulations and snow, and ice build up.
  4. When using proprietary anchor systems set bolts and fill holes with epoxy grout, in accordance with the manufacturer's requirements. All proprietary anchors must be approved by the Engineer.
  5. Locate anchor bolts used in connection with expansion shoes, rollers, and rockers with due regard to ambient temperature at time of erection.
- C. Drainage Holes and Weep Holes:
1. Install the weep hole tubes and drains as indicated.
- D. Coordination:
1. Adjust the work to suit final shop drawings of the equipment being supplied. Verify all sizes with the trade supplying and installing the equipment. Obtain, utilize and submit data on relevant sizes to suit any change in equipment. Confirm the adjustments with the Engineer.
- E. Contractor shall notify the Engineer of readiness to place concrete in any portion of the work a minimum of 5 working days prior to concrete placement. Failure to provide this notification will be cause for delay in placing until observations can be completed.
- F. Reinforcement, installation of waterstop, positioning of embedded items, and condition of formwork will be observed by the Engineer prior to concrete placement.
- G. Coordinate the sequence of placement such that construction joints will occur only as designed.

- H. Schedule sufficient equipment for continuous concrete placing. Provide for backup equipment and procedures to be taken in case of an interruption in placing. Provide backup concrete vibrators at the project site. Test concrete vibrators the day before placing concrete.
- I. Compact the subgrade and/or bedding. Saturate the subgrade approximately eight hours before placement and sprinkle ahead of the placement of concrete in areas where vapor barrier is not used. Remove standing water, mud, and foreign matter before concrete is deposited.
- J. Where shown on contract drawings, intentionally roughen surfaces of set concrete in a manner to expose bonded aggregate uniformly at joints.
- K. Provide mud slabs to obtain a dry and stable working platform for placement of slabs.
- L. When shown on contract drawings, install a granular base beneath slabs on ground. Place granular material on a compacted subgrade and compact granular base.
- M. Place vapor barrier under structural slabs and buildings and where shown on contract drawings. Install material with lap at joints and seal joints with tape as recommended by the vaporbarrier manufacturer. Tape material cut for slab penetrations to the pipe, conduit or other items passing through the slab. Use tape recommended by the vaporbarrier manufacturer.
- N. Install vapor barrier without punctures or tears and protect against punctures and breaks.
- O. Where concrete is required to be placed and bonded to existing concrete, coat the contact surfaces with epoxy bonding agent. The method of preparation and application of the bonding agent shall conform to the manufacturer's recommendations.

### 3.06 CONCRETE PLACEMENT:

- A. Placement shall conform to ACI 304R as modified by these specifications.
- B. Formwork
  - 1. Design, construct, erect, brace, and maintain formwork according to ACI 301.
- C. Joints
  - 1. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

2. Construction Joints: Locate and install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
3. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:
  - a. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
  - b. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - a. Extend joint fillers full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
- E. CONCRETE PLACEMENT
  1. Comply with ACI 301 for placing concrete.
  2. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
  3. Consolidate concrete with mechanical vibrating equipment.
- F. FINISHING UNFORMED SURFACES
  1. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
  2. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.
    - a. Do not further disturb surfaces before starting finishing operations.

3. Nonslip Broom Finish: Apply a nonslip broom finish to surfaces indicated and to exterior concrete sidewalks, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
- G. Alternate sections of concrete walls and slabs may be cast simultaneously. Do not place adjacent sections of walls and slabs until seven days after placement of first placed concrete.
- H. Do not place concrete until free water has been removed or has been diverted by pipes or other means and carried out of the forms, clear of the work. Do not deposit concrete underwater, and do not allow free water to rise on any concrete until the concrete has attained its initial set. Do not permit free or storm water to flow over surfaces of concrete so as to injure the quality or surface finish.
- I. Do not place concrete during inclement weather. Protect concrete placed from inclement weather. Keep sufficient protective covering ready at all times for this purpose.
- J. Deposit concrete at or near its final position to avoid segregation caused by rehandling or flowing. Do not deposit concrete in large quantities in one place to be worked along the forms with a vibrator.
- K. Deposit concrete continuously and in level layers. Avoid inclined layers and cold joints. Place concrete at lower portion of slope first on sloping surfaces.
- L. Do not deposit partially hardened concrete in forms. Retempering of partially hardened concrete is not permitted. Remove partially hardened concrete from site at no additional compensation.
- M. Do not allow concrete to fall freely in forms to cause segregation (separation of coarse aggregate from mortar). Limit maximum free fall of concrete to 4 feet. Do not move concrete horizontally more than 4 feet from point of discharge. Space points of deposit not more than eight feet apart.
- N. At least two hours shall elapse after depositing concrete in the columns or walls before depositing in beams, girders, or slabs supported thereon. Place beams, girders, brackets, column capitals, and haunches monolithically as part of the floor or roof system, unless otherwise shown on contract drawings.
- O. Consolidate concrete using mechanical vibrators operated within the mass of concrete and/or on the forms conforming to procedures set forth in ACI 309R and as specified herein.
- P. Conduct vibration to produce concrete of uniform texture and appearance, free of honeycombing, streaking, cold joints or visible lift lines.



Q. Waterstops:

1. Prevent displacement of waterstops during concrete placement,

3.07 CURING AND PROTECTION:

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:
  1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
  2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
  3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
  4. Protect concrete from premature drying, hot or cold temperatures, and mechanical injury, beginning immediately after placement and maintain concrete with minimal moisture loss at relatively constant temperature.

5. Comply with curing procedures set forth in ACI 301, ACI 308 and as specified herein.
  6. Perform hot weather concreting in conformance with ACI 305R and as specified herein when the ambient atmospheric temperature is 80 degrees F (27 degrees C) or above.
  7. Perform cold weather concreting in conformance with ACI 306R.
  8. Concrete required to be moist cured shall remain moist for the entire duration of the cure. Repeated wetting and drying cycles of the curing process will not be allowed.
- E. Protection from environmental conditions: Make arrangements before concrete placing for heating, covering, insulation or housing to maintain the specified temperature and moisture conditions continuously for the curing period.
1. When the atmospheric temperature is 80 degrees F (25 degrees C) and above, or during other climatic conditions which will cause too rapid drying of the concrete, make arrangements before the start of concrete placing for the installation of wind breaks or shading, and for fog spraying, wet sprinkling, or moisture-retaining covering.
  2. Protect the concrete continuously for the entire curing period.
  3. Maintain concrete temperature as uniformly as possible, and protect from rapid atmospheric temperature changes.
- F. Protection from physical injury: Protect concrete from physical disturbances such as shock and vibration during curing period. Protect finished concrete surfaces from damage by construction equipment, materials, curing procedures and rain or running water. Do not load concrete in such a manner as to overstress concrete.
- G. Protection from Deicing Agents: Do not apply deicing chemicals to concrete.

### 3.08 FIELD QUALITY CONTROL:

#### A. Hot Weather Requirements

1. During hot weather, give proper attention to ingredients, production methods, handling, placing, protection, and curing to prevent excessive concrete temperatures or water evaporation in accordance with ACI 305R and the following.
2. Take precautions when placing concrete during hot, dry weather to eliminate early setting of concrete. This includes protection of reinforcing from direct sunlight to

prevent heating of reinforcing, placing concrete during cooler hours of the day, and the proper and timely application of specified curing methods.

3. There will be no additional reimbursement to the Contractor for costs incurred for placing concrete in hot weather.

B. Cold Weather Requirements

1. Provide adequate equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather in accordance with ACI 306R and the following.
2. There will be no additional reimbursement made to the Contractor for costs incurred for placing concrete during cold weather.

C. Backfill Against Walls

1. Do not place backfill against walls until the concrete has obtained a compressive strength equal to the specified 28-day compressive strength. Where backfill is to be placed on both sides of the wall, place the backfill uniformly on both sides.
2. Do not backfill the walls of structures that will be laterally restrained or supported by suspended slabs or slabs on grade until the slab is poured and the concrete has reached the specified compressive strength.

D. Concrete Testing

1. Concrete quality testing will be performed on the concrete by independent testing agency retained by the Contractor.
2. The testing agency will use concrete samples provided by the Contractor at the point of agitator or mixer truck discharge to perform slump (per ASTM C143) , air content (per ASTM C231), , and temperature tests (per ASTM C1064) and for field control test specimens.
3. The testing agency will submit test reports of concrete field measurements specified above to the Contractor and to the Engineer.
4. Provide and maintain facilities for safe storage and proper curing of concrete test specimens on the project site, as required by ASTM C31.
5. Concrete Quality Test Specimen:
  - a. Perform sampling and curing of test specimen in accordance with ASTM C31.

- b. Testing agency personnel will record truck and load number from the delivery batch ticket, the concrete placement location of each specimen, the date, concrete strength, slump, air content and temperature.
6. The Contractor may take field control test specimens for small quantities of concrete.
7. Concrete acceptance shall be based on the requirements of ACI 318 and ACI 350.
8. Field cured cylinders conforming to ASTM C31 will be required to determine field compressive strength of concrete. Laboratory cured cylinders for concrete quality testing shall not be used for determining field compressive strength.
9. Concrete Coring:
  - a. When the concrete quality test specimen compression tests fail to be in compliance with the Contract Documents or when the Engineer detects deficiencies in the concrete, the Contractor will take concrete cores at least 2 inches (50 mm) in diameter from the structure in conformance with ASTM C 42 at locations determined by the Engineer.
  - b. Obtain at least three representative cores from each member or area of concrete that is considered potentially deficient.
  - c. Obtain additional cores to replace cores that show evidence of having been damaged subsequent to or during removal from the structure.
  - d. The testing agency shall compression test the cores taken from the structure in conformance with ASTM C39 and submit test strength test results of cores specified above to the Contractor and to the Engineer.
  - e. All costs associated with coring and testing of cores will be borne by the Contractor at no additional cost to the Owner.

### 3.09 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

## SECTION 31 10 00

### SITE CLEARING

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Contracting Documents, apply to this Section.

##### 1.02 SUMMARY

- A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removal of debris related to clearing and grubbing operations.
6. Temporary erosion prevention and sediment control measures.

- B. Related Sections:

1. Contracting Documents for temporary utility services, construction and support facilities, security and protection facilities.
2. Contracting Documents for field engineering and surveying.

##### 1.03 DESCRIPTION:

- A. Provide site clearing as indicated and in compliance with Contract Documents.

##### 1.04 DEFINITIONS:

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.
  - D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and indicated on Drawings.
  - E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.
  - F. Caliper: Instrument used to measure tree diameter.
  - G. Clearing: Removal and disposal of above-ground items defined herein.
  - H. Grubbing: Removal and disposal of below-ground items defined herein.
- 1.05 QUALITY ASSURANCE:
- A. Comply with the requirements specified in Contracting Documents.
  - B. Permits:
    - 1. Obtain Construction Stormwater General Permit (KYR10) coverage from the Kentucky Division of Water.
- 1.06 DELIVERY STORAGE AND HANDLING:
- A. Comply with the requirements specified in Contracting Documents.
- 1.07 SITE CONDITIONS:
- A. Existing facilities, structures, and utilities are shown in accordance with available surveys and records. The indicated locations of underground utilities and structures are approximate. Other utilities may exist which are not indicated.
- 1.08 MATERIAL OWNERSHIP
- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

## 1.09 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
  - 1. Use sufficiently detailed photographs or videotape.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

## 1.10 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, driveways, walks, and other adjacent occupied or used facilities during site-clearing operations.
  - 1. Do not close or obstruct streets, walks, driveways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify 811, Call Before You Dig, for area where Project is located before site clearing.
- C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and tree-protection measures are in place.
- D. The following practices are prohibited within protection zones:
  - 1. Storage of construction materials, debris, or excavated material.
  - 2. Parking vehicles or equipment.
  - 3. Foot traffic.
  - 4. Erection of sheds or structures.
  - 5. Impoundment of water.
  - 6. Excavation or other digging unless otherwise indicated.
- E. Do not direct vehicle or equipment exhaust towards protection zones.
- F. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

- G. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

## PART 2- PRODUCTS

### 2.01 MATERIALS:

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section 31 23 00 "Excavation and Fill."
  - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.
- B. Silt Fence
  - 2. Fabric: Conform to KYTC Construction Specifications subsection 827.08.
  - 3. Wood Stakes
    - a. Spacing: 6 feet – 0 inches maximum.
- C. Temporary Seeding: Apply at 100 lbs. per acre; KYTC seed mix Type 1.

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Verify survey benchmarks and intended elevations for the Work are as indicated.
- B. Verify temporary erosion and sediment control measures are installed before commencing with any other work at the site.
- C. Verify location and existence of all underground utilities and structures by contacting utility owners, as required by law. Go to “Call Before You Dig” to receive state-specific information. Access this information by dialing 811 or going to <http://kentucky811.org>.
- D. Provide 72-hour notice to existing utility owners, prior to beginning construction.
- E. Contact utility companies and authorities to make arrangements for handling and disposal of utilities encountered during construction.
- F. The proposed areas designated for water mains, gravity sewer lines, force mains, and sewage pumping stations, etc., shall be cleared of all trees, timber, brush, stumps, rubbish and other debris. All this material, unless otherwise specified, shall be removed and disposed of away from the site.



- G. No debris will be allowed to be left under or in trench line.
- H. In removing trees near tracks, structures and wire lines, necessary precautions must be exercised to prevent damage to wire lines, structures, the facilities of others or obstruct tracks.

### 3.02 PREPARATION:

- A. Protect and maintain bench marks and survey control points from disturbance during construction.
- B. Protect trees and vegetation to remain. Do not cut or injure trees and vegetation outside easement lines and outside designated clearing areas.
- C. Protect all underground utilities and structures that are to remain. If damage occurs, immediately notify the utility owner within the hour.
- D. Protect existing site improvements to remain free from damage by construction.
  - 1. Restore damaged improvements to their original condition, as acceptable to Owner.
- E. Remove temporary EPSC measures and restore and stabilize areas disturbed during removal.

### 3.03 TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL (EPSC)

- A. Provide temporary EPSC measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to the Stormwater Pollution Prevention Plan (SWPPP) provided by the Contractor, and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair EPSC measures during construction until permanent vegetation has been established.
- D. Remove temporary EPSC measures and restore and stabilize areas disturbed during removal.

### 3.04 TREE PROTECTION

- A. Repair or replace trees, shrubs, and other vegetation indicated to remain that are damaged by construction operations, in a manner approved by Engineer.

### 3.05 EXISTING UTILITIES

- A. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Engineer not less than five days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Engineer's written permission.

### 3.06 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
  - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  - 2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
  - 3. Use only hand methods for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
  - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

### 3.07 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

### 3.08 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

### 3.09 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off the right-of-way and Owner's property.

### 3.10 RESTORATION

- A. Existing surfaces, features, utilities, or structures that are to remain but are damaged during construction shall be restored to at least the condition in which they were found immediately before work began, unless noted otherwise.
- B. Restore damaged utilities to the satisfaction of the utility owner.
- C. Restore damaged private property to the satisfaction of the property owner.

### 3.11 PRUNING:

- A. Trim dead branches 1-1/2-inches or more in diameter and branches to heights and in a manner as indicated. Neatly cut limbs and branches close to the bole of the tree or main branches. Paint cuts more than 1-1/4-inches in diameter tree wound paint.

### 3.12 BURNING:

- A. Burning is not permitted on site.

### 3.13 CLEANING:

- A. Promptly dispose of excess and unsuitable material off site.
- B. Remove debris, junk, and trash from site.
- C. Leave site in clean condition, ready for subsequent work.
- D. Clean up spillage and wind-blown debris before entering public or private property, adjacent to site.

### 3.14 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

## SECTION 31 22 00

### GRADING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Provide grading as indicated and in compliance with Contract Documents.
- B. Section Includes:
  - 1. Rough grading.
  - 2. Finish grading.
  - 3. Stockpiling of topsoil and subsoil.
  - 4. Disposal of unsuitable and excess materials.

##### 1.02 DEFINITIONS:

- A. Unsuitable Material: Defined in Section 31 23 00.
- B. Foundation Influence Zone (under foundations, pavements, or sidewalks): Area below base bounded by 1/2H:1V slope extending outward from 1 foot beyond outer edges.
- C. Utility Influence Zone (around piping or ducts): Area below with limits bounded by perpendicular line, 6 inches (150 mm) below pipe or duct with a 1/2H:1V slope extending outward from that line, 1 foot (0.30 m) beyond the edge of pipe or duct.

##### 1.03 SUBMITTALS:

- A. Submit in accordance with Contracting Documents.

##### 1.04 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.

##### 1.05 SITE CONDITIONS:

- A. Existing Conditions:
  - 1. See Contracting Documents for additional requirements.

2. Existing facilities, structures, and utilities are shown in accordance with available surveys and records. The indicated locations of underground utilities and structures are approximate. Other utilities may exist which are not indicated.
  3. Verify location of existing underground utilities and structures by contacting utility owners, as required by law. Go to “Call Before You Dig” to receive state-specific information. Access this information by dialing 811 or going to <http://kentucky811.org/>.
- B. Geotechnical Report: The report is available as Appendix A. Logs of borings are included in the report and indicate conditions encountered only at test boring locations. Nothing in the contract documents shall be construed as guarantee that other materials will not be encountered or that proportion of materials will not vary from proportions shown on the logs of test borings.

## PART 2 - PRODUCTS

(Not Used)

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Verify survey benchmarks and intended elevations for the work are as indicated.
- B. Verify temporary erosion and sediment control measures are installed before commencing with any other work at the site.
- C. Immediately notify the Engineer if suspected hazardous materials are encountered and cease operations in that area.
- D. Identify areas loosened by frost action, softened by flooding or weather, or containing unsuitable material.

### 3.02 PREPARATION:

- A. Remove material loosened by frost action, softened by flooding or weather, or containing unsuitable material. Replace and compact to same requirements as for specified fill in Section 31 23 00.
- B. Identify required lines, levels, grades, and datum.
- C. Stake and flag locations of known utilities.
- D. Locate, identify, and protect from damage all above- and below-ground utilities to remain.

- E. Notify utility owner prior to removal or relocation of utility. See Contracting Documents for notification requirements.
- F. When necessary to excavate through roots of trees or vegetation to remain – perform work by hand and cut roots with sharp axe.

### 3.03 ROUGH GRADING:

- A. Topsoil removal and stockpiling:
  - 1. Strip topsoil from areas that are to be excavated, landscaped, or graded.
  - 2. Separate organic matter (e.g., root zones) from topsoil. Dispose of organic material off-site.
  - 3. Do not strip topsoil while wet.
  - 4. Stockpile excavated topsoil on-site. Do not mix topsoil with foreign materials.
- B. Subsoil removal and stockpiling:
  - 1. Remove subsoil from areas that are to be excavated, landscaped, or graded.
  - 2. Do not remove wet subsoil unless it is subsequently processed to obtain optimum moisture content.
  - 3. Stockpile suitable subsoil on-site.
- C. Provide for free drainage of construction site.
- D. Benching Slopes: Horizontally bench existing slopes greater than 4H:1V to key fill material to slope for firm bearing.
- E. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill in Section 31 23 00.
- F. Disc level surfaces.
- G. Rough grade site to achieve lines and grades indicated with allowances for imported fill thicknesses.
- H. Provide positive drainage away from buildings and structures by sloping minimum of 3 inches over 10 feet.

### 3.04 FINISH GRADING:

- A. Before finish grading:

1. Verify subgrade is contoured and compacted.

2. Verify backfill has been inspected.

B. Fine grade to eliminate uneven areas and depressions. Follow profiles and contours of subgrade and bring to finish grade as indicated.

### 3.05 STOCKPILING:

A. Location: As indicated or directed. Do not locate stockpiles over existing or new utilities unless directed.

B. Height: 8 feet maximum.

C. Slope: 2H:1V, maximum.

D. Drainage: Grade to prevent standing water.

E. Provide erosion and sediment control around downhill-side of stockpile perimeter.

F. Immediately stabilize dormant stockpiles within 7 days. Stockpiles and portions of stockpiles that will not be actively used for at least 30 days shall be considered dormant.

### 3.06 EXCESS MATERIAL:

A. Excess grading material, suitable for backfilling or site grading, that is not necessary to complete the work at the project site belongs to the Owner and shall be delivered to an off-site designated location.

B. Dispose of off-site, unsuitable materials and excess materials not received by Owner.

### 3.07 TOLERANCES:

A. Subgrade:

1. Elevation: 2 inches, from required elevation.

2. Grade: 1 inch per 10 feet.

B. Finish Grade:

1. Elevation: 1/2 inch, from required elevation.

### 3.08 FIELD QUALITY CONTROL:

A. See Section 31 23 00 for compaction and testing requirements.



3.09 CLEANING:

- A. See Contracting Documents for additional requirements.
- B. Remove unused stockpiles, grade area to prevent standing water, protect from erosion, and stabilize.
- C. Leave site clean and raked, ready to receive landscaping.

3.10 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.
- B. Submit existing utility location information as part of record drawings. Include ticket numbers and original information from utility owners.

END OF SECTION



SECTION 31 23 00  
EXCAVATION AND FILL

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide excavation and fill as indicated and in compliance with Contract Documents.
- B. Section includes:
  - 1. Excavation and fill for: Foundations, structures, and pavement; site drainage, structures, and features.
  - 2. Refer to Section 31 23 33 for all utility trenching and backfill.
  - 3. Embankments.
  - 4. Dewatering excavations.
  - 5. Controlled fill using materials from imported and on-site sources.
  - 6. Soil and aggregate materials.
  - 7. Compaction and testing.

1.02 REFERENCES:

- A. American Society for Testing and Materials International (ASTM):
  - 1. C33: Specification for Concrete Aggregates.
  - 2. D421: Practice for Dry Preparation of Soil Samples for Particle Size Analysis and Determination of Soil Constants.
  - 3. D422: Test Method for Particle-Size Analysis of Soils.
  - 4. D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 5. D1556: Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
  - 6. D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).

7. D2167: Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
8. D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
9. D2940/D2940M: Standard Specification for Graded Aggregate Material For Bases or Subbases for Highways or Airports.
10. D4318: Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
11. D6938: Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

B. Occupational Safety and Health Administration (OSHA) Standards and Regulations:

1. 29 CFR 1926, Subpart P: Safety and Health Regulations for Construction, Excavations.

1.03 PRICE AND PAYMENT PROCEDURES:

- A. Measurement and Payment: See Contracting Documents.
- B. Unit Prices: See Contracting Documents.

1.04 CLASSIFICATION OF EXCAVATION:

- A. Excavation is not classified. No separate payment will be made for rock excavation.

1.05 DEFINITIONS

- A. Percent Compaction or Compaction Density: The field dry density of compacted material, expressed as a percentage of the maximum dry density.
- B. Field Dry Density or Field Density: In-place density as determined by ASTM D1556 (Sand Cone Method), ASTM D2167 (Rubber Balloon Method), or ASTM D6938 (Nuclear Method).
- C. Maximum Dry Density: Laboratory density as determined by ASTM D698 (Standard Proctor) or ASTM D1557 (Modified Proctor) and occurring at the optimum moisture content of the material being tested.
- D. Proof Roll: Single pass of a drum or rubber tire roller, having a gross load between 25 to 50 tons (23 to 45 tonnes). Rubber tire rollers shall have tires capable of operating at inflation pressures ranging from 90 to 150 psi (620 to 1040 kPa). Weight and contact pressure shall be as recommended by geotechnical engineer for the material being tested.

1.06 SUBMITTALS:

A. Submit the following in accordance with Contracting Documents.

1. Temporary excavation and shoring drawings for worker protection in accordance with the General Conditions.
2. Gradation analysis.
3. Dewatering plan including disposition of groundwater.
4. Manufacturer's catalog data and a sample of filter fabric with manufacturer's installation instructions and details.
5. Materials Sources: Name of source, location, date of sample, sieve analysis, and laboratory compaction characteristics.
6. Test and Evaluation Reports:
  - a. Field density testing reports: Provide results from field density testing of prepared subgrade and compacted fill.
  - b. Grain-size analysis.
  - c. Laboratory compaction characteristics of soils.
  - d. Water content.

1.07 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.
- B. Protect excavations by shoring, bracing, sheet piling, underpinning or other methods required to prevent cave-in of loose soil. Protection shall be in accordance with OSHA 29 CFR 1926, Subpart P.
- C. Provide testing in accordance with Section 31 23 33 Trenching and Backfill.

1.08 DELIVERY, STORAGE AND HANDLING:

- A. Comply with the requirements specified in Contracting Documents.

1.09 SITE CONDITIONS:

- A. Existing Conditions:

- B. Geotechnical Report: The report is available as Appendix A. Logs of borings are included in the report and indicate conditions encountered only at test boring locations. Nothing in the contract documents shall be construed as guarantee that other materials will not be encountered or that proportion of materials will not vary from proportions shown on the logs of test borings.

## PART 2 - PRODUCTS

### 2.01 FILL MATERIALS:

- A. Suitable Material: Material from on-site excavation and/or permitted off-site sources that meets all of the specified requirements for its intended use and is not unsuitable. Wet subgrade material which meets other requirements for suitable material is suitable.
- B. Unsuitable Material: Material that fails to meet requirements for suitable materials; or contains any of the following:
  - 1. Organic clay, organic silt, or peat; as defined in ASTM D2487.
  - 2. Vegetation, wood, roots, leaves, and organic, degradable material.
  - 3. Stones or rock fragments over 6 inches in any dimension.
  - 4. Porous biodegradable matter, excavated pavement, construction debris, rubbish, or refuse.
  - 5. Ice, snow, frost, or frozen soil particles.
- C. General Fill: Suitable, unclassified material.
- D. Structural Fill: Suitable material that is classified by the Unified Soil Classification System (USCS) in accordance with ASTM D2487 as GW, GP, GM, SW, SP, and SM. Verify that the largest particles in the fill are no greater in dimension than one-half the thickness of the compacted lift thickness.
- E. Concrete Fill: Section 03 30 00. Minimum compressive strength, 3,500 psi (28 MPa).
- F. Granular Fill:
  - 1. Densely Graded: ASTM D2940/D2940M, for bases.
    - a. Densely Graded Aggregate shall be plant mixed with water, transported in a way that delivers the mix to the project without loss or segregation, spread, and compacted to produce a density throughout not less than 84 percent of solid volume.

- b. Minimum dry density for compacted limestone DGA shall be 139 pounds per cubic foot when the specific gravity (S.G.) of limestone is 2.65. Construction requirements shall be according to Section 303 of Kentucky Transportation Cabinet (KYTC), Department of Highways, Standard Specifications for Road and Bridge Construction, 1994 edition (KTCSSRBC).
  - 2. Open Graded: ASTM C33, coarse aggregate, No. 57.
    - a. Conform to Section 805 of KYTC Standard Specifications, latest edition.
  - 3. Open Graded: Screened Gravel or Crushed Stone: ASTM C33, Coarse Aggregate, No. 67. Soil particles shall conform to the physical property requirements of ASTM C33.
    - a. Conform to Section 805 of KYTC Standard Specifications, latest edition.
- G. Sand: Clean, sharp, natural sand conforming to requirements of ASTM C33, Fine Aggregate.
  - 1. Conform to Section 804 of KYTC Standard Specifications, latest edition.
- H. Select Borrow:
  - 1. Well-graded, coarse-grained soil; classified in accordance with ASTM D2487 as GW, GW-GM, GW-GC, SW, SW-SM, or SW-SC.
  - 2. Soil particles: ASTM C33, physical property requirements.
  - 3. Gradation: Table 31 23 00-1.

Table 31 23 00-1	
Sieve Designation (Square Mesh)	Percentage Passing (By Weight)
3 inches (75 mm)	100
1-1/2 inches (37.5 mm)	70-100
3/4 inches (19.0 mm)	50-85
No. 4 (4.75 mm)	30-60
No. 50 (300 micrometers)	10-25
No. 200 (75 micrometers)	0-5

2.02 GEOTEXTILE FABRIC:

- A. Geotextile Fabric: KYTC Specifications, Section 843, Type III.

2.03 EQUIPMENT:

- A. Compaction equipment shall be capable of consistently achieving the specified compaction requirements.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Verify that dewatering support systems are in place before commencing with excavation.
- B. Verify that excavation safety and support systems meeting the requirements of OSHA 29 CFR 1926, Subpart P are in place before commencing with excavation.
  - 1. Minimum slopes for laying back excavations or materials are contained in OSHA 29 CFR 1926, Subpart P; Appendices A and B.
  - 2. Minimum requirements for shoring and bracing are contained in OSHA 29 CFR 1926, Subpart P; Appendix C.
- C. Verify that fill materials submittals have been accepted by Engineer before commencing with work requiring the use of these materials.
- D. Verify that erosion and sediment control measures are in place and functioning properly.
- E. Immediately notify the Engineer if unexpected subsurface facilities or suspected hazardous materials are encountered during excavation. Discontinue affected work in area until notified to resume work.
- F. Test Pits:
  - 1. Comply with the requirements in Contracting Documents.
  - 2. Excavate test pits to field verify the locations of existing underground utilities at crossings and at tie-in points before ordering materials or commencing excavation. Immediately notify the Engineer if conflicts are encountered.

3.02 PREPARATION:

- A. Underpin adjacent structures that could be damaged by excavation work.
- B. Cut pavement with saw or pneumatic tools to prevent damage to remaining pavement. Dispose of large pieces of demolished pavement before proceeding with excavation.
- C. Remove subsurface structures and related obstructions.



D. Remove boulders within excavation limits.

### 3.03 PROTECTION OF IN-PLACE CONDITIONS:

A. Comply with the requirements specified in Contracting Documents.

B. Support and protect from damage – existing pipes, poles, wires, fences, curbs, property line markers, and other features or structures which must be preserved in place to avoid being temporarily or permanently relocated.

C. Excavation Near Existing Structures:

1. Discontinue digging by machinery when excavation approaches pipes, conduits, or other underground structures. Continue excavation by use of hand tools. Include such manual excavation in work to be done when incidental to normal excavation and under items involving normal excavation.
2. Excavate test pits near, or at intersection with, existing utilities or underground structures to determine the exact location of existing features.

D. Excavation Near Private Property:

1. Record existing condition of features on adjacent property by means of dated photographs or cameras. Provide construction photographs according to Contracting Documents.
2. Machinery and cranes shall be operated in a manner that will prevent injury to overhanging branches, limbs, and existing utilities.
3. Protect cultivated hedges, shrubs, and plants which would otherwise be damaged by the work.
4. Where protection of vegetation is not possible, dig up, temporarily transplant, and maintain. After active construction operations in the area have ceased, transplant vegetation to the original positions and provide water and nursery care until growth is re-established.
5. Do not use or operate tractors, bulldozers, or other power-operated equipment on paved surfaces. Provide protection on pavement or tracks if construction traffic is unavoidable.

### 3.04 RESTORATION:

A. Restore private property and structures promptly. Begin restoration work within 24 hours of when damage occurred.

- B. Existing surfaces, features, or utilities that are to remain but are damaged during construction shall be repaired or replaced to at least the condition in which they were found immediately before work began, unless noted otherwise.
- C. Damaged Trees To Remain: Cut all damaged branches, limbs, and roots smoothly and neatly without splitting or crushing. Neatly trim, cut the injured portions and cover with an application of grafting wax or tree healing paint. Replace damaged trees which subsequently die or continue to show lack of growth due to damage, 1 year after substantial completion.
- D. Cultivated Vegetation: Includes, but is not limited to: hedges, shrubs, and plants. Vegetation that is damaged shall be replaced with equal kind and of at least the quality before work began.

### 3.05 EXCAVATION:

- A. Excavation shall be unclassified and no distinction shall be made between rock and other materials excavated.
- B. Excavate to accommodate new structures and construction operations.
- C. Excavate to lines and grades necessary to provide finish grades.
- D. Excavations that are not shored and deeper than 4 feet shall have banks laid back to a minimum stable slope matching the angle of repose of the excavated material.
- E. Workers shall have an adequate means of ingress and egress from excavations that are 4 feet or greater in depth. The means of ingress and egress shall not require more than 25 feet of lateral travel.
- F. Establish limits of excavation to allow adequate working space for installing forms and for safety of personnel.
- G. Carry out program of excavation, dewatering, and excavation support systems to eliminate possibility of undermining or disturbing foundations of existing structures or the work.
- H. Provide dewatering system in accordance with Section 31 23 19.
- I. Preserve material below and beyond the lines of excavations.
- J. Locate stockpiled excavated material at least 3 feet from edge of excavations to prevent cave-ins or bank slides.

### 3.06 SUBGRADE PREPARATION:

- A. Materials which are determined to be unsuitable by visual inspection shall be over-excavated below the foundation subgrade and backfilled with structural fill.

- B. Backfill with mechanically compacted dense graded aggregate as per ASTM D2940.
- C. Compact subgrade and proof roll to identify soft spots or other deficiencies prior to filling operations or placing foundations. Correct deficiencies as specified for AUTHORIZED OVER-EXCAVATION and repeat proof roll procedure until successful.
- D. When subgrade is below controlled fill, scarify subgrade to bond with subsequent material lifts.
- E. Proof roll foundation subgrade prior to filling operation or placing foundation concrete. Continue until successful proof test is attained.

3.07 AUTHORIZED OVER-EXCAVATION:

- A. If proof roll test fails then remove unsuitable material plus an additional 6 inches, and backfill with structural fill.

3.08 UNAUTHORIZED EXCAVATION:

- A. Contractor is responsible for backfilling unauthorized excavations with structural fill.

3.09 FILL:

- A. Fill to lines and grades necessary to provide finish grades.
- B. Use a placement method that does not disturb or damage other work or existing features.
- C. Maintain fill materials within 3 percent of optimum moisture, to attain required compaction density.
- D. Place and compact material in equal continuous layers.
- E. Native soil may be used as backfill in open areas, over lot fill, and areas which are not load bearing.
- F. Use structural fill beneath and adjacent to buildings and structures, and beneath pavements.
- G. Use concrete fill where footing bearing surfaces are over-excavated or footing is otherwise not bearing on undisturbed soil.
- H. Maximum compacted depth is 6 inches for aggregate materials and 8 inches for soil materials, unless noted otherwise.

3.10 COMPACTION:

- A. Compact to density specified and indicated for various types of material. Control moisture content of material being placed as specified, or if not specified - at a level slightly lower than optimum.
- B. Compaction Density: Provide densities in Table 31 23 00-2. The values listed are minimum percentages, unless noted otherwise.

<b>Table 31 23 00-2</b>	
<b>Area</b>	<b>Percentage of Maximum Dry Density as defined by ASTM D698 (Standard Proctor)</b>
Scarified subgrades	<b>95</b>
Under pavement, slabs	<b>98</b>
Under structures or within 25 feet (7.5 m) of structures	<b>98</b>
Under exterior concrete slab and sidewalks	<b>95</b>
Open or grassed areas	<b>90</b>
Topsoil	<b>90 (maximum)</b>

3.11 BACKFILLING AGAINST STRUCTURES:

- A. Backfill shall not be placed against foundation walls until all interior floors have been placed and the concrete has attained design strength. This includes the floor level at grade or the next level above grade if no floor is within 2 feet (0.6 m) of finished grade.
- B. Backfill shall not be placed against cantilever walls until the concrete has attained design strength.

3.12 EMBANKMENT FILL AND COMPACTION:

- A. Begin filling in lowest section of work area. Grade surface of fill approximately horizontal but provide with sufficient longitudinal and transverse slope to allow for runoff of surface water from every point.
- B. Install temporary dewatering sumps in low areas during filling operation where excessive amounts of rain runoff collect.
- C. Reduce moisture content of fill material, if necessary, in source area by aerating it over during warm and dry atmospheric conditions. A large disc harrow with two to three foot diameter disks may be required for working soil in a drying operation.

- D. Compact uniformly throughout. Keep fill surfaces sufficiently smooth and free from humps and hollows to allow for proper and uniform compaction. Do not permit hauling equipment to follow a single track on the same layer but direct equipment to spread out to prevent over compaction in localized areas. Take care in obtaining thorough compaction at edges of fill.
  - E. Slightly slope surface of fill to ensure drainage during periods of wet weather. Do not place fill while rain is falling or after a rain-storm until the Engineer considers conditions satisfactory. During such periods and upon suspension of filling operations for periods in excess of 12 hours, roll smooth the surface of fill using a smooth wheel static roller to prevent excessive absorption of rainfall and surface moisture. Prior to resuming compaction operations, remove muddy material off surface to expose firm, compacted material, as determined by the Engineer.
  - F. When fill is placed against an earlier fill or against in-situ material under and around structures, including around piping beneath structures or embankments, slope junction between two sections of fill at 1.5 to 1 (horizontal to vertical). Bench edge of existing fill 24 inches (60 cm) to form a serrated edge of compact stable material against which to place the new fill. Ensure that rolling extends over junction between fills.
  - G. Clean debris, remove loose material, and proof roll previously placed fill which has had time to become desiccated or littered with debris.
  - H. After spreading each loose lift to the required thickness and adjusting its moisture content, roll with sufficient number of passes to obtain the required compaction. One pass is defined as the required number of successive trips which by means of sufficient overlap will insure complete coverage and uniform compaction of an entire lift. Do not make additional passes until previous pass has been completed.
  - I. Fill surface shall be firm and hard when rolled. Reduce moisture content when fill material sinks and weaves under rollers and equipment. Spread out rolling operations over the maximum practicable area to minimize condition of sinking and weaving. Suspend fill operations on portions of embankment where inundations produce surface cracks.
  - J. Remove material which fails testing requirements and replace work.
- 3.13 GEOTEXTILE:
- A. Install geotextile fabric in accordance with manufacturer's printed instructions.
  - B. Place geotextile fabric on the foundation subgrade prior to placing aggregate material.
  - C. Overlap geotextile fabric 18 inches (45 cm) minimum for unsown lap joint. Overlap fabric 6 inches (15 cm) at seam for sewn joint.
  - D. Do not permit traffic or construction equipment to travel directly on geotextile fabric.

- E. Place geotextile fabric in relatively smooth condition to prevent tearing or puncturing. Lay geotextile fabric loosely but without wrinkles or creases so that placement of the backfill materials will not stretch or tear geotextile fabric. Leave sufficient slack in geotextile fabric around irregularities to allow for readjustments.
- F. Patch all tears in geotextile fabric by placing additional section of geotextile fabric over tear with a minimum of 3 feet (90 cm) overlay.
- G. Extend the geotextile fabric and wrap around aggregate material along the perimeter of the foundation.

### 3.14 FIELD QUALITY CONTROL:

- A. See Contracting Documents for general requirements for field inspection and testing.
- B. Perform inspection at least once daily to confirm lift thickness and compaction effort for entire fill area.
- C. Perform particle size distribution and gradation analyses using ASTM D422 and following standard practices in ASTM D421. Perform 1 test for every source and submit results to Engineer for acceptance. Repeat the moisture density test for every 5,000 cubic yard (3,825 cubic metre) of material used.
- D. Perform field density testing in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
  - 1. Density tests shall be required in such number as determined by the Engineer. Density tests shall be made using a nuclear density meter, or other method referenced in Section 303 of the KY Standard Specifications for Road and Bridge Construction. The Contractor shall furnish all necessary labor, equipment and materials for making the density tests under observations of the Engineer.
  - 2. Compacted material that does not meet density requirements shall be removed. The Engineer shall determine if removed material can be remixed and used again for fills.
- E. Evaluate field density test results in relation to maximum dry density as determined by testing material in accordance with ASTM D698 (Standard Proctor).
- F. Perform tests in accordance with ASTM D4318 to determine Liquid Limit, Plastic Limit and Plasticity Index and submit test results to Engineer for acceptance. Minimum of one test per 5,000 cubic yard (3,825 cubic metre) of soil for use as fill material and whenever classification of material is in doubt as determined by the Engineer
- G. Location of field density tests shall be mutually acceptable to testing laboratory and the Engineer.

H. In the event compacted material does not meet specified in-place density, re-compact material and re-test area until specified results are obtained.

I. Frequency of field density tests:

<b>Table 31 23 00-4</b>	
<b>Area</b>	<b>Frequency</b>
Roadways	1 per lift for every 200 linear feet (50 linear metres) of roadway
Paved Areas	1 per lift for every 3,500 square feet (300 square metres) of pavement
Open Areas	1 per lift for each 25,000 square feet (2000 square metres) of open area
Isolated Footing Perimeter	1 per alternate lift for each 25 linear feet (7.5 linear metres)
Footing and Wall Backfill	1 per alternate lift for each 50 linear feet (15 linear metres) (both sides of wall)
Under Structures	1 per lift for every 1,000 square feet (100 square metres) of structure
Around Structures	1 per lift for every 1,500 square feet (150 square metres) of structure
- Embankment Fills	1 per lift for every 10,000 square feet (1000 square metres) of embankment
Regardless of the minimum testing frequency specified, field density tests shall be performed by the Contractor in sufficient number for the Contractor's quality control purposes to ensure that specified density is obtained.	

3.15 ADJUSTING:

A. Shrinkage:

1. Build embankments or backfill to a height above finished grade which will, in the opinion of the Engineer, allow for the shrinkage or consolidation of material. Initially, provide at all points, an excess of at least one percent of total height of backfill measured from stripped surface to top of finished surface.
2. Supply specified materials to build up low places when embankment or backfill settles below the finished grade at any time before substantial completion.

3.16 TOLERANCES:

- A. Construct finished surfaces to plus or minus 1 inch of the elevations indicated.
- B. Grade areas of cut and fill to plus or minus 0.20 foot of the grades indicated.

- C. Complete embankment edges to plus or minus 6 inches of the slope lines indicated.
- D. Provide the Engineer with adequate survey information to verify compliance with above tolerances.

3.17 PROTECTION:

- A. Formulate excavation, backfilling, and filling schedule and procedures to eliminate possibility of undermining or disturbing foundations of partially and completed structures, pipelines and embankments or existing structures and pipelines.

3.18 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



## SECTION 31 23 19

### DEWATERING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Provide dewatering as indicated and in compliance with Contract Documents.
- B. Design, furnish, operate, maintain, and remove temporary dewatering systems to control groundwater and surface water to maintain stable, undisturbed subgrades, and permit work to be performed under dry and stable conditions. Work to be done as part of dewatering includes, but is not limited to:
  - 1. Lower the groundwater level.
  - 2. Lower hydrostatic pressure.
  - 3. Prevent surface water from entering the excavation during construction.
  - 4. Implement erosion control measures for disposing of discharge water.
  - 5. Provide and monitor observation wells and geotechnical instrumentation as specified and indicated.
- C. Groundwater within the excavation area shall be lowered to at least 2 feet (60 cm) below the lowest excavation levels as specified and as indicated.
- D. Common dewatering methods include, but are not limited to, sump pumping, deep wells, well points, vacuum well points or combinations thereof.
- E. The Contractor shall obtain the required permits for discharge from the Contractor's dewatering systems in accordance with 40 CFR Part 122 and Kentucky Division of Water (KDOW) requirements. The discharge location shall be in accordance with the Storm Water Pollution Prevention Plan and permit requirements.

##### 1.02 REFERENCES:

- A. Code of Federal Regulations, Title 40 – Protection of Environment (CFR):
  - 1. 40 CFR Part 122: EPA Administered Permit Programs: The National Pollutant Discharge Elimination System.

1.03 SUBMITTALS:

A. Submit the following in accordance with Contracting Documents.

1. Qualification of the Contractor's dewatering specialist's or firm's qualifications a minimum of 4 weeks prior to dewatering work. The submittal shall include, but not be limited to:
  - a. Qualifications of specialist's or firm's Registered Professional Engineer.
  - b. Qualifications of specialist's or firm's field representative who will oversee the installation, operation and maintenance of the dewatering system.
2. Submit a dewatering plan and, if applicable, a groundwater recharge plan at least 2 weeks prior to start of dewatering work. Do not submit design calculations. The review will be only for the information of the Owner and third parties for an overall understanding of the project relating to access, maintenance of existing facilities and proper utilization of the site. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction. The plan shall include the following items as a minimum:
  - a. A list of equipment including, but not limited to, pumps, prime movers, and standby equipment.
  - b. Detailed description of dewatering, maintenance, and system removal procedures.
  - c. Monitoring plan and details, including, but not limited to, number and locations of observation wells, and geotechnical instruments such as settlement markers and piezometers, and frequency of reading the monitoring devices.
  - d. Erosion and sedimentation control measures, and methods for disposal of pumped water.
  - e. List of all applicable laws, regulations, rules, and codes to which dewatering design conforms.
  - f. List of assumptions made for design of dewatering and for groundwater recharge systems, including but not limited to groundwater levels, soil profile, permeabilities, and duration of pumping and or recharge.
3. A modified dewatering plan within 24 hours, if open pumping from sumps and ditches results in boils, loss of fines or softening of the ground.

1.04 QUALITY ASSURANCE:

A. Comply with the requirements specified in Contracting Documents.

- B. Employ the services of a dewatering specialist or firm having the following qualifications:
    - 1. Have completed at least 5 successful dewatering projects of equal size and complexity and with equal systems within the last 5 years.
    - 2. Retain the services of a Registered Professional Engineer (in the state where the project is located) having a minimum of 5 years of experience in the design of well points, deep wells, recharge systems, or equal systems.
  - C. If subgrade soils are disturbed or become unstable due to dewatering operation or an inadequate dewatering system, notify the Engineer, stabilize the subgrade, and modify system to perform as specified.
  - D. Notify the Engineer immediately if settlement or movement is detected on structures. If the settlement or movement is deemed by the Engineer to be related to the dewatering, take actions to protect the adjacent structures and submit a modified dewatering plan to the Engineer within 24 hours. Implement the modified plan and repair damage incurred to adjacent structures.
  - E. Immediately notify the Engineer if oil or other hazardous materials are encountered after dewatering begins.
- 1.05 HYDRAULIC UPLIFT OF STRUCTURES:
- A. The Contractor shall be responsible for the protection of all structures against hydraulic uplift until such structures have been accepted finally by the Owner.
  - B. In this regard, the Contractor is advised that all manholes, vaults, and other subsurface structures, when completed, are designed to resist hydraulic uplift from groundwater up to the elevation indicated on the structural drawings when the structure is completed. The concrete slab bottoms shall be placed in the dry, with the use of wellpoints or other dewatering means to keep the water elevation sufficiently low to carry on the work.
- 1.06 PRECAUTIONS AGAINST HYDROSTATIC UPLIFT DURING CONSTRUCTION:
- A. The Contractor shall maintain a low groundwater elevation in the vicinity of the structures until they are complete. In case of extremely high water during construction of the structures, it may be necessary to flood the structures to maintain stable conditions.
- 1.07 DELIVERY, STORAGE AND HANDLING:
- A. Comply with the requirements specified in Contracting Documents.

1.08 SITE CONDITIONS:

A. Existing Conditions:

1. Geotechnical Report: A report is available in Appendix A. The report is for information only and is not part of the contract documents. Logs of borings are included in the report and indicate conditions encountered only at test boring locations. Nothing in the contract documents shall be construed as guarantee that other materials will not be encountered or that proportion of materials will not vary from proportions shown on the logs of test borings.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Provide settlement markers, piezometers and other geotechnical instruments in accordance with the submitted dewatering plan or as specified.
- B. Provide casings, well screens, piping, fittings, pumps, power and other items required for dewatering system.
- C. Provide sand and gravel filter around the well screen. Wrapping geotextile fabric directly around the well screen shall not be allowed.
- D. When deep wells, well points, or vacuum well points are used, provide pumping units capable of maintaining high vacuum and handling large volumes of air and water at the same time.
- E. Provide auxiliary dewatering equipment in the event of breakdown. Equipment shall consist of pumps and hoses and be stored on site. Provide at least 1 pump for every 5 pumps used.
- F. Provide and maintain erosion and sedimentation control devices as indicated or specified and in accordance with the dewatering plan.
- G. Provide temporary pipes, hoses, flumes, or channels for the transport of discharge water to the discharge location.
- H. Provide cement grout having a water cement ratio of 1 to 1 by volume.

3.01 INSTALLATION:

- A. Execution of earth excavation, installing earth retention systems, and dewatering shall not commence until the related submittals have been reviewed by the Engineer with all Engineer's comments satisfactorily addressed and the geotechnical instrumentation has been installed.

- B. Provide and maintain dewatering system in accordance with the dewatering plan.
- C. Carry out dewatering program in such a manner as to prevent undermining or disturbing foundations of existing structures or of work ongoing or previously completed.
- D. Do not excavate until the dewatering system is operational.
- E. Unless otherwise specified, continue dewatering uninterrupted until all structures, pipes, and appurtenances below groundwater level have been completed such that they will not be floated or otherwise damaged by an increase in groundwater elevation.
- F. Discontinue open pumping from sumps and ditches when such pumping results in boils, loss of fines, softening of the ground, or instability of the slopes. Modify dewatering plan and submit revised plan to the Engineer for acceptance.
- G. Where subgrade materials are disturbed or become unstable due to dewatering operations, remove and replace the materials in accordance with Section 31 23 00.
- H. Dewatering Discharge:
  - 1. Install sand and gravel filters in conjunction with well points and deep wells to prevent the migration of fines from the existing soil during the dewatering operation.
  - 2. Transport pumped or drained water to discharge location without interference to other work, damage to pavement, other surfaces, or property.
  - 3. Provide separately controllable pumping lines.
  - 4. The Engineer reserves the right to sample discharge water at any time.
  - 5. Immediately notify the Engineer if suspected contaminated groundwater is encountered. Do not pump water found to be contaminated with oil or other hazardous material to the discharge locations.
- I. Monitoring Devices and Records:
  - 1. Install, maintain, monitor and take readings from the observation wells and geotechnical instruments in accordance with the dewatering plan.
  - 2. Install settlement markers on structures within the zone of influence for dewatering a distance equal to twice the depth of the excavation, from the closest edge of the excavation. Conduct and report settlement surveys to 1/8-inch (3 mm).
  - 3. For linear excavations such as trenches, the zone of influence for dewatering shall be determined prior to excavation and approved by the Engineer.

J. Install and maintain erosion/sedimentation control devices at the point of discharge as indicated or specified and in accordance with the dewatering plan.

K. Removal:

1. Do not remove dewatering system without written acceptance from the Engineer.
2. Backfill and compact sumps or ditches with screened gravel or crushed stone wrapped with geotextile fabric in accordance with Section 31 23 00.
3. All dewatering wells shall be abandoned upon completion of the work, and completely backfilled with cement grout.

3.02 CLOSEOUT ACTIVITIES:

A. Provide in accordance with Contracting Documents.

END OF SECTION

SECTION 31 23 33  
TRENCHING AND BACKFILL

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide trenching and backfill as indicated and in compliance with Contract Documents.
- B. Section includes:
  - 1. Trench excavation safety.
  - 2. Backfill materials and placement.
  - 3. Utility identification using trace wire
  - 4. Soil and aggregate materials.
  - 5. Compaction and testing.

1.02 REFERENCES:

- A. American Public Works Association (APWA):
  - 1. Public Works Management Practices Manual; latest edition.
- B. American Society for Testing and Materials International (ASTM):
  - 1. C33: Specification for Concrete Aggregates.
  - 2. D75: Standard Practice for Sampling Aggregates.
  - 3. D421: Practice for Dry Preparation of Soil Samples for Particle Size Analysis and Determination of Soil Constants.
  - 4. D422: Test Method for Particle-Size Analysis of Soils.
  - 5. D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  - 6. D1556: Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

7. D1557: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
  8. D2167: Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
  9. D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
  10. D2488: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure).
  11. D2940/D2940M: Standard Specification for Graded Aggregate Material For Bases or Subbases for Highways or Airports.
  12. D4318: Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
  13. D6938: Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- C. State of Kentucky Transportation Cabinet (KYTC) :
1. KYTC Specifications: Kentucky Transportation Cabinet, Road and Bridge Specifications, latest edition.
- D. Occupational Safety and Health Administration (OSHA) Standards and Regulations:
1. 29 CFR 1926, Subpart P: Safety and Health Regulations for Construction, Excavations.
- E. Measurement and Payment: See Contracting Documents.
- F. Unit Prices: See Contracting Documents.
- 1.03 DEFINITIONS:
- A. Percent Compaction or Compaction Density: The field dry density of compacted material, expressed as a percentage of the maximum dry density.
  - B. Field Dry Density or Field Density: In-place density as determined by ASTM D1556 (Sand Cone Method), ASTM D2167 (Rubber Balloon Method), or ASTM D6938 (Nuclear Method).
  - C. Maximum Dry Density: Laboratory density as determined by ASTM D698 (Standard Proctor) or ASTM D1557 (Modified Proctor) and occurring at the optimum moisture content of the soil being tested.
  - D. Pipe Embedment: Comprised of the following or combination thereof:



1. Foundation: Required only when the native trench bottom does not provide a firm working platform or the necessary uniform and stable support for the install pipe.
2. Bedding: Placed directly underneath the pipe and brings the trench bottom to grade. Provides a firm, stable, and uniform support of the pipe.
3. Haunching: From bottom of pipe to springline.
4. Select Backfill: From top of bedding or foundation to 6 inches above top of pipe, unless noted otherwise.
5. Trench Backfill: Above the initial backfill to the original or finish grade.
6. Backfill: Includes initial and final backfill.

1.04 SUBMITTALS:

A. Submit the following in accordance with Contracting Documents.

1. Qualifications of Independent Testing Laboratory, four weeks prior to earthwork.
2. Temporary excavation and shoring drawings for worker protection in accordance with the General Conditions.
3. Gradation analysis.
4. Dewatering plan including disposition of groundwater.
5. Manufacturer's catalog data and a sample of filter fabric with manufacturer's installation instructions and details.
6. Materials Sources: Name of source, location, date of sample, sieve analysis, and laboratory compaction characteristics.
7. Test and Evaluation Reports:
  - a. Field density testing reports: Provide results from field density testing of prepared subgrade and compacted fill.
  - b. Grain-size analysis.
  - c. Laboratory compaction characteristics of soils.
  - d. Water content.
8. Compaction method and removal sequence of shoring.

1.05 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.
- B. Sample backfill materials in accordance with ASTM D75.
- C. Provide testing in accordance with Part 3 of this section.
  - 1. Employ an independent testing laboratory with the following qualifications:  
Accreditation by the AASHTO Accreditation Program.
  - 2. Minimum of three years experience in sampling, testing and analysis of soil and aggregates, and monitoring field compaction operations. Minimum of three references from previous work.
- D. Protect excavations by shoring, bracing, sheet piling, underpinning or other methods required to prevent cave-in of loose soil. Protection shall be in accordance with OSHA 29 CFR 1926, Subpart P.

1.06 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Contracting Documents.

1.07 SITE CONDITIONS:

- A. Existing Conditions:
  - 1. Geotechnical Report: A report is available in Appendix A. The report is for information only and is not part of the contract documents. Logs of borings are included in the report and indicate conditions encountered only at test boring locations. Nothing in the contract documents shall be construed as guarantee that other materials will not be encountered or that proportion of materials will not vary from proportions shown on the logs of test borings.

PART 2 - PRODUCTS

2.01 BACKFILL MATERIALS:

- A. Suitable Material: Material from on-site excavation and/or permitted off-site sources that meets all of the specified requirements for its intended use and is not unsuitable. Wet subgrade material which meets other requirements for suitable material is suitable.
- B. Unsuitable Material: Material that fails to meet requirements for suitable materials; or contains any of the following:
  - 1. Organic clay, organic silt, or peat; as defined in ASTM D2487 and visually determined in ASTM D2488.

2. Vegetation, wood, roots, leaves, and organic, degradable material.
  3. Stones or rock fragments over 6 inches in any dimension.
  4. Porous biodegradable matter, excavated pavement, construction debris, rubbish, or refuse.
  5. Ice, snow, frost, or frozen soil particles.
- C. Bedding: Densely Graded Aggregate as per ASTM D2940 and specifications below within paved areas. Bedding to be Native Soil meeting the requirements of the Trench Backfill section below outside of paved areas. Bedding to be #9 Stone, Engineered Sand, or densely Graded Aggregate as per ASTM D2940 and specifications below where directed by Engineer.
- D. Select Backfill: Densely Graded Aggregate as per ASTM D2940 and specifications below within paved areas. Select backfill to be Native Soil meeting the requirements of the Trench Backfill section below outside of paved areas.
- E. Trench Backfill: Suitable, unclassified material excavated from trench; free of rocks with dimensions greater than one-half the compacted lift; and rocks provide less than 50 percent of the final backfill volume.
1. The top 12 inches of backfill shall contain no rock over 1-1/2 inches in diameter nor pockets of crushed rock.
  2. Larger rock fill will not be allowed in trenches. If additional earth is required, it must be obtained and placed by the Contractor. Filling with small rock and earth shall proceed simultaneously, so that all voids are filled with earth.
  3. Sufficient space, limited to a maximum of 2 feet length, shall be left out of the specified earth or crushed stone bedding to facilitate proper jointing of the pipe.
- F. Granular Fill:
1. Densely Graded: ASTM D2940, for bases.
    - a. Densely Graded Aggregate to conform to Section 805 of KYTC Standard Specifications, latest edition.
    - b. Densely Graded Aggregate shall be plant mixed with water, transported in a way that delivers the mix to the project without loss or segregation, spread, and compacted to produce a density throughout not less than 84 percent of solid volume.
    - c. Minimum dry density for compacted limestone dense graded aggregate shall be 139 pounds per cubic foot when the specific gravity (S.G.) of limestone is 2.65. Construction requirements shall be according to Section

303 of KYTC, Department of Highways, Standard Specifications for Road and Bridge Construction, latest edition (KTCSSRBC).

- 2. Open Graded: Screened Gravel or Crushed Stone: ASTM C33, Coarse Aggregate, No. 57. Soil particles shall conform to the physical property requirements of ASTM C33.
  - a. Conform to Section 805 of KYTC Standard Specifications, latest edition.

G. Sand: Clean, sharp, natural sand conforming to requirements of ASTM C33, Fine Aggregate.

- 1. Conform to Section 804 of KYTC Standard Specifications, latest edition.

H. Select Borrow:

- 1. Well-graded, coarse-grained soil; classified in accordance with ASTM D2487 as GW, GW-GM, GW-GC, SW, SW-SM, or SW-SC.
- 2. Soil particles: ASTM C33, physical property requirements.
- 3. Gradation: Table 31 23 33-1.

Table 31 23 33-1	
Sieve Designation (Square Mesh)	Percentage Passing (By Weight)
3 inches (75 mm)	100
1-1/2 inches (37.5 mm)	70-100
3/4 inches (19.0 mm)	50-85
No. 4 (4.75 mm)	30-60
No. 50 (300 micrometers)	10-25
No. 200 (75 micrometers)	0-5

I. Base Aggregate for Pavement: ASTM D2487, USCS Classification of SM, SP, SW, GM, GP, or GW; no more than 15 percent fines (passing No. 200 sieve (75 micrometer)) and a uniformity coefficient greater than 2.

- 1. Fine and coarse aggregates shall conform to Sections 804 and 805 of the KYTC Standard Specifications, latest edition.

J. Flowable Fill

- 1. Use flowable fill consisting of a mixture of cement, sand, fly ash, water, and other materials the Engineer approves. Contrary to Section 844, do not allow the loss on

ignition for Class F fly ash to exceed 12 percent. Ensure that the concrete producer certifies mix proportions for flowable fill as follows:

a. Flowable Fill for Pipe Backfill. Proportion as follows, per cubic yard batch:

Cement	30 pounds
Fly Ash, Class F	300 pounds
Natural Sand (S.S.D.)	3,000 pounds
Water (Maximum)	550 pounds

Alternate Mixtures for Flowable Fill. The Kentucky Department of Transportation (Department) may approve other mixtures. The mixtures may include other proportions of the above materials, Class C fly ash, chemical admixtures, or aggregate not conforming to the Standard Specifications. When deviating from the above specified proportions and materials, make and test a trial batch of at least 4 cubic yards to ensure that the mix will have flow and density characteristics suited for the intended use. Use the ingredients, proportions, and equipment intended for the project, including batching, mixing, and delivery.

The Department will observe all phases of the trial batching for approval. Ensure the proposed mixture is proportioned to obtain a minimum flow of 8 inches when tested with a 3 by 6 inch open ended cylinder modified flow test and meets applicable strength requirements. Ensure additional requirements, as stated below, for time of bleeding and time to achieve firmness are met when appropriate for application. Submit the proposed mixture proportions and appropriate test results to the Engineer for review and approval. When the mixture is proprietary, comply with Subsection 107.05.

The Department will cast, cure, and break test cylinders from the flowable fill trial batch according to ASTM D 4832. Prior to completion of the 28 day curing period, transport the test cylinders to the MCL for compressive strength testing. Obtain an average compressive strength of 50 to 100 psi at 28 days for application as pipe backfill. For applications requiring early opening to traffic or placement of pavement as soon as possible, provide a mixture that conforms to the following general guidelines:

- 1) Mixture bleeds freely within 10 minutes.
- 2) Require the mixture to support a 150-pound person within 3 hours.

The Engineer will approve flowable fill, delivered to the project, based on certifications indicating proper proportions for the intended use.

## 2.02 EQUIPMENT:

- A. Compaction equipment shall be capable of consistently achieving the specified compaction requirements.

## 2.03 UTILITY IDENTIFICATION:

- A. Tracer Wire: Continuous, single-strand 12 gauge cathodically protected copper wire, insulated. Clear plastic covering, imprinted with inscription describing specific utility in large letters. Tracer wire shall be colored according to the utility.
  - 1. Tracer wire used for water utilities shall be blue.
  - 2. Tracer wire used for sanitary sewer utilities shall be green.
  - 3. Type THHN as manufactured by Alan Wire, or equal.

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Verify that dewatering support systems are in place before commencing with excavation.
- B. Verify that excavation safety and support systems meeting the requirements of OSHA 29 CFR 1926, Subpart P are in place before commencing with excavation.
  - 1. Minimum slopes for laying back excavations or materials are contained in OSHA 29 CFR 1926, Subpart P; Appendices A and B.
  - 2. Minimum requirements for shoring and bracing are contained in OSHA 29 CFR 1926, Subpart P; Appendix C.
- C. Verify that fill materials submittals have been accepted by Engineer before commencing with work requiring the use of these materials.
- D. Verify that erosion and sediment control measures are in place and functioning properly.
- E. Immediately notify the Engineer if unexpected subsurface facilities or suspected hazardous materials are encountered during excavation. Discontinue affected work in area until notified to resume work.
- F. Test Pits:
  - 1. Comply with the requirements in Contracting Documents.
  - 2. Excavate test pits to field verify the locations of existing underground utilities at crossings and at tie-in points before ordering materials or commencing excavation. Immediately notify the Engineer if conflicts are encountered.

3.02 PREPARATION:

- A. Underpin adjacent structures that could be damaged by excavation work.
- B. Cut pavement with saw or pneumatic tools to prevent damage to remaining pavement. Dispose of large pieces of demolished pavement before proceeding with excavation.

3.03 PROTECTION OF IN-PLACE CONDITIONS:

- A. Comply with the requirements specified in Contracting Documents.
- B. Support and protect from damage – existing pipes, poles, wires, fences, curbs, property line markers, and other features or structures which must be preserved in place to avoid being temporarily or permanently relocated.
- C. Excavation Near Existing Structures:
  - 1. Discontinue digging by machinery when excavation approaches pipes, conduits, or other underground structures. Continue excavation by use of hand tools. Include such manual excavation in work to be done when incidental to normal excavation and under items involving normal excavation.
  - 2. Excavate test pits near, or at intersection with, existing utilities or underground structures to determine the exact location of existing features.
- D. Excavation Near Private Property:
  - 1. Record existing condition of features on adjacent property by means of dated photographs or cameras. Provide construction photographs according to Contracting Documents.
  - 2. Machinery and cranes shall be operated in a manner that will prevent injury to overhanging branches, limbs, and existing utilities.
  - 3. Protect cultivated hedges, shrubs, and plants which would otherwise be damaged by the work.
  - 4. Where protection of vegetation is not possible, dig up, temporarily transplant, and maintain. After active construction operations in the area have ceased, transplant vegetation to the original positions and provide water and nursery care until growth is re-established.
  - 5. Do not use or operate tractors, bulldozers, or other power-operated equipment on paved surfaces. Provide protection on pavement or tracks if construction traffic is unavoidable.

### 3.04 RESTORATION:

- A. Restore private property and structures promptly. Begin restoration work within 24 hours of when damage occurred.
- B. Existing surfaces, features, or utilities that are to remain but are damaged during construction shall be repaired or replaced to at least the condition in which they were found immediately before work began, unless noted otherwise.
- C. Damaged Trees To Remain: Cut all damaged branches, limbs, and roots smoothly and neatly without splitting or crushing. Neatly trim, cut the injured portions and cover with an application of grafting wax or tree healing paint. Replace damaged trees which subsequently die or continue to show lack of growth due to damage, one year after substantial completion.
- D. Cultivated Vegetation: Includes, but is not limited to: hedges, shrubs, and plants. Vegetation that is damaged shall be replaced with equal kind and of at least the quality before work began.

### 3.05 TRENCH EXCAVATION:

- A. Provide dewatering system to allow for working conditions in dry, stable soil. Properly dispose of water to avoid damage to property and in accordance with laws and regulations. Lower groundwater table prior to excavation and keep a minimum of 24 inches below lowest excavation subgrade until structure has sufficient strength to withstand soil and water pressures.
- B. Sheet and brace trenches, excavations, and adjacent structures to comply with laws and regulations and to provide protection of life, property, and the Work. Where close sheeting is necessary, drive to prevent adjacent soil from entering excavation. Remove close sheeting only when removal would not damage property or the Work.
- C. Preserve material below and beyond the lines of excavations.
- D. Locate stockpiled excavated material at least 3 feet from edge of excavations to prevent cave-ins or bank slides.

### 3.06 AUTHORIZED OVER-EXCAVATION:

- A. Remove rock for a depth of 6 inches (150 mm) and backfill with bedding material.

### 3.07 UNAUTHORIZED EXCAVATION:

- A. Contractor is responsible for backfilling unauthorized excavations with bedding material.



3.08 BACKFILL:

- A. Fill to lines and grades necessary to provide finish grades.
- B. Use a placement method that does not disturb or damage other work or existing features.
- C. Maintain fill materials within 3 percent of optimum moisture, to attain required compaction density.
- D. Place and compact material in equal continuous layers.
- E. Maximum compacted depth is 6 inches for aggregate materials and 8 inches for soil materials, unless noted otherwise.

3.09 COMPACTION:

- A. Compact to density specified and indicated for various types of material. Control moisture content of material being placed as specified, or if not specified - at a level slightly lower than optimum.
- B. Compaction Density: Provide trench backfill densities according to Table 31 23 33-3. The values listed are minimum percentages, unless noted otherwise.

Table 31 23 33-3	
Area	Percentage of Maximum Dry Density as defined by ASTM D698 (Standard Proctor)
Trench Backfill (under pavement, slabs)	98
Trench Backfill (under structures or within 25 feet (7.5 m) of structures)	98
Trench Backfill (under exterior concrete slab and sidewalks)	95
Trench Backfill (in open or grassed areas)	85

3.10 UTILITY IDENTIFICATION:

- A. Tracer wire shall be adhered to the top center of the pipe.
- B. Extend tracer wire to meter boxes and valves to allow for connection to subsurface location equipment.
- C. Install marking tape 15 inches below finished grade elevation in line with the proposed utility line.

### 3.11 FIELD QUALITY CONTROL:

- A. Compaction shall be deemed to comply with the specifications when no more than one test falls below the specified relative compaction. The one test shall be no more than 3 percentage points below the specified compaction. The Contractor shall pay the costs for any retesting or additional testing of work not conforming to the specifications.
- B. Where compaction tests indicate a failure to meet the specified compaction, the Contractor will take additional tests every 50 feet (15 m) in each direction until the extent of the failing area is identified. Rework the entire failed area until the specified compaction has been achieved.
- C. Perform particle size distribution and gradation analyses using ASTM D422 and following standard practices in ASTM D421. Perform one test for every source and submit results to Engineer for acceptance. Repeat the moisture density test for every 5,000 cubic yards (3,825 cubic metres) of material used.
- D. Perform field density testing in accordance with ASTM D1556, ASTM D2167, or ASTM D6938.
  - 1. Density tests shall be required in such number as determined by the Engineer. Density tests shall be made using a nuclear density meter, or other method referenced in Section 303 of the KYTC Standard Specifications. The Contractor shall furnish all necessary labor, equipment and materials for making the density tests under observations of the Engineer.
  - 2. Compacted material that does not meet density requirements shall be removed. The Engineer shall determine if removed material can be remixed and used again for fills.
- E. Evaluate field density test results in relation to maximum dry density as determined by testing material in accordance with ASTM D698 (Standard Proctor).
- F. Perform tests in accordance with ASTM D4318 to determine Liquid Limit, Plastic Limit and Plasticity Index and submit test results to Engineer for acceptance. Minimum of one test per 5,000 cubic yards (3,825 cubic metres) of soil for use as fill material and whenever classification of material is in doubt as determined by the Engineer.
- G. Location of field density tests shall be as recommended by the Engineer.
- H. Frequency of field density tests:

Table 31 23 33-4	
Area	Frequency
Trench (Structural Areas)]	1 per lift for each 250 linear feet (75 linear metres) of trench
Trench (Non-Structural Areas)	1 per lift for each 500 linear feet (150 linear metres) of trench
Regardless of the minimum testing frequency specified, field density tests shall be performed by the Contractor in sufficient number for the Contractor's quality control purposes to ensure that specified density is obtained.	

- I. Owner may retain the services of an independent testing laboratory to conduct confirmatory testing and inspection.

3.12 ADJUSTING:

A. Shrinkage:

- 1. Backfill to a height above finished grade which will allow for the shrinkage or consolidation of material. Initially, provide at all points, an excess of at least one percent of total height of backfill measured from stripped surface to top of finished surface.
- 2. Supply specified materials and build up low places, without additional cost if embankment or backfilling settles so as to be below the indicated level for proposed finished surface at any time before final acceptance of the work.

3.13 PROTECTION:

- A. Formulate excavation, backfilling, and filling schedule and procedures to eliminate possibility of undermining or disturbing foundations of partially and completed structures, pipelines and embankments or existing structures and pipelines.

3.14 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



## SECTION 31 37 00

### RIPRAP

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Provide riprap as indicated and in compliance with Contract Documents.
- B. Section includes:
  - 1. Riprap stone for erosion control and slope stabilization.
  - 2. Geotextile bedding.

##### 1.02 REFERENCES:

- A. State of Kentucky Transportation Cabinet (KYTC) Specifications:
  - 1. KYTC Specifications: Kentucky Transportation Cabinet, Standard Specifications for Road and Bridge Construction, 2019 edition.

##### 1.03 SUBMITTALS:

- A. Submit the following in accordance with Contracting Documents.
  - 1. Material certificates for commercial sources.
  - 2. Material testing results for non-commercial sources.
  - 3. Stone gradation analysis.

##### 1.04 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.

##### 1.05 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Contracting Documents.

## PART 2 - PRODUCTS

### 2.01 MATERIAL SOURCE:

- A. Source: Imported from commercial source.
- B. Commercial Sources: Submit material certificate for each source. Certificate shall state soundness, durability, and absorption properties that are representative of the source.

### 2.02 GEOTEXTILE FABRIC:

- A. Geotextile Fabric: KYTC Specifications, Section 843 for use under riprap material.

### 2.03 RIPRAP:

- A. Physical Properties: KYTC Specifications, Section 703.

## PART 3 - EXECUTION

### 3.01 PREPARATION:

- A. Clear subgrade of all obstacles and objects that could puncture geotextile fabric.
- B. Clear subgrade of all obstacles.
- C. Trim and dress areas to conform to lines and grades.
- D. Provide level subgrade such that depressions or humps do not exceed 6 inches in depth or height, respectively.
- E. Compact subgrade, as specified in Section 31 23 00 for pavement, when subgrade is achieved by filling. Compaction is not required when subgrade is achieved by excavating.
- F. Place geotextile fabric.

### 3.02 RIPRAP PLACEMENT:

- A. Excavate footing trench and place larger rocks along slope toe.
- B. Placing rocks:
  - 1. Machine place rocks with longitudinal axis normal to embankment face.
  - 2. Leave minimum voids so that rock above foundation course has 3-point bearing on underlying rocks.

- C. Placing rocks:
    - 1. Provide minimum voids
    - 2. Place larger rocks in foundation course and on outside of slope protection.
    - 3. Spreading by equipment is acceptable.
  - D. Do not dump stone or bear on gravel used for filling voids.
  - E. Dress up outer facing to render a smooth surface, without irregularities measuring more than 1/4 of the maximum stone size when measured normal to the slope.
  - F. Chink voids in outer facing with smaller stones. Remove loose stones.
  - G. Choke riprap voids with gravel and sand by water jetting.
  - H. Fill footing trench with excavated material.
- 3.03 CLOSEOUT ACTIVITIES:
- A. Provide in accordance with Contracting Documents.

END OF SECTION





SECTION 32 12 00  
FLEXIBLE PAVING

PART 1 - GENERAL

1.01 DESCRIPTION:

A. Provide flexible paving as indicated and in compliance with Contract Documents.

1. Scope includes:

- a. Aggregate base course.
- b. Asphalt concrete pavement.

1.02 REFERENCES:

A. American Association of State Highway and Transportation Officials (AASHTO):

1. M320: Standard Specification for Performance-Graded Asphalt Binder.
2. T99: Standard Method of Test for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop.

B. American Society for Testing and Materials International (ASTM):

1. D2041: Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
2. D6690: Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.03 DEFINITIONS:

A. Gravel: Coarse aggregate resulting from natural disintegration and abrasion of rock or processing of weakly bound conglomerate.

B. Crushed Gravel: The product resulting from the artificial crushing of gravel with substantially all fragments having at least one face resulting from fracture.

C. Crushed Stone: The product resulting from the artificial crushing of rocks, boulders, or large cobblestones, substantially all faces of which have resulted from the crushing operation.

1.04 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Contracting Documents.
  - 1. Sustainable Design Submittals.
- B. Test Results:
  - 1. Base course testing results.
- C. Submit haul route, procedures, and schedule of operation times.

1.05 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.
- B. Sustainability Standards Certifications.
- C. Codes and Standards: Comply with the latest edition of State highway or transportation department standard specifications and with local governing regulations.

1.06 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Contracting Documents.
- B. Transport bituminous mixtures in covered trucks whenever:
  - 1. Rainy weather, or
  - 2. Air temperature is less than 60 degrees F (16 degrees C).
- C. Adjust weight, type, capacity, haul routes, and method of operation of hauling vehicles so that:
  - 1. No damage results to existing streets, subgrade or base course, and
  - 2. Noise and air pollution levels are not noticeably increased along selected haul route.
- D. Submit haul route, procedures for transport, and schedule of operation times to Owner for acceptance.

1.07 PROJECT CONDITIONS:

- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 degrees F (10 degrees C), and when temperature has not been below 35 degrees F (1 degrees C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

- B. Place asphalt concrete surface course when atmospheric temperature is above 40 degrees F (4 degrees C), and when base is dry. Place binder course when air temperature is above 30 degrees F (-1 degrees C), and rising.

## PART 2 - PRODUCTS

### 2.01 ASPHALT PAVEMENT:

- A. Asphalt shall be produced in accordance with KYTC Standard Specifications, Section 403.
- B. Asphalt Binder: AASHTO M 320 or AASHTO MP 1a, complying with KYTC Standard Specifications, Section 806.
- C. Prime coat: SS-1h complying with KYTC Standard Specifications, Section 806.
- D. Tack Coat: SS-1 or SS-1h conforming to KYTC Standard Specifications, Section 806.
- E. Water: Potable.
- F. Joint Sealant: ASTM D 6690, Type II, hot-applied, single-component, polymer-modified bituminous sealant complying with KYTC Standard Specifications, Section 807.

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Check subgrade as to soundness, outline, and contour.

### 3.02 SUBGRADE PREPARATION:

- A. Scrape down subgrade bumps and irregularities to obtain smooth, even surface.
- B. Proof roll.
- C. Remove and replace soft or spongy areas as specified in Section 31 23 00.

### 3.03 PAVEMENT PREPARATION:

- A. Remove loose material from compacted base course immediately before applying herbicide treatment or prime coat.
- B. If base course becomes rutted, loose or uneven due delays in placing subsequent courses then proof roll prepared surface to check for unstable areas. Provide additional

compaction or remove unstable areas, backfill and compact. Do not begin paving work until deficient areas have been re-graded and corrected and are ready to receive paving.

### 3.04 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseal concrete pieces firmly.
  - 1. Pump hot undersealing asphalt under rocking slab until slab is stabilized or, if necessary, crack slab into pieces and roll to reseal pieces firmly.
  - 2. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.
- C. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd..
  - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- D. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

### 3.05 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
  - 1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

### 3.06 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

- B. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
  - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

### 3.07 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
  - 1. Place hot-mix asphalt surface course in single lift.
  - 2. Spread mix at minimum temperature of 250 deg F.
  - 3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
  - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
  - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

### 3.08 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
  - 1. Clean contact surfaces and apply tack coat to joints.
  - 2. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
  - 3. Compact asphalt at joints to a density within 2 percent of specified course density.

### 3.09 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
  - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
  - 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

### 3.10 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
  - 1. Surface Course: Plus 1/4 inch, no minus.
- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Surface Course: 1/8 inch.
2. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

### 3.11 FIELD QUALITY CONTROL:

#### A. Base Course Testing:

1. Optimum Moisture Content and Maximum Density: Comply with AASHTO T99, Method C, with replacement of fraction of aggregate retained on 3/4 inch (19 mm) sieve. Replace with No. 4 (4.75 mm) to 3/4 inch (19 mm) material.

#### B. Pavement Testing:

1. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving.
2. Thickness Tolerances: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
  - a. Base Course Thickness: Less than 1/4-inches (6 mm), plus or minus.
  - b. Surface Course Thickness: Less than 1/4-inches (6 mm), plus or minus.
3. Surface Smoothness Tolerances: Test finished surface of each asphalt concrete course for smoothness, using 10-foot (3-meter) straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding following tolerances for smoothness.
  - a. Binder Course: 1/4-inches (6 mm).
  - b. Surface Course: 1/8-inches (3 mm).
  - c. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template, 1/4 inches (6 mm).
  - d. Profile and Section: Variation from true shall not exceed +/- 3/8-inches (9.5 mm).

### 3.12 PROTECTION:

#### A. After final rolling:

1. Do not permit vehicular traffic on pavement until it has cooled and hardened.

2. Protect paving from traffic until mixture has cooled enough not to become marked.

3.13 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



SECTION 32 15 45  
GRAVEL ROADWAY

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide gravel roadway as indicated and in compliance with Contract Documents.

1.02 REFERENCES:

- A. American Association of State Highway and Transportation Officials (AASHTO):
  - 1. M145: Standard Specification for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes.
  - 2. M147: Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses.
  - 3. T2: Standard Method of Test for Sampling of Aggregates.
  - 4. T27: Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates.
  - 5. T87: Standard Method of Test for Dry Preparation of Disturbed Soil and Soil Aggregate Samples for Test.
  - 6. T89: Standard Method of Test for Determining the Liquid Limit of Soils.
  - 7. T90: Standard Method of Test for Determining the Plastic Limit and Plasticity Index of Soils.
- B. State of Kentucky Transportation Cabinet (KYTC):
  - 1. KYTC Specifications: Kentucky Transportation Cabinet, Standards and Specifications for Road and Bridge Construction, 2008 edition.
- C. U.S. Department of Transportation, Federal Highway Administration (FHWA):
  - 1. Gravel Roads Maintenance and Design Manual.

1.03 SUBMITTALS:

- A. Submit the following in accordance with Contracting Documents.
  - 1. Materials Reports:

- a. Name and location of materials source.
  - b. Date of sample.
  - c. Grain-size analysis.
  - d. Laboratory compaction test results.
2. Field Evaluation Reports:
- a. Field density testing reports: Provide results from field density testing of prepared subgrade and compacted fill.
  - b. Grain-size analysis.
  - c. Laboratory compaction characteristics of soils.
  - d. Water content.
- 1.04 QUALITY ASSURANCE:
- A. Comply with the requirements specified in Contracting Documents.
  - B. Quality assurance testing, to confirm Contactor's independent quality control (QC) testing, will be performed by the Owner. Contractor shall be responsible for the cost of his QC testing and inspection, and any retesting resulting from non-conforming work.
  - C. Follow construction methods and recommendations contained in the FHWA Gravel Roads Maintenance and Design Manual.
- 1.05 DELIVERY STORAGE AND HANDLING:
- A. Comply with the requirements specified in Contracting Documents.

## PART 2 - PRODUCTS

### 2.01 BASE AGGREGATE COURSE - DRIVEWAY:

- A. Gradation: KYTC Specifications, Section 805, within limits of gradation No. 57.
- B. Thickness: 4 inches.

### 2.02 SURFACE AGGREGATE COURSE:

- A. Driveways:
  1. Gradation: KYTC Specifications, Section 805, No. 8 aggregate.

2. Thickness: 2 inches.

B. Access Road

1. Gradation: KYTC Specifications, Section 805, No. 2 aggregate.

2. Thickness: 6 inches (15 cm), minimum.

2.03 GEOTEXTILE FABRIC

A. Shall be KYTC Specifications, Section 843, Type V.

PART 3 - EXECUTION

3.01 PROCESSING OF EXISTING GRAVEL ROADWAYS:

A. Loosen and scarify the existing gravel or aggregate in place to permit uniform dispersion of moisture to a depth of approximately 6 inches (15 cm). Process loosened aggregate and break it into pieces which will pass a 3-inch (75-mm) sieve. Windrow the materials on the subgrade or shoulder as the case may require. Exercise care in loosening, removing, processing, and storing aggregate to avoid the addition of excess amounts of soil or other foreign material.

B. When the loosened soil has been pulverized, compact it thoroughly and uniformly to a depth of approximately 6 inches (15 cm) and to a minimum relative compaction of 95 percent of maximum dry density. Moisture content of the subgrade material at the time of compaction shall be within 2 percent of the optimum moisture content, unless noted otherwise. In areas of the subgrade which are not accessible to rolling equipment, compact them to the required density with mechanical tampers.

C. Spread the processed materials evenly on the previously completed and compacted subgrade and then compact to the requirements specified for the method of subgrade preparation.

3.02 SUBGRADE PREPARATION:

A. Excavate and shape subgrade to line, grade, and cross section shown in the drawings. The subgrade shall be considered to extend over the full width of the gravel course.

B. Scarify and cultivate the top 6 inches (15 cm) of subgrade when the subgrade consists of dry soils which are impervious to the penetration of water, soils which contain excessive amounts of moisture which may result in unstable foundations, soils which are nonuniform in character which may result in nonuniform relative compactions and subsequent differential settlements of finished surfaces, or when gravel is to be placed directly on the roadbed material.

- C. After rough grading has been completed, when scarifying and cultivating are required, loosen the roadbed to a depth of at least 6 inches (15 cm). Work the loosened material to a finely divided condition and remove rocks larger than 3 inches (8 cm) in diameter. Bring the moisture content to optimum by the addition of water, by the addition and blending of dry material, or by the drying of existing material. Compact the material to the specified relative compaction.
- D. Uniform pervious soils that allow the immediate penetration of water or uniform impervious soils which will allow the penetration of water to a depth of at least 6 inches (15 cm) after the addition of a suitable wetting agent will not require scarifying and cultivating. When scarifying and cultivating are not required, bring the moisture content of the top 6 inches (15 cm) of the subgrade material to optimum by the addition of water at the surface, and compact the material to the specified relative compaction.
- E. Remove soft material disclosed by the subgrade preparation, replace with structural backfill material as specified in Section 31 23 00 or aggregate base course material and compact.
- F. Compact the top 6 inches (15 cm) of subgrade to 90 percent of maximum dry density.

### 3.03 INSTALLATION:

#### A. Spreading Aggregate:

1. Transport aggregate base or rock materials mixed at locations off the roadbed to the roadbed and deposit them by means of spreading equipment. Place the layers so that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Make such adjustments in placing procedures or equipment to obtain true grades, minimize segregation and degradation, reduce or increase moisture content, and assure an acceptable base.
2. Spread and compact the aggregate base or rock material to the required density in one or more layers, as specified below, and of such width and thickness that, after compacting, the finished base will conform to the required grade and cross section. Spread the aggregate or gravel base material for each separate course for the full width of the roadbed before placing the succeeding courses. Stagger longitudinal and transverse joints a minimum of 12 inches (30 cm) in each succeeding course.
3. Place aggregate material in compacted thicknesses between 3 inches (8 cm) and 6 inches (15 cm), except when shoulders are shown on a typical section to be constructed as a separate operation, then they may be constructed in one course providing they do not exceed 8 inches (20 cm) in thickness, and in two approximately equal courses where they exceed 8 inches (20 cm). In either case, the compacted shoulders shall meet specified density requirements.

4. After testing the blended and flattened windrow of aggregate base or gravel material mixed on the roadbed, spread it uniformly as specified above over the full length and width of the section to be compacted. Do this spreading in such a manner as to prevent segregation of the mixture.

B. Rolling and Compaction: Begin rolling and compaction at the outer edges of the surfacing and continue toward the center. Compact each layer until the specified density is achieved. Maintain the surface of each layer during the compaction operations so that a uniform texture is produced and the aggregates remain firmly keyed. Apply water uniformly over the base materials during compaction in the amount necessary for proper consolidation.

### 3.04 COMPACTION:

A. Refer to Section 31 23 00 for additional compaction requirements.

B. Subgrade: Compact as specified in Section 31 23 00.

C. Base Aggregate: Compact as specified in Section 31 23 00.

D. Surface Aggregate: Compact as specified in Section 31 23 00.

### 3.05 FIELD QUALITY CONTROL:

A. Refer to Section 31 23 00 for compaction and testing requirements.

B. Submit test results to Engineer for acceptance.

C. Perform field density testing in accordance with Section 31 23 00.

D. Evaluate field density test results in relation to maximum dry density as determined by testing material in accordance with Section 31 23 00.

E. Perform classification of materials according to AASHTO M145.

F. Perform sampling or materials according to AASHTO T2. Prepare samples according to AASHTO T87.

G. Perform sieve analysis according to AASHTO T27.

H. Surface Aggregate:

1. Perform tests in accordance with AASHTO T89 to determine Liquid Limit.

2. Perform tests in accordance with AASHTO T90 to determine Plastic Limit and Plasticity Index.

I. Tolerances:

1. Subgrade: Plus or minus 1 inch (2.5 cm) of the indicated grade and cross-section, smooth and free of irregularities.
2. Finish Grade:
  - a. Surface, width, and thickness: 1/2-inch in 10 feet (12 mm in 3 m), plus or minus.
  - b. Thickness: 1/4-inch (6 mm), of plans with not more than 1/2-inch (12 mm) deficient at any point.

3.06 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

## SECTION 32 90 10

### PLANTING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Provide for establishment of permanent vegetation.
- B. Provide topsoiling, fertilizing, seeding, planting and related work as indicated and specified.
- C. Repairing existing areas damaged by Work.

##### 1.02 REFERENCES:

- A. Comply with local landscaping ordinance or state standard.
- B. Comply with American National Standards Institute (ANSI) Z60.1-2004, American Standard for Nursery Stock.
- C. American Society for Testing and Materials International (ASTM):
  1. D5268: Standard Specification for Topsoil Used for Landscaping Purposes.

##### 1.03 SUBMITTALS:

- A. Product Data:
  1. List indicating source of plant material to be provided, at least 4 weeks prior to digging. Include seed list naming seeds, pounds per acre, and supplier's name, address and phone number.
  2. Product Data, rates of application, and anticipated uses of pesticides, herbicides, and fumigants.
  3. Certificates concerning seed mixture, purity, germinating value, and crop year identification.
- B. Certify invoice or order plants for each shipment free of disease, mold, and insect pests. Submit certificates to Engineer.
- C. Samples:

1. When specified, submit samples and certified analyses by recognized laboratory approved by Engineer for topsoil, humus, fertilizer, fungicide, insecticide, tree paint, and anti-desiccant before delivery. Manufacturer's analysis for standard products will be acceptable.
2. When specified submit samples of soil separation matting, erosion control matting, natural fiber material, and/or geosynthetic liners.
3. Approval shall not be construed as final acceptance. Engineer may take samples of materials delivered to site and analyze them for compliance with Specifications.

D. Miscellaneous:

1. Prior to end of maintenance period, furnish 2 copies of typed maintenance instructions recommending procedures to be established by Owner for maintenance of landscape Work for one year.
2. Inspection certificates required by federal, state or other governing agency shall accompany each shipment.
3. Shop drawings showing locations and depths of agronomic soil samples collected.

E. Submit in accordance with Contracting Documents.

1.04 QUALITY ASSURANCE:

A. Qualifications:

1. Subcontractor shall have specialized equipment and experience for hydroseeding. Hydroseeding will be warranted by the Contractor for a period of 1 year. Maintenance will occur every 6 months at a minimum.

B. Planting Plan

1. Follow planting plan in accordance with Engineer's drawings and planting plan narrative.

C. Inspection:

1. Engineer may inspect plant material at nursery. Such inspection shall be in addition to inspection at Site.
2. Upon delivery and before planting, Engineer will inspect plants. Plants must not be dried out and must be free of mold, fungus, and other pests.



3. Inspection and approval is for quality, size, and variety only, and in no way impairs right of rejection for failure to meet other requirements during progress of Work.
4. Contractor shall be present during required inspections or as may be required by Engineer.

D. Source Quality Control:

1. Certification: Landscape materials shall be from stock inspected and certified by authorized governmental agencies. Material shall comply with governmental regulations prevailing at supply source and project. Investigate sources of supply and make assurances that plants will be supplied as indicated in the Planting Plan in sizes, variety and quality noted and specified before submitting bid. Substitution of species must be approved in writing prior to bidding. Ensure that materials can be procured depending on the time of year. Failure to take this precaution will not relieve responsibility for furnishing and installing plant material in accordance with Contract requirements and without additional expense to Owner.
2. When specified, provide analyses and tests of topsoil, fertilizer and humus in accordance with requirements of Association of Official Agricultural Chemists. [USDA Service Center Locator](#). Analyze appropriate soil samples for nutrients (nitrogen, phosphorous, potassium), pH, and appropriate parameters as recommended by the local USDA NRCS extension office. Apply soil amendments in accordance with agronomic soil results, experience, and local conditions. Report shall include a fertility and plant suitability analysis with written recommendations for organic soil amendments, fertilizers, soil conditioners, and their respective application rates for soil treatment and plant maintenance. The soils report recommendations shall take precedence over the minimum amendment, fertilizer, and conditioner application rates specified herein only when they exceed specified minimums. Agronomic test results shall include nitrogen, phosphorous, potassium, pH, or other soil mineral content as applicable.
3. Plant names used in plant list are in accordance with “Standardized Plant Names,” published by American Joint Committee on Horticulture Nomenclature (current edition). Plants will be referred to by common name and genus and species.
4. Contractor will furnish two copies of written maintenance, instructions for maintenance and care of lawn areas.
5. Furnish suitable quantities of water, hose and appurtenances.
6. Provide topsoil that complies with ASTM 5268 – Standard Specification for Topsoil Used for Landscaping Purposes.
7. Begin maintenance immediately after planting. Continue maintenance for 1 year.

8. Repair or replace seeded areas, plants, shrubs, and trees, which in judgment of Engineer, have not survived and grown in a satisfactory manner, for a period of 1 year after date of acceptance.
9. Provide as specified seedings or plantings replacements of the same type and size as specified.

1.05 DELIVERY STORAGE AND HANDLING:

A. Delivery:

1. Schedule shipping to minimize on-site storage of materials.
2. Fertilizer: Deliver fertilizer to site in original, unopened containers bearing weight, manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state law.
3. Deliver topsoil in an unfrozen and non-muddy condition

1.06 PROJECT/SITE CONDITIONS:

A. Inspection:

1. Prior to beginning Work, Contractor shall examine and verify acceptability of Site for conditions under which Work will be performed. Do not proceed with Work until unsatisfactory conditions have been corrected.
2. Starting Work constitutes acceptance of conditions under which Work is to be performed. After such acceptances, Contractor shall be responsible for correcting unsatisfactory and defective Work resulting from such unsatisfactory conditions.
3. It is the intent of this specification that existing trees within grading and seeding limits, not be disturbed by building operations and be saved and protected, except where specified to be removed. Clear trees required to be removed only after approval by Engineer. Engineer directs variations required in grading on the job. Trees to be saved shall be clearly marked with caution tape. Jurisdictional wetland and/or stream banks will be flagged and protected in accordance with local, state, and federal Clean Water Act (CWA) permits; use of native local species is encouraged, including transplanting from impacted areas, if practicable.
4. Remove invasive species, if applicable, in accordance with scope of work, water permits, and/or wetland/stream restoration plans

B. Utilities:

1. Locate underground utilities by servicing agencies.
2. Water shall be provided by Contractor.

C. Planting Seasons:

1. Spring Planting: From time soil becomes workable to June 15. Plant bare root materials only during this season, but no later than June 1. Consider current and forecasted weather conditions.
2. Fall Planting: September 1 to November 15. Plant evergreen shrub plantings no later than November 1, and evergreen tree plantings no later than October 15.
3. Summer Season: Planting shall be considered unseasonable and requires approval by Engineer.
4. Container Plants: Planting season designated above may be extended for container grown plants when approved by Engineer.
5. If special conditions exist which warrant installation outside normal planting seasons, Contractor shall submit written request to Engineer describing conditions and stating proposed variance. Approval to plant under such conditions shall in no way relieve Contractor from warranty.

D. Plant when weather and soil conditions are suitable in accordance with industry practices.

E. Protection:

1. Protect seeded and planted areas against damage by trespass and other Work (for example heavy equipment) until substantial completion.
2. Protect plants from nuisance species such as deer or beaver as necessary.
3. Replace, repair, re-stake or replant lawn or plantings which are damaged.
4. If planting after lawn installation, protect lawn areas, and repair damage resulting from planting operations.
5. Where planting occurs in close proximity to other site improvements, protect features prior to commencing Work. Any items damaged due to planting operations shall be repaired to their original condition.

1.07 WARRANTY:

A. During correction period replace plants which have died, or are in dying condition, or which has failed to flourish so its usefulness or appearance has been impaired. Replace trees with dead main leader or crown which is 25 percent or more dead.

1. Replacement and Damages:

- a. Decisions of Engineer and Owner for required replacements are final and binding upon Contractor.
  - b. Contractor is responsible for repairing damage to property caused by defective workmanship and materials.
2. Exclusions:
- a. Contractor is not liable for replacement cost of plants damaged by deicing compounds, fertilizers, pesticides or other materials not specified in Contract Documents or not applied by Contractor, by relocating or removal by others, by acts of God, or by vandalism, and losses due to curtailment of water by local authorities.
3. Inspection of Maintenance:
- a. During correction period, Contractor shall periodically inspect watering, cultivation, and other maintenance operations by Owner, and notify Owner of methods, practices or operations considered unsatisfactory and not in accordance with good horticultural practices.
  - b. Failure of Contractor to inspect or report shall be construed as acceptance of Owner’s maintenance operations, and Contractor shall not claim or assert defects which may later develop are result of such methods or practices or operations.
  - c. Owner will notify Contractor when maintenance is to be performed so Contractor may observe maintenance procedures.

PART 2 - PRODUCTS

2.01 Grass

- 1. Provide seed mixes in accordance with Planting Plan clean, high in germinating value and latest year’s crop mixture as follows:

Species %	Purity %	Germination
Tall fescue (KY-31)( <i>Festuca arundinacea</i> )	98.5	80
Ryegrass ( <i>Lolium multiflorum</i> )	98.0	90
Oats ( <i>Avena sativa</i> )	98.0	90
Rye, grain ( <i>Secale cereale</i> )	97.0	85

Redtop (*Agrostis alba*) 90.0 80

2. Weeds shall not exceed 0.25 percent.
3. Temporary Seeding: Apply at 100 pounds per acre; KYTC seed mix Type 1.

2.02 SOD:

- A. Established, nursery grown Kentucky or Merion Bluegrass sod, vigorous, well rooted, healthy turf, free from disease, insect pests, weeds, other grasses, stones, and any other harmful or deleterious matter.
- B. Sod harvested by machine at uniform soil thickness of approximately 1 inch but not less than 3/4-inch (1.9 cm). Measurement for thickness excludes top growth and thatch. Prevent tearing, breaking, drying or any other damage.

2.01 PLANTING MATERIALS:

A. Topsoil:

1. Obtained from natural well drained areas, and be fertile, friable soil, clean of undesirable materials such as plants, weeds, roots, stalks, stones, and other debris.
2. Existing topsoil may be used if Engineer determines soil is suitable and of sufficient quantity. Topsoil must meet ASTM D5268 Standard Specification for Topsoil Used for Landscaping Purposes.
3. Acidity range of pH 5.0 and pH 7.0 and shall contain no less than 4 percent organic matter as determined by loss on ignition of moisture free samples dried at 212 degrees F (100 degrees C).

B. Soil Amendments:

1. Peat:

- a. Natural, domestic, or Canadian product, free of stones, taken from freshwater site.
- b. Not less than 80 percent decomposed organic matter by weight on oven-dried basis.
- c. Deliver peat in workable condition, free from lumps.

2. Manure:

- a. 2 to 3 years old, well rotted stable or cattle manure, free from shavings, sawdust, refuse, and other materials harmful to plant growth.

3. Super-phosphate: Finely ground phosphate rock, agricultural grade, containing not less than 20 percent available phosphoric acid.
4. Lime shall consist of standard ground agricultural limestone, or equal. Standard ground agricultural limestone is ground limestone meeting current requirements of the State Department of Agriculture. Agricultural lime or other needed soil amendments will be uniformly applied at the rate specified herein.
5. Granular Fertilizer:
  - a. Commercial type, uniform in composition, free flowing, conforming to state and federal laws, and suitable for application with equipment designed for that purpose.
  - b. Contain minimum basis percentage by weight:
    - (1) Nitrogen: 6 percent, 1/4 of nitrogen shall be in form of nitrates, 1/4-inch form of ammonia salts, and 1/2-inch form of organic nitrogen.
    - (2) Phosphorus: 24 percent, available phosphoric acid shall be derived from super phosphate having minimum analysis of 20 percent available phosphate.
    - (3) Potash: 24 percent, potash shall be in form of sulphate or potash.
    - (4) Balance of fertilizer shall be materials usually present in such products, free from dust, sticks, sand, stone, and other debris.
    - (5) Ground agricultural limestone containing not less than 85 percent total carbonates.
  - c. Coordinate N-P-K requirements with agronomic soil testing lab recommendations.
6. pH Adjusters:
  - a. Lime: Ground dolomite limestone, containing not less than 85 percent calcium and magnesium carbonates, 50 percent passing through 100 mesh screen, 98 percent passing 20 mesh screen.
  - b. Elemental sulphur: Finely ground horticultural grade material containing at least 95 percent purity.

C. Water:

1. Obtain from fresh water sources and free from injurious chemical or other toxic substances harmful to plant life.

2. No water which is brackish may be used.

D. Herbicide:

1. Shrub Beds: "Casoron" as manufactured by Thompson-Haywood Chemical Company, "Snapshot" as manufactured by Dow Elanco Products Company, or equal.
2. Ground Cover Beds: "Treflan" as manufactured by Elanco Products Company, Division of Eli Lilly and Company, or equal.
3. Do not apply herbicides for wetlands or stream restoration projects unless the water permit and planting plan specifically allow for application to invasive and/or nuisance species.

### PART 3 - EXECUTION

#### 3.01 PREPARATION:

- A. Do not install plantings where depth of soil over underground construction, obstructions or rock is insufficient to accommodate roots or where pockets in rock or impervious soil require drainage.
  1. Where such conditions are encountered in excavation planting areas and where stone, boulders or other obstruction cannot be broken or removed by hand methods and where trees to be planted are under overhead wires, alternate locations for planting may be designated by Engineer.
  2. Where locations cannot be changed as determined by Engineer, submit cost required to remove obstructions to depth of not less than 6 inches (15.2 cm) below required pit depth. Proceed with Work after approval of Engineer.
  3. Dispose of excavated material not suitable for backfilling off-site.
  4. If drainage problems are encountered detrimental to growth of specified plant material, notify Engineer of conditions before proceeding with Work.
- B. Remove rock or other underground construction and drain planting areas only when approved by Engineer. Payment for extra work shall be based on in-place volume required to provide normal requirements for plantings.

#### 3.02 INSTALLATION:

A. Topsoil/Finish Grading:

1. Do not place or work topsoil in frozen or muddy condition.

2. Finish grade is established final grade. Grades not otherwise indicated are uniform levels or slopes between points where elevations given or between such points and existing finished grades.
3. Where Drawings show existing grades of landscaped areas are not to be changed or if new grade is less than 4 inches (10.2 cm) above existing grades, remove enough material to allow placement of 4 inches (10.2 cm) new topsoil, unless existing topsoil to required depth is undisturbed and of equal or better quality than topsoil specified. In latter case, existing topsoil may be left in-place, using enough new topsoil to bring these areas up to grade.

B. Preparation:

1. Planting Season: Conform to planting seasons.
2. Preparation of Planting Areas: Cover surrounding turf (if existing) to protect turfed areas that are to be trucked or hauled over and upon which soil is to be temporarily stocked.

3.03 CLEAN UP AND PROTECTION

- A. Remove excess and waste material daily.
- B. Remove soil or similar material brought onto paved areas, keeping areas broom clean.
- C. Upon completion of planting, remove excess soil, stones, and debris and dispose of off-site.
- D. Damage to existing landscape, pavements, or other site features as result of Work shall be repaired to its original condition.
- E. Protect landscape Work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods.

3.04 MAINTENANCE

- A. Temporary Maintenance:
  1. Maintain plant material until substantial completion as defined in Article 3.06, Acceptance, of this specification.
  2. Temporary maintenance begins immediately after each plant is installed and shall include watering, necessary cultivation, weeding, pruning, disease and insect pest control, protective spraying, resetting of plants to proper grades or upright position, restoration of damaged planting saucers, and other procedures consistent with good horticultural practice necessary to ensure normal, vigorous, and healthy growth of plantings.



3.05 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



## SECTION 33 01 48

### BY-PASS PUMPING AND HAUL OFF FLOW CONTROL FOR LIFT STATION

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Provide flow control at the lift station via by-pass pumping or sewage hauling to allow for tie-ins to existing sewer lines as indicated and in compliance with Contract Documents.
  - 1. Scope includes furnishing all materials, labor and equipment to provide bypass flow control for affected lift station of the force main utility project. The Contractor is required to furnish all materials, labor, equipment, power, maintenance, etc. to implement the bypass flow control for the purpose of diverting the existing flow around the work area for the duration need to facilitate the tie-ins to the existing force main. The design, installation and operation of the temporary bypass pumping system or sewage hauling plan shall be the Contractor's responsibility.
  - 2. General pump station information includes:
    - a. Wet Well Inside Diameter: 5 ft
    - b. Wet Well Top of Structure: 524.50 ft
    - c. Wet Well Invert (Bottom of well): 508 ft
    - d. Influent Invert: 513.00 ft
    - e. Pump #1 Flow Rate: 110 gpm
    - f. Pump #2 Flow Rate: 110 gpm
    - g. Pump #3 Flow Rate: 110 gpm
    - h. Average Flow Rate Into Lift Station: 30 gpm

##### 1.02 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Section 01 33 00.
- B. Shop Drawings:
  - 1. Bypass Sewage Pumping Plan. Plan shall contain, at minimum, the following:
    - a. Staging areas for pumps.

- b. Number, size, material, location and method of installation of suction piping.
  - c. Number, size, material, method of installation and location of installation of discharge piping.
  - d. Bypass pump sizes, capacity, number of each size to be on site and power requirements. Pump sizing shall clearly indicate compliance with requirements of this Specification.
  - e. Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted).
  - f. Standby power generator size and location.
  - g. Downstream discharge plan.
  - h. Method of protecting discharge manholes or structures from erosion and damage.
  - i. Thrust and restraint block sizes and locations.
  - j. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill.
  - k. Method of noise control for each pump and/or generator.
  - l. Any temporary pipe supports and anchoring required.
  - m. Design plans and computation for access to bypass pumping locations indicated on the drawings.
  - n. Calculations for selection of bypass pumping pipe size.
  - o. Schedule for installation of and maintenance of bypass pumping lines.
  - p. Plan indicating selection location of bypass pumping line locations.
2. Sewage Hauling Plan. Plan shall contain, at minimum, the following:
- a. Number, storage capacity, and suction capacity of sewage hauling vehicle.
  - b. Planned timeline of recurrent visits by sewage hauling vehicle or plan for multiple hauling trucks to be used.
  - c. Sewage haul off discharge plan.
  - d. Appropriate certifications and licenses of the employed sewage haul off contractor.

## PART 2 - PRODUCTS

### 2.01 BYPASS EQUIPMENT:

- A. All equipment utilized for bypass pumping shall be specifically designed for intended purpose. All piping, pumps, etc. in contact with sanitary sewage shall be manufactured with materials designed for use in a sewage environment.

### 2.02 SEWAGE HAUL OFF EQUIPMENT:

- A. All equipment utilized for sewage haul off shall be specifically designed for intended purpose. All piping, pumps, etc. in contact with sanitary sewage shall be manufactured with materials designed for use in a sewage environment.

## PART 3 - EXECUTION

### 3.01 GENERAL REQUIREMENTS (BYPASS PUMPING):

- A. Provide bypass sewage pumping, as required, around the section in which work is to be performed. Bypass pumping shall be the full responsibility of the Contractor. The bypass system shall be of sufficient capacity to handle 1.25 times the average pump station flow of the pump station being bypassed. The bypass pumping operation is only required during the time needed to facilitate the tie in of the new force main to the existing force main. Prior to starting construction, the Contractor shall submit a detailed description of the method proposed for bypass pumping to the Owner's Representative for review and approval. The description shall include all materials and equipment to be used, personnel, spare equipment, and a sketch showing a typical pump-around setup.
- B. Bypass pumping equipment shall include pumps, conduits, engines, and related equipment necessary to divert the flow or sewage around the section in which work is to be performed. In addition, the contractor shall maintain at the same location and in operable condition, duplicate equipment to be used in case there is equipment failure. In this event, the Contractor shall promptly repair or replace the failed equipment to the satisfaction of the Owner.
- C. Suction and discharge points shall be located at manholes only.
- D. Discharge of sewage to the ground, creeks, and/or storm sewers shall be prohibited. Any violation shall be corrected immediately. If the Owner is required to alleviate any prohibited discharges, the Contractor shall be charged the Owner's cost times two. All costs shall be deducted from the Contract Amount.
- E. If at any time the Contractor is unable to properly bypass pump the sewage, construction will be stopped until the Contractor is able to continue work in an acceptable manner. The Contractor will not receive additional contract time for delays caused by improper equipment, labor, or breakdowns.

- F. Service shall be maintained at all times. Bypass pumping shall be maintained to prevent backups in services and overflows at any point in the system.
- G. The Contractor shall be capable of pumping all the sewage in the existing line under all weather and seasonal conditions. All pumping equipment to be used shall be submitted to the Owner for review and approval.
- H. All suction and discharge hose shall be free of leaks and designed to carry the required pumped sewage. Any leaks shall be repaired immediately. All couplings shall be quick-connect with gaskets. If the hose used is inadequate in size, amount of hose on site, or condition, the Contractor shall be required to replace the hose as directed by the Owner's Representative. The hose to be used shall be submitted to the Owner's Representative for review and approval.

3.02 GENERAL REQUIREMENTS (SEWAGE HAUL OFF):

- A. Provide bypass sewage haul off, as required, around the section in which work is to be performed. Bypass pumping shall be the full responsibility of the Contractor. The bypass system shall be of sufficient capacity to handle 1.25 times the average pump station flow of the pump station being bypassed. The bypass sewage haul off operation is only required during the time needed to facilitate the tie in of the new force main to the existing force main. Prior to starting construction, the Contractor shall submit a detailed description of the method proposed for bypass sewage haul off to the Owner's Representative for review and approval. The description shall include all materials and equipment to be used, personnel, spare equipment, and a sketch showing a typical pump-around setup.
- B. Bypass sewage haul off equipment shall include pumps, conduits, engines, trucks, and related equipment necessary to divert the flow or sewage around the section in which work is to be performed. In addition, the contractor shall maintain at the same location and in operable condition, duplicate equipment to be used in case there is equipment failure. In this event, the Contractor shall promptly repair or replace the failed equipment to the satisfaction of the Owner.
- C. Suction location shall be at the affected lift station.
- D. Discharge of sewage shall be directed by HWEA, discharge to the ground, creeks, and/or storm sewers shall be prohibited. Any violation shall be corrected immediately. If the Owner is required to alleviate any prohibited discharges, the Contractor shall be charged the Owner's cost times two. All costs shall be deducted from the Contract Amount.
- E. If at any time the Contractor is unable to properly provide bypass sewage haul off, construction will be stopped until the Contractor is able to continue work in an acceptable manner. The Contractor will not receive additional contract time for delays caused by improper equipment, labor, or breakdowns.
- F. Service shall be maintained at all times. Bypass sewage haul off shall be maintained to prevent backups in services and overflows at any point in the system.

- G. The Contractor shall be capable of providing bypass sewage haul off in the existing lift station under all weather and seasonal conditions. All sewage haul off equipment to be used shall be submitted to the Owner for review and approval.
- H. All suction and discharge hose shall be free of leaks and designed to carry the required pumped sewage. Any leaks shall be repaired immediately. All couplings shall be quick-connect with gaskets. If the hose used is inadequate in size, amount of hose on site, or condition, the Contractor shall be required to replace the hose as directed by the Owner's Representative. The hose to be used shall be submitted to the Owner's Representative for review and approval.

3.03 CLEAN-UP:

- A. Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work.

3.04 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Section 01 77 00.

END OF SECTION





## SECTION 33 05 23.16

### PIPE ENCASEMENT BY JACK AND BORE

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Furnish all labor, materials, and equipment necessary to install steel casings using the pipe jacking method as indicated and specified.
- B. The Contactor shall coordinate the jacking design and execution with the Kentucky Transportation Cabinet (KYTC). Contractor shall apply for and obtain all approvals from KYTC prior to commencing with the work. The Engineer may determine that the submitted boring contractor is not equipped to perform the job. In this case, the Contractor must resubmit a boring contractor for the Engineer's review.
- C. Remove obstructions in a controlled manner while maintaining face stability and avoiding loss of ground.
- D. Install a carrier pipe within the steel casing and fill the annulus between the casing and the carrier pipe according to Section 2.03A.
- E. The Contractor shall provide notification to the inspector a minimum of 5 days prior to the commencement of boring installation.

##### 1.02 REFERENCES:

- A. American Society for Testing and Materials International (ASTM):
  - 1. A6/A6M: Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.
  - 2. A36/A36M: Standard Specification for Carbon Structural Steel.
  - 3. A134: Standard Specification for Pipe, Steel, Electric-Fusion (Arc)-Welded (Sizes NPS 16 and Over).
  - 4. A139: Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over).
- B. American Welding Society (AWS) Code.
- C. DOT Standard Specifications.

1.03 SUBMITTALS:

- A. Submit the following shop drawings in accordance with Contracting Documents.
  
- B. Jacking Contractor Qualifications: The Contractor shall submit all information necessary to demonstrate that the minimum qualification requirements for pipe jacking firm indicated in paragraph 1.04B will be complied with. This information shall be submitted with the Bid. Include specific data and information on the firm to demonstrate successful previous experience in jacking using similar methods and under similar conditions. Including resumes of field supervisor.
  
- C. Jacking Work Plan: The Contractor shall submit prior to construction a detailed work plan. At a minimum, the work plan shall include the following:
  - 1. Layout showing dimensions of jacking shafts and thrust blocks, limits of excavation support, and any necessary specialized equipment and proposed work schedule.
  - 2. Shop drawings and narratives describing proposed pipe jacking including; equipment, equipment layout, procedures, and labor schedule. For jacking shield, show configuration dimensions, method of operation, and steering control capability.
  - 3. Manufacturer's information for the steel casing pipe, including information on the connections between casing pipe sections.

1.04 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.
  
- B. Qualifications: The firm proposed by the Contractor to accomplish the jacking operation shall have successfully performed at least 3 projects of similar size and character to that specified in this project, within the past 5 years.
  
- C. The jacking design shall be prepared by a Professional Engineer (P.E.) registered in the State of Kentucky, and submitted for information prior to start of work.
  
- D. At all times when the work is in progress, a field supervisor for the work with no less than 24 months experience in the operation of the equipment being used shall be present.
  
- E. Employ certified welders. All welding shall be performed in accordance with AWS Welding Code and casing welds in accordance with ASTM A134.

1.05 PROJECT/SITE CONDITIONS:

A. Existing Conditions:

1. Geotechnical Report: A report is available in Appendix A. The report is for information only and is not part of the contract documents. Logs of borings are included in the report and indicate conditions encountered only at test boring locations. Nothing in the contract documents shall be construed as guarantee that other materials will not be encountered or that proportion of materials will not vary from proportions shown on the logs of test borings.
2. The Contractor is cautioned that highway embankment fill typically contains boulders, cobbles cut stone blocks and other features which may result in obstructions to pipe jacking operations and required cutting, drilling and splitting or other such methods for removal.

1.06 PROTECTION OF EXISTING STRUCTURES:

- A. Protect from damage and carefully support as necessary all existing pipes, poles, wires, fences, curbing, property line markers, and other structures, which the Engineer decides must be preserved in place without being temporarily or permanently relocated. Should such items be damaged, restore them without compensation therefor, to at least as good condition as that in which they were found immediately before the work was begun.

PART 2 - PRODUCTS

2.01 STEEL CASING:

- A. The steel casing pipe shall be a minimum of 14-inch diameter, with ½-inch minimum wall thickness, 16-inch diameter with ½-inch minimum wall thickness, 18-inch diameter with ½-inch minimum wall thickness or 24-inch diameter with ½-inch minimum wall thickness, where shown on the drawings provided. Steel casing pipe shall have a minimum yield strength of 36,000 psi, conform to ASTM A36 and ASTM A139, and shall be designed to withstand all jacking loads plus soil loading.
- B. Casing pipe and joints shall be of leak-proof construction, designed for the earth and groundwater pressures present, plus HS-20 design vehicle highway loads.
- C. The connections between casing pipe segments shall be capable of transmitting 100 percent of the allowable compression loading in the sleeve and shall be designed to prevent the flow of groundwater into the casing. The details of the connection design shall be the responsibility of the Contractor.
- D. The casing pipe shall be new.

## 2.02 CARRIER PIPE SUPPORTS:

- A. Casing Spacers for support and isolation of carrier pipe within the encasement pipe: 14 gage bands and 10 gage risers shall be of Type 304 Stainless Steel or approved equal; all fasteners and exposed metal shall be stainless steel; bands shall have insulating liners; runners shall be reinforced plastic. For pipe larger than 12-inch, spacers shall be 12 inch wide using a Basis of Design of Power Seal Model 4810, center restrained. Spacing shall be a maximum of 7-feet between spacers, 2-feet from casing pipe end, and 2-feet on each side of bell or mechanical joint.

## 2.03 CASING END SEAL:

- A. Mechanical seal type EPDM seals, composite plates with stainless steel hardware shaped to continuously fill annular space between casing and carrier pipe. Basis of Design of Link-Seal Model S-316. Double seals are required in cases where the difference in diameter between the casing pipe and carrier pipe is too large. Otherwise, a single seal shall be used.

## 2.04 MORTAR:

- A. Mortar shall consist of one part cement, 1/4-part lime, and 2-parts sand. Sand shall comply with ASTM C144; lime shall comply with ASTM C150, Type II.

## 2.05 JACKING SHIELD:

- A. The steel casing shall be installed with the use of a jacking shield attached to the leading edge of the casing pipe. The shield shall be of steel construction designed to support the required soil loading and jacking stresses and shall be adequately braced and be provided with the necessary appurtenances for completely bulkheading the face with horizontal or vertical breastboards. The shield shall be capable of being steered by steering jacks located in the shield or other suitable means.

## PART 3 - EXECUTION

### 3.01 DEWATERING:

- A. Lower and maintain groundwater level, prior to any excavation and during jacking, at least 2 feet below the invert of the jacked casing in the vicinity of heading to ensure no inflow of water or water and soil into the heading.
- B. In accordance with Section 31 23 19, the Contractor shall design, furnish, operate, maintain, a temporary dewatering system to control groundwater and surface water and runoff to maintain stable, undisturbed subgrades, and permit work to be performed under dry and stable conditions.

### 3.02 JACKING SHAFTS AND EQUIPMENT:

- A. The jacking and receiving shafts designed by the professional engineer in accordance with ASTM A6/A6M, where applicable, shall be of adequate size to accommodate the jacking head, frame, jacks, reaction blocks, added section of casing, and other material and equipment, and to provide sufficient working space.
- B. Design, furnish and install reinforced concrete backwall or other system to provide the necessary reaction for jacking.
- C. The jacking head shall be suitable to protect the casing from damage due to the thrust from the jacks, and to transfer that thrust from the jack to the casing.
- D. The jacking frame, upon which the casing being jacked will rest, shall be of railroad rails or suitable steel or wooden members set to the correct line and grade on a concrete slab to act as guides for true alignment of the casing.
- E. The jacks shall be of ample capacity to provide more than the necessary or anticipated jacking capacity.
- F. The jacking system and reaction blocks shall be properly designed and constructed and shall have design capacity equal to the maximum anticipated jacking loads with a factor of safety of two.
- G. The jacking apparatus shall be constructed, and set and maintained in proper relative position and alignment, in order to minimize forces which would tend to bend the casing, cause it to deflect from true alignment, or displace the reaction blocks.
- H. When carrier pipe/casing grouting is completed, backfill shafts in accordance with Section 31 23 33.

### 3.03 INSTALLATION:

- A. Jacking shall be conducted in accordance with the current KYTC Specifications.
  - a. Allowable deviation from the design elevations for casing pipe installation shall be two-tenths of a foot (0.2 feet).
- B. Contractor is to install casing at elevations stated in construction plans. Contractor is to inform HWEA and the Engineer if the design elevations cannot be met.

### 3.04 CONTRACT CLOSEOUT:

- A. Provide in accordance with Contracting Documents.

END OF SECTION



SECTION 33 10 00  
WATER UTILITIES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Provide water utilities as indicated and in compliance with Contract Documents.
- B. Section includes:
  - 1. Pipe and fittings for water main including domestic water main, and water main utility.
  - 2. Water main, meter, valves, fire hydrants, accessories and appurtenances.

1.02 REFERENCES:

- A. American National Standards Institute (ANSI):
  - 1. NSF Std 61: Drinking Water System Components - Health Effects
- B. American Society of Testing and Materials International (ASTM):
  - 1. A126: Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
- C. American Water Works Association (AWWA):
  - 1. C502/502a: Dry Barrel Fire Hydrants.
  - 2. C508: Swing-Check Valves for Waterworks Service, 2 In. (50 mm) Through 24 In. (600 mm) NPS.
  - 3. C509: Resilient-Seated Gate Valves for Water Supply Service.
  - 4. C510: Double Check Valve Backflow Prevention Assembly.
  - 5. C512: Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service.
  - 6. C515: Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Services.
  - 7. C550: Protective Interior Coatings for Valves and Hydrants.
  - 8. C600: Installation of Ductile-Iron Water Mains and Their Appurtenances.

9. C701: Cold Water Meters - Turbine Type, for Customer Service.
10. C800: Underground Service Line Valves and Fittings.
11. C901: Polyethylene (PE) Pressure Pipe and Tubing, ½ In. (13 mm) Through 3 In. (76 mm), for Water Service.

D. Factory Mutual (FM):

1. FM Approved: Factory Mutual Approval Guide.

E. National Fire Protection Association (NFPA):

1. 24: Installation of Private Fire Service Mains and Their Appurtenances.

F. 401 KAR Chapter 8 Kentucky Administrative Regulations, Public Water Supply.

1.03 DEFINITIONS:

- A. Appurtenances: Additional piping items as required to provide a complete piping system suitable to convey water as specified and intended. These items may or may not be specified, but are necessary to complete the piping system.

1.04 SUBMITTALS:

A. Submit the following in accordance with Contracting Documents.

1. Pipe materials.
2. Pipe fittings.
3. Pipe couplings.
4. Pipe thrust restraint.
5. Valves.
6. Fire hydrants.
7. Accessories.
8. Appurtenances.

B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

C. Instructions: Provide manufacturer's installation instructions for pipe, hydrants, valves, connections, fittings, meter, and meter vaults.



- D. Field Test Reports: Provide results for hydrostatic and bacteriological tests.
  - E. Project Record Documents: Provide actual locations of piping mains, details of pipe material, valves (including directions for operating valves), meters, meter vaults, hydrant details connections, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- 1.05 SPARE PARTS:
- A. Comply with the requirements specified in Contracting Documents.
- 1.06 QUALITY ASSURANCE:
- A. Comply with the requirements specified in Contracting Documents.
  - B. Perform Work in accordance with utility company standards.
  - C. Valves: Manufacturer's name, UL/FM and pressure rating marked on valve body.
- 1.07 DELIVERY STORAGE AND HANDLING:
- A. Comply with the requirements specified in Contracting Documents.
  - B. Deliver and store valves in shipping containers with labeling in place.
- 1.08 WARRANTY:
- A. Provide standard product warranties for piping materials and as required by utility company standards.

## PART 2 - PRODUCTS

- 2.01 MANUFACTURERS:
- A. Valves – Provide valves manufactured by the following:
    - 1. Gate Valves: Mueller or acceptable equivalent product.
    - 2. Butterfly Valves: DeZurik or acceptable equivalent product.
    - 3. Tapping Valves: Mueller or acceptable equivalent product.
    - 4. Swing Check Valves: Mueller or acceptable equivalent product.
    - 5. Combination Air Relief/Vacuum Valves: A.R.I Model D-060-C HF SB or acceptable equivalent product.

- B. Fire Hydrants – Provide fire hydrants manufactured by Mueller, Super Centurion Model 250 or acceptable equivalent product.
- C. Structures – Provide structures manufactured by the following:
  - 1. Valve Boxes: Opelika Foundry Co., Model No. 4907 or acceptable equivalent product.
  - 2. Cast Iron Meter Box Frame & Cover: Ford Meter Box Company FA-32 style cast iron frame with Ford Meter Box Company WA3LPR-BR style plastic lid or acceptable equivalent product.
  - 3. Water Meter Box: Meter pit shall be SIGMA RMP 182224-FB-W Raven Meter Pit or acceptable equivalent product.
- D. Accessories – Provide accessories manufactured by the following:
  - 1. Backflow Preventer: Watts, Model LF709, or acceptable equivalent product.
  - 2. Tapping Sleeves: Ford Meter Box Company, Mueller or acceptable equivalent product.
  - 3. Service Saddle: Smith Blair double bale model 313 or acceptable equivalent product.
  - 4. Corporation Stop: Mueller H-15008 or acceptable equivalent product.
  - 5. Ball Valve: Mueller 300 ball angle meter valve or acceptable equivalent product.
  - 6. Water Line Markers: Carsonite CLM or acceptable equivalent product.
- E. Mechanical Joint Restraint – Provide structures manufactured by the following:
  - 1. Ebba Iron Megalug, or acceptable equivalent product.

## 2.02 WATER PIPES

- A. Polyethylene Pipe and Tubing: For service lines only, 3 inches (80 mm) or less in diameter. AWWA C901 Pressure Class 160. Service line tubing shall be blue in color.

## 2.03 WATER SERVICE LINES AND CONNECTIONS

- A. Reconnect all water service lines to the new water main, whether shown on the Drawings or not.
- B. Jack and/or bore water service lines under existing pavement.

- C. For water service lines 2-1/2 inches in diameter and smaller, the contractor shall replace service lines from the water main to the meter with polyethylene pipe and tubing.
- D. Contact Owner if lead services are discovered. Replace lead service lines from the water main to the meter with polyethylene pipe only after timing of replacement has been coordinated with the Owner. This may cause some delays and additional coordination. Replacement of lead service lines requires an additional sampling protocol that will delay the replacement of the service line until the protocol can be coordinated with the customer. Replacement of lead service lines also requires proper disposal of the lead material.

#### 2.04 VALVES:

##### A. Gate Valves:

1. 3 Inches (75 mm) and Over: 350 psi (2,413 kPa) working pressure. AWWA C509 or C515, Iron body, bronze trim, non-rising stem with square nut, single wedge, resilient seat, flanged or mechanical joint ends (as shown on the drawings), control rod, extension box and valve key 3 feet (0.9 m) longer than depth of valve nut. Valve extension stem length for each furnished valve shall be provided to leave operating nut within 12 to 24 inches from finished grade. Protective interior coating per AWWA C550. Gate valves 16 inches (400 mm) and larger to be equipped with spur or beveled gears enclosed in a seal grease case, in the horizontal position to be equipped with rollers, tracks, and scrappers.
2. Provide one operating wrench of length to operate deepest valve.
3. The valves shall be Mueller or acceptable equivalent product.

#### 2.05 VALVE BOXES:

- A. General: Provide cast-iron valve boxes, rated for vehicular traffic.
- B. Cast-Iron Boxes: Extension type with slide-type adjustment, flared base and 3/16-inch (4.8 mm) minimum thickness of metal.
- C. Cast the word "WATER" in cover. Adapt box length, without full extension, to depth of cover required over pipe at valve location.

#### 2.06 BEDDING AND COVER MATERIALS:

- A. As specified in Section 31 23 33.

#### 2.07 THRUST RESTRAINT:

- A. Mechanical Joint Restraint: Wedge action restrained joint retainer gland devices. Mechanical joint restraint incorporated into the design of the follower gland.

- B. Thrust Blocks: Dimensions according to Hopkinsville Water Environment Authority Standard, as indicated. Concrete type for thrust restraints according to Hopkinsville Water Environment Authority Standard and as specified in Section 03 30 00 for thrust restraints.
- C. Pipe Clamps and Tie Rods: ANSI/NFPA 24.
- D. Wall Pipes: Cast or ductile iron with an intermediate wall collar, unless noted otherwise. End connections as indicated.

#### 2.08 COUPLINGS:

- A. Mechanical Couplings: Dresser Style 38, long sleeve unless shown otherwise; equivalent by Smith-Blair or Baker. Harness when required for thrust restraint.
- B. Flanged Coupling Adapters: Dresser Style 127 (2-12 inches (50-300 mm)), Dresser Style 128 (14-96 inches (350-2400 mm)), equivalent by Smith Blair or equal.
- C. Meter Strainer: Iron body, low headloss, and complies with NSF/ANSI 61.
- D. Meter Box: Plastic of dimensions shown on drawings. Box height shall be as shown on drawings. Cover shall be plastic with the word "WATER" cast in it.
- E. Tapping Sleeves: Stainless steel, split-sleeve type with flanged or grooved outlet, and with bolts, follower rings and gaskets on each end of sleeve suitable for maximum working pressure of 350 psi (2,413 kPa). Bolts shall have square heads and hexagonal nuts. Longitudinal gaskets and mechanical joints with gaskets shall be as recommended by manufacturer of sleeve.
- F. Tapping Valves: Provide tapping valves that conform to gate valves, specified herein. Provide tapping valves suitable for installation with tapping sleeves and pipe used, designed for minimum water working pressure of 350 psi (2,413 kPa), and have clear waterway equal to full nominal diameter of valve.
- G. Corporation Stop: Standard corporation stop thread conforming to AWWA C800 on the inlet end, with brass ground joint type with AWWA taper (Mueller CC) thread inlet and flared copper outlet and shall be Mueller H-15008 or acceptable equivalent product.

#### 2.09 DISINFECTION CHEMICALS:

- A. Refer to Section 33 13 00.

#### 2.10 APPURTENANCES:

- A. Provide appurtenances for a complete piping system suitable for operation, and in conformance with Project Documents.

2.11 SHOP PAINTING/COATINGS:

- A. Unless noted otherwise, provide standard manufacturer paint and coatings for piping, valves, hydrants, and accessories to prevent corrosion for the life of the component. Additionally comply with Kentucky Division of Water and Hopkinsville Water Environment Authority Standard.
- B. New HWEA Fire Hydrants shall be painted yellow in color.

2.12 SHOP TESTING:

- A. Test pipes, valves, hydrants, and applicable accessories per manufacturer requirements, and as required by referenced Standards.

2.13 MARKING TAPE:

- A. Marking Tape should be 6 inch wide metallic tape 5-mil in thickness. Tape should read "CAUTION BURIED WATER LINE BELOW".

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Verify existing conditions.
- B. Verify building service connections and municipal utility water main sizes, locations and inverts are as indicated.

3.02 PREPARATION:

- A. Remove scale and dirt, on inside and outside, before assembly.
- B. Prepare pipe connections to equipment with flanges or unions.
- C. Excavate pipe trench in accordance with Section 31 23 33 for work of this Section. Hand trim excavation for accurate placement of pipe to elevations indicated.

3.03 WATER PIPE INSTALLATION:

- A. Maintain separation of water main from sewer as follows:
  - 1. Parallel Installation
    - a. Under normal conditions water mains shall be laid at least 10 feet (3 m) horizontally from a sewer or sewer manhole. The distance shall be measured edge-to-edge.

- b. Under unusual conditions when local conditions prevent a horizontal separation of 10 feet (3 m) the water main may be laid closer to a sewer or sewer manhole provided that:
- c. The bottom (invert) of the water main shall be at least 18 inches (45 cm) above the top (crown) of the sewer;
- d. Where this vertical separation cannot be obtained, the sewer shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling; and
- e. The sewer manhole shall be of watertight construction and tested in place.

2. Crossing

- a. Under normal conditions water mains crossing sewers shall be laid to provide a separation of at least 18 inches (45 cm) between the bottom of the water main and the top of the sewer whenever possible
- b. Under unusual conditions when local conditions prevent a vertical separation described, the following construction shall be used:
  - (1) Sewers passing over or under water mains shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling;
  - (2) Water mains passing under sewers shall, in addition, be protected by providing:
  - (3) A vertical separation of at least 18 inches (45 cm) between the bottom of the sewer and the top of the water main;
  - (4) Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the water main; and
  - (5) That the length of the water main be centered at the point of the crossing so that joints shall equidistant and as far as possible from the sewer.
- c. No water pipes shall pass through or come in contact with any part of a sewer manhole.

B. Install pipes and structures to within tolerance of 1/2-inch (13 mm) of indicated elevations.

C. Install ductile iron piping and fittings to AWWA C600.

- D. Install fire service piping according to NFPA 24.
- E. Install joint restraint per manufacturer's instructions. Submit instruction to Engineer for review.
- F. Form and place concrete for thrust blocks at each elbow or change of direction of pipe main and as indicated.
- G. Establish elevations of buried piping to ensure not less than 42 inch of cover. Establish elevations of buried piping to ensure not less than 42 inch of cover underneath traffic areas.
- H. Install tracer wire continuously affixed directly to the top of the pipe; coordinate with Section 31 23 33. Extend wire adjacent to valve boxes and into air release valve vaults for connection to location equipment.
- I. Backfill trench in accordance with Section 31 23 33

#### 3.04 VALVES AND HYDRANTS INSTALLATION:

- A. Set valves on solid bearing.
- B. Center and plumb valve box over valve. Set box cover flush with finished grade.
- C. Set hydrants plumb and locate pumper nozzle perpendicular to roadway.
- D. Provide drainage pit 24 inches (610 mm) square by 18 inches (460 mm) deep filled with No. 57 aggregate for fire hydrants. Encase elbow of fire hydrant in gravel to 6 inches (150 mm) above drain opening. Wrap drainage pit and gravel with filter fabric. Do not connect drain opening to sewer.
- E. Paint fire hydrants in accordance with AWWA and NFPA 24; also comply with Kentucky Division of Water and Hopkinsville Water Environment Authority Standard.
- F. Install tapping sleeves and tapping valves in accordance with manufacturer's recommendations.
- G. Install valves and hydrants according to applicable AWWA Standards and NFPA 24.

#### 3.05 FIRE HYDRANT ABANDONMENT

- A. Any fire hydrant abandoned as a part of the project shall be removed in the following fashion:
  - 1. Fire hydrant and valve box shall be removed.
  - 2. Fire hydrant barrel shall be removed down to the shoe.

3. Hydrant shoe shall be filled with concrete and the hydrant valve shall be closed.
4. Removed hydrant will be left available on site for HWEA to retrieve.
5. Void created by hydrant removal shall be filled with native material and compacted per Section 31 23 33.

### 3.06 WATER METER ABANDONMENT

- A. Any water meter abandoned as a part of the project shall be removed in the following fashion:
  1. Existing water meter shall be relocated to new water service.
  2. Existing water meter box and all appurtenances of existing water meter shall be removed.
  3. Existing service line shall be capped and abandoned in place.
  4. Void created by meter box removal shall be filled with native material and compacted per Section 31 23 33.

### 3.07 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM:

- A. Refer to Section 33 13 00.

### 3.08 REPAIR/RESTORATION:

- A. Repair any existing utilities/structures, or features damaged during installation of water utilities to Owner's satisfaction, and at no cost to Owner.

### 3.09 FIELD TESTING:

- A. Perform field-testing under provisions of Contracting Documents according to NFPA 24.
- B. Hydrostatically test newly laid pipeline and valved section from inline valve to inline valve thereof in accordance with AWWA C600, Kentucky Division of Water and Hopkinsville Water Environment Authority Standard, and NFPA 24.
- C. Bacteriological testing shall be in accordance with 401 KAR Chapter 8, and Kentucky Division of Water and Hopkinsville Water Environment Authority Standard. One series of test shall be performed for every 2,000 feet (600 m) of line. Each series shall be two samples taken at least 24 hours apart and analyzed by a Kentucky Division of Water certified lab. The results must indicate no coliform contamination before being used. If coliform is detected, the disinfection and testing procedure shall be repeated until no coliform is detected.



3.10 FIELD PAINTING/COATINGS:

- A. Repair any shop painting/coatings damaged during storage or installation to Owner's satisfaction.

3.11 ADJUSTING:

- A. Coordinate with Engineer and Owner for any field adjustments. The Engineer and Owner reserve the right to reject any field adjustments.

3.12 PROTECTION:

- A. Protect installed water utilities from damage throughout storage, installation, testing, and final approval.

3.13 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

## SECTION 33 13 00

### DISINFECTING OF WATER UTILITY DISTRIBUTION

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

- A. Provide disinfecting of water utility distribution systems as indicated and in compliance with Contract Documents.
- B. Section Includes:
  - 1. Disinfection of water mains in accordance with AWWA C651; except as modified below.

##### 1.02 REFERENCES:

- A. American Water Works Association (AWWA):
  - 1. C651: Disinfecting Water Mains.
  - 2. C652: Standards Disinfection Of Water Storage Facilities

##### 1.03 SEQUENCING:

- A. Basic procedure for disinfecting water mains:
  - 1. Inspecting materials to be used to ensure their integrity.
  - 2. Preventing contaminating materials from entering the water main during storage, construction, or repair and noting potential contamination at the construction site.
  - 3. Removing, by flushing or other means, those materials that may have entered the water main.
  - 4. Chlorinating any residual contamination that may remain and flushing the chlorinated water from the main.
  - 5. Protecting the existing distribution system from backflow caused by hydrostatic pressure test and disinfection procedures.
  - 6. Documenting that an adequate level of chlorine contacted each pipe to provide disinfection.
  - 7. Determining the bacteriological quality by laboratory test after disinfection.

8. Final connection of the accepted new water main to the active distribution system.

1.04 SUBMITTALS:

A. Submit the following in accordance with Contracting Documents.

1. Supervisor qualifications.
2. Equipment list.
3. The Contractor shall submit a “Plan for Disinfecting Water Mains” for review and approval by the Engineer.

1.05 QUALITY ASSURANCE:

A. Comply with the requirements specified in Contracting Documents.

B. Regulatory Requirements:

1. Disinfection work shall be acceptable to Owner and to the Kentucky Natural Resources and Environmental Protection Cabinet (NREPC), Division of Water. If requirements of this section are in conflict with requirements of regulatory agencies, the latter shall govern.

C. Source Quality Assurance:

1. Perform Work in connection with disinfection under direction of experienced supervisor.
2. Use equipment in proper working condition and adequate for specified Work.

D. Prior to starting disinfection work, furnish detailed outline of proposed sequence of operation, manner of filling and flushing units, source and quality of water to be used, and disposal of wasted water.

E. Perform work in connection with disinfection under direction of experienced supervisor.

F. Use equipment in proper working condition and adequate for specified work.

1.06 DELIVERY STORAGE AND HANDLING:

A. Comply with the requirements specified in Contracting Documents.

1.07 PROJECT CONDITIONS:

- A. Discharge of chlorinated water into watercourses or surface waters is regulated by the National Pollutant Discharge Elimination System (NPDES). Disposal of the chlorinated disinfection water and the flushing water is the Contractor's responsibility. Chlorinated water shall be disposed of according to 401 KAR 5:031 and 8:020, which state that the allowable in stream concentration of chlorine are 10 µg/L, which is equal to 0.01 mg/L.
- B. Schedule the rate of flow and locations of discharges in advance to permit review and coordination with Owner and cognizant regulatory authorities.
- C. The Contractor shall submit, in writing to the HWEA, the method he proposes for dechlorinating. Recommended chemicals, as given in AWWA C651-92, are sulfur dioxide, sodium bisulfate, sodium sulfite, and sodium thiosulfate.

PART 2 - PRODUCTS

2.02 OWNER-SUPPLIED PRODUCTS:

- A. The Owner will provide potable water for the first disinfection effort. Submit request for use of water from waterlines of Owner 48 hours in advance. If bacteriological testing shows that the first disinfection effort was not successful, the Contractor will be charged, at the Owner's current rates, the cost of additional water for subsequent disinfection efforts.

2.03 MATERIALS:

- A. Water: Use potable water for cleaning and disinfection.
- B. Chlorine: The Contractor shall disinfect the water main per ANSI/AWWA C651-14.
  - 1. Liquid Chlorine: Inject with a solution feed chlorinator and a water booster pump. Follow the instructions of the chlorinator manufacturer.
  - 2. Calcium Hypochlorite (Dry): Dissolve in water to a known concentration in a drum and pump into the pipeline at a metered rate. Tablet form calcium hypochlorite may be used only for water mains up to 12 inches (300 mm) in diameter and less than 2,500 feet (760 m) in length.
  - 3. Sodium Hypochlorite (Solution): Further dilute in water to desired concentration and pump into the pipeline at a metered rate.

2.04 EQUIPMENT:

- A. Submit list of equipment used for disinfecting work.

2.05 ACCESSORIES:

- A. Chlorine Residual Test Kit: For measuring chlorine concentration, supply and use a medium range, drop count, DPD drop dilution method kit per AWWA C651, Appendix A.1. Maintain kits in good working order available for immediate test of residuals at point of sampling.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. Isolate new work being disinfected from system to avoid possibility of contaminating materials entering distribution system.
- B. Water Storage Facilities:
  - 1. Remove debris and material not part of structural or operating facilities of tank.
  - 2. Clean using high pressure water jet or other equally effective means to remove dirt and foreign material. Prior to starting disinfection, all water mains must be thoroughly flushed to remove mud, rocks, etc. This activity shall be coordinated with HWEA to eliminate the possibility of creating excessive turbulence within the water distribution system.
  - 3. Cleaning shall:
    - a. Remove deposits of foreign nature.
    - b. Remove growths.
    - c. Broom walls, floor, and ceiling.
    - d. Avoid damage to structure.
    - e. Avoid contamination by workers and equipment.
  - 4. Remove water, dirt, and foreign material and dispose.
  - 5. Water used in cleaning reservoir shall be wasted before adding chlorinating agent to reservoir.
- C. Method of disinfection for water containment devices and piping systems shall conform to ANSI/AWWA C651-14.

3.02 CHLORINE PREPARATION:

- A. Liquid Chlorine:

1. Apply chlorine gas-water solution by means of solution feed chlorinating device or, if accepted by Engineer, dry gas may be fed directly through proper devices for regulating rate of flow and providing effective diffusion of gas into water within unit being treated.
2. Provide chlorinating devices for feeding solutions of chlorine gas that prevent backflow of water into chlorine cylinder.

B. Calcium Hypochlorite:

1. Prepare granular calcium hypochlorite as water mixture before introduction into unit. Make dry powder into paste and thin to approximately 1 percent chlorine solution.
2. Disinfection will then be accomplished by the adding of a chlorine solution while filling the main to obtain the initial 50 mg/L (ppm) of chlorine.

3.03 PIPELINE PREPARATION:

- A. After pressure and leakage tests complete, flush units thoroughly to remove foreign material.
- B. Release entrapped air at high points and fill units with disinfecting agent and water to allow disinfecting agent to come in contact with interior surfaces.
- C. If complete venting cannot be accomplished through available outlets, provide necessary corporation cocks and vent piping.

3.04 APPLICATION OF DISINFECTANT:

A. Point of Application:

1. Apply chlorinating agent at supply end of unit being disinfected.
2. For pipes, apply disinfectant through corporation cock installed in top of pipe.
3. Place tablets in accordance with AWWA C651.

B. Rate of Application:

1. Introduce water at controlled rate in order to regulate chlorine dosage.
2. Proportion rate of chlorine mixture flow to rate of water entering unit so chlorine dose applied produces at least 25 mg/L (ppm) chlorine residual after period of 24 hours.
3. Method of determining rate of flow of water into unit being disinfected shall be accepted by Engineer.

C. Isolating Systems:

1. Keep chlorine gas-water disinfecting solution and contaminated water from flowing into units previously chlorinated and flushed.

D. Quality:

1. Retain chlorinated water in unit long enough to destroy non-spore forming bacteria.
2. Minimum retention period shall be 24 hours with chlorine residual at end of this period of not less than 25 mg/L (ppm).

E. Disinfecting Valves:

1. Operate valves and appurtenances while line or unit is being disinfected to ensure surfaces of valves are disinfected.

F. Swabbing:

1. Flush and swab pipe, fittings or valves that must be placed in service immediately with 5 percent solution of calcium hypochlorite immediately prior to assembly.
2. Secure acceptance from Engineer before using this method of disinfection.

G. Valve Operation: HWEA water utility valves shall be operated ONLY by the HWEA.

3.05 DISINFECTING METHODS:

A. Contractor to prepare disinfection plan for review and approval by Engineer.

B. Continuous Feed Method:

1. Introduce potable water into the pipeline at a constant measured rate. Feed the chlorine solution into the same water at a measured rate. Proportion the two rates so that the chlorine concentration in the pipeline is maintained at a minimum concentration of 25 mg/L (ppm). Check the concentration at points downstream during the filling to ascertain that sufficient chlorine is being added.

C. Disinfection of Valves, Blind Flanges, and Appurtenances:

1. During the period that the chlorine solution or slug is in the section of pipeline, open and close valves to obtain a chlorine residual at hydrants and other pipeline appurtenances. Swab exposed faces of valves and blind flanges prior to bolting flanges in place with a 1 percent sodium hypochlorite solution.

D. Disinfection of Connections to Existing Pipelines

1. Disinfect isolation valves, pipe, and appurtenances in accordance with AWWA C651, Section 4.7. Flush with potable water until discolored water, mud, and debris are eliminated. Swab interior of pipe and fittings with a 1 percent sodium hypochlorite solution. After disinfection, flush with potable water again until water is free of chlorine odor.

E. Disinfection of Tapping Sleeves and Line Stopping:

1. Flush exterior of pipe with potable water after removal of existing coating. Swab exterior of pipe with a 1 percent sodium hypochlorite solution. Disinfect per AWWA C651, Section 4.8. After completion of tapping and line stopping, swab interior of pipe, valves, and faces of flanges to be connected to bypass piping with a 1 percent sodium hypochlorite solution.

F. Confirmation of Residual:

1. After the chlorine solution applied by the continuous feed method has been retained in the pipeline for 24 hours, confirm that a chlorine residual of 25 mg/L (ppm) minimum exists along the pipeline by sampling at air valves and other points of access, such as tapping valves.

3.06 FINAL FLUSHING AND TEST:

- A. Following chlorination, flush unit or system until replacement water in system is proven to be comparable in quality to water which will enter unit or system.
- B. Above acceptable condition of water delivered by each unit or system shall continue for at least 2 days, as demonstrated by laboratory examination of samples. Laboratory tests shall show chlorine residual, after final flushing, of less than 1 mg/L (ppm).
- C. Repetition of Flushing and Testing:
  1. If initial treatment results in unsatisfactory bacterial test, repeat disinfection until satisfactory results obtained.
- D. Prevent entry of contaminated water into previously disinfected units or systems.

3.07 BACTERIOLOGIC TESTS:

- A. After initial disinfection and flushing, the HWEA will collect water samples per AWWA C651, Section 5.1, for bacteriological testing. A core zone, which includes up to the first 1/2 mile, shall be established. Two samples shall be taken from the core zone. Additionally, one sample taken from each mile of new distribution main shall be submitted to the NREPC, Division of Water.
- B. A new or routine replacement main shall not be placed in service until negative laboratory results are obtained on the bacteriological analyses. Sample bottles shall be



clearly identified as "special" construction tests. If any of the samples are found positive or contain confluent growth, the Contractor shall repeat the disinfection procedure until the required numbers of negative samples are obtained

- C. Collect two sets of samples per AWWA C651, Section 5.1, deliver to a certified laboratory within six hours of obtaining the samples, and obtain a bacteriologic quality test to demonstrate the absence of coliform organisms in each separate section of the pipeline and in each structure after chlorination and refilling. Collect at least one set of samples from every 1,200 feet (350 m) of the new water main and line stopping insertion point, plus one set from the end of the line and at least one set from each branch. At each connection to an existing pipeline, take two additional samples.
- D. Repetition of Procedure: If the initial chlorination fails to produce required residuals and bacteriologic tests, repeat the chlorination and retesting until satisfactory results are obtained.
- E. Test Facility Removal: After satisfactory disinfection, disinfect and replace air valves, restore the pipe coating, and complete the pipeline where temporary disinfection or test facilities were installed.

### 3.08 FIELD QUALITY CONTROL:

- A. Owner will obtain samples for and submit to laboratory for analysis before water main is placed in service.
- B. If safe samples not obtained using above procedure, Contractor shall add additional chlorine in amounts necessary to obtain safe samples.

### 3.09 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

## SECTION 33 30 00

### SANITARY SEWERAGE UTILITIES

#### PART 1 - GENERAL

##### 1.07 DESCRIPTION:

- A. Provide sanitary force mains utilities as indicated and in compliance with Contract Documents.
- B. Section includes: Pipe and related appurtenances for sewer pressure main utility.

##### 1.08 REFERENCES:

- A. American Railway Engineering and Maintenance-of-Way Association (AREMA):
  - 1. Manual for Railway Engineering.
- B. American Welding Society (AWS):
  - 1. D1.1: Structural Steel Welding Code- Steel.
- C. American Society of Mechanical Engineers (ASME).
  - 1. B1.20.1: Pipe Threads – General Purpose – Inch.
  - 2. B16.1: Gray Iron Pipe Flanges and Flanged Fittings.
  - 3. B16.5: Pipe Flanges and Flanged Fittings.
- D. ASTM International (ASTM):
  - 1. A53/A53M: Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  - 2. A74: Standard Specification for Cast Iron Soil Pipe and Fittings.
  - 3. A139: Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  - 4. A746: Standard Specification for Ductile Iron Gravity Sewer Pipe.
  - 5. C12: Standard Practice for Installing Vitrified Clay Pipe Lines.
  - 6. C14/14M: Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.

7. C76/76M: Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
9. C425: Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
10. C443/443M: Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
11. C478: Precast Reinforced Concrete Manhole Sections.
12. C564: Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
13. C700: Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated.
14. C828: Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines.
15. C858: Underground Precast Concrete Utility Structures.
16. C923: Resilient Connectors Between Reinforced Concrete Manhole Structures.
17. C924/C924M: Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method; American Society For Testing And Materials.
18. D638: Standard Test Method for Tensile Properties of Plastics.
19. D648: Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.
21. D790: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
22. D1785: Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
23. D2241: Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
24. D2321: Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
25. D2583: Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
27. D2729: Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

28. D2751: Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
29. D3034: Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
30. D3139: Standard Specification for Joints for Plastic Pressure Pipes using Flexible Elastomeric Seals.
31. D3212: Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
33. F477: Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

E. American Water Works Association (AWWA):

1. C104/A21.4: Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
2. C110/A21.10: Ductile Iron and gray Iron Fittings, 3 Inch Through 48 Inch for Water and Other Liquids.
3. C111/A21.11: American National Standard for Rubber Gasket Joints For Cast Iron and Ductile Iron Pressure Pipe and Fittings.
4. C151/A21.51: Ductile-Iron Pipe, Centrifugally Cast, for Water.
5. C153/A21.53: Ductile Iron Compact Fittings, 3 inch through 24 Inch and 54 Inch Through 64 Inch for Water Service.
7. C500: Metal-Seated Gate Valves for Water Supply Service.
8. C508: Swing-Check Valves for Waterworks Service, 2 In. (50 mm) Through 24 In. (600 mm) NPS.
9. C509: Resilient-Seated Gate Valves for Water Supply Service.
10. C600: Installation of Ductile-Iron Water Mains and Their Appurtenances.
12. C901: Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.

F. Manufacturer's Standardization Society (MSS):

1. SP-80: Bronze Gate, Globe, Angle and Check Valves.

G. Occupational Safety and Health Administration (OSHA) Standards and Regulations:

1. 29 CFR 1926, Subpart P: Safety and Health Regulations for Construction, Excavations.

H. UNI-BELL (UNI):

1. B3: Recommended Practice for Installation of Polyvinyl Chloride (PVC) Pressure Pipe (Nominal Diameters 4-36 Inch (100-900 mm)).
2. B6: Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe; UNI-Bell PVC Pipe Association.

1.13 DEFINITIONS:

- A. Appurtenances: Additional piping items to provide a complete piping system suitable to convey wastewater as specified and intended. These items may or may not be specified, but are necessary to complete the piping system.

1.14 SUBMITTALS:

- A. Submit the following in accordance with Contracting Documents.

1. Pipe materials.
2. Pipe fittings.
3. Pipe couplings.
4. Pipe thrust restraint.
5. Valves.
6. Accessories.
7. Appurtenances.

- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- C. Instructions: Provide manufacturer's installation instructions for pipes, connections, fittings, vaults, and ARVs.

- D. Field Test Reports: Provide results for hydrostatic tests.

- E. Project Record Documents: Provide marked-up set of drawings showing actual locations of piping, valves, connections, thrust restraints, and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.15 SPARE PARTS:

- A. Comply with the requirements specified in Contracting Documents.

1.16 QUALITY ASSURANCE:

- A. Comply with the requirements specified in Contracting Documents.
- B. Perform Work in accordance with utility company standards.
- C. Valves: Manufacturer's name, UL/FM and pressure rating marked on valve body.

1.17 DELIVERY STORAGE AND HANDLING:

- A. Comply with the requirements specified in Contracting Documents.
- B. Deliver and store valves in shipping containers with labeling in place.

1.18 WARRANTY:

- A. Provide standard product warranties for piping materials and as required by utility company standards.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Valves – Provide valves manufactured by the following:
  - 1. Ball Valves:
    - a. Mueller 300 ball angle meter valve or acceptable equivalent product.
  - 2. Corporation Stop:
    - a. Mueller H-15008 or acceptable equivalent product.
- B. Mechanical Joint Restraint:
  - 1. Ebba Iron Megalug, or acceptable equivalent product.

2.02 FORCE MAIN (PRESSURE) SANITARY SEWER PIPE MATERIALS:

- A. Force Main (Pressure) Sewer Pipe 4 Inches in Diameter and Larger:
  - 1. PVC Pipe Up To 36 Inches In Diameter: ASTM D 2241, SDR 21. Bell and spigot ends shall conform to ASTM D3139 with flexible elastomeric seals seated in internal groove. Fittings to conform to requirements specified for ductile iron pipe fittings.

2.03 VALVES:

- A. Ball Valves, Up to 2 Inches (50 mm) (Ball Valves greater than 2 inches (50 mm) are unacceptable.):
  - 1. Brass body, Teflon-coated brass ball, rubber seats and stem seals, Tee stem pre-drilled for control rod, IP inlet end, compression outlet, with control rod, extension box [and valve key].

2.04 BEDDING AND COVER MATERIALS:

- A. As specified in Section 31 23 000.

2.05 THRUST RESTRAINT:

- A. Mechanical Joint Restraint: Wedge action restrained joint retainer gland devices. Mechanical joint restraint incorporated into the design of the follower gland.
- B. Thrust Blocks: Dimensions according to Hopkinsville Water Environment Authority Standard, as indicated. Concrete type for thrust restraints according to Hopkinsville Water Environment Authority Standard and as specified in Section 03 30 00 for thrust restraints.
- C. Pipe Clamps and Tie Rods: ANSI/NFPA 24.
- D. Wall Pipes: Cast or ductile iron with an intermediate wall collar, unless noted otherwise. End connections as indicated.

2.06 APPURTENANCES:

- A. Provide all necessary appurtenances for a full and complete piping system suitable for operation, and in conformance with Project Documents.

2.07 SHOP PAINTING/COATINGS:

- A. Unless otherwise specified or indicated, provide standard manufacturer paint and coatings for all piping and valves to prevent corrosion for the life of the component.

2.08 SHOP TESTING:

- A. Test all pipes and valves per manufacturer requirements, and as required by pertinent Standards.

2.09 MARKING TAPE:

- A. Marking Tape should be 6 inch wide metallic tape 5-mil in thickness. Tape should read "CAUTION BURIED SEWER LINE BELOW".

## PART 3 - EXECUTION

### 3.01 EXAMINATION:

- A. Verify that trench cut or excavation base is ready to receive work and excavations, dimensions, and elevations are as indicated for sanitary sewer pipe. Verify excavation for manholes to proper depth and proper placement of bedding material.

### 3.02 PREPARATION:

- A. Sanitary sewer pipe: Hand trim excavations to required elevations. Correct over excavation with bedding material. Remove large stones or other hard matter which could damage pipe or impede consistent backfilling or compaction.

### 3.03 SANITARY SEWER PIPE INSTALLATION:

- A. Maintain separation of sanitary sewers pipe and water mains as indicated in Specification Section 33 10 00 – Water Utilities.
- B. Install pipe, fittings, and accessories in accordance with ASTM C12, ASTM D2321 and manufacturer's instructions. Seal joints watertight.
- C. Lay pipe to slope indicated; with maximum variation from true slope of 1/8-inch in 10 feet. Lay pipe upgrade, with spigot ends pointing in direction of flow. Lay pipe to form a close concentric joint with adjoining section and to prevent sudden offsets in flow line.
- D. Install bedding to depths and dimensions as indicated.
- E. Backfill each section of pipe as it is laid, as specified in Section 31 23 00 and as indicated at least up to centerline, before next joint is made. Do not completely conceal or bury pipe prior to being tested for water tightness and prior to being accepted by the Engineer. Do not displace or damage pipe when compacting.
- F. Clear the interior of the pipe of dirt and superfluous materials as the work progresses. Keep a suitable swab or drag in the pipe and pull it forward past each joint immediately after the jointing has been completed.
- G. Keep trenches and other excavations free of water until final inspection. Do not lay pipe or construct masonry work in water. Do not allow water to rise over the work until concrete or mortar has had ample time to set.
- H. Close open ends of pipe and fittings in a manner acceptable to the Engineer when the work is not in progress so that trench water, earth and other substances will not enter the pipe or fittings.
- I. Handle pipe and fittings to avoid damage. Carefully inspect pipe and fittings for defects before lowering into the trench.



- J. Where necessary deflect pipelines to avoid obstructions or where long-radius curves are indicated. Do not exceed the maximum deflection recommended by pipe manufacturer. Provide short sections of pipe as necessary to maintain required line. Gravity sewer line shall be laid in a straight line with a uniform slope between sewer manholes.
- K. Provide compatible pipe connections to each valve and to equipment. Provide unions on pipelines with welded soldered or threaded joints to allow removal of each valve and equipment without disturbing connecting pipelines. Connect different types of pipe and accessories with flexible couplings or pipe and accessories with flexible couplings or accepted transition fittings. Provide insulation fittings where ferrous pipe connects to nonferrous metallic pipe.
- L. Verify invert of each existing manhole prior to commencing work. Connect to each existing manhole where indicated or directed. Prevent debris from entering the pipelines. The work includes all necessary concrete work, cutting and shaping of invert.
- M. Repair linings, coatings and coverings damaged during construction with accepted materials equal to and compatible with original lining, coating or covering. Repair damaged galvanizing with zinc-rich paint.
- N. Connect to municipal sewer system as indicated.

#### 3.04 VALVE INSTALLATION:

- A. Set valves on solid bearing.
- B. Install valves according to applicable AWWA Standard.

#### 3.05 REPAIR/RESTORATION:

- A. Repair any existing utilities/structures, or features damaged during installation of sanitary sewerage utilities to Owner's satisfaction, and at no cost to Owner.

#### 3.06 FIELD TESTING:

- A. General:
  - 1. Perform field-testing under provisions of Contracting Documents.
  - 2. Request inspection by Owner's Representative prior to placing bedding.
- B. Cleaning and Testing
  - 1. Test for Deflection of PVC Sanitary Sewers
  - 2. Measure pipelines for vertical ring deflection within 15 days after completion of backfill. Limit maximum ring deflection of pipeline under load to 5 percent of

vertical internal pipe diameter. Relay or replace pipe exceeding this deflection and retest.

3. Use deflectometer that produces continuous record of pipe deflection or pull mandrel, sphere, or pin-type go/no-go device through the pipeline. Make diameter of the go/no-go device 95 percent of undeflected inside diameter of pipe.
4. Cleaning: Flush out and clean sanitary force mains of foreign matter before placing systems into operation. Use flushing velocity of 10 feet (30 m) per second, minimum. Take care to prevent scale and other objectionable matter from entering piping. Properly dispose of water used for flushing.
5. Force Main Pressure Test: To prevent movement of pipe, backfill between joints to provide 2-foot (0.60 m) minimum cover. Expose only area immediately at pipe joints. Test force main hydrostatically for 2 hours at 1.5 times the design working pressure. Measure leakage in accordance with, and not exceeding, the allowable leakage specified in AWWA C600 or UNI B3.
6. Testing of Sanitary Sewers: At such times as Engineer may direct, prove watertightness of buried sanitary sewer or portions thereof by the following tests:
  - a. Deflection (Mandrel) Tests shall be performed on flexible gravity sewer pipe after the final backfill has been in place at least 30-days. The Mandrel shall have a diameter equal to 95% of the inside diameter of the pipe. Deflection tests will be performed without mechanical pulling devices. Pipe exceeding 5% deflection will not be accepted or placed into service. The contractor shall excavate and remedy the problem causing the deflection at his own cost.
7. Conduct tests under supervision of the Engineer. Furnish materials, labor, and equipment required for tests and repair system until test results are satisfactory.

### 3.07 FIELD PAINTING/COATINGS:

- A. Repair any shop painting/coatings damaged during storage or installation to Owner's satisfaction.

### 3.08 ADJUSTING:

- A. Coordinate with Engineer for any field adjustments. The Engineer reserves the right to reject any field adjustments.

### 3.09 PROTECTION:

- A. Protect sanitary sewerage utilities from damage throughout storage, installation, testing, and final acceptance.

3.10 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

SECTION 33 39 15  
MANHOLES AND STRUCTURES

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Section includes Precast Concrete Manholes, cast-iron frames and covers.

1.02 REFERENCES:

A. American Concrete Institute (ACI):

1. 318: Building Code Requirements for Structural Concrete
2. 530: Building Code Requirements for Masonry Structures & Commentary.

B. ASTM International (ASTM):

1. C443/443M: Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
2. C478/C478M: Standard Specification for Precast Reinforced Concrete Manhole Sections
3. C858: Underground Precast Concrete Utility Structures.
4. C913: Standard Specification for Precast Concrete Water and Wastewater Structures
5. C923/C923M: Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
6. C990: Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

1.03 DESIGN REQUIREMENTS:

- A. Equivalent Strength: Based on structural design of reinforced concrete as outlined in ACI 318.
- B. Design of Lifting Devices for Precast Components: In accordance with ASTM C913.

- C. Design of Joints for Precast Components: In accordance with ASTM C913; maximum leakage of 0.025 gallons (28.8 ml) per hour per foot (metre) of joint at 3 feet (0.90 m) of head.
- D. Design and install manhole to withstand hydrostatic uplift caused by a groundwater elevation at grade level or equal to the top of the manhole, which ever produces the most severe condition. Use only the weight of the manhole and hold-down slab to resist hydrostatic uplift with a minimum safety factor of 1.15. Do not include side friction of soils on walls.

#### 1.04 SUBMITTALS:

- A. Submit the following in accordance with Section 01 33 00.
  - 1. Precast manholes.
  - 2. Manhole frame and covers.
  - 3. Accessories.
  - 4. Appurtenances.
- B. Manufacturer's Certificates: Certify that products meet or exceed specified requirements:
- C. Instructions: Provide manufacturer's installation instructions all products covered under this specification section.
- D. Field Test Reports: Provide Designer access to observe all testing, if requested, and provide results for all testing performed as indicated in Subparagraph – Field Testing.
- E. Project Record Documents: Provide marked-up set of drawings showing actual locations of manholes, piping, connections, and rim and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

#### 1.05 QUALITY ASSURANCE:

- A. Perform Work in accordance with all local, state, and federal requirements.
- B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.06 DELIVERY STORAGE AND HANDLING:

- A. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast manholes.
- B. Store precast concrete manholes to prevent damage to Owner's property or other public or private property. Repair property damaged from materials storage.
- C. Mark each precast manhole by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

1.07 PROJECT/SITE CONDITIONS:

- A. Maintain materials and surrounding air temperatures to minimum 50 degrees F (10 degrees C) prior to, during, and 48 hours after completion of masonry work.
- B. Cold Weather Requirements: ACI 530.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- 1. Precast Concrete Manhole Structures:
  - a. Foley Products Company
  - b. Holton Concrete Products, LLC
  - c. Jarrett Concrete Products
  - d. Oldcastle Precast
  - e. VANHOUSECO
    - (1) 48-inch precast only
  - f. Or approved equivalent.
- 2. Manhole Frames and Covers:
  - a. John Bouchard & Sons Co.
    - (1) No. 1140;

b. Or approved equivalent.

2.03 PRECAST CONCRETE MANHOLES:

1. Furnish concentric manholes from approved manufacturers and products listed in Section 2.01 of this specification.
2. Provide a minimum 4,000 psi, 28-day compressive strength precast concrete manholes to support an AASHTO H-20 vehicle loading.
3. Brick masonry materials for manholes or manhole adjustments are not permitted.
4. Provide manhole waterproofing admixture of XYPEX C1000 or approved equal at 3% during the batching operation. Add dye to verify XYPEX C1000 admixture was added during batching operation.
5. Provide manholes and accessories conforming to the latest requirements of ASTM C478 and/or ASTM C913. Provide precast base sections that extend above pipe top and form portion of barrel.
6. Provide precast base riser section with integral floors; casting the base slab monolithically with walls.
7. Provide adjustment rings set to the cone section by low strength waterproof and watertight epoxy.
8. Provide a double seal of flexible bitumastic joint sealant joints between the sections of precast manhole sidewalls and provide a single seal of flexible bitumastic joint sealant between the precast concrete sidewall and manhole cover frame conforming to the latest revisions of ASTM C990.
9. Mark the date of manufacture and name or trademark of manufacturer on inside of the manhole barrel.
10. Provide manhole sections without penetrations for lifting.
11. Cast or factory cut pipe opening in manholes. Provide a flexible connector conforming to ASTM C923-19 as identified on the construction plans.
12. For manholes larger than 48-inch diameter, provide precast base sections with flat slab top precast sections when transitioning to 48-inch diameter manhole access riser sections. Provide concentric transitions located to provide minimum of 7-foot head clearance from base to underside of transition section.

13. Manhole Steps: Steps within manhole shall be of material and installed per the construction plans.
14. Joints: Provide tongue and groove joints with pre-formed butyl mastic joint sealant with non-shrink grout tuck pointed on interior joint.
15. Precast Inverts: Conform to invert channels specified in Part 3 of this Specification Section.

#### 2.04 MANHOLE FRAME AND COVERS:

- A. Furnish cast-iron frames, grates, rings, and covers from approved manufacturers and products listed in Section 2.01 of this specification and as indicated on the Drawings, conforming to the latest requirements of ASTM A48, Class 30, and AASHTO H-20 vehicle loading.
- B. Provide covers that have the words "SANITARY SEWER" cast in the metal.
- C. Provide castings that are smooth, clean, complete, and free from blisters, blowholes, splits, cracks, mold-pull, defects, and any other surface imperfections affecting strength or serviceability. Defective castings will not be permitted.
- D. Provide frames and covers where the cover securely rests on the frame without rocking and the cover is in complete contact with the frame for the entire perimeter of the contact surface.
- E. Provide pre-formed butyl mastic joint sealant with non-shrink grout tuck pointed on interior joint between manhole frame and top cone section.
- F. Provide one non-penetrating pick holes in manhole covers as indicated on the Drawings.
- G. Provide frames with nominal diameter clear openings as indicated on the Drawings.
- H. Casting dimensional tolerances shall be +/- 1/16" per foot.
- I. Provide removable, interchangeable covers to seat in frames without rocking.

#### 2.05 ADJUSTMENT RINGS:

- A. Furnish adjustment rings from approved manufacturers and products listed in Section 2.01 of this specification.
- B. Use concrete or expanded polypropylene adjustment rings when vertical adjustments are 2 inches or greater with a maximum total adjustment of 18 inches.



C. Concrete:

1. Provide a minimum 4,000 psi, 28-day compressive strength precast adjustment ring to support an AASHTO H-20 vehicle loading.
2. Conform to ASTM C478.
3. Provide no less than 4-inch in height.
4. Use cement brick for adjustments less than 4 inches.

2.06 BEDDING AND COVER MATERIALS:

- A. As specified in Section 31 23 33.

2.07 APPURTENANCES:

- A. Provide all necessary appurtenances for a full and complete piping system suitable for operation, and in conformance with Project Documents.

2.08 OTHER MATERIALS:

- A. Provide other materials, not specifically, described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Designer.

PART 3 - EXECUTION

3.01 GENERAL:

A. Laying out work:

1. Provide all materials, labor, instruments, etc. required to lay out Work.
2. Prepare "cut sheets" under direct supervision of the Designer.
3. Exercise proper precaution to verify figures on the drawings prior to laying out Work. Contractor will be held responsible for any errors therein that otherwise may have been avoided.
4. Promptly inform Designer of errors or discrepancies found, in order that proper corrections may be made.

- B. Provide the services of a Kentucky registered land surveyor for grade and alignment survey operations.

- C. Set grade stakes, lines, benchmarks and elevations, and provide proper equipment to verify alignment and grade. Provide grade hubs no more than 100 feet apart with center line hubs no more than 50 feet apart to check laser equipment and grade between manholes. Provide offset stakes at each manhole, junction structure, or change in alignment location. Preserve survey staking, check staking, and reset missing, disturbed, or damaged staking, and/or property boundaries.

3.02 EXAMINATION:

- A. Verification of existing conditions before starting work.
- B. Verify items provided by other sections of Work are properly sized and located.
- C. Verify built-in items are in proper location, and ready for roughing into Work.
- D. Verify correct size of manhole structure excavation.

3.03 PREPARATION:

- A. Coordinate placement of inlet and outlet pipe or duct sleeves.
- B. Do not install structures where site conditions induce loads exceeding structural capacity of structures.
- C. Inspect precast concrete structures immediately prior to placement in excavation to verify structures are internally clean and free from damage. Remove and replace damaged units.

3.04 EXCAVATION:

- A. Excavate in accordance with Section 31 23 33, TOSHA, and OSHA regulations, and permits.

3.05 PRECAST CONCRETE MANHOLE INSTALLATION:

- A. Maintain separation of sanitary sewer precast concrete manholes and water mains as indicated on the Drawings.
- B. Install and verify that lines and grades are constructed in accordance with the Drawings.
- C. Protect manholes from damage until Work has been accepted. Repair damage to manholes at no additional cost to the Owner.
- D. Provide a minimum of 72 hour notice to customers whose sanitary sewer service is to be interrupted for any reason.

- E. Provide an adequate foundation for all manhole structures by removing and replacing unsuitable material with well-graded granular material, by tightening with coarse rock, or by such other means as provided for foundation preparation of the connected sewers, or as directed by the Owner.
- F. Dewater sufficiently to maintain the ground water level at or below the bottom of the manhole foundation prior to and during the placement of the foundation.
- G. Place precast base on minimum 6-inch foundation of crushed stone or concrete foundation slab for a 48-inch diameter manhole.
- H. Set bases level so that walls will be plumb.
- I. Notify the Owner immediately when unsatisfactory material is encountered in the manhole foundation subgrade. Undercut, with approval from Designer up to 12-inches of additional material to achieve suitable foundation.
- J. Clean bells and spigots.
- K. Apply joint sealer, or ring gasket to wall section(s), set firmly in place to assure watertight joints.
- L. Precast Manhole Sections:
  - 1. Install sections, joints, and flexible bitumastic joint sealant material in accordance with manufacturer's recommendations and as indicated on the Drawings.
  - 2. Install adjustment rings above tops of cones or flat-top sections as required to adjust finished elevation and to support manhole frames.
  - 3. Wrap the outside of the manhole at each riser joint with bitumastic waterproofing material per manufacturer's recommendations. No grout is permitted on the interior of manhole riser joints prior to testing.
  - 4. When installing a manhole 14 feet or greater depth, properly cure concrete foundation pad for 72 hours prior to manhole installation.
  - 5. After manhole assembly, plug liftholes with nonshrink grout, if applicable.
- M. Pipe Connections at Manholes:
  - 1. Install approved resilient connectors at each pipe entering and existing manholes in accordance with manufacturer's instructions and as indicated on the Drawings.

- a. For connecting PVC pipe to the manhole, seal the space between the pipe and manhole wall with an assembly consisting of rubber gaskets or links mechanically compressed to form watertight barrier.
  2. Fill the space between manhole wall and pipe connection with non-shrinking flexible gasket material.
  3. Utilize a manhole supplier specified torque wrench to seat the resilient connector with an approved flexible gasket material.
- N. Invert Channels
1. Built up with concrete, grout, or brick and mortar covered by not less than 2 inches (50 mm) of mortar.
  2. Smooth and semicircular, conforming to inside of adjacent sewer section.
  3. Changes in direction of flow made with a smooth curve radius as large as manhole size will permit.
  4. Slope floor of manhole outside channels, smooth and not less than 1 inch per foot nor more than 2 inches per foot.
- O. Set manhole frames and covers level to correct elevations.
- P. Sanitary sewer drop connections: Provide where indicated. Construct drop connection as indicated in the Drawings.
- Q. Backfill:
1. Place and compact backfill materials in area of excavation surrounding manholes in accordance with the requirements of gravity sewer mains.
  2. Provide positive drainage away from all manhole frames to natural grade in unpaved areas.
- 3.06 REPAIR/RESTORATION:
- A. Repair any existing utilities/structures, or features damaged during installation of sanitary sewerage utilities to Owner's satisfaction, at no additional cost to the Owner.
  - B. Repair, correct, and retest sections of pipe or manholes which fail to meet specified requirements when tested, at no additional cost to the Owner.

### 3.07 ACCEPTANCE TESTING:

#### A. General:

##### 1. Observation:

- a. Perform testing in the presence of the Designer **and/or** HWEA
- b. Observable leakage, infiltration, grade defects, and/or cracks will not be accepted.

##### 2. Performance Requirements for Acceptance:

- a. Supply pipe materials, manholes, and other sanitary sewer appurtenances that will meet performance requirements.
- b. Install gravity sanitary sewers with straight alignments and uniform grades between manholes.

#### B. Cleaning:

1. Flush out and clean sanitary sewers of foreign matter before testing and placing systems into operation.
2. Use flushing velocity of 10 feet (30 m) per second, minimum.
3. Take care to prevent scale and other objectionable matter from entering piping.
4. Properly dispose of water used for flushing in accordance with State and/or local municipality requirements.

#### C. Testing of Manholes:

##### 1. General:

- a. Perform Vacuum for newly installed sanitary sewer manholes.

##### 2. Vacuum Test:

###### a. General:

- (1) For precast concrete manholes.
- (2) Conduct tests prior to backfilling and include joint between manhole cover and frame.

- (3) Plug and brace pipe openings.
  - (4) Manholes shall be vacuum tested for water tightness through procedures defined in ASTM C1244 – Standard Test Method for Concrete Sewer Manhole by the Negative Air Pressure (Vacuum) Test.
- b. Install vacuum test head assembly at top access point of manhole and adjust for proper seal on straight top section of manhole structure. Following manufacturer’s instructions and safety precautions, inflate sealing element to recommend maximum inflation pressure; do not over-inflate.
  - c. Evacuate manhole with vacuum pump to 10 inches mercury (Hg), disconnect pump, and monitor vacuum for time period specified in Vacuum Test Time Table 4 below.
  - d. If drop in vacuum exceeds 1 inch Hg over specified period tabulated in Table 5 below, locate leaks, complete repairs necessary to seal manhole and repeat test procedure until satisfactory results are obtained.

<b>Table 33 31 03-5</b>			
<b>MINIMUM TESTING TIMES FOR SANITARY SEWER MANHOLES – VACUUM TEST</b>			
<b>Depth (FT)</b>	<b>Time in Seconds by Manhole Diameter</b>		
	<b>48”</b>	<b>60”</b>	<b>72”</b>
4	10	13	16
8	20	26	32
12	30	39	48
16	40	52	64
20	50	65	80
24	60	78	96
*	5.0	6.5	8.0

\* Add T times for each additional 2-foot depth.  
(The values listed above have been extrapolated from ASTM C924-85).

- e. If manhole fails the test, make necessary repairs and repeat the vacuum test and repairs until manhole passes test, at no additional cost to the Owner. Submit test results.
- f. Vacuum tests shall be conducted after the casting has been set and the excavation around the manhole has been backfilled.

- g. Conduct tests under supervision of the Engineer. Furnish materials, labor, and equipment required for tests and repair system until test results are satisfactory.

3.08 ADJUSTING:

- A. Coordinate with the Engineer for any field adjustments. The Engineer reserves the right to reject any field adjustments.

3.09 CLOSEOUT ACTIVITIES:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

SECTION 40 23 19.04

DUCTILE IRON PIPE AND FITTINGS

PART 1 - GENERAL

1.01 DESCRIPTION:

A. Provide and test ductile iron pipe, fittings and appurtenances as indicated and in compliance with Contract Documents.

B. Options:

1. For buried exterior pipelines provide push-on joint pipe.
2. Provide restrained push-on pipe as specified
3. Provide either restrained push-on joint fittings as specified and indicated or provide mechanical joint fittings with restraint system as specified herein
4. For piping exposed as in buildings and galleries, provide flanged or rigid-joint, grooved-coupled pipe and fittings.
5. Cast iron pipe and fittings are not acceptable.

1.02 REFERENCES

A. American National Standards Institute (ANSI)

1. B18.2: Nuts for General Application

B. American Society for Testing and Materials International (ASTM):

1. A307: Carbon Steel Bolts and Studs, 60,000 psi Tensile.
2. A395: Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures
3. A536: Standard Specification for Ductile Iron Castings

C. American Water Works Association (AWWA):

1. A21.10: Ductile-Iron and Gray-Iron Fittings, 3 in. through 48 in., for Water and Other Liquids.



2. A21.11: Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe Fittings.
3. A21.15: Flanged Ductile-Iron Pipe with Threaded Flanges.
4. A21.51: Ductile-Iron Pipe, Centrifugally Cast in Metal Molds, or Sand-Lined Molds, for Water or Other Liquids.
5. C104: Standard for Cement Mortar Lining for Ductile-Iron Pipe and Fittings.
6. C110: Flanged Fittings.
7. C111: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
8. C115: Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Threaded Flanges.
9. C150: Standard Pressure Classes – Wall Thickness and Nominal Wall Thicknesses.
10. C151: Ductile-Iron Pipe, Centrifugally Cast, for Water.
11. C600: Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.
12. C651: Standard Specifications Disinfecting Pipelines.

D. Fluid Sealing Association: Technical Handbook.

1.03 SUBMITTALS:

A. Submit the following in accordance with Contracting Documents.

1. Pipe manufacturer's technical specification and product data.
2. Certified shop and erection drawings. Contractor shall submit electronic files of the piping layout including the following.
  - a. Pipe layouts in full detail.
  - b. Location of hangers and supports.
  - c. Location and type of anchors.
  - d. Location of couplings and expansion joints.

- e. 1/2-inch = 1 foot-0 inch (1 mm = 25 mm) scale details of all wall penetrations and special fittings.
  - f. Schedules of pipe, fittings, special castings, couplings, expansion joints and other appurtenances.
3. Certificates: Sworn certificates in duplicate showing compliance with material used and shop tests performed.
  4. Catalog cuts and technical data for expansion joints, couplings, gaskets, pipe supports and other accessories.
  5. Brochures and technical data on coatings and linings and proposed method of application.
  6. Manufacturer's descriptive literature and technical data on insulation and proposed method of installation.

B. Material Certification:

1. Provide certification from the pipe and fittings manufacturer that the materials of construction specified are recommended and designed for the service conditions specified and indicated. If materials other than those specified are proposed based on incompatibility with the service conditions, provide technical data and certification that the proposed materials are recommended and designed for the service conditions specified and indicated including an installation list of a minimum of five (5) installations in operation for a minimum of five (5) years. Provide proposed materials at no additional cost to the Owner.
2. Where materials are not specified, provide technical data and certification that the proposed materials are recommended and designed for the service conditions specified and indicated.

C. A copy of the contract mechanical process, civil and structural drawings, with addenda that are applicable to the equipment specified in this section, marked to show all changes necessary for the equipment proposed for this specification section. If no changes are required, mark all drawings with "No changes required" or provide a statement that no changes are required.

1. Failure to include all drawings or a statement applicable to the equipment specified in this section will result in submittal return without review until a complete package is submitted.
2. A copy of this specification section with addenda and all referenced specification sections with addenda, with each paragraph check-marked to indicate

specification compliance or marked and indexed to indicate requested deviations and clarifications from the specified requirements.

- a. If deviations and clarifications from the specifications are indicated, therefore requested by the Contractor, provide a detailed written justification for each deviation and clarification.
- b. Failure to include a copy of the marked-up specification sections and/or the detailed justifications for any requested deviation or clarification will result in submittal return without review until marked up specifications and justifications are submitted in a complete package.

#### 1.04 QUALITY ASSURANCE:

- A. Provide in accordance with Contracting Documents and as specified.
- B. Provide manufacturer's certification in writing, that materials meet or exceed minimum requirements as specified.
- C. Inspect and test at foundry according to applicable standard specifications.
- D. Owner reserves right to inspect and test by independent service at manufacturer's plant or elsewhere at his own expense.
- E. Visually inspect before installation.
- F. Job Conditions:
  1. Coordinate dimensions and drillings of flanges with flanges for valves, pumps and equipment to be installed in the piping systems.

#### 1.05 DELIVERY, STORAGE AND HANDLING:

- A. Comply with the requirements specified in Contracting Documents.
- B. During loading, transportation and unloading, prevent damage to pipes and fittings. Load and unload each pipe under control at all times. Under no circumstances will a dropped pipe be used unless inspected and accepted by Engineer. Place skids or blocks under each pipe in the shop and securely wedge pipe during transportation.

## PART 2 - PRODUCTS

### 2.01 DUCTILE IRON PIPE:

1. Design conforming to AWWA A21.50.
2. Manufacture conforming to AWWA A21.15 or AWWA A21.51.
3. Pressure Class, unless otherwise indicated or specified:
  - a. Minimum Pressure Class, 4-inches (100 mm) through 12-inches (300 mm): 350
  - b. Minimum Pressure Class, 14 inches (350 mm) through 24 inches: 250
  - c. Minimum thickness for use with grooved couplings conforming to AWWA C606.

### 2.02 FITTINGS:

- A. Provide fittings conforming to AWWA A21.10 or AWWA A21.53, match piping class.
- B. Provide push-on or mechanical-joint fittings where indicated.
- C. Face and drill flanged fittings conforming to AWWA A21.10 except special drilling or tapping for correct alignment and bolting.
- D. If flanged fittings are not available under AWWA A21.10 provide fittings conforming to ASME B16.1 in 125 lb. pressure class.
- E. Provide standard base fittings where indicated.
- F. Provide grooved-end fittings ductile-iron conforming to AWWA A21.10 for center-to-face dimensions.
  1. End preparation for grooved-ends conforming to AWWA C606 for flexible or rigid joints as required by type of joint.

### 2.03 JOINTS:

- A. Provide push-on joint and mechanical joint pipe with necessary accessories, conforming to AWWA A21.11.
  1. Provide gasket composition designed for exposure to liquid within pipe.
- B. Provide pipe flanges and accessories conforming to AWWA A21.15.
  1. Provide flat faced flanges.

2. Provide 1/8-inch (3 mm) thick, full faced gaskets designed for exposure to liquid within pipe.
- C. Provide restrained joint on pipe and fittings where indicated. Provide restrained joint which is:
  1. Boltless
  2. Capable of being deflected after assembly
  3. Designs using set screws or requiring field welding are not acceptable
  4. Manufacturers:
    - a. American Cast Iron Pipe Co. Flex-Ring
    - b. U.S. Pipe TR FLEX
    - c. Clow Super-Lock

#### 2.04 PIPE FOR USE WITH COUPLINGS:

- A. As specified above except ends shall be plain.
- B. With bolted split sleeve couplings, ends cast or machined at right angles to axis.
- C. With grooved type coupling:
  1. Ductile-Iron of thickness class specified above.
  2. Grooved End dimensions conforming to AWWA C606 for flexible or rigid joints to suit joint requirements.

#### 2.05 WALL CASTINGS:

- A. Provide size and type indicated and specified.
  1. Piping 24-inches (600 mm) and Smaller: Mechanical Joint with specified restraint or Restrained Push-On.
- B. Wall Castings: Conform to requirements of AWWA A21.10 or fabricate of Class 53 ductile iron pipe with screwed on flanges and welded on waterstop. Screwed on mechanical or push-on joints are not acceptable.
- C. Provide water stop centered in wall. Weld water stops on in factory under controlled conditions to ensure adequate strength to permit waterstop to absorb thrust up to the pressure rating of the pipe.

<b>Wall Castings with annealed ductile iron water stops</b>	
<b>Pipe Size</b>	<b>Waterstop thickness, inches</b>
4 inch-12 inch (100-300 mm)	0.50 (13 mm)
14 inch-24 inch (350 -600 mm)	0.75 (19 mm)

- D. On flanged wall castings, provide space between the wall and flange to permit mounting the nuts on the flange bolts.
- E. Flanged wall castings located with the flange flush with the wall are not acceptable.
- F. Locate push-on joint wall castings with space between the bell and the wall to insert the follower bolts.
- G. As an option, fabricated wall pipe of Schedule 40 Type 316L stainless steel may be substituted for wall castings specified above. Provide with waterstops of above dimensions and welded continuously on both sides of stop. Flanges of Type 316 stainless steel. Bolts for connection to buried pipe Type 316 stainless steel. Provide flange insulation gaskets, sleeves and washers for all flanges.
- H. Testing: Factory pressure test all wall castings to pipe and joint pressure rating for a minimum of 5 minutes. No visible leakage is acceptable.

2.06 MECHANICAL JOINT FITTINGS – RESTRAINT SYSTEM:

- A. Provide restraint devices for pipe consisting of multiple gripping wedges incorporated into a follower gland meeting requirements of AWWA A21.10.
  - 1. Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, retaining full mechanical joint deflection during assembly and allowing joint deflection after assembly.
  - 2. Provide actuation of the gripping wedges ensured with torque limiting twist off nuts.
  - 3. Provide restraint devices Listed by Underwriters Laboratories (3 inch (75 mm) through 24 inch (600 mm) size) and Designed by Factory Mutual (3 inch (75 mm) through 12 inch (300 mm) size).
  - 4. Gland body, wedges and wedge actuating components must be domestic

<b>Wall Castings with fabricated steel water stops</b>	
<b>Pipe Size</b>	<b>Waterstop thickness, in</b>
4 inch-16 inch (100-400 mm)	0.25 (6 mm)
18 inch-24 inch (450 -600 mm)	0.38 (10 mm)

manufactured in the USA.

B. Working Pressure Rating:

1. 16-inch (400 mm) and Smaller: 350 psi (2,450 kPa).
2. 18-inch (450 mm) and Larger: 350 psi (2,450 kPa).
3. Minimum safety factor of 2 to 1.

C. Materials:

1. Gland body, wedges and wedge actuating components: Grade 65-45-12 ductile iron in accordance with ASTM A536.
2. Ductile iron gripping wedges: Heat treated, 370 to 470 BHN.
3. Provide three (3) test bars incrementally poured per production shift as per Underwriter's Laboratory (U.L.) specifications and ASTM A536. Testing for tensile, yield and elongation in accordance with ASTM E8.
4. Provide chemical and nodularity tests performed as recommended by the Ductile Iron Society, on a per ladle basis.
5. Provide an identification number consisting of year, day, plant and shift (YYDDD)(plant designation)(Shift number) cast into each gland body.
6. Record all physical and chemical test results such that they can be accessed via the identification number on the casting. Provide the Material Traceability Records (MTRs) available, in hard copy.
7. Provide coating for restraint devices consisting of the following:
  - a. Process all wedge assemblies and related parts through a phosphate wash, rinse and drying operation prior to coating application.
  - b. Coating: A minimum of two coats of liquid thermoset epoxy coating with heat cure to follow each coat.
  - c. Surface pretreat all casting bodies with a phosphate wash, rinse and sealer before drying. The coating shall be electrostatically applied and heat cured. Coating: Polyester based powder to provide corrosion, impact and UV resistance.
  - d. Coating system: MEGA-BOND by EBAA Iron, Inc.

D. Manufacturer:

1. EBAA Iron MegaLug Series 1100.
2. Equivalent.

2.07 FLANGE ADAPTORS:

- A. Provide restrained flange adaptors for pipe consisting of multiple individual gripping wedges incorporated into a follower gland meeting requirements of AWWA A21.10.
  1. Provide actuation of the gripping wedges ensured with torque limiting twist off nuts.
  2. Provide restraint devices Listed by Underwriters Laboratories (3-inch (75 mm) through 16 inch (300 mm) size) and Designed by Factory Mutual (4-inch (100 mm) through 16-inch (300 mm) size).
  3. Gland body, wedges and wedge actuating components must be domestic manufactured in the USA.
- B. Joint Deflection capability:
  1. Pipe joint deflection shall NOT exceed the manufacturer's recommendation.
- C. Provide flange adaptor to maintain seal with and 0.6 inch (15 mm) gap between end of pipe and mating flange
- D. Working Pressure Rating:
  1. 16-inch (400 mm) and Smaller: 350 psi (2,450 kPa)
  2. 20-inch (500 mm) and Larger: 350 psi (2450 kPa)
  3. Minimum safety factor of 2 to 1.
- E. Materials:
  1. Gland body, wedges and wedge actuating components: Grade 65-45-12 ductile iron in accordance with ASTM A536.
  2. Ductile iron gripping wedges: Heat treated, 370 to 470 BHN.
  3. Provide three (3) test bars incrementally poured per production shift as per Underwriter's Laboratory (U.L.) specifications and ASTM A536. Testing for tensile, yield and elongation in accordance with ASTM E8.
  4. Provide chemical and nodularity tests performed as recommended by the Ductile Iron Society, on a per ladle basis.



5. Provide an identification number consisting of year, day, plant and shift (YYDDD)(plant designation)(Shift number) cast into each gland body.
6. Record all physical and chemical test results such that they can be accessed via the identification number on the casting. Provide the Material Traceability Records (MTRs) available, in hard copy.
7. Provide coating for restraint devices consisting of the following:
  - a. Process all wedge assemblies and related parts through a phosphate wash, rinse and drying operation prior to coating application.
  - b. Coating: A minimum of two coats of liquid thermoset epoxy coating with heat cure to follow each coat.
  - c. Surface pretreat all casting bodies with a phosphate wash, rinse and sealer before drying. The coating shall be electrostatically applied and heat cured. Coating: Polyester based powder to provide corrosion, impact and UV resistance.
  - d. Coating system: MEGA-BOND by EBAA Iron, Inc.

F. Manufacturer:

1. EBAA Iron MegaFlange Series 2100

2.08 EXPANSION JOINTS:

- A. Pressure rating at least equal to that of related pipeline.

2.09 FILLING RINGS:

- A. Provide where necessary.
- B. Materials, workmanship, facing, and drilling, conforming to 125-lb. ANSI (Class 125).
- C. Suitable length with nonparallel faces and corresponding drilling, if necessary, for correct assembly of adjoining piping or equipment.

2.10 CONNECTIONS – TAPPED:

- A. Provide service saddles for all 2” or smaller taps for lines 24-inch (600 mm) and smaller.
  1. Body: Ductile iron ASTM A395 or Bronze.
  2. Straps and Hardware: Type 316 stainless steel.

2.11 PIPE COATING:

- A. Outside of pipe and fittings within structures: Clean and apply one shop coat with a 3 to 5 mil (75 to 125  $\mu$ m) DFT of moisture cured urethane.
- B. Machined surfaces cleaned and coated with rust-preventative compound at shop.
- C. Outside of buried pipe and fittings: Standard bituminous coating conforming to AWWA C151 Standard.

2.12 CEMENT LINING:

- A. Inside of pipe and fittings: Provide double thickness cement lining and bituminous seal coat conforming to AWWA A21.4.

2.13 JACKETS:

- A. Polyethylene jacket shall conform to AWWA C105.

2.14 GASKETS, BOLTS, AND NUTS:

- A. Provide ring or full face synthetic rubber gaskets for flanged joints and neoprene faced phenolic for insulating gaskets in accordance with AWWA A21.11 and ASME B16.21.
  - 1. 1/8 inch (3 mm) thick.
- B. Make flanged joints with:
  - 1. Bolts.
  - 2. Bolt studs with nut on each end.
  - 3. Studs with nuts where flange is tapped.
  - 4. Plastic bolt sleeves and washers for insulating joints.
- C. Number and size of bolts conform to same ANSI as flanges.
- D. Provide Type 316 stainless steel bolts, washers and nuts for all services.

PART 3 - EXECUTION

3.01 HANDLING AND CUTTING:

- A. Mark pipe and fittings "Rejected" and remove from site when cracked or has received a severe blow.

- B. If permitted, cut on sound barrel at a point at least 12 inch (300 mm) from visible limit of crack, at Contractor's expense.
- C. Machine cut with milling type cutters, knives, or saws. Snap cutters, torch, or hammer and chisel NOT ALLOWED. Examine for possible cracks.
- D. Chamfer cut ends if used for push-on joints.
- E. Do not cut glass lined pipes.

### 3.02 INSTALLATION:

- A. Visually inspect before installation.
- B. Before assembly, remove dirt and chips from inside pipe and fittings.
- C. Piping Support: Provide in accordance with the Drawings.
- D. Pipe and Fittings:
  - 1. Remove and replace defective pieces.
  - 2. Clear of all debris and dirt before installing and keep clean until accepted.
  - 3. Lay accurately to lines and grades indicated or required. Provide accurate alignment, both horizontally and vertically.
  - 4. Provide firm bearing along entire length of buried pipelines.
  - 5. For push-on joint or similar pipe, clean bell of excess tar or other obstruction and wipe out before inserting next pipe spigot. Shove new pipe into place until properly seated and hold securely until joint completed. The pipe joint deflection shall NOT exceed the manufacturer's recommendation.
  - 6. Set castings to be encased in concrete accurately with bolt holes, if any, carefully aligned. Clean off rust and scale before setting.
- E. Temporary Plugs: When pipe laying not in progress, close open ends of pipe with temporary watertight plugs. If water in trench, do not remove plug until danger of water entering pipe passed.
- F. Appurtenances: Set valves, fittings and appurtenances as indicated.

### 3.03 JOINTS AND COUPLINGS:

- A. Push-on Joints:

1. Insert gasket into groove bell. Apply thin film of nontoxic gasket lubricant over inner surface of gasket in contact with spigot end.
2. Insert chamfered end into gasket. Force pipe past it until it seats against socket bottom.

**B. Bolted Joints:**

1. Remove rust-preventive coatings from machined surfaces.
2. Clean pipe ends, sockets, sleeves, housings, and gaskets and smooth all burrs and other defects.
3. Use torque wrench to tighten to correct range of torque not to exceed values specified below:

<b>TORQUE RANGE VALUES</b>		
<b>Nominal pipe size, in</b>	<b>Bolt diameter, in</b>	<b>Range of torque, ft-lb</b>
3	5/8	40-60
4-24, incl.	3/4	75-90

<b>TORQUE RANGE VALUES</b>		
<b>Nominal pipe size, mm</b>	<b>Bolt diameter, mm</b>	<b>Range of torque, Nm</b>
75	16	55-80
100-600, incl.	19	100-120

**C. Flanged Joint:**

1. Make up tight.
2. Do not put strain on nozzles, valves, and other equipment.
3. Bolt threads must fully engage the nuts. At a minimum the bolt must be flush with the nut and no more than 1/2-inch (13 mm) excess thread protruding from the nut.

**D. Mechanical Joints:**

1. Wire brush surfaces in contact with gasket and clean gasket.
2. Lubricate gasket, bell, and spigot with soapy water.
3. Slip gland and gasket over spigot, and insert spigot into bell until seated.

4. Seat gasket and press gland firmly against gasket.
5. After bolts inserted and nuts made finger-tight, tighten diametrically opposite nuts progressively and uniformly around joint by torque wrench. Torque bolts to values specified above.

E. Tapped Connection:

1. Drill and tap normal to longitudinal axis.
2. Drilled by skilled mechanics using proper tools.
3. Use only tapered threads.
4. The tapping of existing mains shall be a minimum of 4 feet from the nearest end and/or pipe fitting.

3.04 FIELD TESTING:

- A. Provide in accordance with Contracting Documents.
- B. Clean of all dirt, dust, oil, grease and other foreign material, before conducting pressure and leakage tests.
- C. Pressure and Leakage Tests:
  1. Conduct combined pressure and leakage test:
    - a. Initially on pipeline between first two valves, maximum length 1/4 mile (0.4 km), and within three days of completion.
    - b. Afterwards on completed sections of maximum length 1/2 mile (0.8 km).
    - c. Isolated sections upon completion.
  2. Furnish and install temporary testing plugs or caps; pressure pumps, pipe connections, meters, gages, equipment, and labor.
  3. Test when desired and comply with specifications.
  4. Test pipelines in excavation or embedded in concrete before backfill or placing of concrete and test exposed piping before field painting.
  5. Fill section of pipe with water and expel air. If hydrants or blowoffs are not available at high points for releasing air, make necessary taps and plug after test completion.

6. Maintain section full of water for 24 hours before conducting combined pressure and leakage test.
7. Conduct pressure and leakage test consisting of first raising water pressure (based on elevation of lowest point of section under test and corrected to gage location) to pressure in psi numerically equal to pipe pressure rating, but not more than 150 psi (1,050 kPa).
8. Maintain pressure and make leakage test by metering water flow into pipe. Acceptable results:
  - a. Average leakage during test: less than 10 gallons (1 liter) per inch (mm) of diameter per 24 hours per mile (km).
  - b. No visible leakage in joints.
9. If section fails pressure and leakage test, locate, uncover, and repair or replace defective pipe, fitting, or joint, at no additional expense and without time extension. Conduct additional tests and repairs until section passes test.
10. Modify test procedure only if permitted by Engineer.

3.05 FIELD PAINTING:

- A. Follow recommended manufacturer instructions for field painting.

3.06 DISINFECTING AND FLUSHING:

- A. Provide in accordance with Section 33 13 00.

3.07 CONTRACT CLOSEOUT:

- A. Provide in accordance with Contracting Documents.

END OF SECTION

## Appendix A: Geotechnical Report

**S-013-2021**

**MEMORANDUM**

**TO:** Michael Carpenter, P.E.  
Director, Division of Structural Design

**FROM:** Geotechnical Branch

**BY:** Tyler Sheffield, P.E.  
Geotechnical Branch, Structure Foundation Section

**DATE:** May 7, 2021

**SUBJECT: Christian County  
12F0 FD52 024 0068 009-011D  
US 68  
Mars #: 9334501D  
ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO  
KY 1007 IN HOPKINSVILLE  
I. 18'x10.5' Arch Culvert Ext. (16' Lt. and 24' Rt.) at Sta. 450+61  
Item #: 2-899.00  
Geotechnical Engineering Structure Foundation Report**

cc: J. Van Zee  
L. Krueger  
B. Houck  
W. Southworth  
K. Gearlds  
K. Sperry  
R. Thomas  
D. McElmurray  
R. Boucherie  
D. Stills (Gresham Smith)

**1.0 LOCATION AND DESCRIPTION**

The geotechnical investigation for this structure has been completed. The DGN file for the subsurface data sheet has been made available on Projectwise and through email for use in development of structure plans. The onsite geotechnical exploration for the project was performed by a Geotechnical Branch drill crew.

The proposed 18'x10.5' arch culvert extension will be utilized as part of the proposed improvements on US 68 in Christian County. The structure is located on US 68 at approximate M.P. 10.05. The project is located in the Hopkinsville, KY.

**2.0 SITE GEOLOGIC CONDITIONS**

This structure is located in the Church Hill Geologic Quadrangle (GQ# 556). The geologic mapping indicates that this site consists of Ste. Genevieve Limestone Formation.

**3.0 FIELD INVESTIGATION**

Two (2) sample and core holes and two (2) mechanical rockline soundings were taken at this structure's location as part of the structural geotechnical investigation. After drilling, the rock cores and soil samples were delivered to the KYTC Geotechnical Branch in Frankfort, KY where a geologist logged the rock cores and the soil samples were tested in the Branch's laboratory.

**4.0 LABORATORY TESTING**

The laboratory soil testing for the structural geotechnical investigation was completed by the Branch's laboratory. The soil samples obtained from the borings were determined to consist of low plasticity clays and clays-silts. The soil samples were designated as CL and CL-ML by the Unified Soil Classification System.



S-013-2021  
Christian Co., US 68  
May 7, 2021  
Item #: 2-899.00

## 5.0 SUBSURFACE CONDITIONS

Depth to rock/refusal varied from 8.5 ft. to 22.6 ft. The rock core taken at this site consisted of light gray, very fine to medium grain, oolitic, crystalline limestone with fossil-fragments, stylolites, and a few shale partings. Underlying this limestone layer was non-durable dark gray shale that was silty in parts. The KY RQD values for the rock cores taken at this proposed culvert location ranged from 0% to 86% and core recoveries ranged from 87% to 100%. The top of rock/auger refusal elevations at this site varied from 490.6 ft. to 522.6 ft.

## 6.0 ENGINEERING ANALYSIS

Due to shallow foundation soils, embankment stability and settlement analyses were not performed. Please refer to Geotechnical Engineering Roadway Report R-010-2019 for geotechnical information related to construction of the roadway embankments.

Due to the rock depths and the proposed flow line elevations the culvert can either be designed for a **non-yielding** or **yielding** foundation. See the recommendations below for the two alternatives.

## 7.0 FOUNDATION RECOMMENDATIONS:

### Alternate #1 (non-yielding)

- 7.1 Design this culvert for a **non-yielding** foundation. The culvert should be extended to bedrock or the overburden excavated to rock and backfilled with “Granular Embankment”, non-erodible only, meeting the materials requirements of Section 805 of the Standard Specifications for Road and Bridge Construction, current edition. Contrary to the Standard Specifications, the maximum size for “Granular Embankment” should be 4”.
- 7.2 Spread footings shall be founded on granular embankment extended to bedrock. Size the footings at a service limit state using a factored bearing resistance of 8 ksf on “Granular Embankment”. If the applied pressures are greater than 8 ksf, the Designer shall provide a note in the plans directing that the footings be extended to rock and prohibiting the use of granular replacement. The note would indicate that the Presumptive Factored Bearing Resistance at the Service Limit State is 24 ksf for spread footings on Competent Unweathered Bedrock. Contact this Branch for a more detailed analysis of nominal bearing resistance if the strength or extreme limit states control the footing design.
- 7.3 This culvert should be designed with a paved flowline. The paved flowline may also include the inlet and outlet apron portions of the culvert’s flowline. The footings of the barrel of the culvert will require no embedment and bear directly on competent/unweathered bedrock. The footings of the wingwalls shall be embedded a minimum of 1.0 foot into unweathered bedrock.
- 7.4 A toe-wall designed in accordance with Exhibit 513 of the KYTC Division of Structural Design Guidance Manual shall be included in the culvert design.
- 7.5 The wingwalls should be designed using Soil Type 3 of Exhibit 413 in the Division of Structural Design Guidance Manual. It should be noted that the backfill slope being referred to is that which is perpendicular to the wingwall.

### Alternate #2 (yielding)

- 7.6 Design this culvert for a **yielding** foundation. For a yielding foundation, any bedrock or boulders encountered within 2 ft. of the bottom slab must be excavated and backfilled with soil to the base of the footing elevation.

S-013-2021  
Christian Co., US 68  
May 7, 2021  
Item #: 2-899.00

- 7.7 The culvert wingwalls shall be founded on soil. Size the footing a service limit state using the factored nominal resistance of 4.1 ksf. For checking strength and extreme limit states, the nominal bearing resistance has been determined to be 12.5 ksf. Use a resistance factor of 0.45 for strength limit state analysis and a resistance factor of 1.0 for extreme limit state analysis.
- 7.8 This culvert should be designed with a paved flowline. The paved flowline may also include the inlet and outlet apron portions of the culvert's flowline.
- 7.9 A toe-wall designed in accordance with Exhibit 513 of the KYTC Division of Structural Design Guidance Manual shall be included in the culvert design.
- 7.10 The wingwalls should be designed using Soil Type 3 of Exhibit 413 in the Division of Structural Design Guidance Manual. It should be noted that the backfill slope being referred to is that which is perpendicular to the wingwall.

## 8.0 Plan Notes

(Include the notes below at appropriate locations in the Plans, if applicable.)

- 8.1 Solid rock excavation may be required to reach required footing elevations.
- 8.2 Temporary sheeting or shoring/cofferdams and/or a dewatering method will be required for installation of the footings.
- 8.3 All footing excavations in bedrock shall be cut neatly so that no forming or backfilling is necessary in the construction of the portions of the footings located in rock. Concrete should be placed directly against the cut rock faces. Mass concrete should be placed in the excavation from the top of the footing to the bedrock surface where the footing does not extend to the bedrock surface.
- 8.4 If bedrock becomes softened at bearing elevation, the softened material shall be undercut to unweathered material prior to placing concrete.
- 8.5 Any bedrock or boulders encountered within 2 ft. of the bottom slab must be excavated and backfilled with soil to the base of the footing elevation.

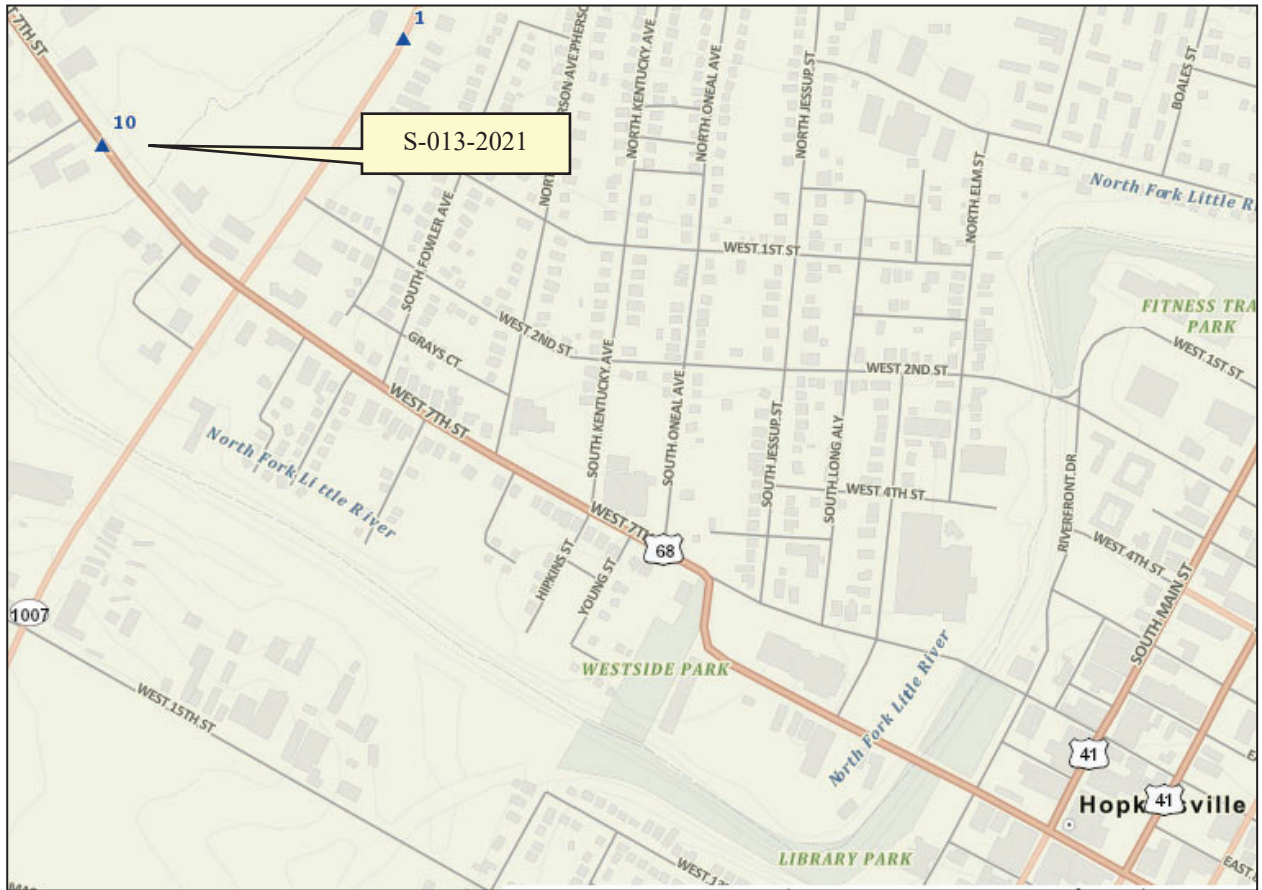
The designer should feel free to contact the Geotechnical Branch for further recommendations, or for any additional questions that arise pertaining to this project, at (502)564-2374.

### Attachments:

- Structure Location Map
- Subsurface Data Sheet
- Coordinate Data Sheet

S-013-2021  
Christian Co., US 68  
May 7, 2021  
Item #: 2-899.00

**Structure Location Map:**





S-013-2021                      02-00899.00                      Kentucky Transportation Cabinet

ID	Latitude	Longitude	Hole	Station	Offset	Elevation(ft)	Comments
6	36.87220956	-87.50097731	1001	450+08.3	48.06	520.9	
8	36.87234557	-87.50070061	1003	450+40.55	-45	513.1	
7	36.87215555	-87.50088077	1002	450+89.57	38.88	509.78	
9	36.87230986	-87.50066261	1004	451+04.55	-43.01	524.2	



**MEMORANDUM**

**(R-003-2021)**

**TO: Tonya Higdon, PE**  
**Project Management Coordinator**  
**Division of Highway Design**

**FROM: Michael Carpenter, PE**  
**Director**  
**Division of Structural Design**

**BY: J.C. Wilhoite, PE**  
**Geotechnical Branch**

**DATE: June 2, 2021**

**SUBJECT: Christian County**  
**US 68**  
**Station 401+37.44 to 455+74.20**  
**Item # 02-0899.00**  
**Mars # 9334501D**  
**Project # FD52 024 0068 009-011 D**  
**Geotechnical Engineering Roadway Report**

**Location and Description**

An abbreviated geotechnical engineering report has been completed for the subject project. Drilling, sampling and laboratory testing were performed by the Geotechnical Branch. The purpose of this report is to identify potential geotechnical concerns based on the subsurface information obtained, a review of the project plans, the drilling, and prior experience with the project area. This project involves addressing congestion and mobility along US 68 from KY 91 to KY 1007 in Hopkinsville. Reduced size geotechnical symbols, notes, and profile sheets are attached. The CADD input, in DGN format, is being e-mailed to the district for incorporation into the roadway plans.

**Geology**

The project is located within the Pleasant Green Hill and Church Hill Geologic Quadrangles (#321 and #556, respectively). The geologic mapping indicates the upper geologic formation at this site is the Sainte Genevieve and Renault Limestone Formations. These formations consist of limestone that is susceptible to karst activity.

There is a sinkhole/drywell located on this project that will not be used for drainage purposes. Drilling adjacent to the sinkhole location indicates limestone bedrock will be encountered approximately 10 feet below the current ground surface at the bottom of the basin. The design team recommends capping the sinkhole in accordance with KYTC Standard Drawing BGX-018 Condition No. 2. The sinkhole currently has a concrete structure (drywell) constructed over it. This structure shall be removed during the cap construction.

The roadway excavation will produce an insufficient quantity of durable rock for the recommendations below. Rock excavation will not be required for roadway excavations; therefore, rock quantity calculations were not required.

### **Drilling and Sampling**

Drilling operations for this project were performed in March and April of 2021. The drilling operations consisted of 5 disturbed profile borings and 2 rockline soundings adjacent to a sinkhole. Sampling depths ranged from 4.4' to 10.5' feet with three of the seven borings encountering refusal on bedrock. When encountered, the refusal depth varied from 4.4 to 10.5 feet. As expected, limestone was the type of bedrock encountered when refusal was met.

### **Laboratory Testing**

The soil testing showed the most common soil type for the project to be low to medium plasticity clays (CL in the Unified Soil Classification System) in all the bulk samples. The soils appear to be typical given the parent rock formation in the local area.

Resilient modulus and California Bearing Ratio (CBR) tests were performed on samples obtained from soils from the proposed cuts and/or near the proposed subgrade. Five resilient modulus tests were performed. The results of the testing ranged from 3,500 psi to 6,400 psi with an average of 5,100 psi. Five CBR tests were also performed with results ranging from 3.9 to 8.1 with an average of 6.

### **Engineering Analysis**

Embankment stability analyses were not required for this project based on the slope heights and configurations. Cut and embankment slopes should be 2H:1V or flatter, and should be constructed according to the current edition of the Standard Specifications for Road and Bridge Construction.

### **Soil Stabilization**

Based on review of the drilling for the project, it appears durable rock will not be sufficient to construct a roadbed for the entire project. Therefore, other methods of improving the subgrade were considered. Chemical stabilization, in the form of cement, is the preferred method of subgrade improvement. The geotechnical notes and design recommendations below provide guidance for subgrade improvement using chemical stabilization techniques.

Where chemical stabilization is not feasible, construct the top 15 inches of the subgrade using Kentucky Coarse Aggregate No. 2's, 3's, or 23's. The aggregate shall be wrapped in FABRIC-GEOTEXTILE CLASS 1 (Stabilization). For quantity estimation purposes, the 15-inch aggregate subgrade for 500 feet of roadway may be assumed.

The embankment foundation construction may require a working platform where soft and/or saturated soils are encountered. The extent of these problems will depend on time of construction



**R-003-2021**  
**Item No. 02-0899.00**

**June 2, 2021**  
**Page 3 of 5**

and seasonal water table fluctuations. The recommendations below provide for the use of Non-Erodible Granular Embankment underlain with FABRIC-GEOTEXTILE CLASS 2 (Separation) for any such wet areas encountered during construction. For quantity estimation purposes only, a 2-foot embankment working platform for 500 linear feet of roadway may be assumed.

**GEOTECHNICAL RECOMMENDATIONS:**

- 1.) In accordance with Section 206 of the current Standard Specifications, the moisture content of embankment material shall not vary from the optimum moisture content as determined by the current version of KM 64-511 by more than +2 percent or less than -2 percent. This moisture content requirement shall have equal weight with the density requirement when determining the acceptability of embankment construction. Refer to the Family of Curves for moisture/density correlation.
- 2.) All soils, whether from roadway or borrow, may require manipulation to obtain proper moisture content prior to compaction. Direct payment shall not be permitted for rehandling, hauling, stockpiling, and/or manipulating soils.
- 3.) Excavation of surface ditches and channel changes adjacent to embankment areas shall be performed prior to the placement of the adjacent embankments. The material excavated for the channel changes and surface ditches is suitable for embankment construction if dried to proper moisture content in accordance with Section 206 of the current Standard Specifications for Road and Bridge Construction.
- 4.) The Contractor is responsible for conducting any operations necessary to excavate the cut areas to the required typical section. These operations shall be incidental to Roadway Excavation or Embankment-in-Place and no additional compensation shall be made for this work.
- 5.) Some of the soil horizons and slopes on the project are subject to erosion. Necessary procedures in accordance with Sections 212 and 213 of the current Standard Specifications for Road and Bridge Construction shall be followed on construction.
- 6.) Removal of existing structures and other obstructions shall be completed in accordance with Section 203 of the current Standard Specifications for Road and Bridge Construction.
- 7.) Clearing and grubbing of roadway areas shall be completed in accordance with the requirements of Section 202 of the current Standard Specifications for Road and Bridge Construction before embankment placement.
- 8.) Borrow material, if required for subgrade, shall meet the minimum CBR value of 5 and not be classified as a highly plastic clay (CH) according to the Unified Soil Classification System (USCS).
- 9.) The Contractor shall conduct grading operations in such a manner that soil (free of rock larger than 4 inches and shale) from roadway excavation be stockpiled separately or otherwise

**R-003-2021**  
**Item No. 02-0899.00**

**June 2, 2021**  
**Page 4 of 5**

manipulated so that ample quantities are available for a chemically stabilized roadbed meeting the requirements of Section 208 of the current Standard Specifications for Road and Bridge Construction. No direct payment will be allowed for such necessary manipulating as stockpiling, hauling and/or handling the material.

- 10.) Foundation embankment benches shall be constructed in accordance with Standard Drawing RGX-010 at the locations listed below and/or as directed by the Engineer. Contrary to Standard Drawing RGX-010, the typical rise height for benching into soil/earth slopes shall be 4 to 6 feet. Benches in soil/earth slopes shall be constructed one at a time beginning with the lowest bench and each bench shall be backfilled prior to excavation of the next bench.

**Mainline**

Station 446+75 to 451+25, Left  
Station 449+75 to 450+75, Right

- 11.) Perforated pipe for subgrade drainage shall be placed in vertical sags and the upgrade end of bridges in accordance with KY Standard Drawing RDP-005 at the following approximate locations and/or where designated by the Engineer.

**Mainline**

Station 428+79  
Station 446+53

- 12.) Construct an eight (8)-inch cement stabilized soil subgrade for the entire project. Apply the cement in accordance with Section 208 of the Standard Specifications for Road and Bridge Construction. Where soft and/or wet subgrade is encountered during construction, the thickness of the chemically stabilized layer may be increased (up to 16 inches) to also serve as a working platform for subgrade stabilization. These adjustments shall be as directed by the Engineer and may depend on seasonal fluctuations in the water table.
- 13.) In areas where chemical stabilization is not feasible (such as cross-overs, tie-ins, narrow part-width construction, etc.), the subgrade shall be constructed with fifteen (15) inches of Kentucky Coarse Aggregate No. 2, No. 3, or No. 23 sized stone with FABRIC-GEOTEXTILE CLASS 1 (Stabilization) placed on top and bottom. The aggregate shall extend to beneath the curb and gutter. The actual locations will be determined by the Engineer during construction.
- 14.) Where coarse aggregate is used as described in note 13, sections of 4-inch perforated drainpipe (approximately 4 feet long) shall be placed transversely in the bottom of the granular material to provide drainage into the drop inlets. Longitudinal edge drains or other preferred methods may be used in lieu of the transversely placed perforated pipe to drain the rock layer, as directed by the Engineer.
- 15.) In areas where pavement is not to be overlaid, existing bituminous concrete located at a distance less than three feet below the proposed subgrade elevation within the limits of new

**R-003-2021**  
**Item No. 02-0899.00**

**June 2, 2021**  
**Page 5 of 5**

roadway embankments, shall be removed entirely. This shall be performed in compliance with Section 206 of the Standard Specifications for Road and Bridge Construction.

- 16.) As directed by the Engineer, existing bituminous concrete located at a distance greater than three feet below the proposed subgrade elevation within the limits of new roadway embankments, shall be scarified or broken until all cleavage planes are destroyed, or the pavement shall be removed entirely as conditions demand. This shall be performed in compliance with Section 206 of the Standard Specifications for Road and Bridge Construction.
- 17.) The sinkhole/drywell located at the following location shall be capped. The existing concrete drainage structure shall be removed. The contractor shall follow treatment guidance shown in Standard Drawing BGX-018 'Treatment of Open Sinkholes' Condition 2. The backfill material for the sinkhole throat shall be non-erodible granular embankment.

**Mainline**

Station 428+14, 47' Right

- 18.) If other sinkholes are encountered during construction, please contact the Department's Geotechnical Branch for mitigation procedures.

**DESIGN RECOMMENDATIONS:**

- 1.) The project should be designed for a chemically stabilized subgrade. An average Resilient Modulus design of 5,100psi is recommended for the soil beneath the chemically modified subgrade. Chemical treatment for the top 8 inches of subgrade is recommended. The appropriate chemical for treating the soil types encountered on this project is **cement**. It is suggested that 6 percent, by dry mass, be utilized to determine plan quantities, using an average dry density of 100 lbs/ft<sup>3</sup>. The cement shall be applied in accordance with Section 208 of the current edition of Standard Specifications for Road and Bridge Construction.
- 2.) An average soil shrinkage value of two (2) percent is estimated for this project. This value should be applied to the formula for calculating the Apparent Shrinkage as outlined in the Design Manual.

**cc: Division of Design (Plan Processing Section)**  
**TEBM for Pavement Design**  
**Division of Construction**  
**TEBM for Project Delivery & Preservation (District)**  
**TEBM for Project Development (District)**  
**Project Manager (District)**

**Attachments:**

SHEET	ITEM NO.
	02-0899.00
COUNTY OF	CHRISTIAN

# GEOTECHNICAL SYMBOLS

## AASHTO Classification of Soils and Soil-Aggregate Mixtures

General Classification	Granular Materials (35% or less passing 0.075 mm)				Silt-Clay Materials (More than 35% passing 0.075 mm)			
	A-1	A-3	A-2	A-2	A-4	A-5	A-6	A-7
Group Classification	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-6	A-7
50 max	50 max	50 max	50 max	50 max	50 max	50 max	50 max	50 max
30 max (No. 40)	30 max	30 max	30 max	30 max	30 max	30 max	30 max	30 max
15 max (No. 200)	15 max	15 max	15 max	15 max	15 max	15 max	15 max	15 max
Characteristics of Fraction	---	---	---	---	---	---	---	---
Passing 0.425 mm (No. 40)	6 max	N.P.	40 max	40 max	40 max	40 max	40 max	40 max
Liquid Limit	---	---	10 max	10 max	11 min	11 min	11 min	11 min
Plasticity Index	---	---	---	---	---	---	---	---

## Unified Soil Classifications - Continued

MAJOR DIVISIONS	SYMBOL	NAME
GRAVEL AND GRAVELLY SOILS	GP-GC	Poorly graded gravel with clay (or silty clay, or silty clay & sand)
	GP-GM	Poorly graded gravel with silt and sand
	GM-GC	Well graded gravel with clay (or silty clay, or silty clay and sand)
	GM-GM	Well graded gravel with silt and sand
COARSE GRAINED SOILS	GC-GM	Silty clayey gravel
	SW-SC	Well graded sand with clay (or silty clay, or silty clay & gravel)
SAND AND SANDY SOILS	SP-SC	Poorly graded sand with clay (or silty clay, or silty clay and gravel)
	SP-SM	Poorly graded sand with silt and gravel
	SC-SM	Silty clayey sand, silty clayey sand with gravel
UNCLASSIFIED MATERIAL	OH	Organic (High Plasticity)
	OL	Organic (Low Plasticity)

## Unified Soil Classifications

MAJOR DIVISIONS	SYMBOL	NAME
GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.
	GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
	GM	Silty gravels, gravel-sand-silt mixtures.
	GC	Clayey gravels, gravel-sand-clay mixtures.
SAND AND SANDY SOILS	SW	Well graded sands or gravelly sands, little or no fines.
	SP	Poorly graded sands or gravelly sands, little or no fines.
	SM	Silty sands, sand-silt mixtures.
	SC	Clayey sands, sand-clay mixtures.
SILTS AND CLAYS	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
	ML-CL	Silty clay-silty clay with sand and or gravel, sandy silty clay, sandy silty clay with gravel, gravelly silty clay, gravelly silty clay with sand
FINE GRAINED SOILS	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
	CH	Inorganic clays of high plasticity, fat clays.

- AI Activity Index
- LI Liquidity Index
- S+C Silt + Clay (% finer than No. 200 Sieve)
- Rockline Soundings
- Disturbed Sample Boring
- Undisturbed Sample Boring
- Undisturbed Sample Boring & Rock Core
- Rock Core
- Slope Inclination: Installation
- typical applications: Slope Elevation
- Observation Well
- Approximate Footing Elevation
- Water Elevation

- VS (psf) Field Vane Shear Strength
- Thin-walled Tube Sample
- Standard Penetration Test Sample
- Penetration Resistance
- Unconfined Compressive Strength
- Unconsolidated Undrained Triaxial Strength
- Moisture Content
- Rock Quality Designation (Kentucky Method)
- Rock Quality Designation (Standard Method)
- Slake Durability Index (for Slake Test)
- Core Recovery
- Angle of Internal Friction (Total Stress)
- Angle of Internal Friction (Effective Stress)
- Cohesion (Total Stress)
- Cohesion (Effective Stress)
- Total Unit Weight
- Rock Disintegration Zone
- Overburden Bench
- Intermediate Bench
- Refusal
- Refusal Not Encountered

LIMESTONE		TALUS, MINE WASTE, FILL MATERIAL, BOULDERS, & ETC.
SANDSTONE		COAL
DURABLE SHALE (SDI ≥ 95)		DOLOMITE
NONDURABLE SHALE (SDI < 95)		LIMESTONE (ARGILLACEOUS)
GRANULAR EMBANKMENT		SLOPE PROTECTION
STRUCTURE GRANULAR BACKFILL		

COUNTY OF	ITEM NO.	SHEET NO.
CHRISTIAN	02-0999.00	

# GEOTECHNICAL NOTES

- 15.) In areas where pavement is not to be overlaid, existing bituminous concrete located at a distance less than three feet below the proposed subgrade elevation within the limits of new roadway embankments, shall be removed entirely. This shall be performed in compliance with Section 206 of the Standard Specifications for Road and Bridge Construction.
- 16.) As directed by the Engineer, existing bituminous concrete located at a distance greater than three feet below the proposed subgrade elevation within the limits of new roadway embankments, shall be scarified or broken until all cleavage planes are destroyed, or the pavement shall be removed entirely as conditions demand. This shall be performed in compliance with Section 206 of the Standard Specifications for Road and Bridge Construction.
- 17.) The sinkhole/dewell located at the following location shall be capped. The existing concrete drainage structure shall be removed. The contractor shall follow treatment guidance shown in Standard Drawing B03-018 "Treatment of Open Sinkholes" Condition 2. The backfill material for the sinkhole throat shall be non-erodible granular embankment.
- 18.) If other sinkholes are encountered during construction, please contact the Department's Geotechnical Branch for mitigation procedures.

- 1.) In accordance with Section 206 of the current Standard Specifications, the moisture content of embankment material shall not vary from the optimum moisture content as determined by the current version of AM 64-51b by more than +2 percent or less than -2 percent. This moisture content requirement shall have equal weight with the density requirement when determining the acceptability of embankment construction. Refer to the Family of Curves for moisture/density correlation.
- 2.) All soils, whether from roadway or borrow, may require manipulation to obtain proper moisture content prior to compaction. Direct payment shall not be permitted for rehandling, hauling, stockpiling, and/or manipulating soils.
- 3.) Excavation of surface ditches and channel changes adjacent to embankment areas shall be performed in accordance with the current Standard Specifications. The contractor shall be responsible for the placement of suitable embankment material to provide proper moisture content in accordance with Section 206 of the current Standard Specifications for Road and Bridge Construction.
- 4.) The Contractor is responsible for conducting any operations necessary to excavate the cut areas to the required typical section. These operations shall be incidental to Roadway Excavation or Embankment-in-Place and no additional compensation shall be made for this work.
- 5.) Some of the soil horizons and slopes on the project are subject to erosion. Necessary procedures in accordance with Sections 212 and 213 of the current Standard Specifications for Road and Bridge Construction shall be followed on construction.
- 6.) Removal of existing structures and other obstructions shall be completed in accordance with Section 203 of the current Standard Specifications for Road and Bridge Construction.
- 7.) Clearing and grubbing of roadway areas shall be completed in accordance with the requirements of Section 206 of the current Standard Specifications for Road and Bridge Construction before embankment placement.
- 8.) Borrow material, if required, for subgrade, shall meet the minimum CBR value of 5 and not be classified as a highly plastic clay (Ch) according to the Unified Soil Classification System (USCS).
- 9.) The Contractor shall conduct grading operations in such a manner that soil (free of rock larger than 4 inches and shale) from roadway excavation be stockpiled separately or otherwise manipulated so that ample quantities are available for a chemically stabilized roadbed meeting the requirements of Section 208 of the current Standard Specifications for Road and Bridge Construction. No direct payment will be allowed for such necessary manipulating as stockpiling, hauling and/or handling the material.
- 10.) Foundation embankment benches shall be constructed in accordance with Standard Drawing R03-010 at the locations listed below and/or as directed by the Engineer. Contrary to Standard Drawing R03-010, the typical rise height for benching into soil/earth slopes shall be 4 to 6 feet. Benches in soil/earth slopes shall be constructed one at a time beginning with the lowest bench and each bench shall be backfilled prior to excavation of the next bench.

Mainline  
 Station 446+75 to 451+25, Left  
 Station 449+75 to 450+75, Right

- 11.) Perforated pipe for subgrade drainage shall be placed in vertical sags and the upgrade end of bridges in accordance with KY Standard Drawing R09-005 at the following approximate locations and/or where designated by the Engineer.

Mainline  
 Station 428+79  
 Station 446+53

- 12.) Construct on eight (8)-inch cement stabilized soil subgrade for the entire project. Apply the cement in accordance with Section 208 of the Standard Specifications for Road and Bridge Construction. Where soft and/or wet subgrade is encountered during construction, the thickness of the chemically stabilized layer may be increased up to 16 inches to also serve as a working platform for subgrade stabilization. These adjustments shall be as directed by the Engineer and may depend on seasonal fluctuations in the water table.
- 13.) In areas where chemical stabilization is not feasible (such as cross-overs, tie-ins, narrow part-width construction, etc.), the subgrade shall be constructed with fifteen (15) inches of Kentucky Coarse Aggregate No. 2, No. 3, or No. 23 sized stone with FABRIC-GEOTEXTILE CLASS (stabilization) placed on top and bottom. The aggregate shall extend to beneath the curb and gutter. The actual locations will be determined by the Engineer during construction.
- 14.) Where coarse aggregate is used as described in note 13, sections of 4-inch perforated drainage pipe (approximately 4 feet long) shall be placed transversely in the bottom of the granular material to provide drainage into the drop inlets. Longitudinal edge drains or other preferred methods may be used in lieu of the transversely placed perforated pipe to drain the rock layer, as directed by the Engineer.

DESIGNED BY:	
DATE SUBMITTED:	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b> COUNTY OF <b>CHRISTIAN</b>	
PROJECT NUMBERS:	

GEOTECHNICAL NOTES

COUNTY OF CHRISTIAN  
ITEM NO. 02-0899.00  
SHEET

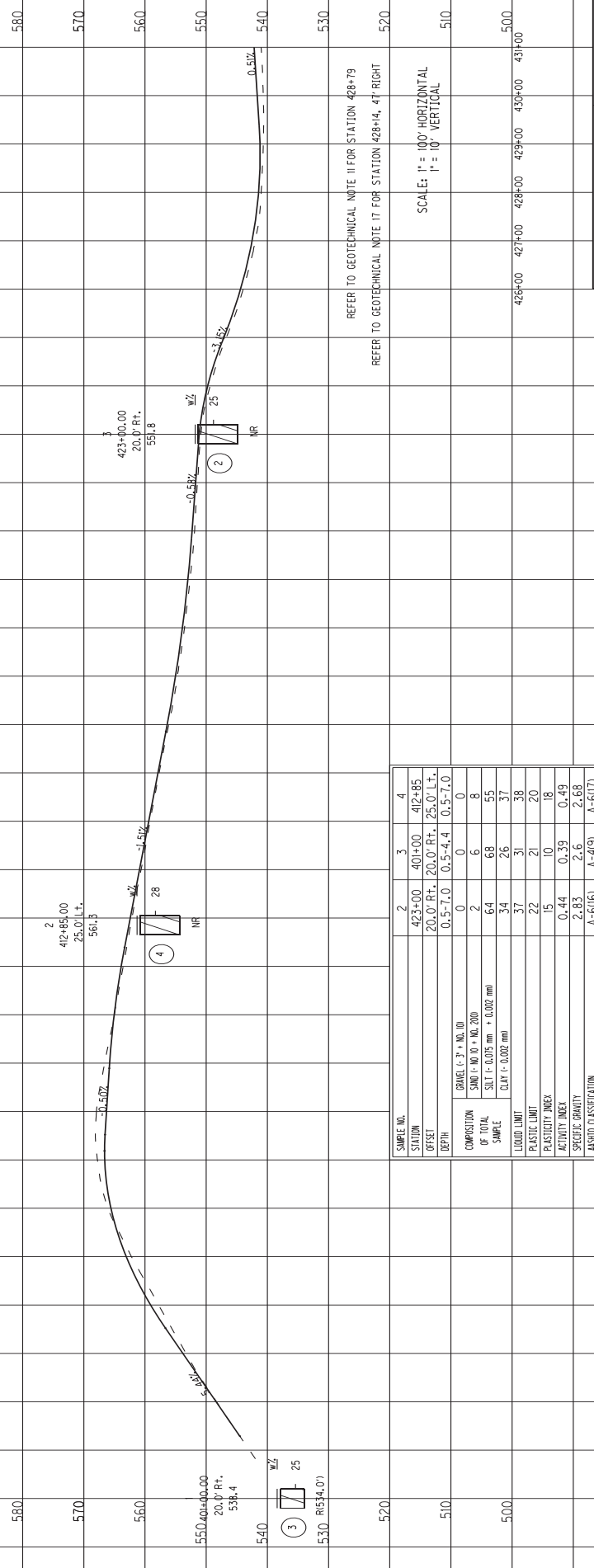
NOTICE - Without regard to the materials encountered, all roadway and drainage excavation shall be unclassified and shall be designated as Roadway Excavation. It shall be distinctly understood that any reference to rock, earth or any other materials on the plans or cross sections shall not be construed as a warranty or representation or an indication of classified excavation or the quantity of either rock, earth or any other material involved. The bidder must draw his own conclusions as to the conditions to be encountered. The Department does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation for materials encountered are not in accordance with the classification shown.

Field Drilling and Sampling were performed in April and May 2021. Detailed data and interpretation of subsurface conditions encountered in individual borings are shown on the soil profile. Soil and rock strata descriptions and indicated boundaries are based on engineering interpretation of available subsurface information obtained at selected locations, and may not necessarily reflect the actual variation in subsurface conditions. The observed water levels and/or subsurface conditions indicated on the soil profile are as recorded at the time of exploration. These water levels and/or subsurface conditions may vary considerably with time, according to the prevailing climate, rainfall or other factors and are otherwise dependent on the duration of and methods used in the exploration program. Selected rock cores and all applicable drilllogs, are stored at the Division of Structural Design in Frankfort and are available for inspection request. Contact the Division of Structural Design, Geotechnical Branch for availability information and to schedule an inspection.

ADDITIONAL ROCKLINE SOUNDINGS  
SINKHOLE (ORWELL) AT STA 428+14, 47' RT

HOLE	STATION	OFFSET	DEPTH TO REFUSAL
SINK 1	428+10	54' RT	10.5'
SINK 2	428+14	49' RT	9.8'

\*NOTE: STATIONING/OFFSET IS APPROXIMATE



SAMPLE NO.	2	3	4
STATION	423+00	401+00	412+85
OFFSET	20.0' RT.	20.0' RT.	25.0' LT.
DEPTH	0.5-7.0	0.5-4.4	0.5-7.0
COMPOSITION	GRAVEL (G-3 + NO. 10)		
OF TOTAL	SAND (NO. 10 - NO. 200)		
SAMPLE	SILT (0.0075 mm - 0.002 mm)		
	CLAY (0.002 mm)		
LIQUID LIMIT	37	31	38
PLASTIC LIMIT	22	21	20
ACTIVITY INDEX	0.44	0.39	0.49
SPECIFIC GRAVITY	2.83	2.6	2.68
UNIFIED CLASSIFICATION	A-6(16)	A-4(9)	A-6(17)
CL	CL	CL	CL
MAXIMUM BEARING RATIO	4	4	4
MAXIMUM DRY DENSITY (pcf)	107	107	103
OPTIMUM MOISTURE (%)	17	15	19
RESILIENT MODULUS (psi)	0	0	0
	4,100	5,300	6,400

DESIGNED BY:  
DATE SUBMITTED:

Commonwealth of Kentucky  
DEPARTMENT OF HIGHWAYS  
COUNTY OF CHRISTIAN

PROJECT NUMBERS:

STA 402+28.61 TO 431+00  
SOIL PROFILE, US 68









# *N O T I C E*

---

**DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS 404  
NATIONWIDE 14 PERMIT AUTHORIZATION  
KENTUCKY DIVISION OF WATER 401 WQC**

**5-2-2023**

---

**PROJECT:** Christian County, Item No. 2-899  
US 68 – Address congestion and mobility

---

The Section 404 & 401 activities for this project have been previously permitted under the authority of the Department of the Army Nationwide Permit No. 14 “Linear Transportation Projects” & Division of Water General Water Quality Certification. In order for these authorizations to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Permit & General WQC in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

Station 450+80

Extend a 17’x10.5’ arch culvert on Sanderson Creek, a tributary of North Fork Little River. The **perennial** stream will have impacts below the normal high-water mark. The estimated area of impact is **60 linear feet** and **0.02** acres.

This project involves work near and/or within Jurisdictional Waters of the United States as defined by the United States Army Corps of Engineers and therefore requires a Nationwide 14 General 404 Permit. The Division of Water certified this General Permit with several conditions (See attached). One that should be brought to your attention is regarding the use of heavy equipment in the stream channel. If there is need to cross the stream channel with heavy equipment or conduct work from within the stream channel a working platform or temporary crossing is authorized. This should be constructed with clean rock and sufficient pipe to allow stream flow to continue unimpeded (see attached typical drawing).

In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Nationwide Approval in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to

commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Division of Environmental Analysis. If such changes necessitate further permitting then the contractor will be responsible for applying to the Army Corps of Engineers and the Kentucky Division of Water (KDOW). A copy of any request to the Corps of Engineers or the KDOW to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.



ANDY BESHEAR  
GOVERNOR

REBECCA W. GOODMAN  
SECRETARY

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

ANTHONY R. HATTON  
COMMISSIONER

300 SOWER BOULEVARD  
FRANKFORT, KENTUCKY 40601

## **General Certification--Nationwide Permit # 14 Linear Transportation Projects**

This General Certification is issued **December 18, 2020**, in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33 U.S.C. §1341), as well as Kentucky Statute KRS 224.16-050.

For this General Certification and all General Certifications of Nationwide Permits (NWP), the term 'surface water' is defined pursuant to 401 KAR Chapter 10, Section 1(72): Surface Waters means 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 to be surface waters of the Commonwealth.

As required by 40 CFR Part 121 – State Certification of Activities Requiring a Federal License or Permit, all conditions include a statement explaining why the condition is necessary to assure that any discharge authorized under the general permit will comply with water quality requirements and a citation to federal, state, or tribal law that authorizes the condition. The statements and citations are included with each condition. The statements are written entirely at the end of the certification under the section *Statements of Necessity*.

Agricultural operations, as defined by KRS 224.71-100(1) conducting activities pursuant to KRS 224.71-100 (3), (4), (5), (6), or 10 are deemed to have certification if they are implementing an Agriculture Water Quality Plan pursuant to KRS 224.71-145.

For all other operations, the Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 306 and 307 of the CWA, will not be violated for the activity covered under NATIONWIDE PERMIT 14, namely Linear Transportation Projects, provided that the conditions in this certification are met. Activities that do not meet the conditions of this General Certification require an Individual Section 401 Water Quality Certification.

**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 2**

1. Activities occurring within surface waters assessed by the Kentucky Division of Water as designated Outstanding State Resource Waters, National Resource Waters, Cold Water Aquatic Habitat, Exceptional Waters, or identified as candidate Outstanding State Resource Waters or candidate Exceptional Waters are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(1), Section 1(2), & Section 1(3); and 401 KAR 10:031, Section 4(2) & Section 8]
2. Activities impacting surface waters assessed by the Kentucky Division of Water as impaired for warm water or cold water aquatic habitat where the parameter or source is related to habitat\* are not authorized under this General Certification and require an Individual Certification. [Statement B and citations KRS 224.70-110 and 401 KAR 10:031, Section 2 & Section 4]  
  
\*These include waters impaired by the parameter 'habitat assessment', 'combined biota/habitat bioassessment' or any parameter from the parameter group 'habitat alterations, and/or waters where the parameter identified as a cause of impairment has a source from the source group 'habitat impacts'.
3. Activities impacting surface waters assessed by the Kentucky Division of Water as full support for warm water or cold water aquatic habitat are not authorized under this General Certification and require an Individual Certification. [Statements A and B and citations KRS 224.70-110 and 401 KAR 10:031, Section 2 & Section 4]
4. The activity will not occur within surface waters identified as perpetually-protected mitigation sites (e.g., deed restriction or conservation easement). [Statement C and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3); and 40 C.F.R. 230.97]
5. Activities with cumulative temporary and permanent impacts greater than 1/2 acre of wetland or 300 linear feet of surface waters are not authorized under this General Certification and require an Individual Certification. This General Certification shall not apply to projects where multiple Nationwide Permits are issued for individual crossings which are part of a single, larger transportation projects. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
6. For complete linear transportation projects, all impacts shall not exceed a cumulative length of 500 linear feet within each Hydrologic Unit Code (HUC) 14. [401 KAR 10:030 and 401 KAR 10:031]
7. Stream realignment greater than 100 feet is not authorized under this General Certification and require and Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 3**

8. Surface water impacts covered under this General Certification and undertaken by those persons defined as an agricultural operation under the Agricultural Water Quality Act must be completed in compliance with the Kentucky Agricultural Water Quality Plan (KAWQP). [Statements A and F and citations KRS 224.71-145(1), 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
9. Any crossings must be constructed in a manner that does not impede natural water flow. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
10. The use of creek rock for bank stabilization; grouted rip-rap; unformed, poured grout; unformed, poured concrete; poured asphalt; or asphalt pieces is not authorized under this General Certification and requires an Individual Certification. Poured concrete or grout will be authorized under this General Certification when contained by tightly sealed forms or cells. Equipment shall not discharge waste washwater into surface waters at any time without adequate wastewater treatments. [Statement A and citations 401 KAR 10:030, Section 1(3)(b) & 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
11. New stormwater detention/ retention basins constructed in surface waters or modifications to stormwater detention/ retention basins resulting in the reduction in reach or that cause impairment of flow of surface waters are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
12. Erosion and sedimentation pollution control plans and Best Management Practices (BMPs) 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. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
13. 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, 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, 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. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

**General Certification--Nationwide Permit # 14**  
**Linear Transportation Projects**  
**Page 4**

14. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering surface waters. [Statements A and D and citations. [KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
15. Removal of riparian vegetation shall be limited to that necessary for equipment access. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
16. To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
17. Heavy equipment (e.g., bulldozers, backhoes, and draglines), 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 shall be performed in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
18. Any fill shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If 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. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
19. If domestic water supply intakes are located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when such work will be done prior to construction. [Statement E and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
20. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling (800) 928-2380. [Statement A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
21. The Kentucky Division of Water requires submission of a formal application for any federal applicant that is not required to submit a Preconstruction Notification that would typically be required of any non-federal applicant. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

**General Certification--Nationwide Permit # 14  
Linear Transportation Projects  
Page 5**

22. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project that has been determined to likely have a significant adverse effect upon water quality or degrade surface waters so that existing uses of the water body or downstream waters are precluded. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
  
23. If the final issued General Permit for Nationwide Permit 14 Linear Transportation Projects changes significantly, the Division of Water may opt to deny certification for this permit. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

Statements of Necessity:

- A. This condition is necessary to protect waters categorized under the anti-degradation policy to protect the designated and existing uses and to maintain the associated water quality criteria necessary to protect these water resources.
  
- B. This condition is necessary to protect existing uses and the level of water quality necessary to protect those existing uses shall be assured in impaired water.
  
- C. This condition is necessary for long-term protection of compensatory mitigation sites.
  
- D. This condition is necessary to provide for the prevention, abatement, and control of all water pollution and to conserve water resources for legitimate uses, safeguard from pollution the uncontaminated waters, prevent the creation of any new pollution, and abate any existing pollution.
  
- E. This condition is necessary to protect domestic water supply use.
  
- F. This condition is necessary to evaluate, develop, and improve best-management practices in conservation plans, compliance plans, and forest stewardship management plans; establish statewide and regional agriculture water quality plans; and otherwise promote soil and water conservation activities that protect surface waters from the adverse impacts of agriculture operations within the Commonwealth.

**Violation of Kentucky state water quality standards may result in civil penalties and remediation actions.**

For assistance contact the Kentucky Division of Water, Water Quality Certification Section by email ([401WQC@ky.gov](mailto:401WQC@ky.gov)) or by phone (502)-564-3410.



# 2021 Nationwide Permit Summary

US Army Corps  
of Engineers  
Louisville District ®

Issued: February 25, 2022  
Expires: March 14, 2026

## No. 14. Linear Transportation Projects

(NWP Final Rule, 86 FR 73522)

Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, driveways, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize

non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge of dredged or fill material in a special aquatic site, including wetlands. (See general condition 32.) (Authorities: Sections 10 and 404).

**Note 1:** For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

**Note 2:** Some discharges of dredged or fill material for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

**Note 3:** For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The

district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

### Nationwide Permit General Conditions

**Note:** To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United



States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her 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.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other

fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct

management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly 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 (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate

documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have "no effect" on listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7

consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district

engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The

district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential

to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must

include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands

adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more

than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district

engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure

timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in

the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not

authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

\_\_\_\_\_  
(Transferee)

\_\_\_\_\_  
(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an

NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the

permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed activity;
- (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
- (4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any

other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many

wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

*(c) Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

*(d) Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.



(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

#### **D. District Engineer's Decision**

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the

NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not

practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no

work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

#### **E. Further Information**

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

#### **F. Nationwide Permit Definitions**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of

water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not

a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For

the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of

the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal

interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a “water of the United States.” If a wetland is adjacent to a waterbody determined to be a water of the United

States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

## **2021 KENTUCKY REGIONAL GENERAL CONDITIONS**

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).

Notifications for all Nationwide Permits (NWP) shall be in accordance with General Condition No. 32.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWP listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWP for impacts to these waters.

NWP 3 (Maintenance)

NWP 4 (Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities)

NWP 5 (Scientific Measurement Devices)

NWP 6 (Survey Activities)

NWP 12 (Oil or Natural Gas Pipeline Activities)

NWP 13 (Bank Stabilization)

NWP 14 (Linear Transportation Projects)

NWP 15 (U.S. Coast Guard Approved Bridges)

NWP 16 (Return Water from Upland Contained Disposal Areas)

NWP 17 (Hydropower Projects)

NWP 18 (Minor Discharges)

NWP 19 (Minor Dredging)

NWP 20 (Response Operations for Oil or Hazardous Substances)

NWP 22 (Removal of Vessels)

NWP 23 (Approved Categorical Exclusions)

NWP 25 (Structural Discharges)

NWP 30 (Moist Soil Management for Wildlife)

NWP 32 (Completed Enforcement Actions)

NWP 33 (Temporary Construction, Access, and Dewatering)

NWP 36 (Boat Ramps)

NWP 41 (Reshaping Existing Drainage Ditches)

NWP 51 (Land-Based Renewable Energy Generation Facilities)

NWP 57 (Electric Utility Line and Telecommunications Activities)

NWP 58 (Utility Line Activities for Water and Other Substances)

2. In addition to the notification and agency coordination requirements in the NWP, for impacts greater than 0.25 acres in all "waters of the U.S." for the NWP listed below, a PCN will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWP:

NWP 3 (Maintenance)  
NWP 14 (Linear Transportation Projects)

3. Nationwide Permit No. 14 – Linear Transportation Projects.

- (a) New road alignments or realignments are limited to a permanent loss of 500 linear feet of intermittent or perennial stream length or the stream bed acreages listed in the table below at each crossing. Road crossings with permanent losses greater than 500 linear feet of intermittent or perennial stream or the stream bed acreages listed in the table below associated with new alignments or realignments will be evaluated as an individual permit (i.e., a Letter of Permission or Standard Permit).

Table of Acreages at Varying Stream Widths for 500 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 500 Linear Feet of Stream
1	0.011
2	0.023
3	0.034
4	0.046
5	0.057
6	0.069
7	0.080
8	0.092
9	0.103
10	0.115

- (b) In addition to the notification requirements contained in NWP 14, the permittee must submit a PCN to the district engineer prior to commencing the activity for the permanent loss of greater than 300 linear feet of stream bed or the stream bed acreages listed in the table below. (See General Condition 32 and the definition of "loss of waters of the United States" in the Nationwide Permits for further information.)

Table of Acreages at Varying Stream Widths for 300 Linear Feet of Impact	
Stream Width (Feet)	Acres of Stream at Varying Widths for 300 Linear Feet of Stream
1	0.007
2	0.014
3	0.021
4	0.028
5	0.034
6	0.041
7	0.048
8	0.055
9	0.062
10	0.069

4. Notification in accordance with General Condition 32 is required to the Corps for all activities located in the following Section 10 waterways, to include the portion of their tributaries below the Ordinary High Water Mark or navigation pool, or otherwise subject to inundation, by the Section 10 waterway:

- Mississippi River
- Ohio River
- Licking River
- Kentucky River
- Salt River
- Green River
- Cumberland River
- Tennessee River
- Big Sandy River (from mouth to Louisa, KY)

5. All applications and requests should be submitted electronically. To submit applications or other requests electronically, all documents should be saved as a PDF document, and then submitted as an attachment in an email to the following email address:

[CELRL.Door.To.The.Corps@usace.army.mil](mailto:CELRL.Door.To.The.Corps@usace.army.mil)

Your email should include the following:

- a) Subject Line with the name of the applicant, type of request, and location (County and State). Example: RE: Doe, John, DA Permit Application, Jefferson County, KY
- b) Brief description of the request and contact information (phone number, mailing address, and email address) for the applicant and/or their agent.

c) Project Location: Address and Latitude/Longitude in decimal degrees (e.g. 42.927883, -88.362576).

All forms that require signature must be digitally signed or signed manually, scanned and then sent electronically.

Electronic documents must have sufficient resolution to show project details. In order to have the highest quality documents, the original digital documents should be converted to PDF rather than providing scanned copies of original documents.

The electronic application and attached documents must not exceed 10 megabytes (10MB).

6. For all activities, the applicant shall review the U.S. Fish and Wildlife Service's IPaC website: <http://ecos.fws.gov/ipac> to determine if the activity might affect threatened and/or endangered species or designated critical habitat. If federally-listed species or designated critical habitat are identified, a PCN in accordance with General Condition 18 and 32 would be triggered and the official species list generated from the IPaC website must be submitted with the PCN.

Further information:

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: <http://eppcapp.ky.gov/spwaters/>

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: <http://www.fws.gov/frankfort/EndangeredSpecies.html>

Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 32 in the Federal Register (See volume 86, date January 13, 2021, pp 2867-2874 for the text of Section C, General Conditions).



**COORDINATING RESOURCE AGENCIES**

Chief, Wetlands Regulatory Section  
U.S. Environmental Protection Agency  
Region IV  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303

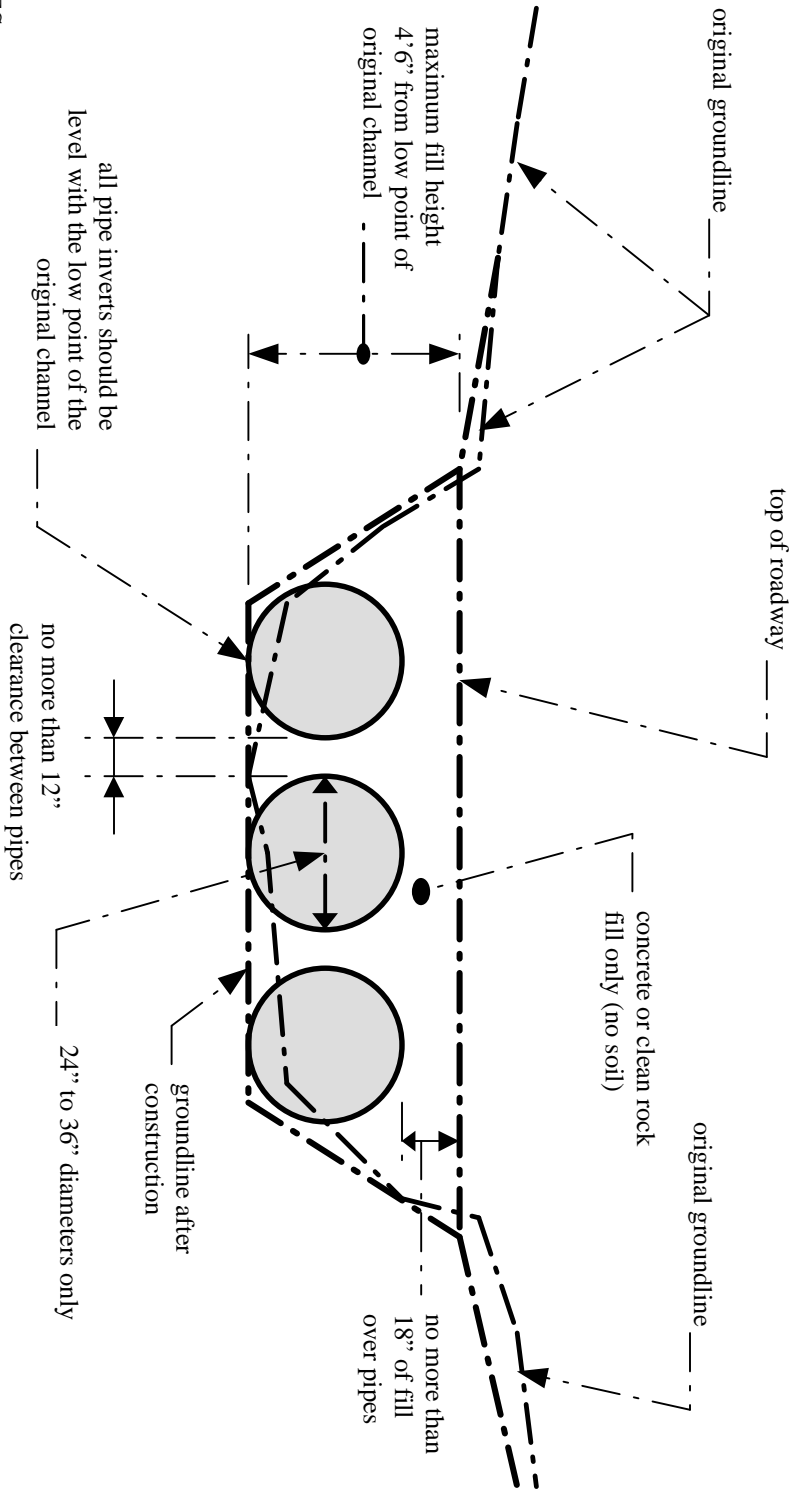
Supervisor  
U.S. Fish & Wildlife Service  
JC Watts Federal Building, Room 265  
330 West Broadway  
Frankfort, Kentucky 40601

Supervisor  
401 Water Quality Certification  
Kentucky Division of Water  
300 Sower Boulevard, 3<sup>rd</sup> Floor  
Frankfort, KY 40601

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

Executive Director and State Historic Preservation Officer  
Kentucky Heritage Council  
410 High Street  
Frankfort, KY 40601

### ATTACHMENT 1



#### NOTES:

1. This is a conceptual drawing. The number and size of pipes and other details will vary depending on specific site conditions.
2. The pipes and backfill must be contained within the stream channel as shown above. During the construction of the approaches and access roadway across the floodplain, unstable and unconsolidated materials unsuitable for roadways may be excavated and replaced with riprap, crushed stone, or other stable road construction materials. This may only be done, however, with the following provisions: (1) the disposal of excess, unconsolidated materials thus excavated must be outside of the floodplain and (2) the finished surface of the completed road may be no more than three inches (3") above the pre-construction surface of the floodplain at any point beyond the top of banks.

## LOW-WATER CROSSING

STANDARD DRAWING  
Not to Scale

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**

**Address congestion and mobility of US 68 from  
KY 91 to KY 1007 in Hopkinsville (MP 9.221 to MP  
10.137) in Christian County (1)**

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

## 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 congestion and mobility of US 68 from KY 91 to KY 1007 in Hopkinsville (MP 9.221 to MP 10.137) in Christian County(1)
6. Latitude/Longitude (project mid-point) 36.876666, -87.505000 (1)
7. County (project mid-point) Christian (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)  
ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 to KY 1007 IN HOPKINSVILLE (MP 9.221 to MP 10.137) IN CHRISTIAN COUNTY (1)
2. Order of major soil disturbing activities (2) and (3)
3. Projected volume of material to be moved 22057 CY (1)
4. Estimate of total project area (acres) 15.58 (1)
5. Estimate of area to be disturbed (acres) 15.58 (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 North Fork Little 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.
12. Potential sources of pollutants:

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

The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

### **B. Sediment and Erosion Control Measures:**

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

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

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

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

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

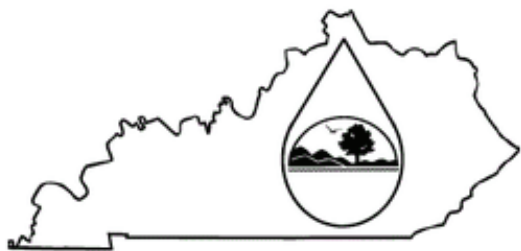
401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

- (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.)









## KENTUCKY POLLUTION DISCHARGE

### ELIMINATION SYSTEM (KPDES)

Notice of Intent (NOI) for coverage of Storm Water Discharge  
Associated with Construction Activities Under the KPDES Storm  
Water General Permit KYR100000

[Click here for Instructions](#)

[Click here to obtain information and a copy of the KPDES General Permit.](#)

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

Reason for Submittal:(\*)

Application for New Permit Coverage

Agency Interest ID:

Agency Interest ID

Permit Number:(✓)

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:(✓)

Kentucky Transportation Cabinet - District 2

First Name:(✓)

Deneatra

M.I.:

MI

Last Name:(✓)

Henderson

Mailing Address:(\*)

1840 N. Main Street

City:(\*)

Madisonville

State:(\*)

Kentucky

Zip:(\*)

42431

eMail Address:(\*)

deneatra.henderson@ky.gov

Business Phone:(\*)

270-824-7080

Alternate Phone:

270-791-4396

#### SECTION II – GENERAL SITE LOCATION INFORMATION

Project Name:(\*)

Christian – US 68 from KY 91 to KY 1007

Status of Owner/Operator(\*)

State Government

SIC Code(\*)

1611 Highway and Street Constructi

Company Name:(✓)

Kentucky Transportation Cabinet - District 2

First Name:(✓)

Deneatra

M.I.:

MI

Last Name:(✓)

Henderson

Site Physical Address:(\*)

US 68 from KY 91 to KY 1007 (US 68 MP 9.2 to MP 10.15)

City:(\*)

Hopkinsville

State:(\*)

Kentucky

Zip:(\*)

42240

County:(\*)

Christian

Latitude(decimal degrees)(\*)[DMS to DD Converter](#)

36.8771

Longitude(decimal degrees)(\*)

-87.5061

SECTION III – SPECIFIC SITE ACTIVITY INFORMATION 

Project Description: (\*)

ADDRESS CONGESTION AND MOBILITY OF US 68 FROM KY 91 TO KY 1007 IN HOPKINSVILLE.

a. For single projects provide the following information

Total Number of Acres in Project:(√)

15.58

Total Number of Acres Disturbed:(√)

15.58

Anticipated Start Date:(√)

Anticipated Completion Date:(√)

b. For common plans of development provide the following information

Total Number of Acres in Project:(√)

# Acre(s)

Total Number of Acres Disturbed:(√)

# Acre(s)

Number of individual lots in development, if applicable:(√)

# lot(s)

Number of lots in development:(√)

# lot(s)

Total acreage of lots intended to be developed:(√)

Project Acres

Number of acres intended to be disturbed at any one time:(√)


Disturbed Acres

Anticipated Start Date:(√)

Anticipated Completion Date:(√)

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

Company Name
+

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

Discharge Point(s):

	Unnamed Tributary?	Latitude	Longitude	Receiving Water Name	
1	Yes	36.872131	-87.501072	North Fork Little River	Delete
2	Yes	36.879517	-87.513778	North Fork Little River	Delete
+					

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

Name of MS4:

Date of application/notification to the MS4 for construction site permit coverage:

Date

Discharge Point(s): (\*)

Latitude	Longitude
+	

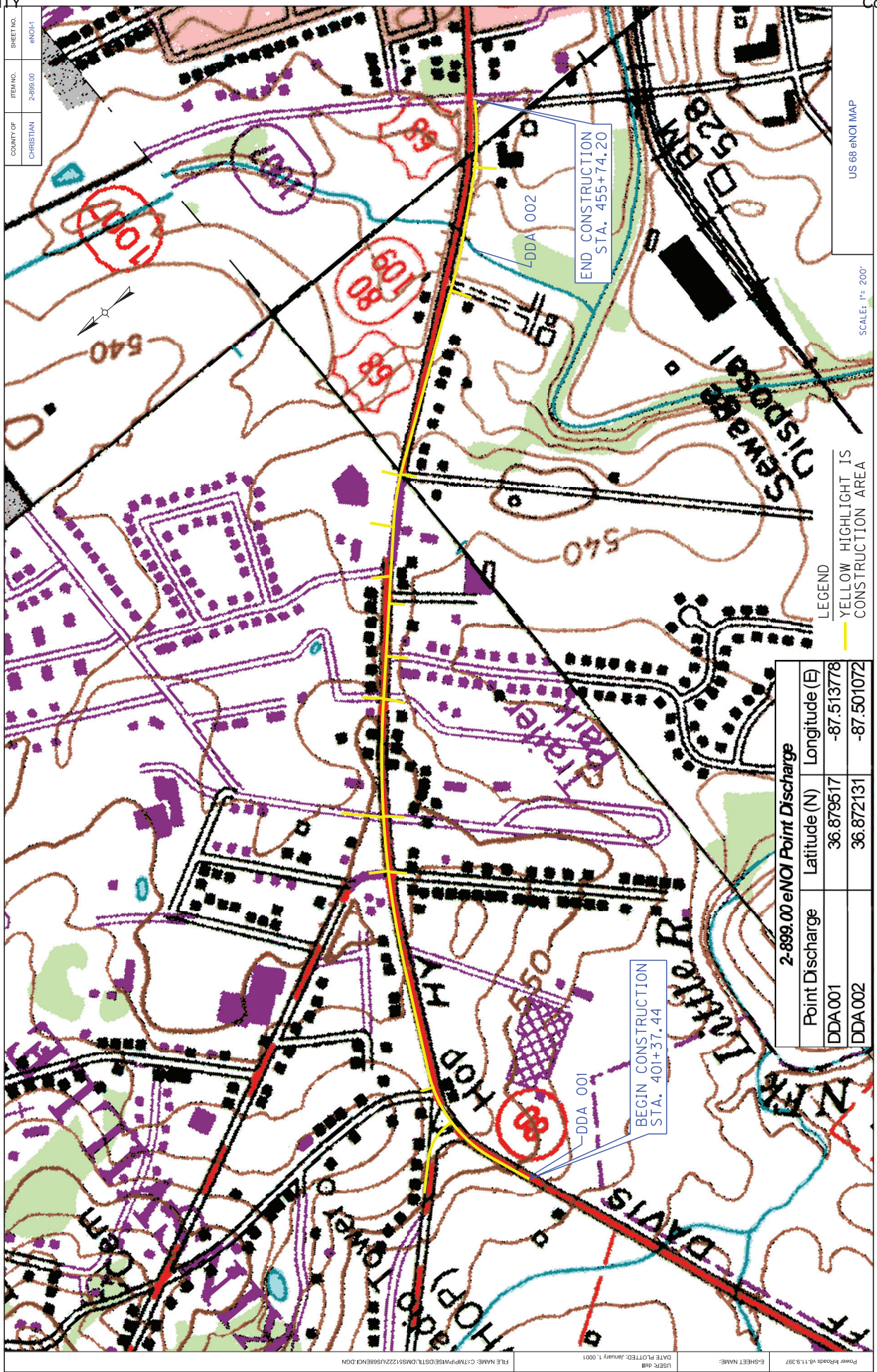
SECTION VI – WILL THE PROJECT REQUIRE CONSTRUCTION ACTIVITIES IN A WATER BODY OR THE RIPARIAN ZONE?	
Will the project require construction activities in a water body or the riparian zone?:(*)	<input type="text" value="Yes"/>
If Yes, describe scope of activity: (✓)	<input type="text" value="Extend a 17'x10.5' arch culvert on Sanderson Creek, a tributary of North Fork Little"/>
Is a Clean Water Act 404 permit required?:(*)	<input type="text" value="Yes"/>
Is a Clean Water Act 401 Water Quality Certification required?:(*)	<input type="text" value="Yes"/>

SECTION VII – NOI PREPARER INFORMATION			
First Name:(*) <input type="text" value="First Name"/>	M.I.: <input type="text" value="MI"/>	Last Name:(*) <input type="text" value="Last Name"/>	Company Name:(*) <input type="text" value="Company Name"/>
Mailing Address:(*) <input type="text" value="Mailing Address"/>	City:(*) <input type="text" value="City"/>	State:(*) <input type="text" value=""/>	Zip:(*) <input type="text" value="Zip"/>
eMail Address:(*) <input type="text" value="eMail Address"/>	Business Phone:(*) <input type="text" value="Phone"/>	Alternate Phone: <input type="text" value="Phone"/>	

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

SECTION IX – CERTIFICATION			
<p>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.</p>			
Signature:(*) <input type="text" value="Signature"/>	Title:(*) <input type="text" value="Title"/>		
First Name:(*) <input type="text" value="First Name"/>	M.I.: <input type="text" value="MI"/>	Last Name:(*) <input type="text" value="Last Name"/>	
eMail Address:(*) <input type="text" value="eMail Address"/>	Business Phone:(*) <input type="text" value="Phone"/>	Alternate Phone: <input type="text" value="Phone"/>	Signature Date:(*) <input type="text" value="Date"/>





SHEET NO.	ITEM NO.	COUNTY OF
60434	2-899.00	CHRISTIAN

US 68 eNOI MAP

SCALE: 1" = 200'

LEGEND  
 YELLOW HIGHLIGHT IS  
 CONSTRUCTION AREA

2-899.00 eNOI Point Discharge		
Point Discharge	Latitude (N)	Longitude (E)
DDA.001	36.879517	-87.513778
DDA.002	36.872131	-87.501072

USER: dsl  
 DATE PLOTTED: January 1, 2001  
 FILE NAME: C:\TEMP\SEOSTL\DM55122\US68C.DGN

# GUARDRAIL DELIVERY VERIFICATION SHEET

Contract Id: \_\_\_\_\_

Contractor: \_\_\_\_\_

Section Engineer: \_\_\_\_\_

District & County: \_\_\_\_\_

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

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

Printed Section Engineer's Representative \_\_\_\_\_ & Date \_\_\_\_\_

Signature Section Engineer's Representative \_\_\_\_\_ & Date \_\_\_\_\_

Printed Contractor's Representative \_\_\_\_\_ & Date \_\_\_\_\_

Signature Contractor's Representative \_\_\_\_\_ & Date \_\_\_\_\_

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

Printed Bailey Bridge Yard Representative \_\_\_\_\_ & Date \_\_\_\_\_

Signature Bailey Bridge Yard Representative \_\_\_\_\_ & Date \_\_\_\_\_

Printed Contractor's Representative \_\_\_\_\_ & Date \_\_\_\_\_

Signature Contractor's Representative \_\_\_\_\_ & Date \_\_\_\_\_

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

Completed Form Submitted to Section Engineer Date: \_\_\_\_\_ By: \_\_\_\_\_

**PART II**  
**SPECIFICATIONS AND STANDARD DRAWINGS**

### **STANDARD SPECIFICATIONS**

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2019* and *Standard Drawings, Edition of 2020*.

### **SUPPLEMENTAL SPECIFICATIONS**

The contractor shall use the Supplemental Specifications that are effective at the time of letting. The Supplemental Specifications can be found at the following link:  
<http://transportation.ky.gov/Construction/Pages/Kentucky-Standard-Specifications.aspx>

### **SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS**

This Special Note will apply when indicated on the plans or in the proposal.

**1.0 DESCRIPTION.** Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer. Remove and retain possession of variable message signs when they are no longer needed on the project.

#### **2.0 MATERIALS.**

**2.1 General.** Use LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

**2.2 Sign and Controls.** All signs must:

- 1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
- 2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
- 3) Provide a controller consisting of:
  - a) Keyboard or keypad.
  - b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
  - c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
  - d) Logic circuitry to control the sequence of messages and flash rate.
- 4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
- 5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
- 6) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
- 7) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
- 8) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
- 9) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
- 10) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.
- 11) Provide a photocell control to provide automatic dimming.



- 12) Allow an on-off flashing sequence at an adjustable rate.
- 13) Provide a sight to aim the message.
- 14) Provide a LED display color of approximately 590 nm amber.
- 15) Provide a controller that is password protected.
- 16) Provide a security device that prevents unauthorized individuals from accessing the controller.
- 17) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

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

\*Insert numerals as directed by the Engineer.  
Add other messages during the project when required by the Engineer.

**2.3 Power.**

- 1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide direct wiring for operation of the sign or arrow board from an external power source to provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.

**3.0 CONSTRUCTION.** Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel.

When the sign is not needed, move it outside the clear zone or where the Engineer directs. Variable Message Signs are the property of the Contractor and shall be removed from the project when no longer needed. The Department will not assume ownership of these signs.

**4.0 MEASUREMENT.** The final quantity of Variable Message Sign will be

11

the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

**5.0 PAYMENT.** The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

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

Effective June 15, 2012

## SPECIAL NOTE FOR BARCODE LABEL ON PERMANENT SIGNS

**1.0 DESCRIPTION.** Install barcode label on sheeting signs. Section references herein are to the Department’s Standard Specifications for Road and Bridge Construction, current edition.

**2.0 MATERIALS.** The Department will provide the Contractor with a 2 inch x 1 inch foil barcode label for each permanent sheeting sign. A unique number will be assigned to each barcode label.

The Contractor shall contact the Operations and Pavement Management Branch in the Division of Maintenance at (502) 564-4556 to obtain the barcode labels.

**3.0 CONSTRUCTION.** Apply foil barcode label in the lower right quadrant of the sign back. Signs where the bottom edge is not parallel to the ground, the lowest corner of the sign shall serve as the location to place the barcode label. The barcode label shall be placed no less than one-inch and no more than three inches from any edge of the sign. The barcode must be placed so that the sign post does not cover the barcode label.

Barcodes shall be applied in an indoor setting with a minimum air temperature of 50°F or higher. Prior to application of the barcode label, the back of the sign must be clean and free of dust, oil, etc. If the sign is not clean, an alcohol swab shall be used to clean the area. The area must be allowed to dry prior to placement of the barcode label.

Data for each sign shall include the barcode number, MUTCD reference number, sheeting manufacturer, sheeting type, manufacture date, color of primary reflective surface, installation date, latitude and longitude using the North American Datum of 1983 (NAD83) or the State Plane Coordinates using an x and y ordinate of the installed location.

Data should be provided electronically on the TC 71-229 Sign Details Information and TC 71-230 Sign Assembly Information forms. The Contractor may choose to present the data in a different format provided that the information submitted to the Department is equivalent to the information required on the Department TC forms. The forms must be submitted in electronic format regardless of which type of form is used. The Department will not accept PDF or handwritten forms. These completed forms must be submitted to the Department prior to final inspection of the signs. The Department will not issue formal acceptance for the project until the TC 71-229 and TC-230 electronic forms are completed for all signs and sign assemblies on the project.

**4.0 MEASUREMENT.** The Department will measure all work required for the installation of the barcode label and all work associated with completion and submission of the sign inventory data (TC 71-229 and TC 71-230).

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

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

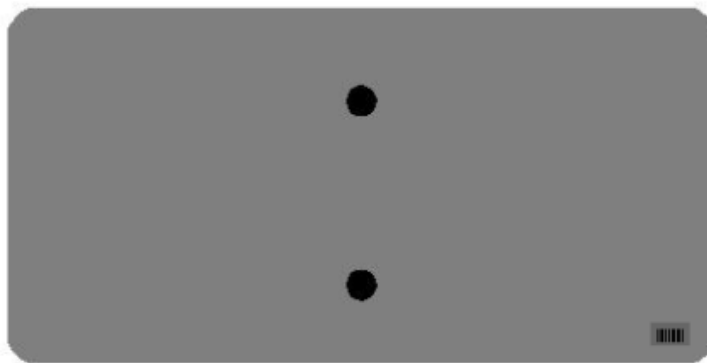
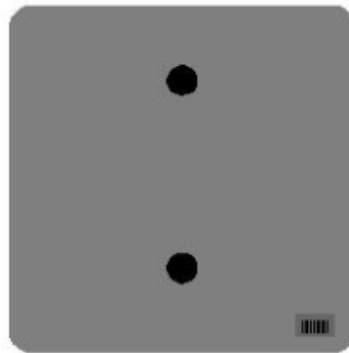
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24631EC	Barcode Sign Inventory	Each

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

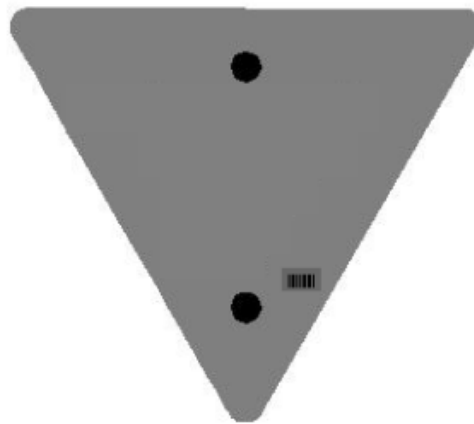
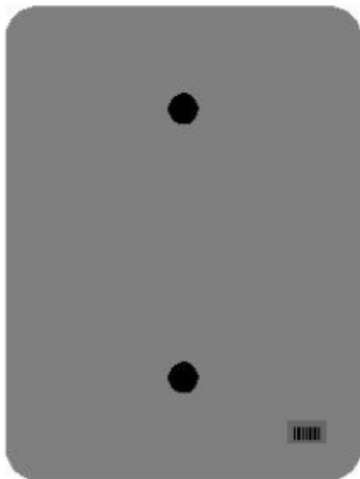
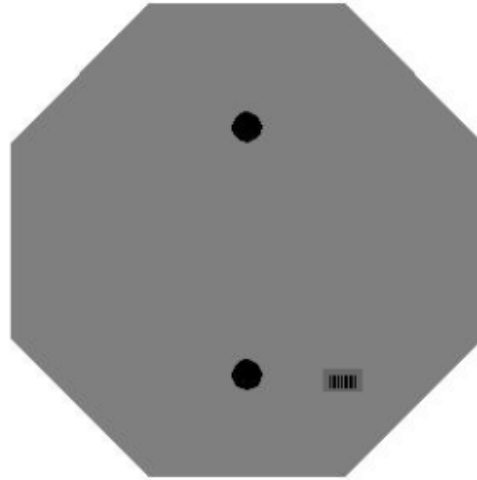
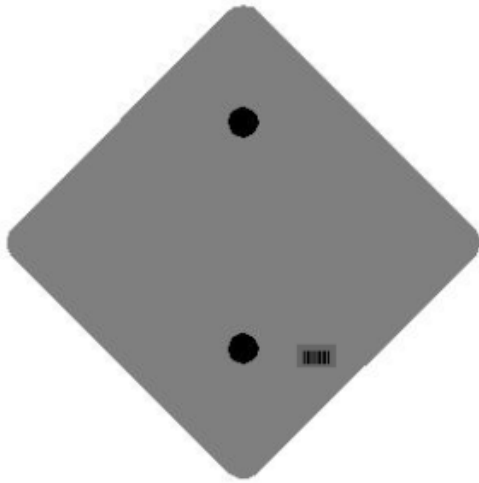
### One Sign Post



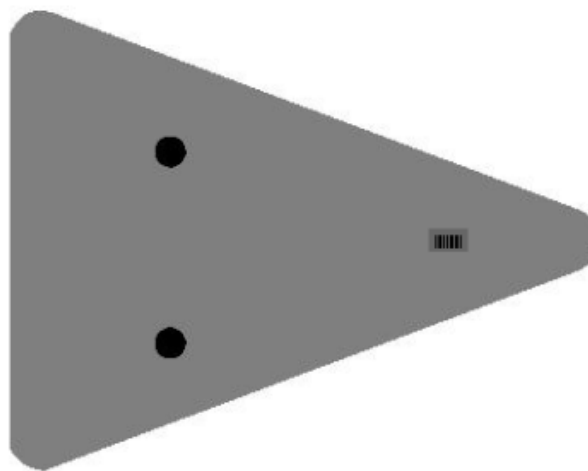
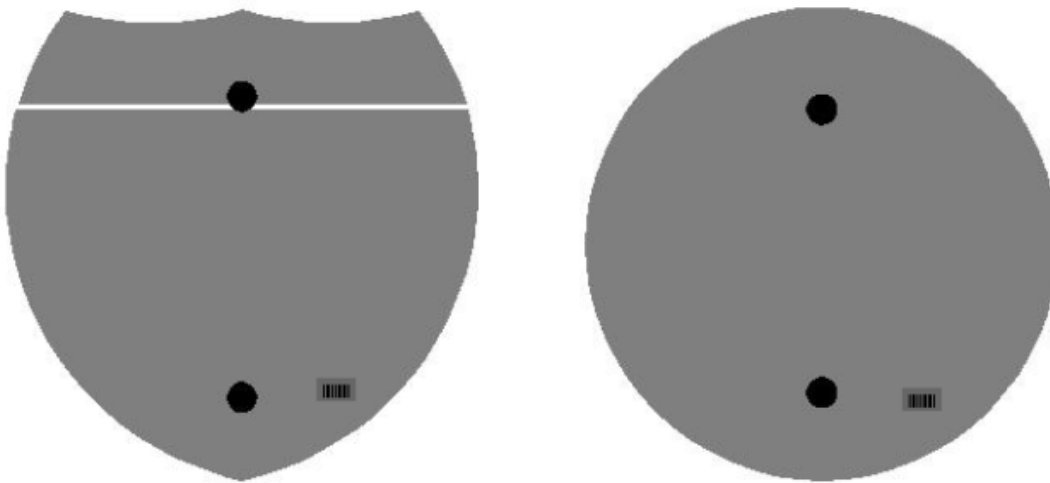
↑  
2" Wide Post



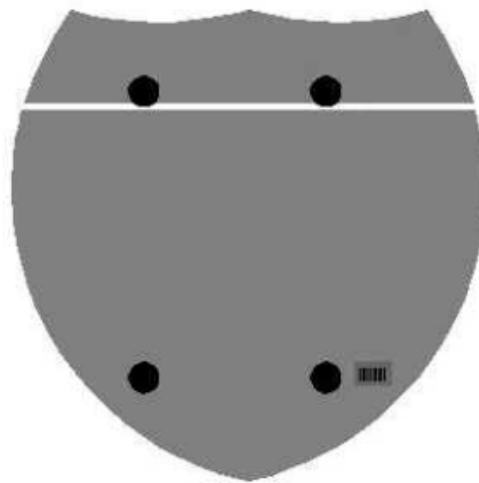
### One Sign Post



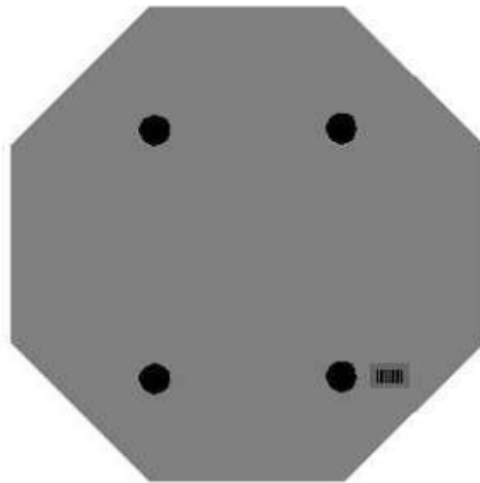
### One Sign Post



### Double Sign Post



Interstate  
Shield

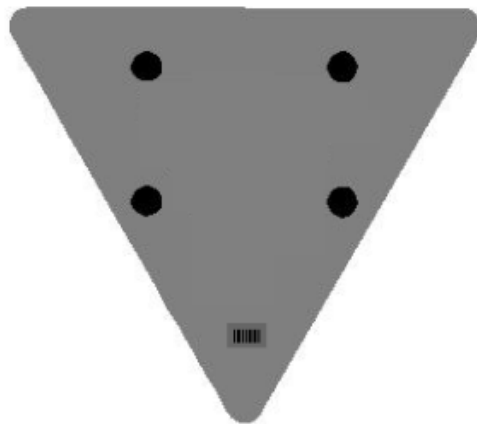


48" Stop

### 2 Post Signs



↑  
2" Wide Post





## **PART III**

### **EMPLOYMENT, WAGE AND RECORD REQUIREMENTS**

FHWA-1273 – Revised October 23, 2023

**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Non-segregated 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. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

**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, United States Code, as required in 23 CFR 633.102(b) (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). 23 CFR 633.102(e).

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. 23 CFR 633.102(e).

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) in accordance with 23 CFR 633.102. 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 solicitation-for-bids or request-for-proposals 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). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

**II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)**

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A 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 Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), 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 Part 230, Subpart A, 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 (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 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 Part 35 and 29 CFR Part 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. 23 CFR 230.409 (g)(4) & (5).

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, sexual orientation, gender identity, 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 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 or other knowledgeable company official.

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, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure 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. 23 CFR 230.409. 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, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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 thereunder. 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, sexual orientation, gender identity, 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, 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. Assurances Required:**

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient 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 recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

**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 more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, 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, sexual orientation, gender identity, 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), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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 (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), 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 basic hourly 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. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. 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 must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. 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 classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must 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. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must 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 be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate 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 used 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) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) 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 will be sent by the contracting officer by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov). 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.

(4) 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 will, by email to [DBAconformance@dol.gov](mailto:DBAconformance@dol.gov), refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must 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.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* 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, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

## 2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

### 3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must 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.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker ( e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 [29 CFR part 3](#); and

(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(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.



(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, 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, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

#### 4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform 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 (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must 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, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must 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 this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeyworkers under this part must be in conformity with



the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. 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. 23 CFR 230.111(e)(2). 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 journeyworkers 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 as provided in 29 CFR 5.5.

**6. Subcontracts.** The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 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 as provided in 29 CFR 5.5.

**9. Disputes concerning labor standards.** As provided in 29 CFR 5.5, 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 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 [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

**11. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

## V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), 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 watchpersons 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. 29 CFR 5.5.

**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 and interest from the date of the underpayment. 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 watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)\* 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.

\* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

**3. Withholding for unpaid wages and liquidated damages**

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

**4. Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

**5. Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

**VI. SUBLETTING OR ASSIGNING THE CONTRACT**

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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" in paragraph 1 of Section VI 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: (based on longstanding interpretation)

- (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. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), 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. Pursuant to 23 CFR 635.116(c), 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. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

**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 Part 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. 23 CFR 635.108.

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 Part 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). 29 CFR 1926.10.

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 Part 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 11, 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 (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)**

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

**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. 2 CFR 180.220 and 1200.220.

**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. 2 CFR 180.320.
- 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. 2 CFR 180.325.
- 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. 2 CFR 180.345 and 180.350.

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, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 180.330.

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. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. 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 System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

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 CFR 180.325.

\*\*\*\*\*

**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 CFR 180.335;.

(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, 2 CFR 180.800;

(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, 2 CFR 180.700 and 180.800; 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. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

\*\*\*\*\*

**3. 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). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

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, Subpart I, 180.900 – 180.1020, 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 recipient or subrecipient 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 recipient or subrecipient 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. 2 CFR 1200.220 and 1200.332.

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. 2 CFR 180.220 and 1200.220.

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 System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

\*\*\*\*\*

**4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:**

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should 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 Part 20, App. A.

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.

**XII. USE OF UNITED STATES-FLAG VESSELS:**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. 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. 46 CFR 381.7.

2. 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 (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS  
PREFERENCE FOR APPALACHIAN DEVELOPMENT  
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS  
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

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, 1025 Capital Center Drive, Suite 104, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: May 23, 2022

"General Decision Number: KY20240040 11/15/2024

Superseded General Decision Number: KY20230040

State: Kentucky

Construction Type: Highway

Counties: Allen, Ballard, Butler, Caldwell, Calloway, Carlisle, Christian, Crittenden, Daviess, Edmonson, Fulton, Graves, Hancock, Henderson, Hickman, Hopkins, Livingston, Logan, Lyon, Marshall, McCracken, McLean, Muhlenberg, Ohio, Simpson, Todd, Trigg, Union, Warren and Webster Counties in Kentucky.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> <li>. Executive Order 14026 generally applies to the contract.</li> <li>. The contractor must pay all covered workers at least \$17.20 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 2024.</li> </ul>
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> <li>. Executive Order 13658 generally applies to the contract.</li> <li>. The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.</li> </ul>

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	02/09/2024
2	03/15/2024
3	05/31/2024
4	07/05/2024
5	09/06/2024
6	09/13/2024
7	09/20/2024
8	10/11/2024
9	11/08/2024
10	11/15/2024

BRIN0004-002 06/01/2023

BALLARD, BUTLER, CALDWELL, CARLISLE, CRITTENDEN, DAVIESS, EDMONSON, FULTON, GRAVES, HANCOCK, HENDERSON, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN, MCLEAN, MUHLENBERG, OHIO, UNION, and WEBSTER COUNTIES

	Rates	Fringes
BRICKLAYER Ballard, Caldwell, Carlisle, Crittenden, Fulton, Graves, Hickman, Livingston, Lyon, Marshall, and McCracken Counties.....	\$ 34.17	19.60
Butler, Edmonson, Hopkins, Muhlenberg, and Ohio Counties.....	\$ 32.28	15.95
Daviess, Hancock, Henderson, McLean, Union, and Webster Counties.....	\$ 34.17	19.60

-----  
BRTN0004-005 06/01/2023

ALLEN, CALLOWAY, CHRISTIAN, LOGAN, SIMPSON, TODD, TRIGG, and WARREN COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 32.28	15.95

-----  
CARP0357-002 06/01/2024

	Rates	Fringes
CARPENTER.....	\$ 30.16	20.87
DIVER.....	\$ 49.73	23.37
PILEDRIVERMAN.....	\$ 30.16	20.87

-----  
ELEC0369-006 05/29/2024

BUTLER, EDMONSON, LOGAN, TODD & WARREN COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 37.88	21.38
-----		
ELEC0429-001 06/01/2024		

ALLEN & SIMPSON COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 34.92	14.75
-----		
ELEC0816-002 06/01/2024		

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON (Except a 5 mile radius of City Hall in Fulton), GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES:

	Rates	Fringes
ELECTRICIAN.....	\$ 35.67	28%+8.60
-----		
ELEC1701-003 07/01/2024		

Cable spicers receive \$.25 per hour additional.

	Rates	Fringes
ELECTRICIAN.....	\$ 37.10	8.60+30.8%
-----		
ELEC1925-002 01/01/2024		

FULTON COUNTY (Up to a 5 mile radius of City Hall in Fulton):

	Rates	Fringes
CABLE SPLICER.....	\$ 28.20	15.27
ELECTRICIAN.....	\$ 27.95	15.26
-----		
ENGI0181-017 07/01/2024		

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 40.05	19.10
GROUP 2.....	\$ 37.19	19.10
GROUP 3.....	\$ 37.64	19.10
GROUP 4.....	\$ 36.87	19.10

OPERATING ENGINEER CLASSIFICATIONS

GROUP 1 - A-Frame Winch Truck; Auto Patrol; Backfiller; Batcher Plant; Bituminous Paver; Bituminous Transfer Machine; Boom Cat; Bulldozer; Mechanic; Cableway; Carry-All Scoop; Carry Deck Crane; Central Compressor Plant; Cherry Picker; Clamshell; Concrete Mixer (21 cu. ft. or Over); Concrete Paver; Truck-Mounted Concrete Pump; Core Drill; Crane; Crusher Plant; Derrick; Derrick Boat; Ditching &

Trenching Machine; Dragline; Dredge Operator; Dredge Engineer; Elevating Grader & Loaders; Grade-All; Gurrries; Heavy Equipment Robotics Operator/Mechanic; High Lift; Hoe-Type Machine; Hoist (Two or More Drums); Hoisting Engine (Two or More Drums); Horizontal Directional Drill Operator; Hydrocrane; Hyster; KeCal Loader; LeTourneau; Locomotive; Mechanic; Mechanically Operated Laser Screed; Mechanic Welder; Mucking Machine; Motor Scraper; Orangepeel Bucket; Overhead Crane; Piledriver; Power Blade; Pumpcrete; Push Dozer; Rock Spreader, attached to equipment; Rotary Drill; Roller (Bituminous); Rough Terrain Crane; Scarifier; Scoopmobile; Shovel; Side Boom; Subgrader; Tailboom; Telescoping Type Forklift; Tow or Push Boat; Tower Crane (French, German & other types); Tractor Shovel; Truck Crane; Tunnel Mining Machines, including Moles, Shields or similar types of Tunnel Mining Equipment

GROUP 2 - Air Compressor (Over 900 cu. ft. per min.); Bituminous Mixer; Boom Type Tamping Machine; Bull Float; Concrete Mixer (Under 21 cu. ft.); Dredge Engineer; Electric Vibrator; Compactor/Self-Propelled Compactor; Elevator (One Drum or Buck Hoist); Elevator (When used to Hoist Building Material); Finish Machine; Firemen & Hoist (One Drum); Flexplane; Forklift (Regardless of Lift Height); Form Grader; Joint Sealing Machine; Outboard Motor Boat; Power Sweeper (Riding Type); Roller (Rock); Ross Carrier; Skid Mounted or Trailer Mounted Concrete Pump; Skid Steer Machine with all Attachments; Switchman or Brakeman; Throttle Valve Person; Tractair & Road Widening Trencher; Tractor (50 H.P. or Over); Truck Crane Oiler; Tugger; Welding Machine; Well Points;& Whirley Oiler

GROUP 3 -All Off Road Material Handling Equipment, including Articulating Dump Trucks; Greaser on Grease Facilities servicing Heavy Equipment

GROUP 4 - Bituminous Distributor; Burlap & Curing Machine; Cement Gun; Concrete Saw; Conveyor; Deckhand Oiler; Grout Pump; Hydraulic Post Driver; Hydro Seeder; Mud Jack; Oiler; Paving Joint Machine; Power Form Handling Equipment; Pump; Roller (Earth); Steerman; Tamping Machine; Tractor (Under 50 H.P.); & Vibrator

CRANES - with booms 150 ft. & Over (Including JIB), and where the length of the boom in combination with the length of the piling equals or exceeds 150 ft. - \$1.00 above 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.

-----  
IRON0070-005 06/01/2024

BUTLER COUNTY (Eastern eighth, including the Townships of Decker, Lee & Tilford);  
EDMONSON COUNTY (Northern three-fourths, including the Townships of Asphalt, Bee Spring, Brownsville, Grassland, Huff, Kyrock, Lindseyville, Mammoth Cave, Ollie, Prosperity, Rhoda, Sunfish & Sweden)

Rates Fringes

IRONWORKER

Structural; Ornamental;  
Reinforcing; Precast  
Concrete Erectors.....\$ 34.59                      25.00

-----  
IRON0103-004 08/01/2024

DAVISS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, OHIO, UNION &  
WEBSTER COUNTIES

BUTLER COUNTY (Townships of Aberdeen, Bancock, Casey,  
Dexterville, Dunbar, Elfie, Gilstrap, Huntsville, Logansport,  
Monford, Morgantown, Provo, Rochester, South Hill & Welchs  
Creek);

CALDWELL COUNTY (Northeastern third, including the Township of  
Creswell);

CHRISTIAN COUNTY (Northern third, including the Townships of  
Apex, Crofton, Kelly, Mannington & Wynns);

CRITTENDEN COUNTY (Northeastern half, including the Townships  
of Grove, Mattoon, Repton, Shady Grove & Tribune);

MUHLENBERG COUNTY (Townships of Bavier, Beech Creek Junction,  
Benton, Brennen, Browder, Central City, Cleaton, Depoy,  
Drakesboro, Eunis, Graham, Hillside, Luzerne, Lynn City,  
Martwick, McNary, Millport, Moorman, Nelson, Paradise,  
Powderly, South Carrollton, Tarina & Weir)

Rates                      Fringes

Ironworkers:.....\$ 35.34                      26.4

-----  
IRON0492-003 05/01/2024

ALLEN, LOGAN, SIMPSON, TODD & WARREN COUNTIES

BUTLER COUNTY (Southern third, including the Townships of  
Boston, Berrys Lick, Dimple, Jetson, Quality, Sharer, Sugar  
Grove & Woodbury);

CHRISTIAN COUNTY (Eastern two-thirds, including the Townships  
of Bennettstown, Casky, Herndon, Hopkinsville, Howell,  
Masonville, Pembroke & Thompsonville);

EDMONSON COUNTY (Southern fourth, including the Townships of  
Chalybeate & Rocky Hill);

MUHLENBERG COUNTY (Southern eighth, including the Townships of  
Dunnior, Penrod & Rosewood)

Rates                      Fringes

Ironworkers:.....\$ 33.73                      16.38

-----  
IRON0782-006 08/01/2024

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN,  
LIVINGSTON, LYON, MARSHALL, MCCRACKEN & TRIGG COUNTIES

CALDWELL COUNTY (Southwestern two-thirds, including the  
Townships of Cedar Bluff, Cider, Claxton, Cobb, Crowtown,  
Dulaney, Farmersville, Fredonia, McGowan, Otter Pond &  
Princeton);

CHRISTIAN COUNTY (Western third, Excluding the Townships of  
Apex, Crofton, Kelly, Mannington, Wynns, Bennettstown, Casky,  
Herndon, Hopkinsville, Howell, Masonville, Pembroke &  
Thompsonville);

CRITTENDEN COUNTY (Southwestern half, including the Townships  
of Crayne, Dycusburg, Frances, Marion, Mexico, Midway,  
Sheridan & Told)



	Rates	Fringes
Ironworkers:		
Projects with a total contract cost of		
\$20,000,000.00 or above.....	\$ 35.75	26.34
All Other Work.....	\$ 34.01	24.83

-----  
\* LAB00189-005 07/01/2024

BALLARD, CALLOWAY, CARLISLE, FULTON, GRAVES, HICKMAN,  
LIVINGSTON, LYON, MARSHALL & MCCRACKEN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.96	18.58
GROUP 2.....	\$ 24.21	18.58
GROUP 3.....	\$ 24.26	18.58
GROUP 4.....	\$ 24.86	18.58

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

-----  
\* LAB00189-006 07/01/2024

ALLEN, BUTLER, CALDWELL, CHRISTIAN, DAVIESS, EDMONSON, HANCOCK,  
HOPKINS, LOGAN, MCLEAN, MUHLENBERG, OHIO, SIMPSON, TODD, TRIGG  
& WARREN COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 23.96	18.58
GROUP 2.....	\$ 24.26	18.58
GROUP 3.....	\$ 24.21	18.58
GROUP 4.....	\$ 24.86	18.58

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

-----  
\* LAB00561-001 07/01/2024

CRITTENDEN, HENDERSON, UNION & WEBSTER COUNTIES

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 25.22	18.10
GROUP 2.....	\$ 25.47	18.10
GROUP 3.....	\$ 25.52	18.10

GROUP 4.....\$ 26.12                      18.10

LABORER CLASSIFICATIONS

GROUP 1 - Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; Wrecking of Concrete Forms; General Cleanup

GROUP 2 - Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Level C; Forklift Operator for Masonary; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; Wagon Driller

GROUP 3 - Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Blaster; Side Rail Setter; Rail Paved Ditches; Screw Operator; Tunnel (Free Air); Water Blaster

GROUP 4 - Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Drillers (All Types); Powdermen & Blasters; Troxler & Concrete Tester if Laborer is Utilized

-----  
PAIN0032-002 09/01/2024

BALLARD COUNTY

	Rates	Fringes
Painters:		
Bridges.....	\$ 36.77	21.77
All Other Work.....	\$ 34.47	21.77

Spray, Blast, Steam, High & Hazardous (Including Lead Abatement) and All Epoxy - \$1.00 Premium

-----  
PAIN0118-003 06/01/2014

EDMONSON COUNTY:

	Rates	Fringes
Painters:		
Brush & Roller.....	\$ 18.50	11.97

Spray, Sandblast, Power  
Tools, Waterblast & Steam  
Cleaning.....\$ 19.50                    11.97

-----  
PAIN0156-006 04/01/2024

DAVISS, HANCOCK, HENDERSON, MCLEAN, OHIO, UNION & WEBSTER  
COUNTIES

Rates                    Fringes

Painters:

BRIDGES  
GROUP 1.....\$ 30.77                    20.30  
GROUP 3.....\$ 31.77                    20.30  
GROUP 4.....\$ 35.00                    20.30  
ALL OTHER WORK:  
GROUP 1.....\$ 29.62                    20.30  
GROUP 2.....\$ 30.37                    20.30  
GROUP 3.....\$ 30.62                    20.30  
GROUP 4.....\$ 31.77                    20.30

PAINTER CLASSIFICATIONS

GROUP 1 - Brush & Roller

GROUP 2 - Plasterers

GROUP 3 - Spray; Sandblast; Power Tools; Waterblast;  
Steamcleaning; Brush & Roller of Mastics, Creosotes, Kwinch  
Koate & Coal Tar Epoxy

GROUP 4 - Spray of Mastics, Creosotes, Kwinch Koate & Coal  
Tar Epoxy

-----  
PAIN0500-002 06/01/2024

CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON,  
GRAVES, HICKMAN, HOPKINS, LIVINGSTON, LYON, MARSHALL, MCCRACKEN  
& TRIGG COUNTIES:

Rates                    Fringes

Painters:

Bridges.....\$ 30.75                    15.50  
All Other Work.....\$ 24.50                    15.50

Waterblasting units with 3500 PSI and above - \$.50 premium  
Spraypainting and all abrasive blasting - \$1.00 premium  
Work 40 ft. and above ground level - \$1.00 premium

-----  
PLUM0184-002 07/01/2024

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN,  
FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN  
and TRIGG COUNTIES

Rates                    Fringes

Plumber; Steamfitter.....\$ 41.01                    20.28

-----  
PLUM0502-004 08/01/2024

ALLEN, BUTLER, EDMONSON, SIMPSON & WARREN

	Rates	Fringes
Plumber; Steamfitter.....	\$ 41.90	24.89

-----  
PLUM0633-002 07/01/2022

DAVISS, HANCOCK, HENDERSON, HOPKINS, LOGAN, MCLEAN,  
MUHLENBERG, OHIO, TODD, UNION & WEBSTER COUNTIES:

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 33.97	19.30

-----  
TEAM0089-003 03/31/2024

ALLEN, BUTLER, EDMONSON, LOGAN, SIMPSON & WARREN COUNTIES

	Rates	Fringes
Truck drivers:		
Zone 1:		
Group 1.....	\$ 23.53	27.39
Group 2.....	\$ 23.70	27.39
Group 3.....	\$ 23.78	27.39
Group 4.....	\$ 23.80	27.39

GROUP 1 - Greaser; Tire Changer

GROUP 2 - Truck Mechanic; Single Axle Dump; Flat Bed; All Terrain Vehicles when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors

GROUP 3 - Mixer All Types

GROUP 4 - Winch and A-Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker; Euclid and Other Heavy Earth Moving Equipment; Low Boy; Articulator Cat; Five Axle Vehicle

-----  
TEAM0215-003 03/31/2024

DAVISS, HANCOCK, HENDERSON, HOPKINS, MCLEAN, MUHLENBERG, OHIO & WEBSTER COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1.....	\$ 25.15	27.39
Group 2.....	\$ 25.38	27.39
Group 3.....	\$ 25.45	27.39
Group 4.....	\$ 25.46	27.39

GROUP 1: Greaser, Tire Changer

GROUP 2: Truck Mechanic

GROUP 3: Single Axle Dump; Flat Bed; All Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Driver of Distributors; Mixer All Types

GROUP 4: Euclid and other heavy earth moving equipment; Low Boy; Articulator Cat; 5 Axle Vehicle; Winch and A- Frame when used in transporting materials; Ross Carrier; Fork Lift when used to transport building materials; Driver on Pavement Breaker

-----  
TEAM0236-001 03/31/2024

BALLARD, CALDWELL, CALLOWAY, CARLISLE, CHRISTIAN, CRITTENDEN, FULTON, GRAVES, HICKMAN, LIVINGSTON, LYON, MARSHALL, MCCRACKEN, TODD & TRIGG COUNTIES

	Rates	Fringes
TRUCK DRIVER		
Group 1.....	\$ 23.52	27.39
Group 2.....	\$ 23.70	27.39
Group 3.....	\$ 23.70	27.39
Group 4.....	\$ 23.78	27.39
Group 5.....	\$ 23.80	27.39

GROUP 1: Greaser, Tire Changer

GROUP 2: Truck Mechanic

GROUP 3: Single Axle Dump; Flat Bed; All Terrain Vehicle when used to haul materials; Semi Trailer or Pole Trailer when used to pull building materials and equipment; Tandem Axle Dump; Drivers of Distributors

GROUP 4: Euclid and other heavy earth moving equipment; Low Boy; Articulator Cat; Five Axle Vehicle; Winch and A-Frame when used in transporting materials; Ross Carrier

GROUP 5: Mixer All Types

-----

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

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 <https://www.dol.gov/agencies/whd/government-contracts>.

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) (iii)).

-----  
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.

State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R. 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

-----  
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 National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator



U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

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>
18.2%	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 Notification of Construction Contract Award Portal (NCAP) is OFCCP's preferred method for receiving construction contract award notifications. The NCAP can be found on OFCCP's website at <https://www.dol.gov/agencies/ofccp/ncap>. Users who prefer not to use the portal maintain the option to send their notifications via mail, email and facsimile to the OFCCP Regional office in which the work will be performed. 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 must include: Prime Contract Number (issued by the federal agency or applicant); Name of Awarding Federal Agency, Applicant or Contractor; Contracting Officer, Applicant Representative or Contractor Representative Submitting Notification with name, phone number, email address; Contractor Awarded Contract or Subcontract with name, address, phone number, email address, EIN, dollar amount of the contract, estimated start date of the contract, estimated completion date of the contract, geographical area in which the contract is to be performed (state, county's city (if applicable)).  
The notification shall be mailed to:

**Regional Director  
Office of Federal Contract Compliance Programs  
61 Forsyth Street, SW, Suite 7B75  
Atlanta, Georgia 30303-8931  
Main Number: 404-893-4545 Fax: 404-893-4546  
Regional Director Contact: [OFCCP-SE@dol.gov](mailto:OFCCP-SE@dol.gov)  
Construction Award Email: [OFCCP-SE-ConstructionAward@dol.gov](mailto:OFCCP-SE-ConstructionAward@dol.gov)**

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is Christian County.

**PART IV**  
**INSURANCE**

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

**PART V**  
**BID ITEMS**

**PROPOSAL BID ITEMS**

241018

Page 1 of 5

Report Date 11/18/24

**Section: 0001 - PAVING**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00001		DGA BASE (FOR SIDEWALK AND MULTI-USE PATH)	1,337.00	TON		\$	
0020	00003		CRUSHED STONE BASE	11,624.00	TON		\$	
0030	00005		GEOGRID REINFORCEMENT FOR SUBGRADE	11,592.00	SQYD		\$	
0040	00078		CRUSHED AGGREGATE SIZE NO 2	2,908.00	TON		\$	
0050	00190		LEVELING & WEDGING PG64-22	1,256.00	TON		\$	
0060	00214		CL3 ASPH BASE 1.00D PG64-22	8,374.00	TON		\$	
0070	00324		CL3 ASPH SURF 0.50B PG64-22	3,109.00	TON		\$	
0080	00356		ASPHALT MATERIAL FOR TACK	23.80	TON		\$	
0090	02084		JPC PAVEMENT-8 IN	616.00	SQYD		\$	
0100	02101		CEM CONC ENT PAVEMENT-8 IN	1,067.00	SQYD		\$	
0110	02677		ASPHALT PAVE MILLING & TEXTURING	208.00	TON		\$	
0120	10020NS		FUEL ADJUSTMENT	26,281.00	DOLL	\$1.00	\$	\$26,281.00
0130	10030NS		ASPHALT ADJUSTMENT	49,804.00	DOLL	\$1.00	\$	\$49,804.00
0140	21289ED		LONGITUDINAL EDGE KEY	10,139.00	LF		\$	
0150	24970EC		ASPHALT MATERIAL FOR TACK NON- TRACKING	19.80	TON		\$	

**Section: 0002 - ROADWAY**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0160	01810		STANDARD CURB AND GUTTER	7,569.00	LF		\$	
0170	01875		STANDARD HEADER CURB	2,235.00	LF		\$	
0180	01880		BARRIER HEADER CURB	705.00	LF		\$	
0190	01939		MOUNTABLE MEDIAN TYPE 3	28.00	SQYD		\$	
0200	02016		REMOVE CONCRETE ISLAND	43.00	SQYD		\$	
0210	02159		TEMP DITCH	2,831.00	LF		\$	
0220	02160		CLEAN TEMP DITCH	1,416.00	LF		\$	
0230	02230		EMBANKMENT IN PLACE	13,128.00	CUYD		\$	
0240	02242		WATER	215.00	MGAL		\$	
0250	02351		GUARDRAIL-STEEL W BEAM-S FACE	503.75	LF		\$	
0260	02367		GUARDRAIL END TREATMENT TYPE 1	1.00	EACH		\$	
0270	02369		GUARDRAIL END TREATMENT TYPE 2A	2.00	EACH		\$	
0280	02381		REMOVE GUARDRAIL	752.00	LF		\$	
0290	02429		RIGHT-OF-WAY MONUMENT TYPE 1	40.00	EACH		\$	
0300	02432		WITNESS POST	3.00	EACH		\$	
0310	02471		FILL AND CAP SINKHOLE (STA. 428+14, 47' RT DRYWELL)	1.00	EACH		\$	
0320	02545		CLEARING AND GRUBBING 15.58 ACRES	1.00	LS		\$	
0330	02562		TEMPORARY SIGNS	300.00	SQFT		\$	
0340	02585		EDGE KEY	565.00	LF		\$	
0350	02602		FABRIC-GEOTEXTILE CLASS 1	27,415.00	SQYD		\$	
0360	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0370	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		\$	
0380	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	

**PROPOSAL BID ITEMS**

241018

Page 2 of 5

Report Date 11/18/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0390	02690		SAFELOADING	3.60	CUYD		\$	
0400	02701		TEMP SILT FENCE	2,831.00	LF		\$	
0410	02703		SILT TRAP TYPE A	16.00	EACH		\$	
0420	02704		SILT TRAP TYPE B	16.00	EACH		\$	
0430	02705		SILT TRAP TYPE C	16.00	EACH		\$	
0440	02706		CLEAN SILT TRAP TYPE A	16.00	EACH		\$	
0450	02707		CLEAN SILT TRAP TYPE B	16.00	EACH		\$	
0460	02708		CLEAN SILT TRAP TYPE C	16.00	EACH		\$	
0470	02720		SIDEWALK-4 IN CONCRETE	1,663.00	SQYD		\$	
0480	02720		SIDEWALK-4 IN CONCRETE (MULTI-USE PATH)	4,148.00	SQYD		\$	
0490	02726		STAKING	1.00	LS		\$	
0500	02775		ARROW PANEL	4.00	EACH		\$	
0510	05952		TEMP MULCH	50,271.00	SQYD		\$	
0520	05953		TEMP SEEDING AND PROTECTION	37,704.00	SQYD		\$	
0530	05963		INITIAL FERTILIZER	2.70	TON		\$	
0540	05964		MAINTENANCE FERTILIZER	1.62	TON		\$	
0550	05985		SEEDING AND PROTECTION	15,553.00	SQYD		\$	
0560	05990		SODDING	14,595.00	SQYD		\$	
0570	05992		AGRICULTURAL LIMESTONE	32.40	TON		\$	
0580	06510		PAVE STRIPING-TEMP PAINT-4 IN	33,972.00	LF		\$	
0590	06542		PAVE STRIPING-THERMO-6 IN W	11,541.00	LF		\$	
0600	06543		PAVE STRIPING-THERMO-6 IN Y	2,028.00	LF		\$	
0610	06568		PAVE MARKING-THERMO STOP BAR-24IN	339.00	LF		\$	
0620	06569		PAVE MARKING-THERMO CROSS-HATCH (YELLOW, X=1', Y=10')	120.00	SQFT		\$	
0630	06574		PAVE MARKING-THERMO CURV ARROW	35.00	EACH		\$	
0640	06575		PAVE MARKING-THERMO COMB ARROW	4.00	EACH		\$	
0650	06610		INLAID PAVEMENT MARKER-MW	10.00	EACH		\$	
0660	06612		INLAID PAVEMENT MARKER-BY	209.00	EACH		\$	
0670	20191ED		OBJECT MARKER TY 3	1.00	EACH		\$	
0680	23158ES505		DETECTABLE WARNINGS	1,521.00	SQFT		\$	

**Section: 0003 - DRAINAGE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0690	00521		STORM SEWER PIPE-15 IN	2,051.00	LF		\$	
0700	00522		STORM SEWER PIPE-18 IN	1,400.00	LF		\$	
0710	00524		STORM SEWER PIPE-24 IN	1,680.00	LF		\$	
0720	00526		STORM SEWER PIPE-30 IN	287.00	LF		\$	
0730	00528		STORM SEWER PIPE-36 IN	1,453.00	LF		\$	
0740	00529		STORM SEWER PIPE-42 IN	298.00	LF		\$	
0750	00530		STORM SEWER PIPE-48 IN	391.00	LF		\$	
0760	01000		PERFORATED PIPE-4 IN	356.00	LF		\$	
0770	01371		METAL END SECTION TY 1-18 IN	1.00	EACH		\$	
0780	01456		CURB BOX INLET TYPE A	47.00	EACH		\$	
0790	01459		CURB BOX INLET TYPE A MOD	2.00	EACH		\$	
0800	01544		DROP BOX INLET TYPE 11	21.00	EACH		\$	
0810	01559		DROP BOX INLET TYPE 13G	9.00	EACH		\$	

**PROPOSAL BID ITEMS**

241018

Page 3 of 5

Report Date 11/18/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0820	01568		DROP BOX INLET TYPE 13S	13.00	EACH		\$	
0830	01691		FLUME INLET TYPE 2	1.00	EACH		\$	
0840	01767		MANHOLE TYPE C	7.00	EACH		\$	
0850	02484		CHANNEL LINING CLASS III	185.00	TON		\$	
0860	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	14,252.00	SQYD	\$2.00	\$	\$28,504.00
0870	20166ES810		TEMPORARY PIPE	527.00	LF		\$	
0880	21541NN		CORED HOLE DRAINAGE BOX CON- 18 IN	2.00	EACH		\$	
0890	23822EC		CORED HOLE DRAINAGE BOX CON-15 IN	2.00	EACH		\$	
0900	23952EC		DRAINAGE JUNCTION BOX TY B	6.00	EACH		\$	
0910	23952EC		DRAINAGE JUNCTION BOX TY B (TOP PHASE ONLY)	2.00	EACH		\$	
0920	24814EC		PIPELINE INSPECTION	3,782.00	LF		\$	

**Section: 0004 - BRIDGE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0930	02403		REMOVE CONCRETE MASONRY	85.00	CUYD		\$	
0940	08003		FOUNDATION PREPARATION	1.00	LS		\$	
0950	08100		CONCRETE-CLASS A	306.00	CUYD		\$	
0960	08150		STEEL REINFORCEMENT	25,730.00	LB		\$	
0970	22146EN		CONCRETE PATCHING REPAIR	10.00	SQFT		\$	
0980	23060EN		PRECAST CONCRETE ARCH CULVERT	40.00	LF		\$	

**Section: 0005 - SEWER**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0990	15000		S BYPASS PUMPING	1.00	EACH		\$	
1000	15017		S ENCASEMENT STEEL BORED RANGE 4	59.00	LF		\$	
1010	15059		S FORCE MAIN PVC 04 INCH	1,079.00	LF		\$	
1020	15073		S FORCE MAIN TIE-IN 04 INCH	2.00	EACH		\$	
1030	15092		S MANHOLE	8.00	EACH		\$	
1040	15099		S MANHOLE TAP EXISTING	1.00	EACH		\$	
1050	15112		S PIPE PVC 08 INCH	1,137.00	LF		\$	
1060	21213ED		CONCRETE PAVING REPLACEMENT	277.00	LF		\$	
1070	21233ED		ASPHALT PAVING REPLACEMENT	84.00	LF		\$	
1080	23967EC		ASPHALT DRIVEWAY/PARKING LOT REPLACEMENT	1,060.00	LF		\$	
1090	24441EC		GRAVEL REPLACEMENT DRIVEWAYS	185.00	LF		\$	

**Section: 0006 - SIGNING**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1100	06406		SBM ALUM SHEET SIGNS .080 IN	587.38	SQFT		\$	
1110	06410		STEEL POST TYPE 1	1,023.00	LF		\$	
1120	24631EC		BARCODE SIGN INVENTORY	139.00	EACH		\$	



**PROPOSAL BID ITEMS**

241018

Page 4 of 5

Report Date 11/18/24

**Section: 0007 - SIGNALIZATION**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1130	04795		CONDUIT-2 IN	80.00	LF		\$	
1140	04820		TRENCHING AND BACKFILLING	80.00	LF		\$	
1150	04844		CABLE-NO. 14/5C	4,550.00	LF		\$	
1160	04885		MESSENGER-10800 LB	720.00	LF		\$	
1170	04932		INSTALL STEEL STRAIN POLE	8.00	EACH		\$	
1180	20093NS835		INSTALL PEDESTRIAN HEAD-LED	16.00	EACH		\$	
1190	20188NS835		INSTALL LED SIGNAL-3 SECTION	16.00	EACH		\$	
1200	20266ES835		INSTALL LED SIGNAL- 4 SECTION	6.00	EACH		\$	
1210	21743NN		INSTALL PEDESTRIAN DETECTOR	16.00	EACH		\$	
1220	23068NN		REMOVE & REINSTALL COORDINATING UNIT	2.00	EACH		\$	
1230	23157EN		TRAFFIC SIGNAL POLE BASE	40.29	CUYD		\$	
1240	24908EC		INSTALL SIGNAL CONTROLLER-TY ATC	2.00	EACH		\$	
1250	24955ED		REMOVE SIGNAL EQUIPMENT	2.00	EACH		\$	
1260	26119EC		INSTALL RADAR PRESENCE DETECTOR TYPE A	8.00	EACH		\$	

**Section: 0008 - WATERLINE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1270	14003		W CAP EXISTING MAIN	18.00	EACH		\$	
1280	14009		W ENCASMENT STEEL BORED RANGE 4	374.00	LF		\$	
1290	14010		W ENCASMENT STEEL BORED RANGE 5	317.00	LF		\$	
1300	14019		W FIRE HYDRANT ASSEMBLY	18.00	EACH		\$	
1310	14025		W METER 1 INCH	1.00	EACH		\$	
1320	14027		W METER 2 INCH	3.00	EACH		\$	
1330	14032		W METER/FIRE SERVICE COMBO VAULT	1.00	EACH		\$	
1340	14036		W PIPE DUCTILE IRON 06 INCH	196.00	LF		\$	
1350	14039		W PIPE DUCTILE IRON 12 INCH	4,741.00	LF		\$	
1360	14047		W PIPE DCTL IRON RSTRND JOINT 06 IN	861.00	LF		\$	
1370	14048		W PIPE DCTL IRON RSTRND JOINT 08 IN	70.00	LF		\$	
1380	14050		W PIPE DCTL IRON RSTRND JOINT 12 IN	1,809.00	LF		\$	
1390	14077		W SERV PE/PLST LONG SIDE 1 IN	1.00	EACH		\$	
1400	14079		W SERV PE/PLST LONG SIDE 2 IN	6.00	EACH		\$	
1410	14080		W SERV PE/PLST LONG SIDE 3/4 IN	14.00	EACH		\$	
1420	14082		W SERV PE/PLST SHORT SIDE 1 IN	3.00	EACH		\$	
1430	14084		W SERV PE/PLST SHORT SIDE 2 IN	4.00	EACH		\$	
1440	14085		W SERV PE/PLST SHORT SIDE 3/4 IN	31.00	EACH		\$	
1450	14089		W TAPPING SLEEVE AND VALVE SIZE 1	12.00	EACH		\$	
1460	14090		W TAPPING SLEEVE AND VALVE SIZE 2	2.00	EACH		\$	
1470	14091		W TIE-IN 02 INCH	3.00	EACH		\$	
1480	14094		W TIE-IN 06 INCH	6.00	EACH		\$	
1490	14095		W TIE-IN 08 INCH	4.00	EACH		\$	
1500	14097		W TIE-IN 12 INCH	2.00	EACH		\$	
1510	14105		W VALVE 06 INCH	12.00	EACH		\$	
1520	14106		W VALVE 08 INCH	4.00	EACH		\$	
1530	14108		W VALVE 12 INCH	20.00	EACH		\$	

### PROPOSAL BID ITEMS

241018

Page 5 of 5

Report Date 11/18/24

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1540	14144		W LINE MARKER	30.00	EACH		\$	
1550	14182		W METER 5/8 INCH	62.00	EACH		\$	

#### Section: 0009 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1560	02568		MOBILIZATION	1.00	LS		\$	
1570	02569		DEMOBILIZATION	1.00	LS		\$	