CALL NO. 406

CONTRACT ID. 221027

CRITTENDEN COUNTY

FED/STATE PROJECT NUMBER 028GR22D027

DESCRIPTION US HIGHWAY 60 (US 60)

WORK TYPE ASPHALT SURFACE WITH GRADE & DRAIN

PRIMARY COMPLETION DATE 8/30/2022

LETTING DATE: May 26,2022

Sealed Bids will be received electronically through the Bid Express bidding service until 10:00 AM EASTERN DAYLIGHT TIME May 26,2022. Bids will be publicly announced at 10:00 AM EASTERN DAYLIGHT TIME.

NO PLANS ASSOCIATED WITH THIS PROJECT.

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

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PART I

SCOPE OF WORK

ADMINISTRATIVE DISTRICT - 01

CONTRACT ID - 221027

028GR22D027

COUNTY - CRITTENDEN

PCN - 0102800602201
FD04 028 0060 004-009

US HIGHWAY 60 (US 60) (MP 4.9) FROM KY 297 EXTENDING EAST 3.5 MILES TO OLD SALEM ROAD (MP 8.4), A DISTANCE OF 03.50 MILES.ASPHALT SURFACE WITH GRADE & DRAIN SYP NO. 01-09023.00.

GEOGRAPHIC COORDINATES LATITUDE 37:19:33.63 LONGITUDE 88:07:41.15

ADT 4,702

PCN - DE02800602228
FD04 028 0060 008-009

US-60 WIDEN US-60 TO PROVIDE TURN LANES AT CRITTENDEN COUNTY HIGH SCHOOL AND CRITTENDEN HOSPITAL, A DISTANCE OF 0.21 MILES.WIDENING SYP NO. 01-80101.00.

GEOGRAPHIC COORDINATES LATITUDE 37:19:47.00 LONGITUDE 88:05:34.00

ADT 4,230

COMPLETION DATE(S):

COMPLETED BY 08/30/2022 APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

PROPOSAL ADDENDA

All addenda to this proposal must be applied when calculating bid and certified in the bid packet submitted to the Kentucky Department of Highways. Failure to use the correct and most recent addenda may result in the bid being rejected.

BID SUBMITTAL

Bidder must use the Department's electronic bidding software. The Bidder must download the bid file located on the Bid Express website (www.bidx.com) to prepare a bid packet for submission to the Department. The bidder must submit electronically using Bid Express.

JOINT VENTURE BIDDING

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

UNDERGROUND FACILITY DAMAGE PROTECTION

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

REGISTRATION WITH THE SECRETARY OF STATE BY A FOREIGN ENTITY

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

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

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

SPECIAL NOTE FOR PROJECT QUESTIONS DURING ADVERTISEMENT

Questions about projects during the advertisement should be submitted in writing to the Division of Construction Procurement. This may be done by fax (502) 564-7299 or email to kytc.projectquestions@ky.gov. The Department will attempt to answer all submitted questions. The Department reserves the right not to answer if the question is not pertinent or does not aid in clarifying the project intent.

The deadline for posting answers will be 3:00 pm Eastern Daylight Time, the day preceding the Letting. Questions may be submitted until this deadline with the understanding that the later a question is submitted, the less likely an answer will be able to be provided.

The questions and answers will be posted for each Letting under the heading "Questions & Answers" on the Construction Procurement website (www.transportation.ky.gov/contract). The answers provided shall be considered part of this Special Note and, in case of a discrepancy, will govern over all other bidding documents.

HARDWOOD REMOVAL RESTRICTIONS

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

INSTRUCTIONS FOR EXCESS MATERIAL SITES AND BORROW SITES

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

ACCESS TO RECORDS

The contractor, as defined in KRS 45A.030 (9) agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this contract for the purpose of financial audit or program review. Records and other prequalification information confidentially

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

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

April 30, 2018

SPECIAL NOTE FOR RECIPROCAL PREFERENCE

RECIPROCAL PREFERENCE TO BE GIVEN BY PUBLIC AGENCIES TO RESIDENT BIDDERS

By reference, KRS 45A.490 to 45A.494 are incorporated herein and in compliance regarding the bidders residency. Bidders who want to claim resident bidder status should complete the Affidavit for Claiming Resident Bidder Status along with their bid in the electronic bidding software. Submittal of the Affidavit should be done along the bid in Bid Express.

April 30, 2018

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.

OPTION B

Be advised that the Department will control and accept compaction of asphalt mixtures furnished on this project under OPTION B in accordance with Sections 402 and 403.

1-9023.00

Special Notes Applicable to Project
GENERAL NOTES and DESCRIPTION OF WORK

CAUTION

The information in this proposal and shown on the plans and the type of work listed herein are approximate only and are not to be taken as an accurate evaluation of the materials and conditions to be encountered during construction; the bidder must draw his/her own conclusions. The Department does not give any guarantee as to the accuracy of the data and no claim for money or time extension will be considered if the conditions encountered are not in accordance with the information shown. If a potential bidder has concerns with any bid items not used, a Question needs to be submitted during the Advertisement period.

STATIONING

The contractor is advised that the planned locations of work were established from a beginning station number which is STA 258+72 which is the intersection of US 60 and KY 297 in Crittenden County. Milepoints were established from a beginning Milepoint which is MP 4.9 which is the intersection of US 60 and KY 297. The existing mile marker signs may not correspond to the proposed work locations.

ON-SITE INSPECTION

Before submitting a bid for the work, make a thorough inspection of the site and determine existing conditions so that the work can be expeditiously performed after a contract is awarded. The Department will consider submission of a bid to be evidence of this inspection having been made. The Department will not honor any claims for money or time extension resulting from site conditions.

RIGHT OF WAY LIMITS

The Department has not established the exact limits of the Right-of-Way. Unless a consent and release is obtained from the adjoining property owner, limit work activities to the obvious Right-of-Way and staging areas secured and environmentally cleared by the Contractor at no additional cost to the Department. In the event that private improvements (i.e. fences, buildings, etc.) encroach upon the Right-of-Way, the contractor shall notify the Engineer and limit work activities in order to NOT disturb the improvements. If they become necessary, the Department will secure consent and releases from property owners through the Engineer. Be responsible for all encroachments onto private lands.

CONTROL

Perform all work under the absolute control of the Department of Highways. Obtain the Engineer's approval of all designs required to be furnished by the Contractor prior to incorporation into the work. The Department reserves the right to have other work performed by other contractors and its own forces and to permit public utility companies and others to do work during the construction within the limits of, or adjacent to, the project. Conduct operations and cooperate with such other parties so that interference with such other work will be reduced to a minimum. The Department will not honor any claims for money or time extension created by the operations of such other parties.

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

1-9023.00

General Notes
Page **2** of **4**

DESCRIPTION OF WORK

Except as specified herein, perform all work in accordance with the Department's Standard Specifications, Supplemental Specifications, applicable Special Notes and Special Provisions, and applicable Standard and Sepia Drawings, current editions. Furnish all materials, labor, equipment, and incidentals for the following work:

Paved Shoulder Widening, Asphalt Overlay, and Rumble Strips. Trench existing shoulder and widen shoulder pavement from Station 263+00 to Station 299+80 and from Station 425+40 and Station 427+75 as shown in the plans and details. The existing roadway is to be overlaid from Station 263+00 to Station 299+80 and from Station 425+40 to Station 427+75. This work will include placement of an asphalt surface course, installation of centerline and edgeline rumble strips, and application of pavement markings. Refer to the Paved Shoulder Widening With Asphalt Overlay Detail and rumble strip Standard Drawings for further information. Stations listed are approximate and may need to be adjusted to remain within right-of-way or avoid a sensitive obstruction. The Engineer will make the final determination as to the locations and quantities required to complete the work based on the existing conditions encountered during construction.

Culvert Pipe Extension/Replacement. There are locations throughout the project where culvert pipes are being extended or replaced. Locations are noted in the Culvert Pipe Extension/Replacement Summary. Other items that may be included with the pipe extensions include culvert headwalls, safety box inlets, sloped & mitered concrete headwalls, shouldering, ditching, channel lining, etc. Refer to the Special Note for Pipe Replacements/Extensions for more information on this item of work. For each extension, the Contractor shall remove a minimum of 4' of pipe or the length of pipe to the first joint. Refer to the Culvert Pipe Extension/Replacement Summary for estimated quantities. The pipe extensions shall be in-like kind of the existing pipe.

The Sloped & Mitered Concrete Headwalls shall be constructed as shown on the Sloped & Mitered Concrete Headwall detail sheet. This headwall is intended to combine the benefits of a pipe headwall with the advantages of safety and adaptability by allowing the headwall to be custom fit with the surrounding embankment. The Pipe and Drainage Items Summary identifies which pipe ends are to receive the Sloped & Mitered Concrete Headwall. The identified pipes shall be mitered at an angle to match the final embankment slopes at each the pipe location. If the pipe is on a skew, miter the pipe so that when the new headwall and final grading is complete, there is no slope discontinuity or bulge that is common with traditional precast headwall installations. In other words the embankment slope should not be warped to fit the pipe and headwall; the pipe should be mitered and the headwall installed to match the embankment slope. When completed the edges of the Sloped & Mitered Concrete Headwall should be flush with the surround ground line. Payment at the Contract unit price Each shall be full compensation for furnishing all labor, materials, equipment, and incidentals necessary to miter the pipe and install the headwall.

NOTE: For pipes that receive the Sloped & Mitered Concrete Headwall, the pipe length will be measured to the furthest point along the mitered end of the pipe.

Guardrail. Several locations within the project are set up for guardrail replacement. The approximate locations and estimated quantities are noted on the Guardrail Summary. Refer to the Special Note for Guardrail, Typical Sections, and Plan Sheets for more detail and information on this item of work.

NOTE: When the plans call for a Type 1 or Type 4 End Treatment, a MASH eligibility letter from FHWA is required for these end terminals. When a MASH tested eligibility letter is not available for the end terminal being utilized, the most recent NCHRP 350 eligibility letter from FHWA for that terminal will apply. Acceptance of the terminal will be at the discretion of the engineer.

Entrance Pipe Replacement & Driveway Surfacing. Due to areas of paved shoulder widening and ditching and shouldering, there are locations where the existing entrance pipe will have to be removed and relocated to accommodate the improvements. Refer to the Entrance Detail for details on this work item. The Engineer will make the final determination as to the locations and quantities required to complete the work based on the existing conditions encountered during construction.

Ditching and Shouldering. Perform ditching and shouldering according to Section 209 and the applicable Standard and Sepia Drawings, Typical Sections, and Details provided. No Embankment-In-Place quantities will be paid for the work listed as "Ditching and Shouldering". Final front and back slopes less than a 3:1 will be determined by the Engineer. Immediately prior to completion, clean all existing pipes, new culvert and entrance pipes, and grade ditches to drain. Provide positive drainage of pavement, shoulders, slopes, and ditches at all times during and upon completion of construction. Use Erosion Control Blanket and/or Channel Lining Class II, as directed by the Engineer.

NOTE: The Department will measure the bid item "Ditching and Shouldering" as the length of the work measured in linear feet along the centerline of the roadway. Contrary to Section 209.04, this quantity will include only one side of the roadway. Therefore, for areas where ditching and shouldering occurs on both sides of the road, the Department will measure each side independently. The Department will include in the quantity all work required on the road approaches within the limits of right-of-way. No additional compensation will be allowed for excavation of rock encountered in the back slope while executing the bid item "Ditching and Shouldering."

Reinforced Concrete Box Culvert Extensions. There is one location within the project where the existing reinforced concrete box culvert is being extended. Location and estimated quantities are noted on the Box Culvert Extension Summary. Refer to the Structure Plans, Special Note for Box Culvert Extensions, and Traffic Control Plan for more details and information on this item of work. Paved shoulder widening with asphalt overlay, ditching and shouldering, and guardrail replacement are also associated with this box culvert extension.

Removal of Existing Signs and Installation of Proposed Signs. A quantity of "Remove Sign" has been included for removal of existing signs along the corridor as identified in the Remove Sign Summary. An estimated quantity of new signing and sign post is included on the Signing Summary. The Contractor and Engineer will work with the District Traffic Section to determine the final signing layout and sign types prior to installation of the proposed signing. Refer to the Special Note for Signing and the Special Note for Signage for more details concerning the procedures for determining and staking the final layout and installation of the signing.

Erosion Control Blanket. A quantity of 1000 square yards has been included for potential use along areas of regraded ditch line and/or fill slopes, inlets and outlets of pipes, and any other areas as directed by the Engineer. The Contractor and Engineer should work together to determine the location and best use of

Erosion Control Blanket throughout this project. The Engineer will make the final determination as to the placement of Erosion Control Blanket.

Channel Lining Class II. A quantity of 940 tons has been included on the Ditching and Shouldering Summary. An additional 100 tons has been included in the contract for potential use along areas of regraded ditch line and/or fill slopes, inlets and outlets of pipes, and any other areas as directed by the Engineer. The Contractor and Engineer should work together to determine the location and best use of Channel Lining Class II throughout this project. The Engineer will make the final determination as to the placement of Channel Lining Class II.

Geotextile Fabric. A quantity of 181 square yards has been included on the Ditching and Shouldering Summary. An additional 100 square yards has been included in the contract for potential use along areas of regraded ditch line and/or fill slopes and any other areas as directed by the Engineer. The Contractor and Engineer should work together to determine the location and best use of Geotextile Fabric Class 1 throughout the project. The Engineer will make the final determination as to the placement of Geotextile Fabric Class 1.

Temporary Pavement Striping. A quantity of 14,000 linear feet of Pave Striping – Temp Paint – 4 in has been included in the contract. The Contractor and Engineer should work together to determine any locations throughout the project requiring temporary pavement striping. The Engineer will make the final determination as to the placement of temporary pavement striping.

Remove-Store and Reinstall Signs. A quantity of 5 each of “Remove-Store and Reinstall Sign” has been included in the contract for existing sheet signs that may obstruct or interfere with proposed construction activities. Do not remove an existing sign until just prior to working in the vicinity of the sign. Reinstall the sign as soon as possible once the construction activities in the vicinity of the sign has reached a stage that the sign will no longer be an obstruction or interfere with the work. The intent is for the sign to be “down” the minimum length of time necessary.

Fence Replacement. Impacted fence lines from LT Sta. 287+25 to LT Sta. 289+25 will be removed for construction of fill slopes as directed by the Engineer and replaced once work is complete. Fence will be Woven Wire-Type 2.

1-9023.00

SPECIAL NOTE FOR STAKING

Perform Contractor Staking according to Section 201; except, in addition to the requirements of Section 201, perform the following:

1. Contrary to Section 201.03.01, perform items 1 & 2 usually performed by the Engineer.
2. Verify the dimensions, type, and quantities of the culvert pipes, entrance pipes, and/or box culverts as listed and detailed in the proposal, and determine flow line elevations and slopes necessary to provide positive drainage. Revise as necessary to accommodate the existing site conditions; to provide proper alignment of the drainage structures with existing and/or proposed ditches, stream channels, swales, and the roadway lines and grades; and to ensure positive drainage upon completion of the work.
3. Using stakes, paint marks on the pavement, mag nails, and/or any other means approved by the Engineer, the Contractor shall mark and/or stake the proposed sign locations in the field. NOTE: The proposed signs are listed in the proposal by approximate location and are NOT to be taken as the exact location for the signs. During staking operations the Contractor shall review the signing layout and existing field conditions and look for potential conflicts, including but not limited to utilities, driveways, visual obstructions, etc. When conflicts are found, adjust the staked location of signs to mitigate conflicts. Because the sign locations in the proposal are approximate and the location of some signs may need to be adjusted due to conflicts, during staking operations the Contractor shall refer to and utilize the information in the Manual on Uniform on Traffic Control Devices (MUTCD), current edition. The MUTCD cover items such as: appropriate sign location, advance placement distances, and spacing requirements for signing. The intent is for the proposed signs to be consistent with, and meet the requirements of, the MUTCD. Once the proposed sign locations have been staked, notify and coordinate with the District Traffic Engineer, and perform a review of the staked locations. Adjust the staked locations, as directed by the District Traffic Engineer and obtain approval of the final staked locations. This review will also be used to determine if there are any existing signs that require removal and/or relocation. Provide the District Traffic Engineer with 2 weeks of notice when a route will be ready for a review of the staked locations. NOTE: The District Traffic Engineer may determine that the proposed signing, including sign types and messages, needs to be adjusted and/or modified from what is shown in the proposal. Therefore, the Contractor shall not order any sign material for a route until the route has been staked and final sign location approval has been given by the District Traffic Engineer.
4. Produce and furnish to the Engineer "As Built" information for the drainage improvements. For the drainage improvements, as built information will consist of a final record of the actual types, sizes, and locations of the drainage structures (i.e. box inlets, headwalls, junction boxes, etc.), culvert pipes, and/or box culverts constructed. Final elevation data of the drainage improvements is not necessary.
5. Using paint marks on the pavement, and/or any other means approved by the Engineer, the Contractor shall layout and pre-mark the proposed striping, pavement markings, etc.

Adjust as necessary to accommodate the existing site conditions and to provide proper alignment of the proposed thru and turning lanes. Obtain approval of the pre-marked layout from the Engineer and/or District Traffic Engineer prior to installing the striping and/or pavement markings.

6. Prior to incorporating into the work, obtain the Engineers approval of all revisions determined by the Contractor.
7. Perform any and all other staking operations required to control and construct the work.

1-9023.00

Special Note for Erosion Control

I. DESCRIPTION

Perform all erosion and water pollution control work in accordance with any other notes in the Proposal, the Department's Standard and Interim Supplemental Specifications, the Special Provisions and Special Notes, and the Standard and Sepia Drawings, current editions, or as directed by the Engineer. Section references are to the Standard Specifications. This work shall consist of:

(1) Developing and preparing a Best Management Practices Plan (BMP) tailored to suit the specific construction phasing for each site within the project; (2) Preparing the project site for construction, including locating, furnishing, installing, and maintaining temporary and/or permanent erosion and water pollution control measures as required by the BMP prior to beginning any earth disturbing activity on the project site; (3) Clearing and grubbing and removal of all obstructions as required for construction; (4) Removing all erosion control devices when no longer needed; (5) Restoring all disturbed areas as nearly as possible to their original condition; (6) Preparing seedbeds and permanently seeding all disturbed areas; (7) Providing a Kentucky Erosion Prevention and Sediment Control Program (KEPSC) qualified inspector; and (8) Performing any other work to prevent erosion and/or water pollution as specified by this contract, required by the BMP, or as directed by the Engineer.

II. MATERIALS

Furnish materials in accordance with these notes, the Standard Specifications and Interim Supplemental Specifications, applicable Special Provisions and Special Notes, and the Standard and Sepia Drawings, current editions. Provide for all materials to be sampled and tested in accordance with the Department's Sampling Manual. Unless directed otherwise by the Engineer, make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing.

III. CONSTRUCTION

Be advised, these Erosion Control Notes do not constitute a BMP plan for the project. Jointly with the Engineer, prepare a site-specific BMP plan for each drainage area within the project in accordance with Section 213. Provide a unique BMP at each project site using good engineering practices taking into account existing site conditions, the type of work to be performed, the construction phasing, methods, and the techniques to be utilized to complete the work. Be responsible for all erosion prevention, sediment control, and water pollution prevention measures required by the BMP for each site. Represent and warrant compliance with the Clean Water Act (33 USC Section 1251 et seq.), the 404 Permit, the 401 Water Quality Certification, and applicable state and local government agency laws, regulations, rules, specifications, and permits. Contrary to Section 105.05, in case of discrepancy between these notes, the Standard Specifications, Interim Supplemental Specifications, Special Provisions and Special Notes, Standard and Sepia Drawings, and such state and local government agency requirements, adhere to the most restrictive requirement.
Conduct operations in such a manner as to minimize the amount of disturbed ground during each phase of the construction and limit the haul roads to the minimum required to perform the work. Preserve existing

vegetation not required to be removed by the work or the contract. Seed and/or mulch disturbed areas at the earliest opportunity. Use silt fence, silt traps, temporary ditches, brush barriers, erosion control blankets, sodding, channel lining, and other erosion control measures in a timely manner as required by the BMP and as directed or approved by the Engineer. Prevent sediment laden water from leaving the project, entering an existing drainage structure, or entering a steam.

Provide for erosion control measures to be in place and functioning prior to any earth disturbance within a drainage area. Compute the volume and size of silt control devices necessary to control sediment during each phase of construction. All silt control devices shall be sized to retain a volume of 3,600 cubic feet per disturbed contributing acre. Remove sediment from silt traps before they become a maximum of ½ full. Maintain silt fence by removing accumulated trappings and/or replacing the geotextile fabric when it becomes clogged, damaged, or deteriorated, or when directed by the Engineer. Properly dispose of all materials trapped by erosion control devices at approved sites off the right of way obtained by the Contractor at no additional cost to the Department. See the Special Provision for Waste and Borrow Sites.

As work progresses, add or remove erosion control measures as required by the BMP, applicable to the Contractor's project phasing, construction methods, and techniques. Update the volume calculations and modify the BMP as necessary throughout the duration of the project. Ensure that an updated BMP is kept on site and available for public inspection throughout the life of the project.

The required volume at each Silt Trap shall be computed based on the Up Gradient Contributing Areas that are disturbed and/or stabilized to the satisfaction of the Engineer. The required volume calculation for each Silt Trap shall be determined by the Contractor and verified by the Engineer. The required volume at each Silt Trap may be reduced by the following amounts:

- Up Gradient Areas not disturbed (acres)
- Up Gradient Areas that have been reclaimed and protected by Erosion Control Blanket or other ground protection material such as Temporary Mulch (acres)
- Up Gradient Areas that have been protected by Silt Fence (acres) – Areas protected by Silt Fence shall be computed at a maximum rate of 100 square feet per linear foot of Silt Fence
- Up Gradient Areas that have been protected by Silt Traps (acres)

The use of Temporary Mulch is encouraged.

Silt Trap Type B shall always be placed at the collection point prior to discharging into a Blue Line Stream or onto an adjacent Property Owner. Where overland flow exists, a Silt Fence or other filter devices may be used.

After all construction is complete, restore all disturbed areas in accordance with Section 212. Completely remove all temporary erosion control devices not required as part of the permanent erosion control from the construction site. Prior to removal, obtain the Engineer's concurrence of items to be removed. Grade the remaining exposed earth (both on and off the Right of-Way) as nearly as possible to its original condition, or as directed by the Engineer. Prepare the seed bed areas and sow all exposed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

1-9023.00

Erosion Control
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IV. MEASUREMENT

The Department will measure the various erosion control items according to Section 212.04 and Section 213.04, as applicable.

V. Basis of Payment

The Department will make payment for the various erosion control items according to Section 212.04 and Section 213.04, as applicable.

1-9023.00

Special Note for Ditching & Shouldering

I. DESCRIPTION

Except as provided herein, all work shall be performed in accordance with Department's Standard Specifications, Interim Supplemental Specifications, applicable Standard and Sepia Drawings, and applicable Special Provisions and Special Notes, current editions. Article references are to the Standard Specifications. This project shall consist of furnishing all labor, equipment, materials, and incidentals for the following:

(1) Maintaining and Controlling Traffic; (2) Site Preparation; (3) Ditching; (4) Shouldering; (5) Constructing Embankments, Embankment Benching, and/or Excavation; (6) Erosion Control; and (7) Any other work as specified in this Contract.

II. MATERIALS

All materials shall be sampled and tested in accordance with the Department's Sampling Manual and the materials shall be available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

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

B. Erosion Control. See Special Note for Erosion Control.

C. Channel Lining, Class II. When listed as a bid item, furnish Channel Lining, Class II as per Section 805.

D. Geotextile Fabric Class 1. When listed as a bid item, furnish Geotextile Fabric Class 1 as per Section 843.

III. CONSTRUCTION METHODS

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

B. Erosion Control. See Special Note for Erosion Control.

C. Site Preparation. Be responsible for all site preparation including, but not limited to: staking; clearing, grubbing, and removal of all obstructions or any other items; excavation, embankment benching, compacting embankment in place; temporary pollution and erosion control; disposal of excess, waste, and debris; and final dressing, cleanup, and seeding and protection. Perform all site preparation as approved or directed by the Engineer.

D. Staking. See Special Note for Staking.

E. Ditching & Shouldering. Perform Ditching & Shouldering at the approximate locations listed on the Summary Sheets and/or Plan Sheets, or at locations as directed by the Engineer. All work shall be completed according to Section 209, or as specified in the DITCHING & SHOULDERING AND EMBANKMENT BENCHING DETAILS, the Typical Sections, the Plan Sheets, or as directed by the Engineer. Ditching & Shouldering shall consist of any necessary clearing, grubbing, grading, and/or reshaping of the existing shoulder, ditch, and/or roadside to achieve the proposed shoulder, ditch, and/or roadside dimensions detailed on the Typical Sections. Depending on the existing conditions encountered and to achieve the dimensions as detailed in the Typical Sections, Ditching & Shouldering may also include, but is not limited to: embankment benching, excavating and removing excess material, excavation of rock, providing additional earth material suitable for vegetation growth and grading, shaping, and compacting the earth material.

Provide positive drainage of ditches and slopes at all times during and upon completion of construction. When asphalt surfacing or resurfacing is included in the contract, perform all ditching and as much of the shouldering operations as is practical before beginning final surfacing operations.

F. Embankment Benching. Embankment Benching shall be required when the existing groundline has an incline greater than 15%. Any and all required embankment benching shall be incidental to the bid item DITCHING & SHOULDERING. For more information refer to the DITCHING & SHOULDERING AND EMBANKMENT BENCHING DETAILS.

G. Channel Lining. Install Class II Channel Lining along any sections of ditches, fill slopes, or ditch backslopes identified in the Proposal, or any other locations the Engineer directs for slope protection or erosion control. When Channel Lining is proposed to be installed along a steep fill slope in order to establish a width of shoulder (as shown in Figure 5 of the DITCHING & SHOULDERING AND EMBANKMENT BENCHING DETAILS), the Channel Lining is to be capped with Geotextile Fabric Class 1 and 4” of Crushed Stone Base. In lieu of 4” of Crushed Stone Base, 4” of DGA and a Double Asphalt Seal Coat may be specified in the Proposal. Install whichever aggregate capping material the Proposal specifies, or as directed by the Engineer.

H. Right-of-Way Limits. The Department has not established exact limits of the Right-of-Way. Unless a consent and release form is obtained from the adjoining property owner, limit work activities to the obvious Right-of-Way and staging areas secured by the Contractor at no additional cost to the Department. In the event that private improvements (i.e. fences, buildings, etc.) encroach upon the Right-of-Way, the contractor shall notify the Engineer and limit work activities in order to NOT disturb the improvements. If they become necessary, the Department will secure consent and releases from property owners through the Engineer. Be responsible for all encroachments onto private lands.

I. Property Damage. The Contractor shall be responsible for all damage to public and/or private property resulting from the Contractor’s activities. Repair or replace damaged roadway features in like kind materials and design as directed by the Engineer at no additional cost to the Department. Repair or replace damaged private property in like kind materials and design to the satisfaction of the owner and the Engineer at no additional cost to the Department.

J. Coordination with Utility Companies. Locate all underground, above ground, and overhead utilities prior to beginning construction. Be responsible for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require that utilities be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. Be responsible for repairing all utility damage that occurs due to the Contractor's operations at no additional cost to the Department. NOTIFY THE ENGINEER AND THE UTILITY OWNER(S) IMMEDIATELY WHEN IT IS DISCOVERED OR ANTICIPATED THAT ANY UTILITY CONFLICT COULD DELAY THE CONTRACTOR'S OPERATIONS. If the total delay exceeds ten working days, an extension of the specified completion date will be negotiated with the Contractor for delay to the Contractor's work; however, no extension will be granted for any delay caused by the Contractor's failure to notify the Engineer and/or the utility company as specified above when a conflict is discovered or anticipated as specified.

K. Caution. The information in this proposal and the type of work listed herein are approximate only and are not to be taken as an exact evaluation of the materials and conditions to be encountered during construction; the bidder must draw his/her own conclusions when developing the Unit Bid Prices for each bid item. As such, if the conditions encountered are not in accordance with the information shown, the Department does not guarantee any changes to the Unit Bid Prices nor extension of the contract will be considered. The Department will pay for bid item quantity overruns, but only if pre-approved by the Engineer.

L. Control. Perform all work under the absolute control of the Department. Obtain the Engineer's approval of all designs required to be furnished by the Contractor prior to incorporation into the work. The Department reserves the right to have other work performed by other contractors and its own forces, and to permit public utility companies and others to do work during the construction within the limits of, or adjacent to, the project. Conduct operations and cooperate with such other parties so that interference with such other work will be reduced to a minimum. The Department will not honor any claims for money or time extension created by the operations of such other parties.

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

M. Clean Up, Disposal of Waste. Clean up the project area as work progresses. Dispose of all removed excess material, debris, and other waste at approved sites off the Right of Way obtained by the Contractor at no additional cost to the Department. See the Special Provision for Waste and Borrow Sites.

N. Final Dressing, Seeding and Protection. Grade all disturbed areas to blend with the adjacent roadways features and to provide a suitable seed bed. Apply Class A Final Dressing to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

IV. METHOD OF MEASUREMENT

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

B. Erosion Control. See Special Note for Erosion Control.

C. Site Preparation. Other than the bid items listed, the Department will NOT measure Site Preparation for payment, but shall be incidental to the project bid items.

D. Staking. See Special Note for Staking.

E. Ditching & Shouldering. Contrary to Section 209.04 the Department will measure the bid item DITCHING & SHOULDERING in linear feet along the centerline of the roadway as the length of the actual ditching and/or shouldering work performed. Further, this measurement will only include one side of the roadway. Therefore, for areas where ditching and shouldering occurs on both sides of the road, the Department will measure each side independently. The Department will not measure cleaning pipe structures 36 inches or less in diameter or reshaping any deformed ends on metal entrance pipes that are to remain in place, as these operations are considered incidental to the bid item DITCHING & SHOULDERING.

F. Embankment Benching. The Department will not measure Embankment Benching for payment. Any and all required embankment benching shall be incidental to the bid item DITCHING & SHOULDERING.

G. Channel Lining, Class II. When listed as a bid item, Class II Channel Lining shall be measured according to Section 703.04.

H. Geotextile Fabric, Class 1. When listed as a bid item, Geotextile Fabric, Class 1 shall be measured according to Section 214.04.

I. Clean Up, Disposal of Waste, Final Dressing, Seeding and Protection. The Department will NOT measure for payment the following activities: Clean Up, Disposal of Waste, and Final Dressing. These activities shall be incidental to the project bid items. Seeding and Protection shall be measured according to Section 212.

V. BASIS OF PAYMENT

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

B. Erosion Control. See Special Note for Erosion Control.

C. Staking. See Special Note for Staking.

D. Ditching & Shouldering. The Department will make payment for the completed and accepted quantities under the bid item DITCHING & SHOULDERING. The Department will consider payment full compensation for furnishing all labor, materials, equipment, and incidentals necessary to preform Ditching & Shouldering as required by these notes, at the locations indicated on the summary sheets, plans, and/or as directed by the Engineer.

E. Channel Lining, Class II. When listed as a bid item, the Department will make payment for Class II Channel Lining according to Section 703.05.

F. Geotextile Fabric, Class 1. When listed as a bid item, the Department will make payment for Geotextile Fabric, Class 1 according to Section 214.05.

1-9023.00

SPECIAL NOTE FOR SHOULDER MILLING/TRENCHING

Trench shoulders as shown on the Typical Section. The Engineer may eliminate locations along the route from shoulder trenching (e.g. road approaches, turn lanes, entrances, etc.). For entrances and road approaches, the Engineer will determine whether to omit the trenching or continue the trenching across the entrance or approach. DO NOT trench across entrances or road approaches without the Engineer's approval. If trenching is achieved by means other than milling, saw cut the pavement 8 inches deep to create a smooth edge prior to excavating the shoulder trench. Excavate the material from the shoulder and maintain the proposed cross-slope as shown on the Typical Sections. The intent is to mill, or excavate, the entire trench so that the proposed shoulder slope is retained at the end of the paving operation. Reshape and compact excavated material from the trench on the outside edge of the newly paved shoulder as shown on the Typical Section.

Retain possession of excess materials and/or materials the Engineer deems unsuitable for reuse and waste the materials off the right-of-way at sites obtained by the Contractor at no additional cost to the Department. See Special Provision for Waste and Borrow.

Accept payment at the contract unit price per square yard for SHOULDER MILLING/TRENCHING as full compensation for all labor, materials, equipment, and incidentals for excavating the shoulder trench and reuse and/or disposal of the excavated material.

1-9023.00

Special Note for Box Culvert Extensions

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Department's Standard Specifications, interim Supplemental Specifications, Standard and Sepia Drawings, and Special Notes and Special Provisions, current editions. Section references are to the Standard Specifications. This project shall consist of furnishing all labor, equipment, materials, and incidentals for the following:

(1) Contractor staking; (2) Site preparation; (3) Removing existing concrete masonry, as necessary; (4) Foundation preparation and construction of reinforced concrete box culvert extensions and headwalls; (4) Maintain and Control Traffic; and (5) all other work specified as part of this contract.

II. MATERIALS

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

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

B. Erosion Control. See Special Note for Erosion Control.

C. Foundation Preparation. Furnish materials according to Section 603, the drawings, and as directed by the Engineer.

D. Reinforced Concrete Box Culvert Extensions. Furnish Class A Concrete and deformed Steel Reinforcement according to Sections 601 and 602. Contrary to Section 602.03.03, field bending bars will be allowed; however, obtain the Engineers approval of proposed field bending methods prior to bending. Furnish additional reinforcement to provide adequate splice lengths with existing box culvert steel as determined by the Engineer.

E. Steel Reinforcement. See Section 811.

III. CONSTRUCTION

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

B. Erosion Control. See Special Note for Erosion Control.

C. Site Preparation. Be responsible for all Site Preparation, including but not limited to Clearing and Grubbing; Removing pavement; Tree and Stump removal; Temporary Fencing; Roadway Excavation and Structure Excavation; Embankment and Embankment in Place; removal of obstructions or any other items; Grading, Reshaping, and Compacting; Ditching and Shouldering, obtaining borrow and

waste sites, and disposal of materials, waste, and debris; cleaning inlet and outlet ditches; and restoration, cleanup and final dressing. Clear and Grub only the minimum area required for construction and/or as directed by the Engineer. Limit clearing and grubbing to the absolute minimum required to construct the box culvert extensions. Obtain the Engineer's approval before removing trees and stumps from the cleared areas. Phase construction such that the potential for erosion is as minimal as possible. Excavate as needed to remove any portion of the existing structure necessary for construction of the box culvert extension. Perform any ditching or grading as directed by the Engineer. Stockpile suitable materials for incorporation into the work as approved by the Engineer. Be responsible for all excavation (common, roadway, structure, solid rock, and unclassified) required for foundation preparation, toe walls, and all other excavation required for the box culvert extensions. Excavate rock in channel as required to allow for construction of foundation and construction of box culvert extensions. Be responsible for all embankment, embankment in place, and borrow required for backfilling the box culvert extension, constructing widened roadway and shoulder transitions, and all other embankment required to complete the work. Provide positive drainage of slopes and ditches at all times during and upon completion of construction. Waste all removed materials not incorporated into the work at sites off the right of way obtained by the Contractor at no additional cost to the Department (see the Special Provision for Waste and Borrow Sites). Perform all excavation and removal of obstructions only as approved or directed by the Engineer.

Sheeting, shoring, cofferdams, and/or dewatering methods may be necessary for construction of the culvert. Include all costs in the unit price bid for Foundation Preparation.

D. Remove Headwall. Remove the existing headwall(s) and wingwalls at the existing box culvert end(s) to sound concrete masonry, or as directed by the Engineer. Before removing any concrete masonry saw around the perimeter of the removal area on the interior and exterior to a depth of 1 inch. When sawing, take care not to cut into the existing steel reinforcement. Do not kink or unnecessarily bend exposed existing steel reinforcement. Remove structure excavation to solid rock, or as directed by the Engineer, and prepare foundation. Existing steel reinforcement shall be thoroughly cleaned of concrete and straightened for use to bond the new concrete and reinforcement with a minimum overlap of 1'-9", unless otherwise shown in the drawings. Coat exposed ends of cut reinforcement with a bituminous produce to prevent corrosion of the ends of the exposed reinforcement. As an alternative, if the existing headwall is sound, the Engineer may approve leaving the existing headwall in place, in which case the existing parapet should be removed to 6" below proposed roadway elevation. If the Engineer approves leaving the existing headwall in place, center 3'-0" long, #6 dowel bars at 12" spacing into the existing slabs and walls, embedded 1'-6" deep into the existing box culvert concrete, and set with an adhesive anchorage system to provide a pullout strength of equal or greater capacity than the corresponding reinforcing steel.

E. Box Culvert Extensions. Construct the box culvert extension(s) according to the notes and details in the drawings, and Sections 601, 602, 603, 610, and/or any other applicable Standard Specifications. Class A Concrete shall be used throughout. Bond the proposed plastic concrete to the existing hardened concrete in all locations using a Type V Epoxy Resin or other approved structural adhesive, as prescribed in Section 826. Follow the manufacturer's application instructions. All exposed concrete edges shall be beveled ¾", unless otherwise noted. Reinforcement shall have a 2" clear distance to the proposed face of concrete, unless otherwise noted. Obtain the Engineer's approval

of the final centerline, flow line, length, skew, and revised dimensions and/or steel pattern, if any, of each box culvert extension prior to placing concrete.

The Contractor is required to complete the box culvert extension(s) in accordance with the plans and all applicable specifications. The cost of any and all labor, materials, equipment, and/or any other items necessary to construct the box culvert extension(s) shall be incidental to the most appropriate bid items. Incidental items may include, but are not limited to, cofferdams, shoring, excavation, backfilling, and phased construction.

F. Remove Concrete Masonry. If the Engineer approves leaving the existing headwall(s) in place, a portion of the existing parapet(s) may need to be removed in order to construct a shoulder of suitable depth from the edge of pavement to the proposed headwall. Any necessary removal of a portion of the existing parapet shall be considered Site Preparation and shall be incidental to the box culvert bid items. Also, if the existing headwall(s) are left in place, one or both of the existing wingwalls, or a portion of either wingwall may need to be removed in order to construct the proposed box culvert extension(s) and/or headwall(s). In this situation, any necessary removal of the existing wingwall(s), or any portion thereof, shall be considered Site Preparation and shall be incidental to the box culvert bid items.

G. Embankments. Backfill box culvert extensions and construct embankments, slopes, roadway shoulders, and ditches as shown on the drawings, or as directed by the Engineer. Warp and tie the embankment slopes into the adjacent existing roadway to match the existing slopes and ditches. Provide positive drainage of slopes and ditches at all times during and upon completion of construction.

H. Ditching, Shouldering. Construct ditches and shoulders to provide positive drainage. Transition the ditches and shoulders between the existing typical section and the reconstructed roadway at the box culvert extension site(s). Clean all new and existing cross drainage and entrance structures within the limits of the ditching areas according to Section 209.03.B.

I. Clean Culvert. Remove all deleterious material and objects not native to the box culvert barrel, such as, but not limited to debris and silt. The Contractor may choose to clean the box culvert prior to, or after, the proposed box culvert extension work. If the Contractor chooses to clean the box culvert prior to the proposed box culvert extension work, and additional debris, silt, etc. builds up during the box culvert extension operations, the Contractor shall remove the additional debris, silt, etc. at no additional cost to the Department, after the box culvert extension operations are complete.

NOTE: The proposal lists the existing box culverts that are to receive the Clean Culvert bid item. These identified box culverts are those that had existing debris, silt, etc. at the time the proposal was developed. The Engineer and the Contractor are encouraged to review the proposed box culvert extension site(s) prior to the Contractor beginning the box culvert extension work and determine if the Clean Culvert bid item applies. The Engineer shall determine the final approved quantities. If an existing box culvert location has a buildup of debris, silt, etc., but the Clean Culvert bid item is NOT listed in the proposal for that box culvert, the Contractor shall notify the Engineer prior to beginning box culvert extension operations, so that the Engineer can confirm that the existing box culvert has a buildup of debris, silt, etc. If the contactor does not notify the Engineer of this situation prior to

beginning the box culvert extension operations, the Engineer will assume the buildup was a result of the Contractor's operations, and the cost of cleaning the box culvert shall be at no additional cost to the Department.

J. Property Damage. Be responsible for all damage to public and/or private property resulting from the work. Restore damaged roadway features and private property at no additional cost to the Department.

K. On-Site Inspection. Before submitting a bid for the work, make a thorough inspection of the site and determine existing conditions so that the work can be expeditiously performed after a contract is awarded. The Department will consider submission of a bid to be evidence of this inspection having been made. The Department does not warrant or give any guarantee as to the accuracy of the data and information shown and no claims for money or time extensions will be considered if the conditions encountered, items used or omitted, and final quantities required are not in accordance with the information shown.

L. Coordination with Utility Companies. Locate all underground, above ground, and overhead utilities prior to beginning construction. Be responsible for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require utilities to be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. Be responsible for repairing all utility damage that occurs as a result of the Contractor's operations at no additional cost to the Department.

M. Right of Way Limits. The Department has not established the exact limits of the Right-of-Way. Limit work activities to obvious Right-of-Way, permanent or temporary easements, and work areas secured by the Department through consent and release of the adjacent property owners. Be responsible for all encroachments onto private lands.

N. Control. Perform all work under the absolute control of the Department. Obtain the Engineer's approval of all designs required to be furnished by the Contractor prior to incorporation into the work. The Department reserves the right to have other work performed by other contractors and its own forces and to permit public utility companies and others to do work during the construction within the limits of, or adjacent to, the project. Conduct operations and cooperate with such other parties so that interference with such other work will be reduced to a minimum. The Department will not honor any claims for money or time extension created by the operations of such other parties. Should a difference of opinion arise as to the rights of the Contractor and others working within the limits of, or adjacent to, the project, the Engineer will decide as to the respective rights of the various parties involved in order to assure the completion of the Department's work in general harmony and in a satisfactory manner, and his decision shall be final and binding upon the Contractor.

O. Clean Up, Disposal of Waste. Dispose of all removed concrete, debris, and other waste and debris off the Right-of-Way at sites obtained by the Contractor at no additional cost to the Department. See the Special Provision for Waste and Borrow Sites.

P. Final Dressing, Seeding and Protection. Apply Class A Final Dressing to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

IV. MEASUREMENT

Quantities shown on the summaries and drawings are approximate only. The Department will measure for payment only the listed bid items and the actual quantities incorporated in the work. All other items required to complete the construction shall be incidental to the listed bid items.

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

B. Erosion Control. See the Special Note for Erosion Control.

C. Site Preparation. Other than the bid items listed, the Department will not measure Site Preparation for separate payment but shall be incidental to the applicable project bid items.

D. Remove Headwall. The Department will measure the removal of existing headwalls as Each. If the Engineer allows a proposed box culvert extension to be constructed without removing the existing headwall, the Remove Headwall bid item shall not be measured for payment.

E. Foundation Preparation. The Department will measure Foundation Preparation of box culvert extensions as Lump Sum. The Lump Sum unit price shall include all extensions at each identified box culvert and shall not be measured as individual units per inlet or outlet. Except for the Foundation Preparation bid items listed, the Department will NOT measure Foundation Preparation for any other items of work and shall consider it incidental to the other items of work, as applicable.

F. Box Culvert. The Department will measure box culvert in linear feet, from the face of the existing barrel, after headwall removal, to the face of the new culvert headwall.

G. Box Culvert Headwall. The Department will measure box culvert headwall as Each.

H. Clean Culvert. The Department will measure each box culvert cleaned as Lump Sum. The bid item Clean Culvert will not be measured when a box culvert must be cleaned due to buildup of debris, silt, etc. that occurs during the Contractor's construction operations.

V. PAYMENT

The Department will make payment only for the bid items listed. All other items required to complete the construction shall be incidental to the listed bid items.

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

B. Erosion Control. See the Special Note for Erosion Control.

C. Foundation Preparation. Payment at the Lump Sum unit price shall be full compensation for furnishing all labor, materials, and equipment necessary for Foundation Preparation of all extensions at each identified box culvert.

D. Box Culvert. The Department will make payment for the completed and accepted quantities of linear foot of box culvert constructed, as approved by the Engineer. Payment at the unit price shall be full compensation for furnishing all labor, materials, and equipment necessary to clean each box culvert measured for payment.

E. Box Culvert Headwall. The Department will make payment for the completed and accepted quantities of each box culvert headwall constructed, as approved by the Engineer. Payment at the unit price shall be full compensation for furnishing all labor, materials, and equipment necessary to clean each box culvert measured for payment.

F. Clean Culvert. The Department will make payment for the completed and accepted quantities of each box culvert cleaned, as approved by the Engineer. Payment at the Lump Sum unit price shall be full compensation for furnishing all labor, materials, and equipment necessary to clean each box culvert measured for payment. Any box culverts that require cleaning but are not approved by the Engineer for measurement of payment, shall be incidental to the box culvert bid items.

1-9023.00

Special Note for Pipe Replacements and Extensions

I. DESCRIPTION

Except as provided herein, perform all work in accordance with the Department's Standard Specifications, interim Supplemental Specifications, Standard and Sepia Drawings, and Special Notes and Special Provisions, current editions. Article references are to the Standard Specifications. This project shall consist of furnishing all labor, equipment, materials, and incidentals for the following:

(1) Maintaining and Controlling Traffic; (2) Constructing pipe replacements and/or pipe extensions; (3) Embankment and/or Excavation; (4) Erosion Control; and (6) Any other work as specified by this contract.

II. MATERIALS

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

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

B. Culvert Pipe. Furnish pipe meeting the requirements of Section 810. Select pipe for pH range Medium and minimum fill cover height according to the applicable Standard or Sepia Drawings, current editions. Verify maximum and minimum fill cover height required for new pipe prior to construction and obtain the Engineer’s approval of the class or gauge of pipe and type of coating prior to delivering pipe to project. Furnish approved connecting bands or pipe anchors and toe walls.

C. Flowable Fill. Furnish Flowable Fill for Pipe Backfill per Section 601.03.03(B).

D. Erosion Control. See Special Note for Erosion Control.

III. CONSTRUCTION METHODS

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

B. Erosion Control. See Special Note for Erosion Control.

C. Site Preparation. Be responsible for all site preparation including, but not limited to, saw cutting and removing existing pavement; clearing and grubbing; staking; incidental excavation and backfilling; common and solid rock excavation; embankment in place; removal of obstructions, or any other items; restoration of pavements, slopes, and all disturbed areas; final dressing and cleanup; and disposal of materials. Limit clearing and grubbing to the absolute minimum required to construct the drainage features. Perform all site preparation only as approved or directed by the Engineer.

D. Removing Headwalls, Pipe, and Excavation. Remove existing headwalls and lengths of culvert

and/or entrance pipes at the approximate locations noted on the summary. The Engineer will determine the exact locations and lengths of pipe to be removed at the time of construction. When any portion of pipe under the roadway, saw cut the existing asphalt pavement and base to a neat edge prior to excavation and removal of the existing pipe. NOTE: Saw cutting the pavement shall be incidental. Obtain the Engineer's approval of trench width and/or saw cutting limits prior to saw cutting the pavement. Excavate the trench and remove the pipe as directed, or approved, by the Engineer without disturbing existing underground utilities.

E. Constructing Pipe, Headwalls, and Drainage Boxes. Construct culvert and/or entrance pipes, pipe extensions, headwalls, drainage boxes, and other drainage structures at the locations shown in the proposal or as designated by the Engineer. The Contractor will establish, with the approval of the Engineer, the final centerlines, flow lines, and skews to obtain the best fit with the existing and/or proposed ditches and other proposed improvements. (See the Special Note for Staking.) Construct pipe bedding according to Section 701 and the applicable Standard or Sepia Drawings, current editions. Use approved connecting bands or concrete anchors as required. Prior to backfilling pipe, obtain the Engineer's approval of the pipe installation. Provide positive drainage upon completion of pipe installation.

F. Pipe Backfill. Backfill entrance pipes according to Section 701.03.06. Contrary to Section 701.03.06, regardless of cover height, backfill culvert pipes with flowable fill as shown on the Culvert Pipe Replacement Detail from the outside edge of shoulder or back of curb to outside edge of shoulder or back of curb. Steel plates will likely be required to maintain traffic while the flowable fill cures. Once the flowable fill has sufficiently cured, place the Asphalt Base in lifts with thicknesses of 3-4 inches, up to the surface of the existing pavement. Seal with Leveling & Wedging. Allow the asphalt base and leveling & wedging to be exposed to traffic for a minimum of 14 days to allow for settlement. During the waiting period, level & wedge any settlement as directed by the Engineer. After the waiting period has been met for the last pipe replacement constructed, the final milling and/or surfacing operations can begin, unless directed otherwise by the Engineer. For culvert pipe beyond the outside edge of shoulder or back of curb, backfill according to Section 701.03.06.

G. Embankments. Backfill pipe and culvert extensions, and construct shoulder embankments as directed by the Engineer. The Contractor shall bench into the existing slope and apply proper compaction according to Section 206. For more information and details on benching, refer to Note 2 on the detail sheet titled: DITCHING & SHOULDERING AND EMBANKMENT BENCHING DETAILS, found elsewhere in the Proposal. Provide positive drainage of ditches, shoulders, and slopes at all times during and upon completion of construction.

H. Property Damage. Be responsible for all damage to public and/or private property resulting from the work. Repair or replace damaged roadway features in like kind materials and design, as directed by the Engineer at no additional cost to the Department. Repair or replace damaged private property in like kind materials and design to the satisfaction of the owner and the Engineer at no additional cost to the Department.

I. Coordination with Utility Companies. Locate all underground, above ground, and overhead utilities prior to beginning construction. Be responsible for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or

underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require that utilities be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. Be responsible for repairing all utility damage that occurs as a result of pipe replacement and pipe extension operations at no additional cost to the Department. NOTIFY THE ENGINEER AND THE UTILITY OWNER(S) IMMEDIATELY WHEN IT IS DISCOVERED OR ANTICIPATED THAT ANY UTILITY CONFLICT COULD DELAY THE CONTRACTOR'S OPERATIONS. If the total delay exceeds ten working days, an extension of the specified completion date will be negotiated with the Contractor for delay to the Contractor's work; however, no extension will be granted for any delay caused by the Contractor's failure to notify the Engineer and/or the utility company as specified above when a conflict is discovered or anticipated as specified.

J. Right-of-Way Limits. The Department has not established exact limits of the Right-of-Way. Unless a consent and release form is obtained from the adjoining property owner, limit work activities to the obvious Right-of-Way and staging areas secured by the Contractor at no additional cost to the Department. In the event that private improvements (i.e. fences, buildings, etc.) encroach upon the Right-of-Way, the Contractor shall notify the Engineer and limit work activities in order to NOT disturb the improvements. If they become necessary, the Department will secure consent and releases from property owners through the Engineer. Be responsible for all encroachments onto private lands.

K. Clean Up, Disposal of Waste. Clean up the project area as work progresses. Dispose of all removed concrete, pipe, pavement, debris, excess and unsuitable excavation, and all other waste at approved sites off the Right of Way obtained by the Contractor at no additional cost to the Department. See the Special Provision for Waste and Borrow Sites.

L. Final Dressing, Seeding and Protection. Grade all disturbed areas to blend with the adjacent roadways features and to provide a suitable seed bed. Apply Class A Final Dressing to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

M. Erosion Control. See the Special Note for Erosion Control.

IV. METHOD OF MEASUREMENT

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

B. Site Preparation. Other than the bid items listed, site preparation will NOT be measured for payment, but shall be incidental to culvert and/or entrance pipe bid items, as applicable.

C. Remove Headwall. The Department will measure the removal of existing headwalls as Each. Any excavation, including rock excavation, necessary to remove existing headwalls will NOT be measured for payment, but shall be incidental to the bid item "Remove Headwall".

D. Remove Pipe. Removal of existing culvert and entrance pipe shall be measured according to Section

701.04.14. Any excavation, including rock excavation, necessary to remove existing pipe will NOT be measured for payment, but shall be incidental to the bid item "Remove Pipe".

E. Culvert and Entrance Pipe. The Department will measure the quantities according to Section 701.04. Any excavation, including rock excavation, necessary to install culvert or entrance pipe shall be incidental to the corresponding pipe bid items.

F. Headwalls, Drainage Boxes. The Department will measure according to Section 710. Any excavation, including rock excavation, necessary to construct headwalls and/or drainage boxes will NOT be measured for payment, but shall be incidental to the applicable bid item.

G. Excavation, Pipe Backfill, Embankments. The Department will NOT measure for payment the following items: any excavation, including rock excavation, necessary to remove the existing pipe and/or install the proposed culvert or entrance pipe, pipe backfill material, geotextile fabric, flowable fill, and re-constructing shoulder embankments, but shall considered these items incidental to the bid items for culvert and entrance pipe.

H. Clean Up, Disposal of Waste, Final Dressing, Seeding and Protection. The Department will NOT measure for payment the following activities: Clean Up, Disposal of Waste, and Final Dressing. These activities shall be incidental to the project bid items. Seeding and Protection shall be measured according to Section 212.

I. Erosion Control. See the Special Note for Erosion Control.

V. BASIS OF PAYMENT

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

B. Remove Headwall. The Department will make payment for the completed and accepted quantities of Each headwall removed. Payment at the Contract unit price per Each shall be full compensation for furnishing all labor, materials, equipment, and incidentals for removing the existing headwall.

C. Remove Pipe. The Department will make payment according to Section 701.05. Payment at the Contract unit price per linear foot shall be full compensation for furnishing all labor, materials, equipment, and incidentals for removing the existing pipe.

D. Culvert and Entrance Pipe. The Department will make payment according to Section 701.05. Payment at the Contract unit price per linear foot shall be full compensation for furnishing all labor, materials, equipment, and incidentals necessary for installing and backfilling new culvert and entrance pipe.

E. Headwalls, Drainage Boxes. The Department will make payment according to Section 710.

F. Erosion Control. See the Special Note for Erosion Control.

1-9023.00

Special Note for Signage

All sign sheeting shall be from the Cabinet's List of Approved Materials.

All permanent signs and sign components shall be fabricated using Type XI sheeting.

The following signs and sign components shall be fabricated using Type XI fluorescent yellow sheeting:

- Horizontal Alignment Signs and Plaques, including signs shown in Figure 2C-1 of the MUTCD
- All Advisory Speed (W13-1P) plaques

The following signs shall be fabricated using Type XI fluorescent yellow-green sheeting:

- School and school bus warning signs, including the fluorescent yellow-green signs shown in Figures 7B-1 and 7B-6 of the MUTCD and other school-related warning signs that are not included in the MUTCD.
- Bicycle Warning (W11-1) signs and SHARE THE ROAD (W16-1P) plaques or diagonal downward pointing arrow (W16-7P) plaques that supplement Bicycle Warning signs.
- Pedestrian Warning signs and diagonal downward pointing arrow plaques that supplement Pedestrian Warning signs.
- In-Street Pedestrian Crossing (R1-6) signs and Overhead pedestrian Crossing (R1-9) signs
- Supplemental plaques to any of the previously listed signs

1-9023.00

Special Note for Signing

I. DESCRIPTION

Except as provided herein, this work shall be performed in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD), the Department's current Standard Specifications and Interim Supplemental Specifications, applicable Standard and Sepia Drawings, and applicable Special Provisions. Article references are to the Standard Specifications. This project shall consist of furnishing all labor, equipment, materials, and incidentals for the following:

(1) Maintaining and Controlling Traffic; (2) Furnish, Fabricate, and Erect Signs; and (3) All other work specified in the Contract.

II. MATERIALS

All materials shall be sampled and tested in accordance with the Department's Sampling Manual and the materials shall be available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

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

B. Erosion Control. See Special Note for Erosion Control.

III. CONSTRUCTION METHODS

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

B. Site Preparation. Be responsible for all site preparation including, but not limited to: clearing and grubbing, staking, excavation, backfill, and removal of obstructions or any other material not covered by other items. Perform all site preparation only as approved or directed by the Engineer.

C. Staking. See Special Note for Staking.

D. Signs and Posts. Before beginning installation, the Contractor shall furnish to the Engineer drawings, descriptions, manufacturer’s cuts, etc. covering all material to be used. Mill test reports for beams, steel panels, and each different gauge of aluminum or steel sheeting used must be submitted to the Division of Construction and approved prior to erection.

Fabricate sheet signs from .080 or .125 gauge aluminum alloy 5052-H38 or 6061-T6, in accordance with ASTM B-209, and to the size and shape specified. Prepare the side of the sheet to be used as the sign face to receive the retroreflective background material according to the recommendations of the sheeting and retroreflective material manufacturer(s). Sheeting used as background material for sign faces is to be the color specified and visually in accordance with the standard requirements of ASTM D-4956, and meet the requirements of Section 830 of the Standard Specifications. Contrary to Section 830.02.06, only the types and colors of sheeting as specified in the proposal will be

accepted. All retroreflective material shall be fabricated and assembled in accordance with the specifications and/or recommendations of the manufacturer(s).

All hardware for the erection of sheeting signs shall be rust resistant: stainless steel, zinc coated, aluminum, or an Engineer approved material. All beams and posts shall be of sufficient lengths to extend from the top of the sign to the required embedment in the anchor. Splicing of the sign post shall NOT be allowed. For installations in soil, Type I steel posts shall be mounted on either a standard anchor, with soil stabilizer plate, or on a Type D breakaway sign support. Refer to Sheeting Sign Detail Sheet 1 of 2 for installation details for a standard anchor with soil stabilizer plate. When installing a standard anchor with soil stabilizer plate, if solid rock is encountered, the Contractor shall drill a hole to the required depth into the rock, install the anchor into the hole, and backfill the anchor post with concrete, or other method approved by the Engineer. The cost shall be incidental to Type I steel post, and a soil stabilizer plate will not be required. Refer to Standard Drawing RGX-065, current edition, for installation details of Type D breakaway sign supports. Approved manufacturers for Type D breakaway sign supports have been placed on the list of approved materials. For installations on existing concrete, such as a sidewalk, concrete median, etc., or installations on existing asphalt, such as flush medians, Type I steel posts shall be mounted on a Type D Surface Mount. For Type D Surface Mounts use only Kleen Break Model 425 by Xcessories Squared of Auburn, IL. If the Surface Mount is to be installed on sufficiently cured concrete, use part number XKBSM42520-G. If the Surface Mount is to be installed on asphalt surface, use part numbers XKB42520-G and AXT225-36-G. Prior to installation, the Contractor shall submit to the Engineer shop drawings of the Type D Surface Mount(s). Install the Type D Surface Mount(s) according to all the applicable requirements of the manufacturer (see shop drawings). All steel post shall meet the requirements of Section 832. All hardware including, but not limited to, sign post anchors, soil stabilizer plates, nuts, bolts, washers, fasteners, fittings, and bracing, or any other incidentals necessary to erect the signs shall be furnished by the Contractor and will be incidental to the work.

New concrete bases, posts, support anchors, signs, etc. are to be installed prior to dismantling any existing sign(s). The removal of existing signs, posts, and support anchors is to be performed concurrently with the installation of new signs, posts, and support anchors, under the same lane closure during the same work shift. Completely remove existing sign support anchors or remove them to a minimum depth of six (6) inches below existing ground line and backfill the disturbed area to the existing ground line.

When listed in the summaries, Reflective Sign Post Panels shall be 2” wide x 60” tall (or 84” tall for urban installations) and shall have three 3/8” holes (one hole in the top 3”, one hole near the center, and one hole in the bottom 3”) that align with the holes on the Type I steel post. Sheeting for the Reflective Sign Post Panels shall be the same Type and color as the sign installed on the post. Examples include:

- Red, fluorescent yellow, and fluorescent yellow-green (Type XI Sheeting)
- White and yellow (Type XI Sheeting).

All manufactured sheeting signs shall be free of visual defects including, but not limited to: cracks, tears, ridges, humps, discoloration, etc., and defective signs shall be replaced at no additional cost to the Department.

All sign blanks shall be hole punched by the manufacturer for either horizontal or vertical installation. Attach all aluminum sheeting signs to square post with 3/8" all steel rivets and nylon washers.

Post will be attached to the anchor with 5/16" corner bolts and 5/16" flanged nuts, and all post and anchor cuts shall be treated with a Cold Galvanizing Compound spray.

Sign posts shall be erected vertically by using a bubble level. The tolerance shall be a two (2) degree angle in any direction. For locations where more than one sign is mounted beside each other, the posts shall be spaced to provide approximately six inches (6") of spacing between signs.

E. Property Damage. The Contractor shall be responsible for all damage to public and/or private property resulting from the Contractor's activities. Repair or replace damaged roadway features in like kind materials and design as directed by the Engineer at no additional cost to the Department. Repair or replace damaged private property in like kind materials and design to the satisfaction of the owner and the Engineer at no additional cost to the Department.

F. Coordination with Utility Companies. Locate all underground, above ground, and overhead utilities prior to beginning construction. Be responsible for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require that utilities be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. Be responsible for repairing all utility damage that occurs due to the Contractor's operations at no additional cost to the Department. NOTIFY THE ENGINEER AND THE UTILITY OWNER(S) IMMEDIATELY WHEN IT IS DISCOVERED OR ANTICIPATED THAT ANY UTILITY CONFLICT COULD DELAY THE CONTRACTOR'S OPERATIONS. If the total delay exceeds ten working days, an extension of the specified completion date will be negotiated with the Contractor for delay to the Contractor's work; however, no extension will be granted for any delay caused by the Contractor's failure to notify the Engineer and/or the utility company as specified above when a conflict is discovered or anticipated as specified.

G. Caution. The information in this proposal and the type of work listed herein are approximate only and are not to be taken as an exact evaluation of the materials and conditions to be encountered during construction; the bidder must draw his/her own conclusions when developing the Unit Bid Prices for each bid item. As such, if the conditions encountered are not in accordance with the information shown, the Department does not guarantee any changes to the Unit Bid Prices nor extension of the contract will be considered. The Department will pay for bid item quantity overruns, but only if pre-approved by the Engineer.

H. Control. Perform all work under the absolute control of the Department. Obtain the Engineer's approval of all designs required to be furnished by the Contractor prior to incorporation into the work. The Department reserves the right to have other work performed by other contractors and its own forces, and to permit public utility companies and others to do work during the construction within the limits of, or adjacent to, the project. Conduct operations and cooperate with such other parties so that interference with such other work will be reduced to a minimum. The Department

will not honor any claims for money or time extension created by the operations of such other parties.

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

I. **Clean Up, Disposal of Waste.** Clean up the project area as work progresses. Dispose of all removed concrete, debris, and other waste as per Section 204.03.08. The Department will incur no cost to obtain the disposal sites. The Department will NOT make direct payment for disposal of waste and debris from the project. Existing anchors, signs, posts, and any other hardware or material removed from the site are to become the property of the Contractor. See Special Provision for Waste and Borrow Sites.

J. **Final Dressing, Seeding and Protection.** Grade all disturbed areas to blend with the adjacent roadways features and to provide a suitable seed bed. Apply Class A Final Dressing to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

K. **Erosion Control.** See Special Note for Erosion Control.

IV. METHOD OF MEASUREMENT

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

B. **Site Preparation.** Other than the bid items listed, the Department will NOT measure Site Preparation for payment, but shall be incidental to the project bid items.

C. **Signs.** The Department will measure the finished in-place area of signs in Square Feet.

D. **Sign Posts.** The Department will measure the finished in-place length of sign posts in Linear Feet, from the top of the anchor, or top of the sign support, to the top of the sign post. Laps, cutoffs, excess, and waste will NOT be measured for payment.

E. **Type D Breakaway Sign Supports.** The Department will measure Type D sign supports as Each support installed.

F. **Type D Surface Mounts.** The Department will measure Type D Surface Mounts as Each surface mount installed.

G. **Class A Concrete for Signs.** The Department will measure the Class A Concrete used in conjunction with Type D breakaway sign support installations in Cubic Yards. Any concrete that is required as backfill due to hitting rock during a standard installation shall be incidental to the bid item STEEL POST TYPE I, and soil stabilizers will not be required.

H. Clean Up, Disposal of Waste, Final Dressing, Seeding and Protection. The Department will NOT measure for payment the following activities: Clean Up, Disposal of Waste, and Final Dressing. These activities shall be incidental. Seeding and Protection shall be measured according to Section 212.

I. Erosion Control. See Special Note for Erosion Control.

J. Remove Sign. The Department will consider all signs attached to one or more connected posts as a single sign. The Department will measure as Each sign assembly removed and NOT each individual sign removed.

K. Items Provided by KYTC. The Department will NOT measure for payment the installation of signs and/or surface mounts provided by KYTC. These activities shall be incidental to the bid item STEEL POST TYPE I.

V. BASIS OF PAYMENT

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

B. Signs. The Department will make payment for the completed and accepted quantities under the bid item SBM ALUM SHEET SIGNS .125 IN or .080 IN. The Department will consider payment full compensation for all work and incidentals necessary to install the signs, as required by these notes and the details found elsewhere in the proposal, at the locations indicated on the summary sheets, plans, and/or as directed by the Engineer.

C. Sign Posts. The Department will make payment for the completed and accepted quantities under the bid item STEEL POST TYPE I. The Department will consider payment full compensation for all work and incidentals necessary to install the sign posts as required by these notes and the details found elsewhere in the proposal.

D. Type D Breakaway Sign Supports. The Department will make payment for the completed and accepted quantities under the bid item GMSS TYPE D. The Department will consider payment full compensation for all work and incidentals necessary to install the Type D breakaway sign supports as required by Standard Drawing RGX-065, current edition.

E. Type D Surface Mounts. The Department will make payment for the completed and accepted quantities under the bid item GMSS TYPE D (SURFACE MOUNT). The Department will consider payment full compensation for all work and incidentals necessary to install the Type D surface mounts according to all applicable manufacturer requirements.
NOTE: The permissible Type D Surface Mount alternative is: Kleen Break Model 425 for Surface Mount Concrete Installations by Xcessories Squared of Auburn, IL

F. Class A Concrete for Signs. The Department will make payment for the completed and accepted quantities, used in conjunction with Type D breakaway sign support installations, under the bid item CLASS A CONCRETE FOR SIGNS. The Department will consider payment full compensation for all work

and incidentals necessary to install the concrete as required by Standard Drawing RGX-065, current edition.

G. Remove Sign. The Department will make payment for the completed and accepted quantities under the bid item REMOVE SIGN. The Department will consider payment full compensation for all work and incidentals necessary to remove the existing signs, posts, anchors, and any other sign material or hardware, from the locations indicated on the summary sheets, plans, and/or as directed by the Engineer.

H. Erosion Control. See Special Note for Erosion Control.

SURFACING AREAS

The Department estimates the mainline surfacing width to be 22 feet.

The Department estimates the total mainline area to be surfaced to be 9597 square yards.

The Department estimates the shoulder width to be 2 feet on each side.

The Department estimates the total shoulder area to be surfaced to be 1740 square yards.

1-9023.00

SPECIAL NOTE FOR DOUBLE ASPHALT SEAL COAT

Use RS-2 or RS-2C asphalt material that is compatible with the seal aggregate. Apply the first course of asphalt seal coat at the rate of 3.2 lbs/sy of asphalt and 30 lbs/sy of size #78 seal coat aggregate. Apply the second course at 2.8 lbs/sy of asphalt and 20 lbs/sy of size #9M seal coat aggregate. The Engineer may adjust the rate of application as conditions warrant. Use caution in applying liquid asphalt material to avoid over spray getting on curbs, gutter, barrier walls, bridges, guardrail, and other roadway appurtenances.

The Department will not measure any surface preparation required prior to applying the asphalt seal coat, but shall be incidental to “Asphalt Material for Asphalt Seal Coat”.

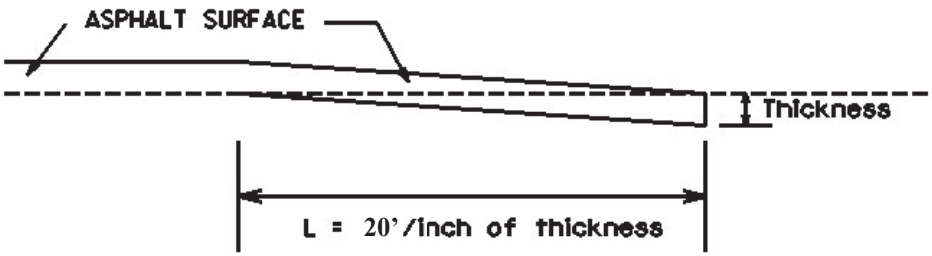
1-3215 Double Asphalt Seal Coat
01/02/2012

1-9023.00

SPECIAL NOTE FOR EDGE KEY

Construct Edge Keys at the beginning of project, end of project, at railroad crossings, and at intersections with ramps, as applicable. Unless specified in the Contract or directed by the Engineer, do not construct edge keys at intersecting streets, roads, alleys, or entrances. Cut out the existing asphalt surface to the required depth and width shown on the drawing and heel the new surface into the existing surface. The Department will measure the Edge Key at the joint as the width of the pavement perpendicular to the centerline in linear feet. The Department will pay for this work at the Contract unit price per linear foot, which shall be full compensation for all labor, materials, equipment, and incidentals for removal and disposal of the existing asphalt surface required to construct the edge key.

EDGE KEY



Thickness = 1 Inch

L = 20 LF

L = Length of Edge Key

Special Note for Guardrail

I. DESCRIPTION

Except as specified herein, perform all work in accordance with the Department's Standard and Supplemental Specifications, Special Notes and Special Provisions, and the Standard and Sepia Drawings, current editions. Article references are to the Standard Specifications. Furnish all equipment, labor, materials, and incidentals for the following work items:

(1) Site preparation; (2) Remove existing guardrail systems; (3) Construct Guardrail, End Treatments, Bridge End Connectors, and Terminal Sections, as applicable; (4) Delineators for guardrail; (5) Maintain and Control Traffic; and (6) all other work specified as part of this contract.

II. MATERIALS

Except as specified herein, provide for all materials to be sampled and tested in accordance with the Department's Sampling Manual and make the materials available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing.

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

B. Guardrail. Furnish guardrail system components according to Section 814 and the Standard and Sepia Drawings; except use steel posts only, no alternates.

C. Delineators for Guardrail. Furnish white and/or yellow Delineators for Guardrail according to Standard Drawing RBR-055 – Delineators for Guardrail, current edition.

D. DGA. Furnish Dense Graded Aggregate as per Section 805.

E. Erosion Control. See the Special Note for Erosion Control.

III. CONSTRUCTION METHODS

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

B. Site Preparation. Remove existing guardrail system, including the guardrail end treatments, Bridge End connectors and all other elements of the existing guardrail system as per Section 719, except that the Contractor will take possession of all concrete posts and all concrete associated with the existing bridge and/or guardrail end treatments. Locate all disposal areas off the Right of Way. Be responsible for all site preparation, including but not limited to, clearing and grubbing, excavation, embankment, and removal of all obstructions or any other items; regrading, reshaping, and adding and compacting suitable materials on the existing shoulders to provide proper template or foundation for the guardrail; filling voids left as the result of removing existing guardrail and guard

posts with dry sand; temporary pollution and erosion control; disposal of excess, waste materials, and debris; and final dressing, cleanup, and seeding and protection. Perform all site preparation as approved or directed by the engineer.

C. Guardrail. Except as specified herein, construct guardrail system according to Section 719 and the Standard and Sepia Drawings, current editions. Locations listed on the summary and/or shown on the drawings are approximate only. The Engineer will determine the exact termini for individual guardrail installations at the time of construction. Unless directed otherwise by the Engineer, provide a minimum two (2) foot shoulder width. Construct radii at entrances and road intersections as directed by the Engineer.

Erect guardrail to the lines and grades shown on the current Standard and Sepia Drawings, or as directed by the Engineer by any method approved by the Engineer which allows construction of the guardrail to the true grade without apparent sags.

When removing existing guardrail and installing new guardrail, do not leave the blunt end exposed where it would be hazardous to the public. When it is not practical to complete the construction of the guardrail and the permanent end treatments and terminal sections first, provide a temporary end by connecting at least 25 feet of rail to the last post, and by slightly flaring, and burying the end of the rail completely into the existing shoulder. If left overnight, place a drum with bridge panel in advance of the guardrail end and maintain during use.

D. DGA. Place and compact DGA along and under the guardrail as shown on the Typical Section(s) or as directed by the Engineer. Place a Double Asphalt Seal Coat over the entire width of the DGA along and under the guardrail. See the Special Note for Double Asphalt Seal Coat.

E. Delineators for Guardrail. Construct Delineators for Guardrail according to Standard Drawing RBR-055 – Delineators for Guardrail, current edition.

F. Property Damage. Be responsible for all damage to public and/or private property resulting from the work. Restore damaged roadway features and private property at no additional cost to the Department.

G. Coordination with Utility Companies. Locate all underground, above ground, and overhead utilities prior to beginning construction. Be responsible for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the event that it is discovered that the work does require utilities to be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. Be responsible for repairing all utility damage that occurs as a result of guardrail operations at no additional cost to the Department.

H. Right of Way Limits. The Department has not established the exact limits of the Right-of-Way. Limit work activities to obvious Right-of-Way, permanent or temporary easements, and work areas secured by the Department through consent and release of the adjacent property owners. Be responsible for all encroachments onto private lands.

I. **Clean Up, Disposal of Waste.** Dispose of all removed concrete, debris, and other waste and debris off the Right-of-Way at sites obtained by the Contractor at no additional cost to the Department. See the Special Provision for Waste and Borrow Sites.

J. **Final Dressing, Seeding and Protection.** Apply Class A Final Dressing to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas with the applicable seed mixture(s) according to Section 212.03.03.

K. **Erosion Control.** See the Special Note for Erosion Control.

IV. METHOD OF MEASUREMENT

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

B. **Site preparation.** Other than the bid items listed, the Department will not measure Site Preparation for separate payment but shall be incidental to the Guardrail, End Treatments, Bridge End Connectors, and Terminal Sections, as applicable.

C. **Guardrail, End Treatments, Bridge End Connectors, Terminal Sections, and Remove Guardrail.** The Department will measure according to Section 719.04.

D. **DGA.** The Department will measure according to Section 302.04.

E. **Delineators for Guardrail.** See Standard Drawing RBR-055 – Delineators for Guardrail.

F. **Clean Up, Disposal of Waste, Final Dressing, and Seeding and Protection.** The Department will NOT measure for payment the operations of: Clean Up, Disposal of Waste, and Final Dressing. These activities shall be incidental. Seeding and Protection will be measured according to Section 212.

G. **Erosion Control.** See the Special Note for Erosion Control.

V. BASIS OF PAYMENT

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

B. **Guardrail, End Treatments, Bridge End Connectors, Terminal Sections, and Remove Guardrail.** The Department will make payment according to Section 719.05.

C. **DGA.** The Department will make payment according to Section 302.05.

D. **Delineators for Guardrail.** See Standard Drawing RBR-055 – Delineators for Guardrail.

E. **Erosion Control.** See the Special Note for Erosion Control.

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TRAFFIC CONTROL PLAN

TRAFFIC CONTROL GENERAL

Except as provided herein, traffic shall be maintained in accordance with the current editions of the Manual on Uniform Traffic Control Devices (MUTCD), Standard Specifications, and the Standard and Sepia Drawings. Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid at the lump sum bid price to "Maintain and Control Traffic".

Contrary to Section 106.01, traffic control devices used on this project may be new, or used in like new condition, at the beginning of the work and maintained in like new condition until completion of the work. Any temporary traffic control items, devices, materials, and incidentals shall remain the property of the contractor unless otherwise addressed, when no longer needed.

PROJECT PHASING & CONSTRUCTION PROCEDURES

Maintain alternating one-way traffic during construction. Provide a minimum clear lane width of 10 feet; however, provide for passage of vehicles of up to 16 feet in width. If traffic should be stopped due to construction operations, and a school bus or emergency vehicle on an official run arrives on the scene, make provisions for the passage of the school bus or emergency vehicle as quickly as possible.

Unless otherwise approved by the Engineer, no lane closures will be allowed on the following dates:

Memorial Day Weekend,	Friday, May 27, 2022 – Monday, May 30, 2022
Independence Day Weekend,	Saturday, July 2, 2022 – Monday, July 4, 2022
Labor Day Weekend,	Friday, September 2, 2022 – Monday, September 5, 2022
Thanksgiving Holiday,	Thursday, November 24, 2022 – Sunday, November 27, 2022
Christmas Holiday,	Saturday, December 24, 2022 – Monday, December 26, 2022
New Year's Holiday,	Saturday, December 31, 2022 – Monday, January 2, 2023
Easter Weekend	3 pm Friday, April 7, 2023 – 8 pm Sunday, April 9, 2023
Memorial Day Weekend	3 pm Friday, May 26, 2023 – 8 pm Monday, May 29, 2023
Independence Day	7 am Saturday, July 1, 2023 – 11 pm Tuesday, July 4, 2023
Labor Day Weekend	3 pm Friday, September 1, 2023 – 8 pm Monday, September 4, 2023
Thanksgiving Holiday	3 pm Wednesday, November 22, 2023 – 8 pm Sunday, November 26, 2023

No lane closures will be allowed when school is in session.

At the discretion of the Engineer, additional days and hours may be specified when lane closures will not be allowed.

LANE CLOSURES

Long term lane closures shall not be allowed; therefore, lane closures will not be measured for payment. Do not leave lane closures in place during non-working hours and prohibited periods

TEMPORARY SIGNS

Temporary sign posts and splices shall be compliant with NCHRP 350 or MASH. Manufacturer's documentation validating this compliance shall be provided to the Engineer prior to installation. Temporary signs, including any splices, shall be installed according to manufacturer's specifications and installation recommendations. Contrary to section 112.04.02, only long-term temporary signs (temporary signs intended to be continuously in place for more than 3 days) will be measured for payment. Short-term temporary signs (temporary signs intended to be left in place for 3 days or less) will not be measured for payment but will be incidental to Maintain and Control Traffic.

CHANGEABLE MESSAGE SIGNS

Provide changeable message signs at locations determined by the Engineer. The Engineer may vary the designated locations as the work progresses. The Engineer will determine the messages to be displayed. In the event of damage or mechanical/electrical failure, repair or replace the Changeable Message Sign within 8 hours. The Department will measure for payment the maximum number of Changeable Message Signs in concurrent use at the same time on a single day on all sections of the contract. The Department will measure individual Changeable Message Signs only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. The Department will not measure for payment any replacements for damaged Changeable Message Signs or any changeable message signs the Engineer directs to be replaced due to poor condition or readability. Retain possession of the Changeable Message Signs upon completion of the work.

BARRICADES

The Department will not measure barricades used in lieu of barrels and cones for channelization or delineation, but shall be incidental to Maintain and Control Traffic according to Section 112.04.01.

TEMPORARY ENTRANCES

The Engineer will not require the Contractor to provide continuous access to farms, single family, duplex, or triplex residential properties during working hours; however, provide reasonable egress and ingress to each such property when actual operations are not in progress at that location. Limit the time during which a farm or residential entrance is blocked to the minimum length of time required for actual operations, not extended for the Contractor's convenience, and in no case exceeding six (6) hours. Notify all residents twenty-four hours in advance of any driveway or entrance closings and make any accommodations necessary to meet the access needs of disabled residents.

Except as allowed by the Phasing as specified above, maintain direct access to all side streets and roads, schools, churches, commercial properties, and apartments or apartment complexes of four or more units at all times. Access to fire hydrants must also be maintained at all times

The Department will measure asphalt materials required to construct and maintain any temporary entrances which may be necessary to provide temporary access; however, the Department will not

measure aggregates, excavation, and/or embankment, but shall be incidental to Maintain and Control Traffic. The Engineer will determine the type of surfacing material, asphalt or aggregate, to be used at each entrance.

PAVEMENT MARKINGS

If there is to be a deviation from the existing striping plan, the Engineer will furnish the Contractor a striping plan prior to placement of the final surface course. Install Temporary Striping according to Section 112 with the following exception:

> If the Contractor's operations or phasing requires temporary markings that must subsequently be removed from the final surface course, use an approved removable lane tape; however, the Department will not measure removable lane tape for separate payment, but will measure and pay for removable lane tape as temporary striping.

PAVEMENT EDGE DROP-OFFS

Do not allow a pavement edge between opposing directions of traffic or lanes that traffic is expected to cross in a lane change situation with an elevation difference greater than 1½". Place Warning signs (MUTCD W8-11 or W8-9A) in advance of and at 1500' intervals throughout the drop-off area. Dual post the signs on both sides of the traveled way. Wedge all transverse transitions between resurfaced and un-resurfaced areas which traffic may cross with asphalt mixture for leveling and wedging. Remove the wedges prior to placement of the final surface course.

Protect pavement edges that traffic is not expected to cross, except accidentally, as follows:

> Less than 2" - No protection required.
>
> 2" to 4" - Place plastic drums, vertical panels, or barricades every 50 feet. During daylight working hours only, the Engineer will allow the Contractor to use cones in lieu of plastic drums, panels, and barricades. Wedge the drop-off with DGA or asphalt mixture for leveling and wedging with a 1:1 or flatter slope in daylight hours, or 3:1 or flatter slope during nighttime hours, when work is not active in the drop-off area.
>
> Greater than 4" - Protect drop-offs greater than 4 inches within 10 feet of traffic by placing drums, vertical panels, or barricades every 25 feet. The Engineer will not allow the use of cones in lieu of drums, vertical panels, or barricades for drop-offs greater than 4". Place Type III Barricades directly in front of the drop-off facing oncoming traffic in both directions of travel. Provide warning signs as shown on the Standard Drawings or as directed by the Engineer
>
> Pedestrians & Bicycles - Protect pedestrian and bicycle traffic as directed by the Engineer.

USE AND PLACEMENT OF CHANGEABLE MESSAGE SIGNS

The following policy is based upon current Changeable Message Signs (CMS) standards and practice from many sources, including the Federal Highway Administration (FHWA), other State Departments of Transportation, and Traffic Safety Associations. It is understood that each CMS installation or use requires individual consideration due to the specific location or purpose. However, there will be elements that are constant in nearly all applications. Accordingly these recommended guidelines bring a level of uniformity, while still being open to regional experience and engineering judgment.

Application

The primary purpose of CMS is to advise the driver of unexpected traffic and routing situations. Examples of applications where CMS can be effective include:

- Closures (road, lane, bridge, ramp, shoulder, interstate)
- Changes in alignment or surface conditions
- Significant delays, congestion
- Construction/maintenance activities (delays, future activities)
- Detours/alternative routes
- Special events with traffic and safety implications
- Crash/incidents
- Vehicle restrictions (width, height, weight, flammable)
- Advance notice of new traffic control devices
- Real-time traffic conditions (must be kept up to date)
- Weather /driving conditions, environmental conditions, Roadway Weather Information Systems
- Emergency Situations
- Referral to Highway Advisory Radio (if available)
- Messages as approved by the County Engineer's Office

CMS should not be used for:

- Replacement of static signs (e.g. ROAD WORK AHEAD), regulatory signage (e.g. speed limits), pavement markings, standard traffic control devices, conventional warning or guide signs.
- Replacement of lighted arrow board
- Advertising (Don't advertise the event unless clarifying "action" to be taken by driver – e.g. Speedway traffic next exit)
- Generic messages
- Test messages (portable signs only)
- Describe recurrent congestion (e.g. rush hour)
- Public service announcements (not traffic related)

Messages

Basic principles that are important to providing proper messages and insuring the proper operation of a CMS are:

- Visible for at least ½ mile under ideal daytime and nighttime conditions
- Legible from all lanes a minimum of 650 feet
- Entire message readable twice while traveling at the posted speed
- No more than two message panels should be used (three panels may be used on roadways where vehicles are traveling less than 45 mph). A panel is the message that fits on the face of the sign without flipping or scrolling.
- Each panel should convey a single thought; short and concise
- Do not use two unrelated panels on a sign
- Do not use the sign for two unrelated messages
- Should not scroll text horizontally or vertically
- Should not contain both the words left and right
- Use standardized abbreviations and messages
- Should be accurate and timely
- Avoid filler/unnecessary words and periods (hazardous, a, an, the)
- Avoid use of speed limits
- Use words (not numbers) for dates

Placement

Placement of the CMS is important to insure that the sign is visible to the driver and provides ample time to take any necessary action. Some of the following principles may only be applicable to controlled access roadways. The basic principles of placement for a CMS are:

- When 2 signs are needed, place on same side of roadway and at least 1,000 feet apart
- Place behind semi-rigid/rigid protection (guardrail, barrier) or outside of the clear zone
- Place 1,000 feet in advance of work zone; at least one mile ahead of decision point
- Normally place on right side of roadway; but should be placed closest to the affected lane so that either side is acceptable
- Signs should not be dual mounted (one on each side of roadway facing same direction)
- Point trailer hitch downstream
- Secure to immovable object to prevent theft (if necessary)
- Do not place in sags or just beyond crest
- Check for reflection of sun to prevent the blinding of motorist
- Should be turned ~3 degrees outward from perpendicular to the edge of pavement
- Bottom of sign should be 7 feet above the elevation of edge of roadway
- Should be removed when not in use

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Standard Abbreviations

The following is a list of standard abbreviations to be used on CMS:

Word	Abbrev	Example
Access	ACCS	ACCIDENT AHEAD/ USE ACCS RD NEXT RIGHT
Alternate	ALT	ACCIDENT AHEAD/ USE ALT RTE NEXT RIGHT
Avenue	AVE	FIFTH AVE CLOSED/ DETOUR NEXT LEFT
Blocked	BLKD	FIFTH AVE BLKD/ MERGE LEFT
Boulevard	BLVD	MAIN BLVD CLOSED/ USE ALT RTE
Bridge	BRDG	SMITH BRDG CLOSED/ USE ALT RTE
Cardinal Directions	N, S, E, W	N I75 CLOSED/ DETOUR EXIT 30
Center	CNTR	CNTR LANE CLOSED/ MERGE LEFT
Commercial	COMM	OVRSZ COMM VEH/ USE I275
Condition	COND	ICY COND POSSIBLE
Congested	CONG	HVY CONG NEXT 3 MI
Construction	CONST	CONST WORK AHEAD/ EXPECT DELAYS
Downtown	DWNTN	DWNTN TRAF USE EX 40
Eastbound	E-BND	E-BND I64 CLOSED/ DETOUR EXIT 20
Emergency	EMER	EMER VEH AHEAD/ PREPARE TO STOP
Entrance, Enter	EX, EXT	DWNTN TRAF USE EX 40
Expressway	EXPWY	WTRSN EXPWY CLOSED/ DETOUR EXIT 10
Freeway	FRWY, FWY	GN SYNDR FWY CLOSED/ DETOUR EXIT 15
Hazardous Materials	HAZMAT	HAZMAT IN ROADWAY/ ALL TRAF EXIT 25
Highway	HWY	ACCIDENT ON AA HWY/ EXPECT DELAYS
Hour	HR	ACCIDENT ON AA HWY/ 2 HR DELAY
Information	INFO	TRAF INFO TUNE TO 1240 AM
Interstate	I	E-BND I64 CLOSED/ DETOUR EXIT 20
Lane	LN	LN CLOSED MERGE LEFT
Left	LFT	LANE CLOSED MERGE LFT
Local	LOC	LOC TRAF USE ALT RTE
Maintenance	MAINT	MAINT WRK ON BRDG/ SLOW
Major	MAJ	MAJ DELAYS I75/ USE ALT RTE
Mile	MI	ACCIDENT 3 MI AHEAD/ USE ALT RTE
Minor	MNR	ACCIDENT 3 MI MNR DELAY
Minutes	MIN	ACCIDENT 3 MI/ 30 MIN DELAY
Northbound	N-BND	N-BND I75 CLOSED/ DETOUR EXIT 50
Oversized	OVRSZ	OVRSZ COMM VEH/ USE I275 NEXT RIGHT
Parking	PKING	EVENT PKING NEXT RGT
Parkway	PKWY	CUM PKWAY TRAF/ DETOUR EXIT 60
Prepare	PREP	ACCIDENT 3 MI/ PREP TO STOP
Right	RGT	EVENT PKING NEXT RGT
Road	RD	HAZMAT IN RD/ ALL TRAF EXIT 25
Roadwork	RDWK	RDWK NEXT 4 MI/ POSSIBLE DELAYS
Route	RTE	MAJ DELAYS I75/ USE ALT RTE
Shoulder	SHLDR	SHLDR CLOSED NEXT 5 MI
Slippery	SLIP	SLIP COND POSSIBLE/ SLOW SPD
Southbound	S-BND	S-BND I75 CLOSED/ DETOUR EXIT 50
Speed	SPD	SLIP COND POSSIBLE/ SLOW SPD

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Standard Abbreviations (cont)

Word	Abbrev	Example
Street	ST	MAIN ST CLOSED/ USE ALT RTE
Traffic	TRAF	CUM PKWAY TRAF/ DETOUR EXIT 60
Vehicle	VEH	OVRSZ COMM VEH/ USE I275 NEXT RIGHT
Westbound	W-BND	W-BND I64 CLOSED/ DETOUR EXIT 50
Work	WRK	CONST WRK 2MI/ POSSIBLE DELAYS

Certain abbreviations are prone to inviting confusion because another word is abbreviated or could be abbreviated in the same way. DO NO USE THESE ABBREVIATIONS:

Abbrev	Intended Word	Word Erroneously Given
ACC	Accident	Access (Road)
CLRS	Clears	Colors
DLY	Delay	Daily
FDR	Feeder	Federal
L	Left	Lane (merge)
LOC	Local	Location
LT	Light (traffic)	Left
PARK	Parking	Park
POLL	Pollution (index)	Poll
RED	Reduce	Red
STAD	Stadium	Standard
TEMP	Temporary	Temperature
WRNG	Warning	Wrong

Typical Messages

The following is a list of typical messages used on CMS. The list consists of the reason or problem that you want the driver to be aware of and the action that you want the driver to take.

Reason/Problem	Action
ACCIDENT	ALL TRAFFIC EXIT RT
ACCIDENT/XX MILES	AVOID DELAY USE XX
XX ROAD CLOSED	CONSIDER ALT ROUTE
XX EXIT CLOSED	DETOUR
BRIDGE CLOSED	DETOUR XX MILES
BRIDGE/(SLIPPERY, ICE, ETC.)	DO NOT PASS
CENTER/LANE/CLOSED	EXPECT DELAYS
DELAY(S), MAJOR/DELAYS	FOLLOW ALT ROUTE
DEBRIS AHEAD	KEEP LEFT
DENSE FOG	KEEP RIGHT
DISABLED/VEHICLE	MERGE XX MILES
EMER/VEHICLES/ONLY	MERGE LEFT
EVENT PARKING	MERGE RIGHT
EXIT XX CLOSED	ONE-WAY TRAFFIC
FLAGGER XX MILES	PASS TO LEFT

Reason/Problem	Action
FOG XX MILES	PASS TO RIGHT
FREEWAY CLOSED	PREPARE TO STOP
FRESH OIL	REDUCE SPEED
HAZMAT SPILL	SLOW
ICE	SLOW DOWN
INCIDENT AHEAD	STAY IN LANE
LANES (NARROW, SHIFT, MERGE, ETC.)	STOP AHEAD
LEFT LANE CLOSED	STOP XX MILES
LEFT LANE NARROWS	TUNE RADIO 1610 AM
LEFT 2 LANES CLOSED	USE NN ROAD
LEFT SHOULDER CLOSED	USE CENTER LANE
LOOSE GRAVEL	USE DETOUR ROUTE
MEDIAN WORK XX MILES	USE LEFT TURN LANE
MOVING WORK ZONE, WORKERS IN ROADWAY	USE NEXT EXIT
NEXT EXIT CLOSED	USE RIGHT LANE
NO OVERSIZED LOADS	WATCH FOR FLAGGER
NO PASSING	
NO SHOULDER	
ONE LANE BRIDGE	
PEOPLE CROSSING	
RAMP CLOSED	
RAMP (SLIPPERY, ICE, ETC.)	
RIGHT LANE CLOSED	
RIGHT LANE NARROWS	
RIGHT SHOULDER CLOSED	
ROAD CLOSED	
ROAD CLOSED XX MILES	
ROAD (SLIPPERY, ICE, ETC.)	
ROAD WORK	
ROAD WORK (OR CONSTRUCTION) (TONIGHT, TODAY, TOMORROW, DATE)	
ROAD WORK XX MILES	
SHOULDER (SLIPPERY, ICE, SOFT, BLOCKED, ETC.)	
NEW SIGNAL XX MILES	
SLOW 1 (OR 2) - WAY TRAFFIC	
SOFT SHOULDER	
STALLED VEHICLES AHEAD	
TRAFFIC BACKUP	
TRAFFIC SLOWS	
TRUCK CROSSING	
TRUCKS ENTERING	
TOW TRUCK AHEAD	
UNEVEN LANES	
WATER ON ROAD	
WET PAINT	
WORK ZONE XX MILES	
WORKERS AHEAD	

COUNTY OF	ITEM NO.
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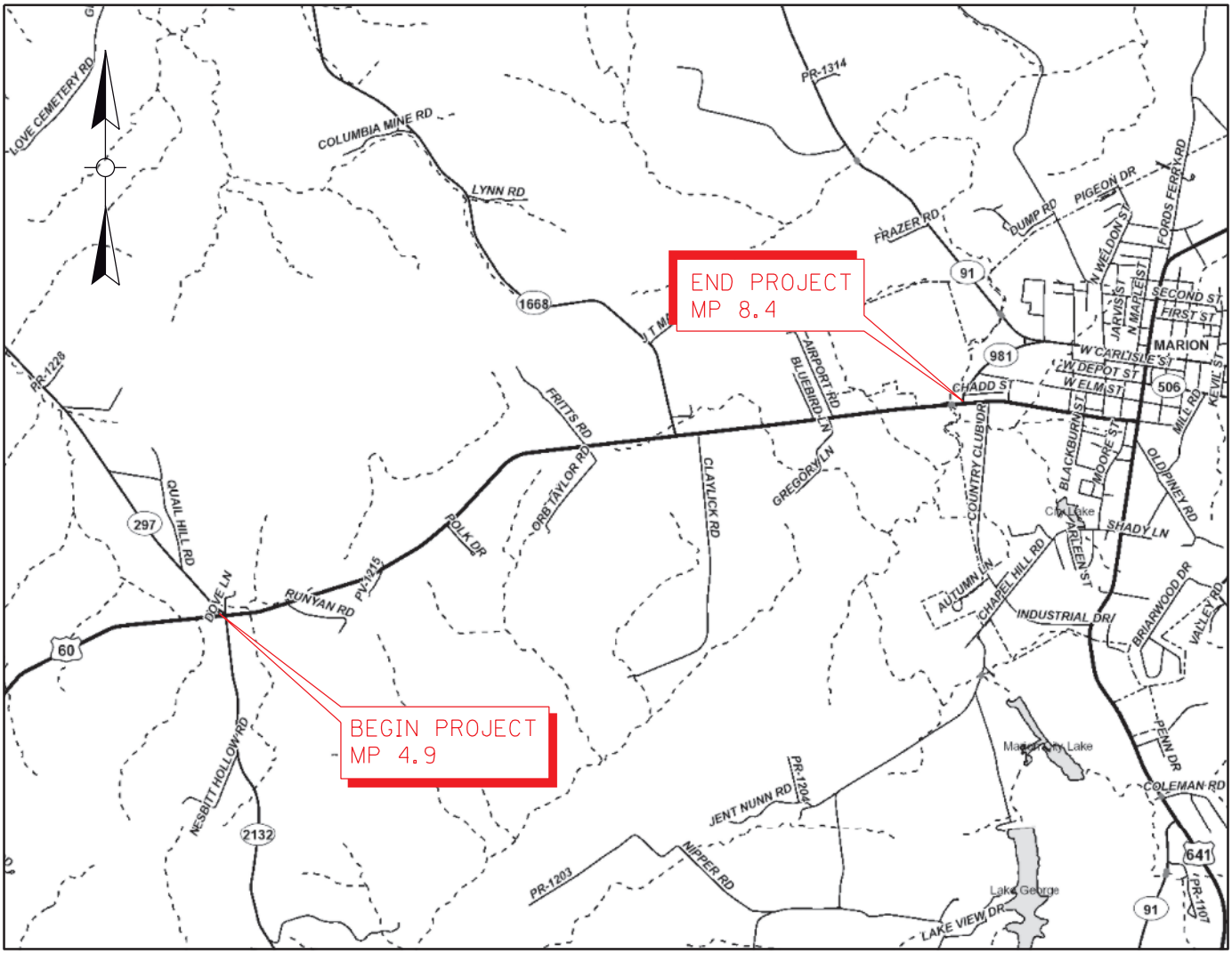
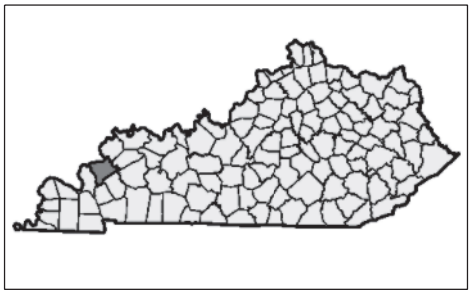
CRITTENDEN COUNTY

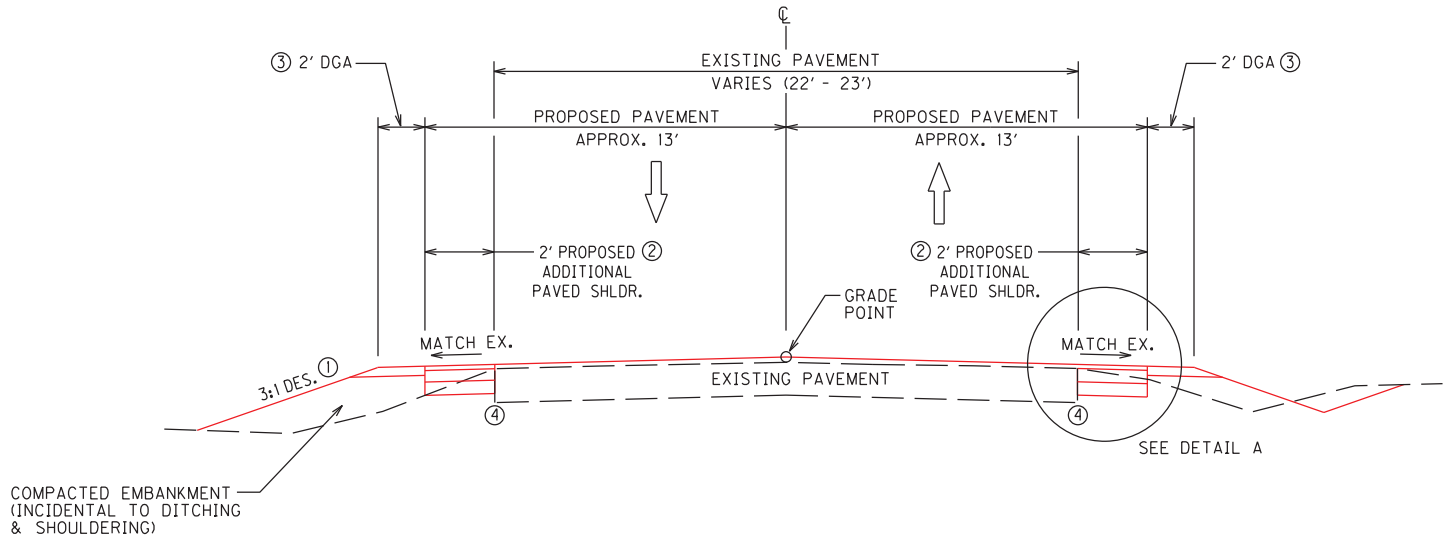
US 60



KENTUCKY TRANSPORTATION CABINET

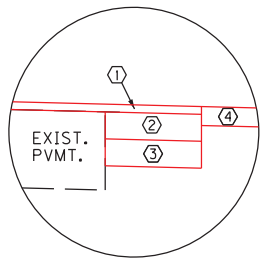


COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



US 60 – PAVED SHOULDER WIDENING WITH ASPHALT OVERLAY

STA. 263+00 TO STA. 299+80
STA. 425+40 TO STA. 427+75



DETAIL A

NTS

① 1.00" CL2 ASPH SURFACE 0.38D PG64-22
② 4.00" CL2 ASPH BASE 1.00D PG64-22
③ 4.00" DGA
④ 2.00" DGA

① 3:1 OR FLATTER IS DESIRABLE. LOCATIONS THAT ARE LIMITED DUE TO RIGHT-OF-WAY, UTILITY POLES, TREES, FENCES, OR OTHER SENSITIVE OBSTRUCTIONS MAY REQUIRE EMBANKMENT BUT ONLY OUT TO THE EDGE OF THE RIGHT-OF-WAY OR SENSITIVE OBSTRUCTION(S). (SLOPE MAY BE STEEPER THAN 3:1)

② 2' OF ADDITIONAL PAVEMENT WIDTH IS DESIRABLE. WIDTH MAY NEED TO BE MODIFIED IN ORDER TO REMAIN WITHIN RIGHT-OF-WAY OR AVOID A SENSITIVE OBSTRUCTION.

③ 2' DGA WEDGE IS DESIRABLE. WIDTH MAY NEED TO BE MODIFIED IN ORDER TO REMAIN WITHIN RIGHT-OF-WAY OR AVOID A SENSITIVE OBSTRUCTION.

④ SAWCUT OR MILL DAMAGED PAVEMENT EDGE AS DIRECTED BY ENGINEER.

N.T.S.

US 60
PAVEMENT WIDENING TYPICAL SECTION

US 60 - CRITTENDEN COUNTY
ITEM NO. 1-9023.00
GENERAL SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY
1	DGA BASE (9) (1)	TON	783
100	ASPHALT SEAL AGGREGATE (1)	TON	83
103	ASPHALT SEAL COAT (1)	TON	10
190	LEVELING & WEDGING PG64-22 (2) (1)	TON	67
212	CL2 ASPH BASE 1.00D PG64-22 (9) (2) (1)	TON	410
301	CL2 ASPH SURF 0.38D PG64-22 (9) (1)	TON	630
441	ENTRANCE PIPE-18 IN (9)	LF	86
462	CULVERT PIPE-18 IN (2)	LF	93
464	CULVERT PIPE-24 IN (2)	LF	46
470	CULVERT PIPE-48 IN (2)	LF	16
1204	PIPE CULVERT HEADWALL-18 IN (2)	EACH	1
1208	PIPE CULVERT HEADWALL-24 IN (2)	EACH	1
1310	REMOVE PIPE (9) (2)	LF	208
1726	SAFETY BOX INLET-18 IN SDB-1 (2)	EACH	1
1987	DELINEATOR FOR GUARDRAIL B/W (4)	EACH	20
2159	TEMP DITCH	LF	9364
2160	CLEAN TEMP DITCH	LF	4682
2203	STRUCTURE EXCAVATION UNCLASSIFIED (10)	CUYD	9
2263	FENCE-WOVEN WIRE TYPE 2 (12)	LF	200
2265	REMOVE FENCE (12)	LF	200
2355	GUARDRAIL -STEEL W BEAM-S FACE A (4)	LF	100
2360	GUARDRAIL TERMINAL SECTION NO 1 (4)	EACH	1
2367	GUARDRAIL END TREATMENT TYPE 1 (4)	EACH	5
2381	REMOVE GUARDRAIL (4)	LF	963
2483	CHANNEL LINING CLASS II (2) (3) (11)	TON	1040
2555	CONCRETE-CLASS B (12)	CUYD	1.5
2562	TEMPORARY SIGNS	SQFT	288
2569	DEMOBILIZATION	LS	1
2575	DITCHING AND SHOULDERING (3)	LF	5200
2585	EDGE KEY (1)	LF	104
2602	GEOTEXTILE FABRIC CLASS 1 (3) (11)	SQYD	281
2610	RETAINING WALL - GABION (10)	CUYD	18
2625	REMOVE HEADWALL (CULVERT PIPES) (2)	EACH	5
2650	MAINTAIN & CONTROL TRAFFIC	LS	1
2671	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	2
2697	EDGELINE RUMBLE STRIPS (5)	LF	7830
2701	TEMP SILT FENCE	LF	9364
2703	SILT TRAP TYPE A	EACH	6
2704	SILT TRAP TYPE B	EACH	6
2705	SILT TRAP TYPE C	EACH	6
2706	CLEAN SILT TRAP TYPE A	EACH	6
2707	CLEAN SILT TRAP TYPE B	EACH	6
2708	CLEAN SILT TRAP TYPE C	EACH	6
2726	STAKING	LS	1
5950	EROSION CONTROL BLANKET (11)	SQYD	1000
5952	TEMP MULCH	SQYD	18676
5953	TEMP SEEDING AND PROTECTION	SQYD	14000

(1) QUANTITY CARRIED OVER FROM PAVING SUMMARY
(2) QUANTITY CARRIED OVER FROM CULVERT PIPE EXTENSION SUMMARY
(3) QUANTITY CARRIED OVER FROM DITCHING AND SHOULDERING SUMMARY
(4) QUANTITY CARRIED OVER FROM GUARDRAIL SUMMARY
(5) QUANTITY CARRIED OVER FROM RUMBLE STRIP SUMMARY
(6) QUANTITY CARRIED OVER FROM STRIPING SUMMARY
(7) QUANTITY CARRIED OVER FROM SIGNING SUMMARY
(8) QUANTITY CARRIED OVER FROM REMOVE SIGN SUMMARY
(9) QUANTITY CARRIED OVER FROM ENTRANCE SUMMARY
(10) QUANTITY CARRIED OVER FROM GABION BASKET SUMMARY
(11) FOR USE AS DIRECTED BY ENGINEER
(12) FOR FENCE LT. STA. 287+25 TO STA. 289+25

US 60 - CRITTENDEN COUNTY
ITEM NO. 1-9023.00
GENERAL SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY
5963	INITIAL FERTILIZER	TON	0.8
5964	MAINTENANCE FERTILIZER	TON	0.5
5985	SEEDING AND PROTECTION	SQYD	15635
5992	AGRICULTURAL LIMESTONE	TON	10.0
6406	SBM ALUM SHEET SIGNS .080 IN (8)	SQFT	78.06
6407	SBM ALUM SHEET SIGNS .125 IN (8)	SQFT	26.68
6410	STEEL POST TYPE 1 (8)	LF	185
6510	PAVE STRIPING-TEMP PAINT-4 IN (11)	LF	14000
6542	PAVE STRIPING-THERMO-6 IN W (6)	LF	7830
6543	PAVE STRIPING-THERMO-6 IN Y (6)	LF	4629
8002	STRUCTURE EXCAV-SOLID ROCK (RCBC STA. 426+65)	CUYD	16
8003	FOUNDATION PREPARATION (RCBC STA. 426+65)	EACH	1
8100	CONCRETE-CLASS A (RCBC STA. 426+65)	CUYD	31.60
8100	CONCRETE-CLASS A (2)	CUYD	0.86
8150	STEEL REINFORCEMENT (RCBC STA. 426+65)	LB	3777
8801	GUARDRAIL-STEEL W BEAM-S FACE BR (4)	LF	19
20191ED	OBJECT MARKER TYPE 3 (4)	EACH	5
20458ES403	CENTERLINE RUMBLE STRIPS (5)	LF	3915
20748ED	SHOULDER MILLING/TRENCHING (1)	SQYD	1742
21134ND	REMOVE-STORE AND REINSTALL SIGN (11)	EACH	5
21373ND	REMOVE SIGN (8)	EACH	11
21802EN	G/R STEEL B BEAM-S FACE (7 FT POST) (4)	LF	710
24361EC	BARCODE SIGN INVENTORY (7)	EACH	24
24970EC	ASPHALT MATERIAL FOR TACK NON-TRACKING (1)	TON	4.8
26131ED	SLOPED AND MITERED HEADWALL-18 IN (2)	EACH	1
26132ED	SLOPED AND MITERED HEADWALL-24 IN (2)	EACH	1

(1) QUANTITY CARRIED OVER FROM PAVING SUMMARY
(2) QUANTITY CARRIED OVER FROM CULVERT PIPE EXTENSION SUMMARY
(3) QUANTITY CARRIED OVER FROM DITCHING AND SHOULDERING SUMMARY
(4) QUANTITY CARRIED OVER FROM GUARDRAIL SUMMARY
(5) QUANTITY CARRIED OVER FROM RUMBLE STRIP SUMMARY
(6) QUANTITY CARRIED OVER FROM STRIPING SUMMARY
(7) QUANTITY CARRIED OVER FROM SIGNING SUMMARY
(8) QUANTITY CARRIED OVER FROM REMOVE SIGN SUMMARY
(9) QUANTITY CARRIED OVER FROM ENTRANCE SUMMARY
(10) QUANTITY CARRIED OVER FROM GABION BASKET SUMMARY
(11) FOR USE AS DIRECTED BY ENGINEER

US 60 - CRITTENDEN COUNTY ITEM NO. 1-9023.00 PAVING SUMMARY			
SHOULDER PAVEMENT WIDENING WITH ASPHALT OVERLAY STA. 263+00 - 299+80			
PAVING AREAS		**PAVING QUANTITIES**	
ITEM	**TOTAL**	**ITEM**	**TOTAL**
	SQYD		**TON**
1.00" CL2 ASPH SURF 0.38D PG64-22	10632	1.00" CL2 ASPH SURF 0.38D PG64-22*	585
4.00" CL2 ASPH BASE 1.00D PG64-22	1636	4.00" CL2 ASPH BASE 1.00D PG64-22*	360
4.00" DGA	1636	4.00" DGA**	377
DGA WEDGE	--	DGA WEDGE**	329
LEVELING & WEDGING PG64-22 (DEPTH VARIES)	--	LEVELING & WEDGING PG64-22*	60
ASPHALT SEAL AGGREGATE	--	ASPHALT SEAL AGGREGATE	78
ASPHALT SEAL COAT	--	ASPHALT SEAL COAT	9.4
ASPHALT MATERIAL FOR TACK NON-TRACKING	10632	ASPHALT MATERIAL FOR TACK NON-TRACKING	4.5
	SQYD		**SQYD**
SHOULDER MILLING/TRENCHING	1636	SHOULDER MILLING/TRENCHING	1636
	LF		**LF**
EDGE KEY	52	EDGE KY	52
SHOULDER PAVEMENT WIDENING WITH ASPHALT OVERLAY STA. 425+40 - 427+75			
PAVING AREAS		**PAVING QUANTITIES**	
ITEM	**TOTAL**	**ITEM**	**TOTAL**
	SQYD		**TON**
1.00" CL2 ASPH SURF 0.38D PG64-22	705	1.00" CL2 ASPH SURF 0.38D PG64-22*	39
4.00" CL2 ASPH BASE 1.00D PG64-22	106	4.00" CL2 ASPH BASE 1.00D PG64-22*	24
4.00" DGA	106	4.00" DGA**	25
DGA WEDGE	--	DGA WEDGE**	21
LEVELING & WEDGING PG64-22 (DEPTH VARIES)	--	LEVELING & WEDGING PG64-22*	4
ASPHALT SEAL AGGREGATE	--	ASPHALT SEAL AGGREGATE	5
ASPHALT SEAL COAT	--	ASPHALT SEAL COAT	0.6
ASPHALT MATERIAL FOR TACK NON-TRACKING	705	ASPHALT MATERIAL FOR TACK NON-TRACKING	0.3
	SQYD		**SQYD**
SHOULDER MILLING/TRENCHING	106	SHOULDER MILLING/TRENCHING	106
	LF		**LF**
EDGE KEY	52	EDGE KY	52

BID ITEM	DESCRIPTION	UNIT	QUANTITY
1	DGA BASE	TON	752
100	APSHALT SEAL AGGREGATE	TON	83
103	ASPHALT SEAL COAT	TON	10
190	LEVELING & WEDGING PG64-22	TON	64
212	CL2 ASPH BASE 1.00D PG64-22	TON	384
301	CL2 ASPH SURF 0.38D PG64-22	TON	624
2585	EDGE KEY	LF	104
20748ED	SHOULDER MILLING/TRENCHING	SQYD	1742
24970EC	ASPHALT MATERIAL FOR TACK NON-TRACKING	TON	4.8

* Estimated at 110 lbs. per SQ. YD. per inch of depth

** Estimated at 115 lbs. per SQ. YD. per inch of depth

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.

US 60 - CRITTENDEN COUNTY
ITEM NO. 1-9023.00
CULVERT PIPE EXTENSION SUMMARY

Station	Mile Point	Existing Culvert Pipe	Skew	Remove Pipe (LF)	Remove Headwall (EA)	Proposed Pipe Length (LF)			Concrete for End Anchor (CUYD)	Channel Lining Class II (Tons)	Left Headwall - Proposed	Right Headwall - Proposed
						18"	24"	48"				
270+06	5.115	48" CMP	0°	8	0			16	0.86			
281+12	5.324	18" RCP	0°	36	2	44					18" Sloped & Mitered HW	18" Safety Box Inlet
292+67	5.543	18" RCP	0°	4	1	7					18" Standard Headwall	
298+75	5.658	24" RCP	0°	38	2		46			25	24" Sloped & Mitered HW	24" Standard Headwall
Runyan Rd	--	18" RCP	--	42	0	42						
			TOTALS:	**128**	**5**	**93**	**46**	**16**	**0.86**	**25**		

BID ITEM	DESCRIPTION	UNIT	QUANTITY
00190	LEVELING & WEDGING PG64-22	TON	3
212	CL2 ASPH BASE 1.00D PG64-22	TON	18
462	CULVERT PIPE-18 IN	LF	93
464	CULVERT PIPE-24 IN	LF	46
470	CULVERT PIPE-48 IN	LF	16
1204	PIPE CULVERT HEADWALL-18 IN	EACH	1
1208	PIPE CULVERT HEADWALL-24 IN	EACH	1
1310	REMOVE PIPE	LF	128
1726	SAFETY BOX INLET-18 IN SDB-1	EACH	1
2483	CHANNEL LINING CLASS II	TON	25
2625	REMOVE HEADWALL	EACH	5
8100	CONCRETE-CLASS A	CUYD	0.86
26131ED	SLOPED AND MITERED HEADWALL-18 IN	EACH	1
26132ED	SLOPED AND MITERED HEADWALL-24 IN	EACH	1

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.
The Contractor shall field verify types and dimensions prior to ordering.

1-9023.00

Ditching & Shouldering Summary — Crittenden County — US 60

Notes:
* The "Figure References" noted below refer to the Figure number within the Ditching & Shouldering Detail Sheet that is the closest representation of the intended Ditching & Shouldering.
** The Estimated Volumes of Excavation and Embankment are provided for informational purposes ONLY. The Department gives no guarantee to the accuracy of the estimated volumes. The Bidder must draw his/her own conclusion. Payment will be based on the Linear Footage of Ditching & Shouldering performed, regardless of the accuracy of the Estimated Volumes of Excavation and Embankment.

LOCATION					Length (LF)	Estimated Excavation Volume** (CU YD)	Estimated Embankment Volume** (CU YD)	Ditching & Shouldering Detail Sheet Figure Ref.*	Include DGA Wedge? (Yes/No)	DGA (TONS)	Asphalt Seal Coat (TON)	Asphalt Seal Aggregate (TON)	Channel Line Ditch, Fill Slope or Cut Slope? (Yes/No)	Channel Lining Class II (TONS)	Geotex. Fabric Type IV (SQ YD)	Remarks
Side of Road	Approx. BEGIN Station	Approx. BEGIN Milepoint	Approx. END Station	Approx. END Milepoint												
RT	264+75	5.014	268+25	5.080	350	0	58	Figure 3	Yes				No			
RT	270+00	5.114	273+00	5.170	300	28	72	Figure 10	Yes				Yes - Ditch	100		
RT	273+00	5.170	275+80	5.223	280	0	12	Figure 1	Yes				No			
RT	276+00	5.227	280+00	5.303	400	53	58	Figure 11	Yes				Yes - Cut Slope	134		
RT	281+20	5.326	286+80	5.432	560	66	39	Figure 11	Yes				Yes - Cut Slope	168		
RT	288+00	5.455	292+60	5.542	460	0	128	Figure 5	Yes				Yes - Fill Slope	200	103	
RT	292+60	5.542	298+25	5.649	565	105	73	Figure 11	Yes				Yes - Cut Slope	151		
RT	425+80	8.064	427+50	8.097	170	0	41	Figure 4	Yes				No			
LT	271+50	5.142	274+00	5.189	250	0	14	Figure 1	Yes				No			
LT	279+50	5.294	283+00	5.360	350	0	143	Figure 3	Yes				No			
LT	285+25	5.402	287+50	5.445	225	0	67	Figure 4	Yes				No			
LT	287+50	5.445	291+00	5.511	350	0	389	Figure 5	Yes				Yes - Fill Slope	234	78	
LT	291+00	5.511	294+00	5.568	300	0	278	Figure 4	Yes				No			
LT	295+00	5.587	299+80	5.678	480	71	89	Figure 8	Yes				No			
LT	425+90	8.066	427+50	8.097	160	18	25	Figure 10	Yes				Yes - Cut Slope	75		

BID ITEM	DESCRIPTION	UNIT	QUANTITY
2483	CHANNEL LINING CLASS II	TON	962
2575	DITCHING AND SHOULDERING	LF	5,200
2602	GEOTEXTILE FABRIC CLASS 1	SQYD	181

All quantities for DGA wedge included in Paving Summary.

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.

1-9023.00

Guardrail Summary — Crittenden County — US 60

Notes: Begin/End Milepoints are estimated to include the entire length of the Rail AND the End Treatments. The Engineer may adjust the proposed guardrail termini to ensure proper installation of the guardrail system.

Proposed Guardrail to be Constructed										Existing Guardrail to be Removed					
Side of Road	Proposed BEGINNING Treatment	Approx. BEGIN Station	Approx. BEGIN Milepoint	Approx. END Station	Approx. END Milepoint	Proposed ENDING Treatment	Proposed Length (LF)	Number of Radius Rail	Remarks	Side of Road	Approx. BEGIN Station	Approx. BEGIN Milepoint	Approx. END Station	Approx. END Milepoint	Existing Length (LF)
LT	Type 1	287+34	5.442	293+34	5.556	Type 1	500.00	0		LT	287+34	5.442	293+34	5.556	600.00
RT	Type 1	425+81	8.065	426+26	8.073		0.00	0	Connect to Single Face A at end	RT	425+81	8.065	427+60	8.098	187.50
RT		426+26	8.073	426+51	8.078		25.00	0	Single Face A						
RT		426+51	8.078	426+63	8.080		9.50	0	Bridge Rail						
RT		426+63	8.080	426+88	8.085		25.00	0	Single Face A						
RT		426+88	8.085	427+54	8.097	Type 1	25.00	0	Connect to Single Face A at end						
LT	Terminal Section 1	425+90	8.066	426+39	8.076		53.75	1	Connect to Single Face A at end	LT	425+90	8.066	427+54	8.097	175.00
LT		426+39	8.076	426+64	8.080		25.00	0	Single Face A						
LT		426+64	8.080	426+74	8.082		9.50	0	Bridge Rail						
LT		426+74	8.082	426+99	8.087		25.00	0	Single Face A						
LT		426+99	8.087	427+54	8.097	Type 1	12.50	0	Connect to Single Face A at beginning						

ITEM	DESCRIPTION	UNIT	QTY
1987	DELIN. FOR GUARDRAIL BI DIR. WHITE	EACH	20
2355	GUARDRAIL-STEEL W BEAM-S FACE A	LF	100
2360	GUARDRAIL TERMINAL SECTION NO 1	EACH	1
2367	GUARDRAIL END TREATMENT TYPE 1	EACH	5
2381	REMOVE GUARDRAIL	LF	963
8801	GUARDRAIL-STEEL W BEAM-S FACE BR	LF	19
20191ED	OBJECT MARKER TYPE 3	EACH	5
21802EN	G/R STEEL W BEAM-S FACE (7 FT POST)	LF	710

US 60 - CRITTENDEN COUNTY ITEM NO. 1-9023.00 RUMBLE STRIP SUMMARY						
Begin Station	**Begin Milepoint**	**Offset**	**End Station**	**End Milepoint**	**Offset**	**Length (LF)**
Edgeline Rumble Strips						
263+00	4.981	11' LT	299+80	5.678	11' LT	3680
263+00	4.981	11' RT	299+80	5.678	11' RT	3680
425+40	8.057	11' LT	427+75	8.101	11' LT	235
425+40	8.057	11' RT	427+75	8.101	11' RT	235
Centerline Rumble Strips						
263+00	4.981	0'	299+80	5.678	0'	3680
425+40	8.057	0'	427+75	8.101	0'	235

BID ITEM	**DESCRIPTION**	**UNIT**	**QUANTITY**
2697	EDGELINE RUMBLE STRIPS	LF	7830
20458ES403	CENTERLINE RUMBLE STRIPS	LF	3915

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.
All quantities carried over to the General Summary.

US 60 - CRITTENDEN COUNTY ITEM NO. 1-9023.00 PAVEMENT STRIPING SUMMARY							
Begin Station	**Begin Milepoint**	**Offset**	**End Station**	**End Milepoint**	**Offset**	**Description**	**Length (LF)**
Thermo Striping - 6" White							
263+00	4.981	11' LT	299+80	5.678	11' LT	Edgeline	3680
263+00	4.981	11' RT	299+80	5.678	11' RT	Edgeline	3680
425+40	8.057	11' LT	427+75	8.101	11' LT	Edgeline	235
425+40	8.057	11' RT	427+75	8.101	11' RT	Edgeline	235
Thermo Striping - 6" Yellow							
263+00	4.981	0'	269+25	5.099	0'	Double Solid Yellow	1250
269+25	5.099	0'	276+60	5.239	0'	Solid/Dashed (passing EB)	919
276+60	5.239	0'	287+55	5.446	0'	Dashed	274
287+55	5.446	0'	295+00	5.587	0'	Solid/Dashed (passing WB)	932
295+00	5.587	0'	299+80	5.678	0'	Double Solid Yellow	960
425+40	8.057	0'	427+75	8.101	0'	Solid/Dashed (passing WB)	294

BID ITEM	DESCRIPTION	UNIT	QUANTITY
6542	PAVE STRIPING-THERMO-6 IN W	LF	7830
6543	PAVE STRIPING-THERMO-6 IN Y	LF	4629

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.

All quantities carried over to the General Summary.

1-9023.00

Sign Summary — CRITTENDEN County — US 60

SIGN LOCATION						MUTCD Code	Sign Description	Sign Text / Remarks	Sign Dimensions (in x in)			SHEETING			SBM Alum Sheet Signs 0.080 IN (SQ FT)	SBM Alum Sheet Signs 0.125 IN (SQ FT)	Installation Type	Bracing Req'd	# of Sign Posts	Estimated Length of 2" Post (ft)	Estimated Length of 2-1/2" Post (ft)	2-1/4" Stiffener Req'd (incdntl to post)	TOTAL Estimated Sign Post Length (LF)	Barcode Sign Inv. (EACH)
Assembly ID	Side of Road	Approx Offset (ft)	Approx Station	Approx. Mile Point	Facing Traffic Traveling							Text/ Symbol Color	Background Color	Sheeting Type										
1	LT	18	268+90	5.0928	WB	M2-1	Junction		21	x	15	Black	White	XI	2.1875		Stnd w/ Soil Plate						14	1
						M1-5a	State Route Sign (3 or 4 digit)	297	30	x	24	Black	White	XI	5									1
2	LT	15	268+90	5.0928	WB	M2-1	Junction		21	x	15	Black	White	XI	2.1875		Stnd w/ Soil Plate						14	1
						M1-5a	State Route Sign (3 or 4 digit)	2132	30	x	24	Black	White	XI	5									1
3	RT	15	292+50	5.53977	EB	W1-2L	Left Curve		30	x	30	Black	FL Yellow	XI	6.25		Stnd w/ Soil Plate						15	1
						W13-1P	XX MPH (Advisory Speed)	45	18	x	18	Black	FL Yellow	XI	2.25									1
4	LT	15	297+80	5.64015	WB	W1-2R	Right Curve		30	x	30	Black	FL Yellow	XI	6.25		Stnd w/ Soil Plate						15	1
						W13-1P	XX MPH (Advisory Speed)	45	18	x	18	Black	FL Yellow	XI	2.25									1
5	RT	15	329+70	6.24432	WB	W14-3	No Passing Zone		48 x	48	x 36	Black	Yellow	XI		5.56	Stnd w/ Soil Plate						13	1
6	LT	15	330+60	6.26136	EB	W14-3	No Passing Zone		48 x	48	x 36	Black	Yellow	XI		5.56	Stnd w/ Soil Plate						13	1
7	RT	15	336+25	6.36837	EB	W1-2R	Right Curve		30	x	30	Black	FL Yellow	XI	6.25		Stnd w/ Soil Plate						15	1
						W13-1P	XX MPH (Advisory Speed)	45	18	x	18	Black	FL Yellow	XI	2.25									1
8	LT	EX.	343+90	6.51326	EB	W1-8R	Right Chevron	Replace on ex. Post	18	x	24	Black	FL Yellow	XI	3		Stnd w/ Soil Plate						0	1
9	LT	15	345+05	6.53504	WB	W1-2L	Left Curve		30	x	30	Black	FL Yellow	XI	6.25		Stnd w/ Soil Plate						15	1
						W13-1P	XX MPH (Advisory Speed)	50	18	x	18	Black	FL Yellow	XI	2.25									1
10	RT	15	354+15	6.70739	EB	W2-1	Cross Road		30	x	30	Black	Yellow	XI	6.25		Stnd w/ Soil Plate						15	1
						W16-8aP	Advance Street Name (2-line)	Fritts/Orb Taylor Rd	48	x	15	Black	Yellow	XI		5								1
11	LT	15	361+00	6.83712	WB	W2-1	Cross Road		30	x	30	Black	Yellow	XI	6.25		Stnd w/ Soil Plate						15	1
						W16-8aP	Advance Street Name (2-line)	Fritts/Orb Taylor Rd	48	x	15	Black	Yellow	XI		5								1
12	RT	15	371+60	7.03788	EB	M2-1	Junction		21	x	15	Black	White	XI	2.1875		Stnd w/ Soil Plate						14	1
						M1-5a	State Route Sign (3 or 4 digit)	1668	30	x	24	Black	White	XI	5									1
13	LT	18	379+00	7.17803	WB	M1-5a	State Route Sign (3 or 4 digit)	1668	30	x	24	Black	White	XI	5		Stnd w/ Soil Plate						14	1
						M6-1R	Right Arrow		24	x	12	Black	White	XI	2									1
14	RT	15	397+00	7.51894	WB	W14-3	No Passing Zone		48 x	48	x 36	Black	Yellow	XI		5.56	Stnd w/ Soil Plate						13	1

BID ITEM	DESCRIPTION	UNIT	QUANTITY
6406	SBM ALUM SHEET SIGNS .080 IN	SQFT	78.06
6407	SBM ALUM SHEET SIGNS .125 IN	SQFT	26.68
6410	STEEL POST TYPE 1	LF	185
24631EC	BARCODE SIGN INVENTORY	EACH	24

US 60 - CRITTENDEN COUNTY ITEM NO. 1-9023.00 REMOVE SIGN SUMMARY				
Station	**Milepoint**	**Offset**	**Description**	**Quantity (EA)**
268+90	5.093	LT	KY 297 & KY 2132 Guide Sign Assemblies	2
288+15	5.457	RT	Advance Curve Warning	1
302+50	5.729	LT	Advance Curve Warning	1
330+40	6.258	RT	Advance Curve Warning	1
331+00	6.269	LT	No Passing Zone	1
331+10	6.271	RT	No Passing Zone	1
349+15	6.613	LT	Advance Curve Warning	1
371+60	7.038	RT	KY 1668 Guide Sign Assembly	1
379+00	7.178	LT	KY 1668 Guide Sign Assembly	1
397+00	7.519	RT	No Passing Zone	1

BID ITEM	**DESCRIPTION**	**UNIT**	**QUANTITY**
21373ND	REMOVE SIGN	EACH	11

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.
All quantities carried over to the General Summary.

US 60 - CRITTENDEN COUNTY
ITEM NO. 1-9023.00
ENTRANCE SUMMARY

Station	Milepoint	Offset	DGA (Tons)	Asphalt Base (Tons)	Asphalt Surface (Tons)	18" Entrance Pipe (LF)	Remove Pipe (LF)
281+97	5.340	RT	14	--	--	36	30
299+30	5.669	RT	17	8	6	50	50
		TOTALS:	**31**	**8**	**6**	**86**	**80**

BID ITEM	DESCRIPTION	UNIT	QUANTITY
1	DGA BASE	TON	31
212	CL2 ASPH BASE 1.00D PG64-22	TON	8
301	CL2 ASPH SURF 0.38D PG64-22	TON	6
441	ENTRANCE PIPE-18 IN	LF	86
1310	REMOVE PIPE	LF	80

These numbers are for estimate purposes only. Final locations and quantities will be determined by the Engineer in the field.
All quantities carried over to the General Summary.

US 60 - CRITTENDEN COUNTY ITEM NO. 1-9023.00 GABION BASKET SUMMARY								
Offset	**Begin Station**	**Begin Milepoint**	**End Station**	**End Milepoint**	**Length**	**Height**	**Retaining Wall - Gabion (CUYD)**	**Structure Excavation (CUYD)**
LT	307+65	5.827	307+83	5.830	18	6	18	9

BID ITEM	DESCRIPTION	UNIT	QUANTITY
2203	STRUCTURE EXCAVATION UNCLASSIFIED	CUYD	9
2610	RETAINING WALL-GABION	CUYD	18

1-9023.00

Consent & Release Summary

Parcel	Begin MP	End MP	Side	Owner(s)	Consent & Release Description	Status	Additional Notes
1	5.400		LT	Melody F. Tabor	Encroach on property owner to expand shoulder on edge of highway	Signed	4165 US Highway 60W

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	264+75 - 265+00	25

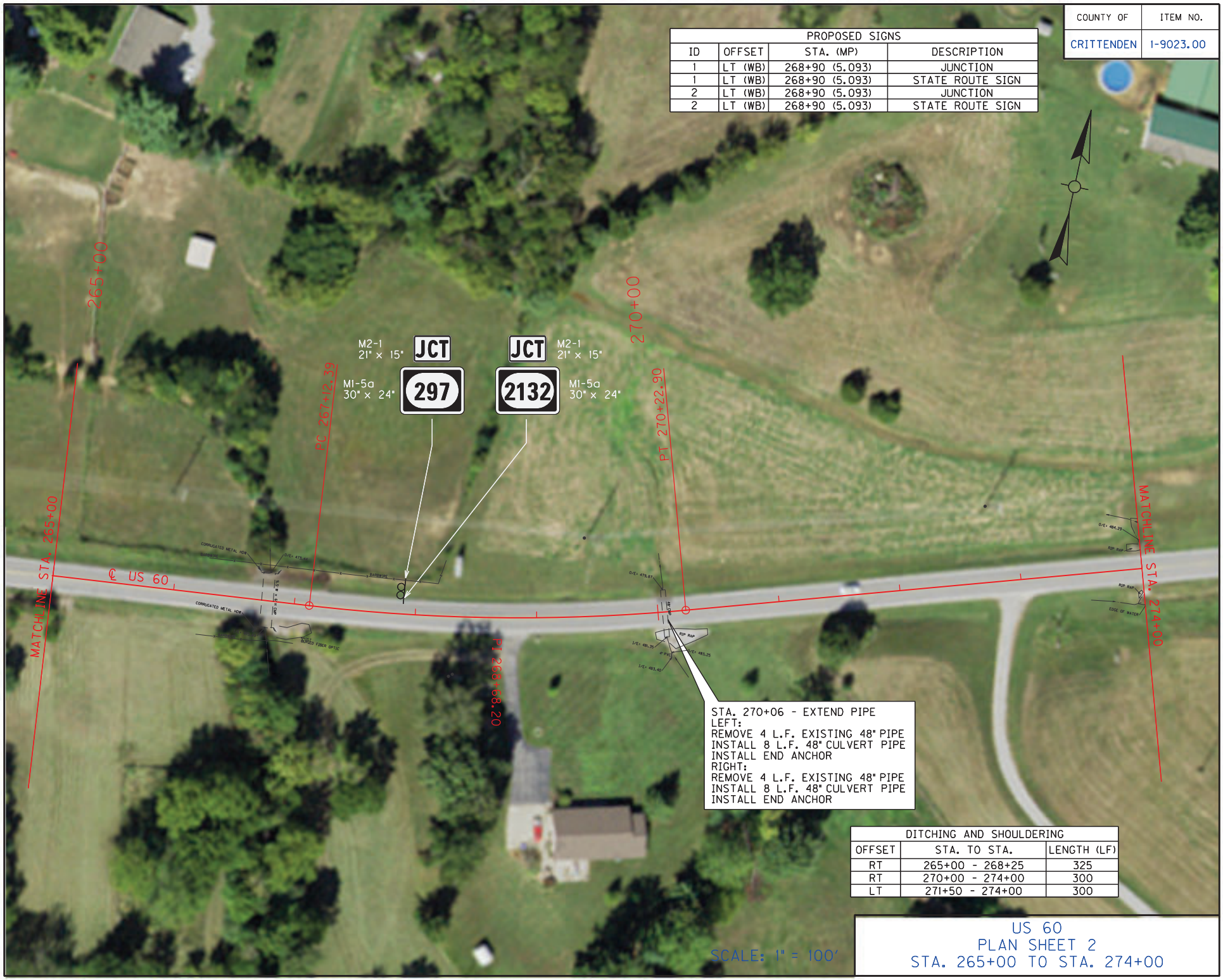
NOTE: LOCATION OF EXISTING UTILITIES IS APPROXIMATE AND NOT ALL UTILITIES MAY BE SHOWN. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS WHEN PERFORMING WORK IN THESE AREAS.

SCALE: 1" = 100'

US 60
PLAN SHEET 1
BEGIN CONSTRUCTION TO STA. 265+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
1	LT (WB)	268+90 (5.093)	JUNCTION
1	LT (WB)	268+90 (5.093)	STATE ROUTE SIGN
2	LT (WB)	268+90 (5.093)	JUNCTION
2	LT (WB)	268+90 (5.093)	STATE ROUTE SIGN



DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	265+00 - 268+25	325
RT	270+00 - 274+00	300
LT	271+50 - 274+00	300

SCALE: 1" = 100'

US 60
PLAN SHEET 2
STA. 265+00 TO STA. 274+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	274+00 - 275+80	180
RT	276+00 - 280+00	400
RT	281+20 - 283+00	180
LT	279+50 - 283+00	350

SCALE: 1" = 100'

US 60
PLAN SHEET 3
STA. 274+00 TO STA. 283+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

INSTALL GUARDRAIL				
OFFSET	STA. TO STA.	LENGTH	BEGIN E.T.	END E.T.
LT	287+34 - 292+00	416	TYPE 1	--

REMOVE GUARDRAIL		
OFFSET	STA. TO STA.	LENGTH
LT	287+34 - 292+00	466

LT. STA. 287+25 TO STA. 289+25
REMOVE 200 L.F. EXISTING FENCE TO CONSTRUCT FILL SLOPES BEHIND GUARDRAIL. INSTALL 200 L.F. WOVEN WIRE FENCE-TYPE 2.

285+00

290+00

℄ US 60

MATCHLINE STA. 283+00

PI 283+76.76

PC 283+37.20

PT 284+16.32

MATCHLINE STA. 292+00

DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	283+00 - 286+80	380
RT	288+00 - 292+00	400
LT	285+25 - 292+00	600

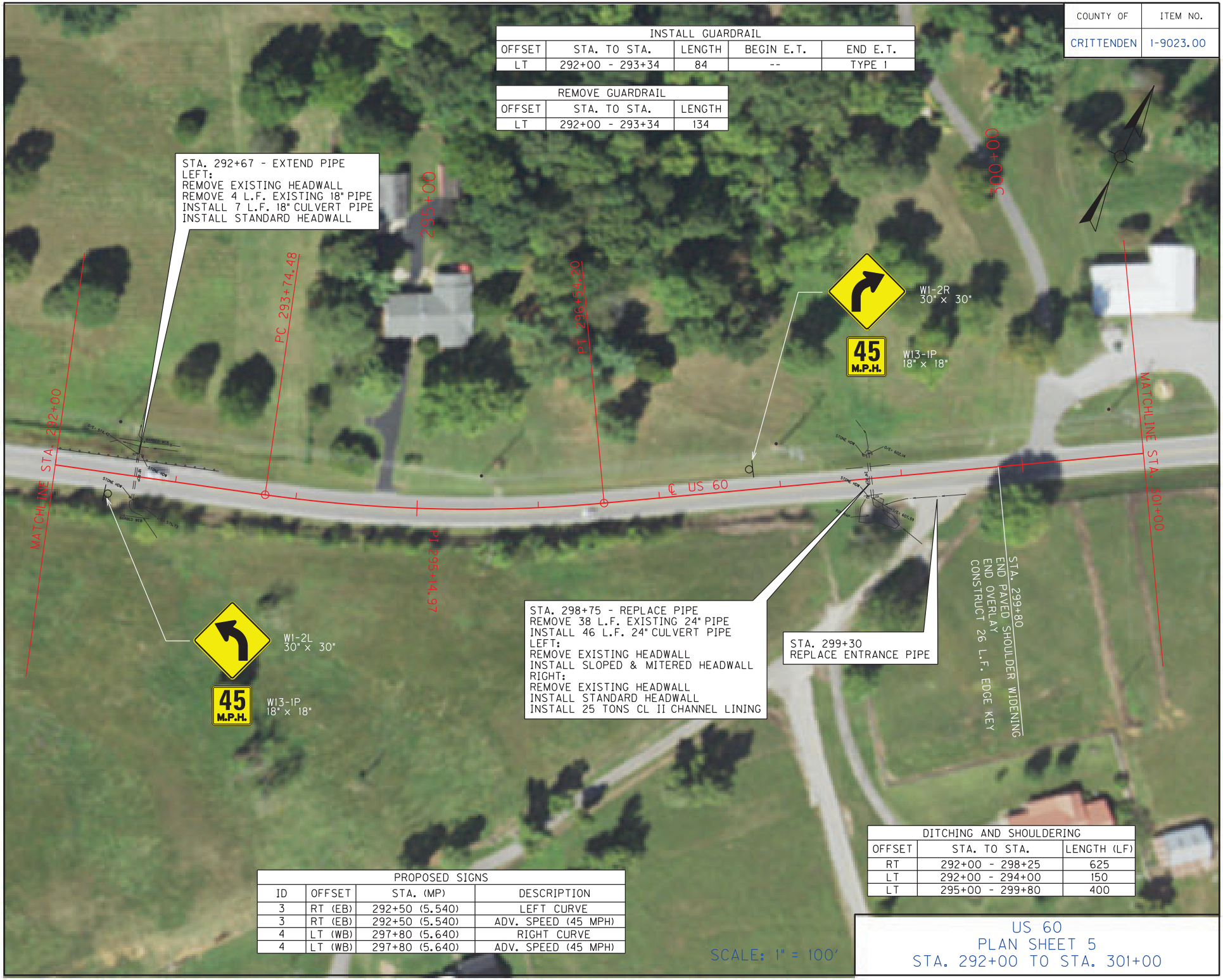
SCALE: 1" = 100'

US 60
PLAN SHEET 4
STA. 283+00 TO STA. 292+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

INSTALL GUARDRAIL				
OFFSET	STA. TO STA.	LENGTH	BEGIN E.T.	END E.T.
LT	292+00 - 293+34	84	--	TYPE 1

REMOVE GUARDRAIL		
OFFSET	STA. TO STA.	LENGTH
LT	292+00 - 293+34	134



PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
3	RT (EB)	292+50 (5.540)	LEFT CURVE
3	RT (EB)	292+50 (5.540)	ADV. SPEED (45 MPH)
4	LT (WB)	297+80 (5.640)	RIGHT CURVE
4	LT (WB)	297+80 (5.640)	ADV. SPEED (45 MPH)

DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	292+00 - 298+25	625
LT	292+00 - 294+00	150
LT	295+00 - 299+80	400

SCALE: 1" = 100'

US 60
PLAN SHEET 5
STA. 292+00 TO STA. 301+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

GABION BASKET WALL		
OFFSET	STA. TO STA.	LENGTH (LF)
LT	307+65 - 307+83	18

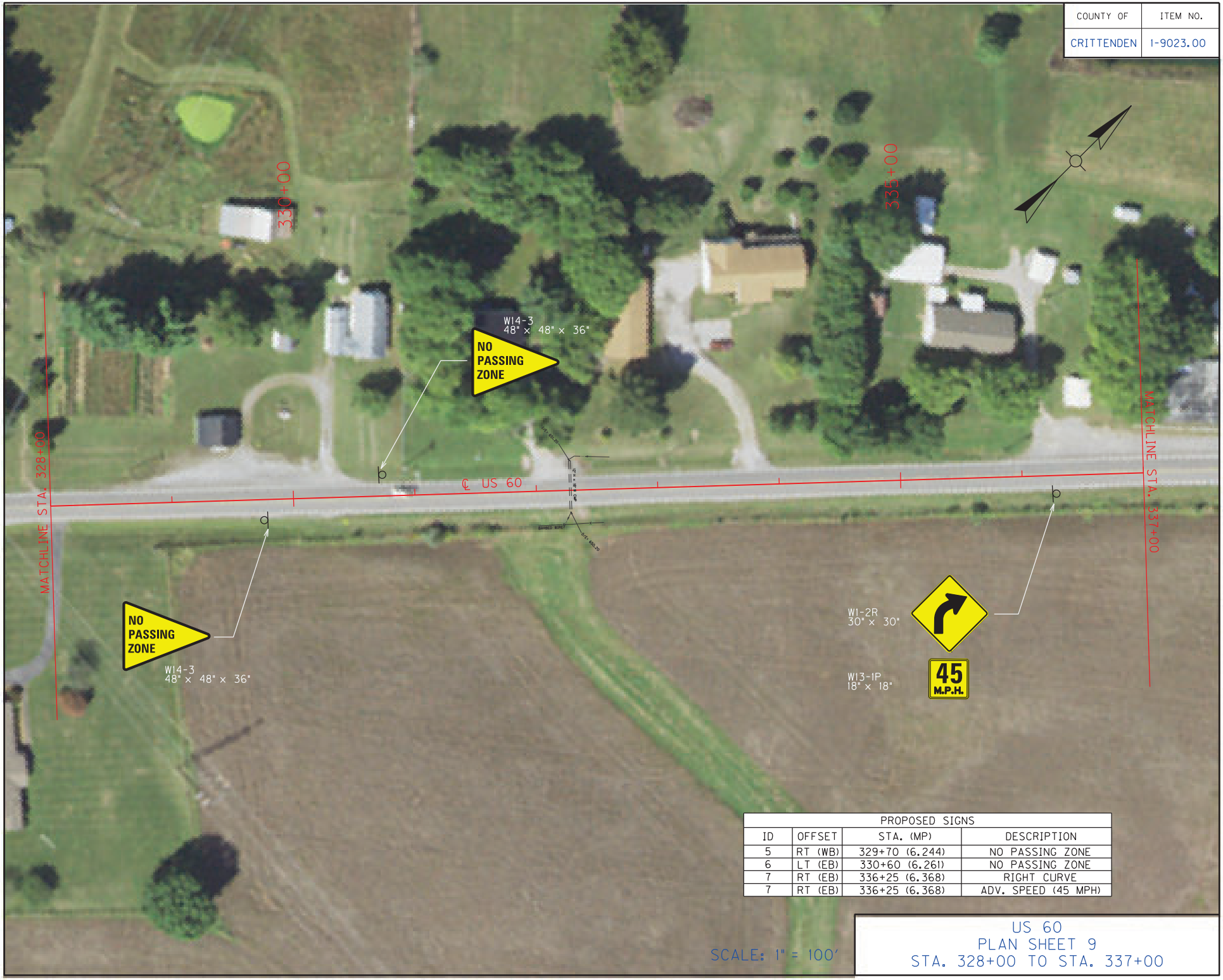
SCALE: 1" = 100'

US 60
PLAN SHEET 6
STA. 301+00 TO STA. 310+00


COUNTY OF
CRITTENDEN
ITEM NO.
I-9023.00
MATCHLINE STA. 319+00
℄ US 60
315+00
PI 311+91.27
310+00
PI 310+54.38
MATCHLINE STA. 310+00
US 60
PLAN SHEET 7
STA. 310+00 TO STA. 319+00
SCALE: 1" = 100'


ITEM NO.
I-9023.00
COUNTY OF
CRITTENDEN
MATCHLINE STA. 328+00
℄ US 60
325+00
PI 321+71.28
PI 320+87.39
320+00
PC 320+03.33
MATCHLINE STA. 319+00
US 60
PLAN SHEET 8
STA. 319+00 TO STA. 328+00
SCALE: 1" = 100'

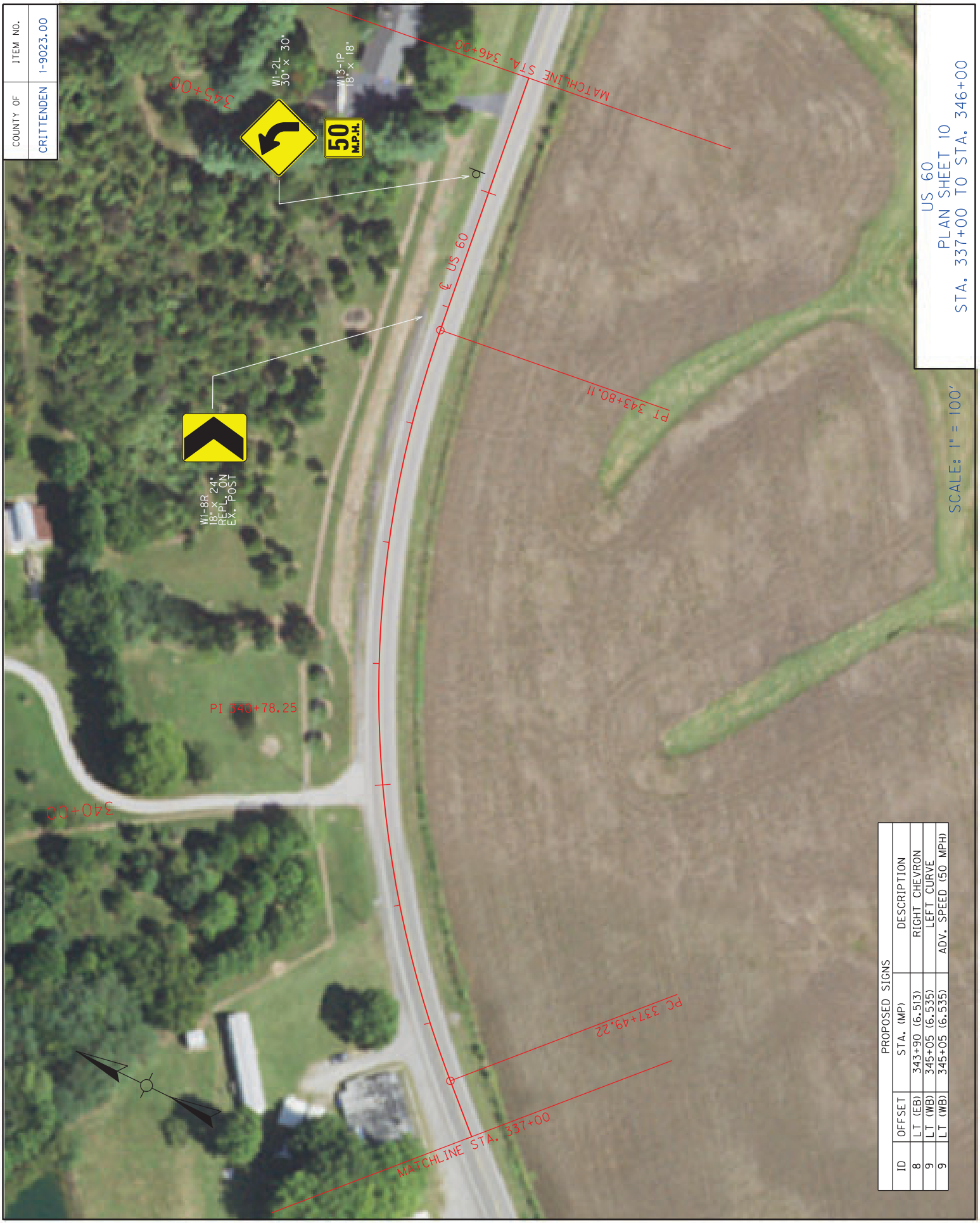
COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00



PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
5	RT (WB)	329+70 (6.244)	NO PASSING ZONE
6	LT (EB)	330+60 (6.261)	NO PASSING ZONE
7	RT (EB)	336+25 (6.368)	RIGHT CURVE
7	RT (EB)	336+25 (6.368)	ADV. SPEED (45 MPH)

SCALE: 1" = 100'

US 60
PLAN SHEET 9
STA. 328+00 TO STA. 337+00


COUNTY OF
CRITTENDEN
ITEM NO.
1-9023.00
US 60
PLAN SHEET 10
STA. 337+00 TO STA. 346+00
SCALE: 1" = 100'
PROPOSED SIGNS
ID
OFFSET
STA. (MP)
DESCRIPTION
8
LT (EB)
343+90 (6.513)
RIGHT CHEVRON
9
LT (WB)
345+05 (6.535)
LEFT CURVE
9
LT (WB)
345+05 (6.535)
ADV. SPEED (50 MPH)
W1-8R
18" X 24"
REPL. ON
EX. POST
W1-2L
30" X 30"
W13-1P
18" X 18"
50
M.P.H.
345+00
340+00
PI 340+78.25
PT 343+80.11
PC 337+49.22
MATCHLINE STA. 337+00
MATCHLINE STA. 346+00
℄ US 60

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
10	RT (EB)	354+15 (6.707)	CROSS ROAD
10	RT (EB)	354+15 (6.707)	ADV. STREET NAME SIGN

SCALE: 1" = 100'

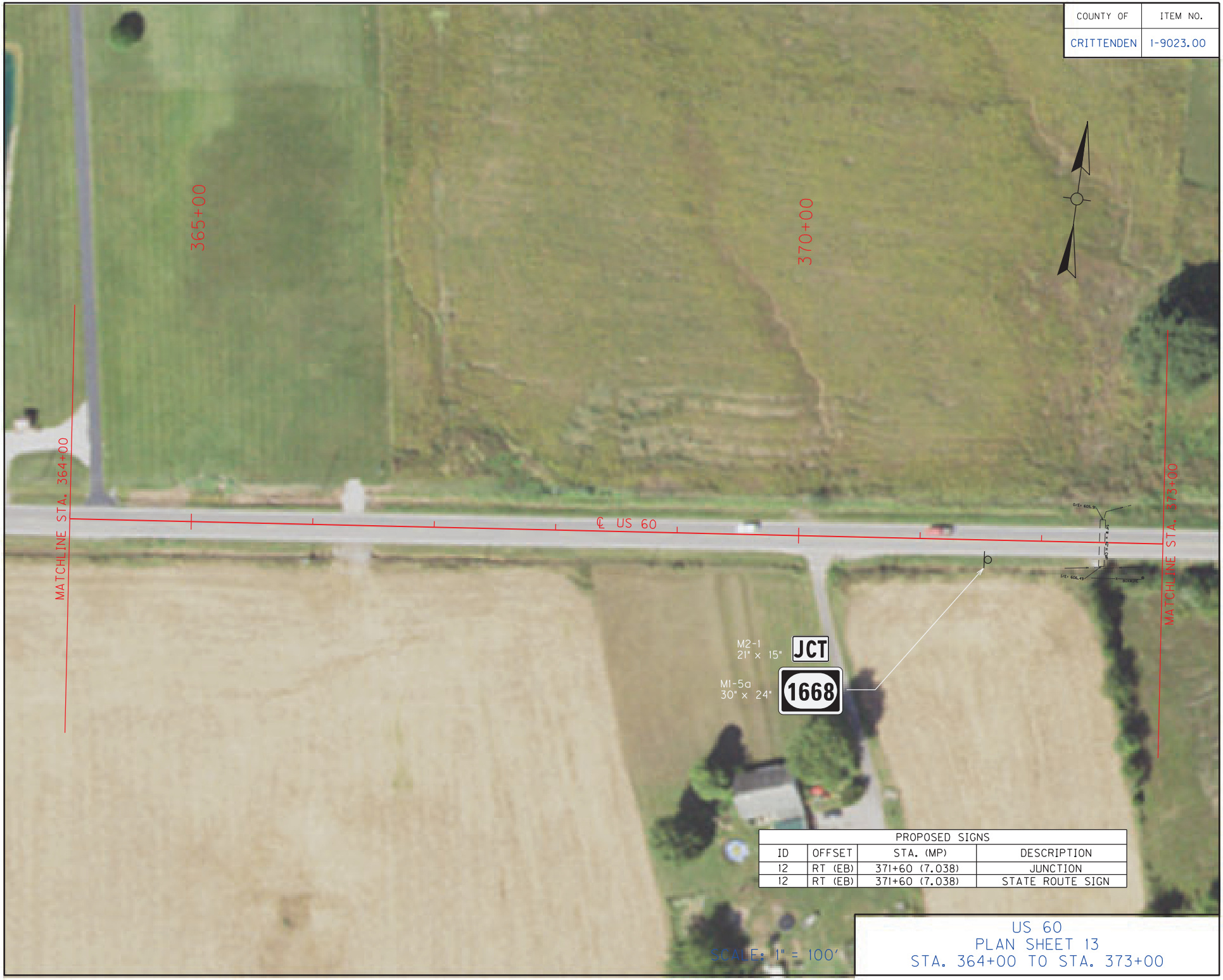
US 60
PLAN SHEET 11
STA. 346+00 TO STA. 355+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
11	LT (WB)	361+00 (6.837)	CROSS ROAD
11	LT (WB)	361+00 (6.837)	ADV. STREET NAME SIGN

US 60
PLAN SHEET 12
STA. 355+00 TO STA. 364+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00



PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
12	RT (EB)	371+60 (7.038)	JUNCTION
12	RT (EB)	371+60 (7.038)	STATE ROUTE SIGN

US 60
PLAN SHEET 13
STA. 364+00 TO STA. 373+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
13	LT (WB)	379+00 (7.178)	STATE ROUTE SIGN
13	LT (WB)	379+00 (7.178)	RIGHT ARROW

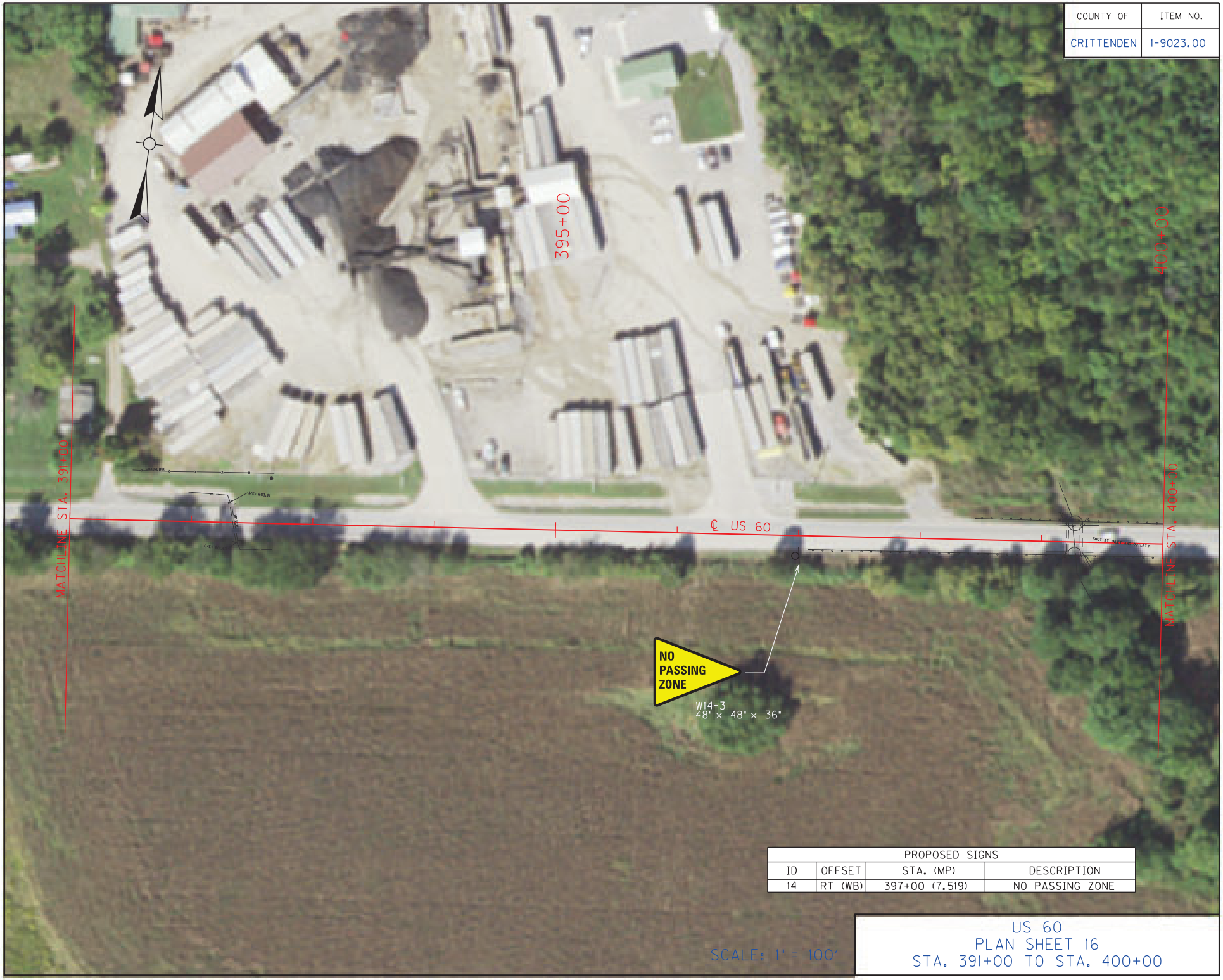
SCALE: 1" = 100'

US 60
PLAN SHEET 14
STA. 373+00 TO STA. 382+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

US 60
PLAN SHEET 15
STA. 382+00 TO STA. 391+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00



PROPOSED SIGNS			
ID	OFFSET	STA. (MP)	DESCRIPTION
14	RT (WB)	397+00 (7.519)	NO PASSING ZONE

SCALE: 1" = 100'

US 60
PLAN SHEET 16
STA. 391+00 TO STA. 400+00


COUNTY OF
CRITTENDEN
ITEM NO.
I-9023.00
US 60
PLAN SHEET 17
STA. 400+00 TO STA. 409+00
SCALE: 1" = 100'
MATCHLINE STA. 409+00
405+00
PT 403+24.30
℄ US 60
PI 401+98.87
PC 400+73.43
400+00
MATCHLINE STA. 400+00


ITEM NO.
1-9023.00
COUNTY OF
CRITTENDEN
US 60
PLAN SHEET 18
STA. 409+00 TO STA. 418+00
SCALE: 1" = 100'
MATCHLINE STA. 418+00
MATCHLINE STA. 409+00
415+00
410+00
AIRPORT RD
GREGORY LN
BLUEBIRD LN
℄ US 60

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00

REMOVE GUARDRAIL		
OFFSET	STA. TO STA.	LENGTH
LT	425+90 - 427+00	121
RT	425+81 - 427+60	187.5

INSTALL GUARDRAIL					
OFFSET	STA. TO STA.	LENGTH	TYPE	BEGIN E.T.	END E.T.
LT	425+90 - 426+39	53.75	W-BEAM S-FACE	TS 1	--
LT	426+39 - 426+64	25	W-BEAM S-FACE A	--	--
LT	426+64 - 426+74	9.5	W-BEAM S-FACE BR	--	--
LT	426+74 - 426+99	25	W-BEAM S-FACE A	--	--
LT	426+99 - 427+54	12.5	W-BEAM S-FACE	--	TYPE 1
RT	425+81 - 426+26	--	--	TYPE 1	--
RT	426+26 - 246+51	25	W-BEAM S-FACE A	--	--
RT	426+51 - 426+63	9.5	W-BEAM S-FACE BR	--	--
RT	426+63 - 426+88	25	W-BEAM S-FACE A	--	--
RT	426+88 - 427+54	12.5	W-BEAM S-FACE	--	TYPE 1

420+00

425+00

MATCHLINE STA. 418+00

℄ US 60

MATCHLINE STA. 427+00

STA. 426+65
EXTEND RCBC
SEE STRUCTURAL PLANS
FOR DETAILS

STA. 425+40
BEGIN PAVED SHOULDER WIDENING
BEGIN OVERLAY
CONSTRUCT 26 L.F. EDGE KEY

DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	425+80 - 427+00	120
LT	425+90 - 427+00	350

SCALE: 1" = 100'

US 60
PLAN SHEET 19
STA. 418+00 TO STA. 427+00

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

DITCHING AND SHOULDERING		
OFFSET	STA. TO STA.	LENGTH (LF)
RT	427+00 - 427+50	50
LT	427+00 - 427+50	50

SCALE: 1" = 100'

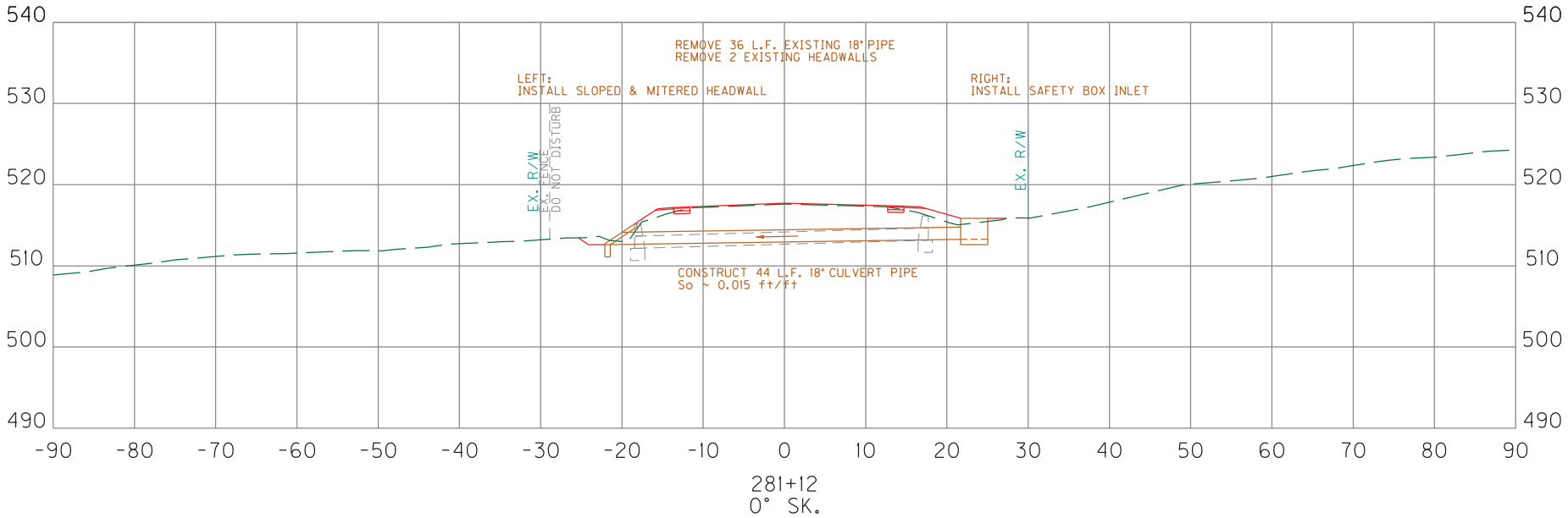
US 60
PLAN SHEET 20
STA. 427+00 TO STA. 436+00


ITEM NO.
I-9023.00
COUNTY OF
CRITTENDEN
US 60
PLAN SHEET 21
STA. 436+00 TO STA. 445+00
SCALE: 1" = 100'
445+00
MATCHLINE STA. 445+00
℄ US 60
440+00
PI 438+95.19
PT 439+21.37
MATCHLINE STA. 436+00

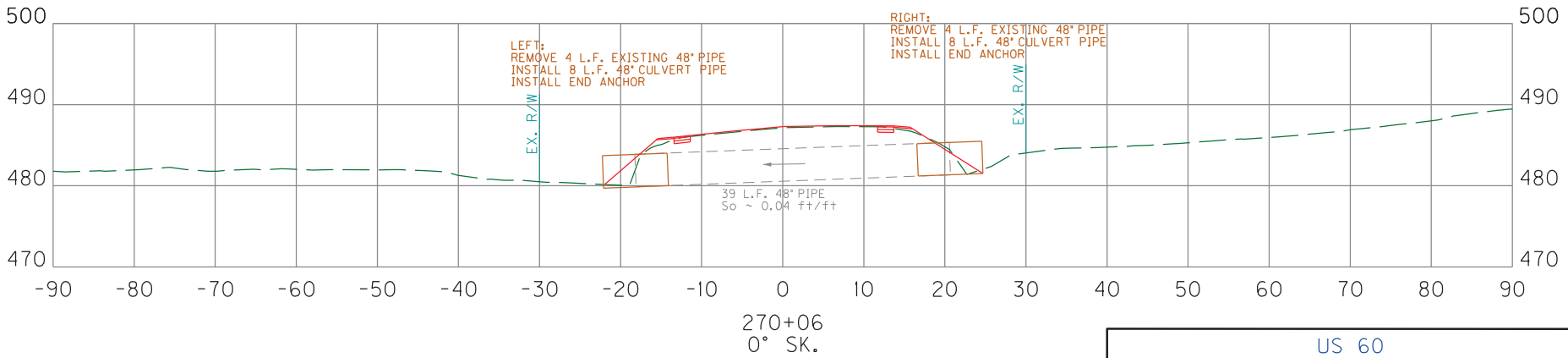
COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00

US 60
PLAN SHEET 22
STA. 445+00 TO END CONSTRUCTION

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



281+12
0° SK.

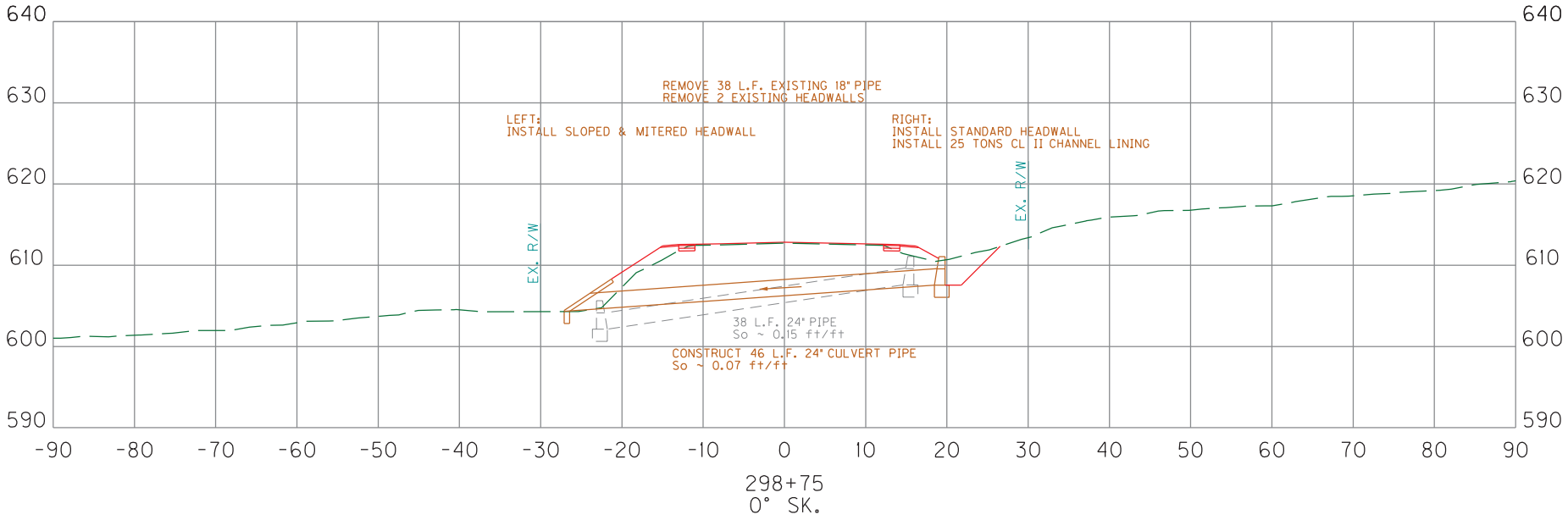


270+06
0° SK.

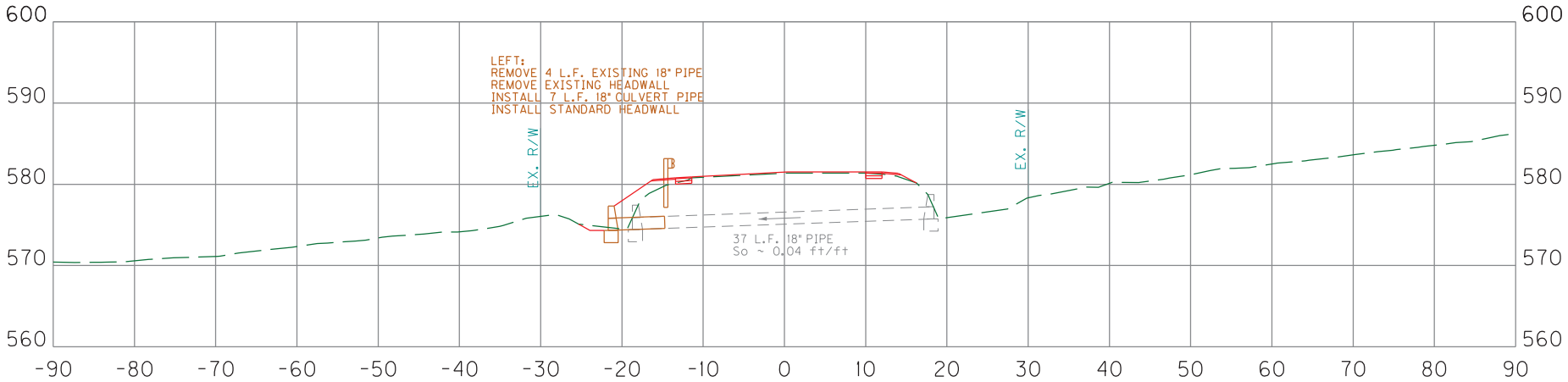
SCALE: 1" = 20'

US 60
PIPE SECTIONS SHEET 1

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



298+75
0° SK.



292+67
0° SK.

SCALE: 1" = 20'

US 60
PIPE SECTIONS SHEET 2

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00

GENERAL NOTES

SPECIFICATIONS: ALL REFERENCES TO THE STANDARD SPECIFICATIONS ARE TO THE CURRENT EDITION OF THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH CURRENT SUPPLEMENTAL SPECIFICATIONS. ALL REFERENCES TO THE AASHTO SPECIFICATIONS ARE TO THE CURRENT EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

DESIGN LOAD: THIS STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE CURRENT AASHTO SPECIFICATIONS. THE EFFECTIVE WEIGHT OF FILL MATERIAL IS 120 LBS/CF & THE LIVE LOAD IS THE KYHL-93 TRUCK OR TANDEM. THE LIVE LOADS ARE CALCULATED BY INCREASING THE HL-93 DESIGN TRUCK OR TANDEM BY 25%.

DESIGN METHOD: ALL REINFORCED CONCRETE MEMBERS ARE DESIGNED BY THE LOAD RESISTANCE FACTOR METHOD AS SPECIFIED IN THE AASHTO SPECIFICATIONS.

DESIGN STRESSES: FOR CLASS "A" CONCRETE, f'c = 3,500 P.S.I.
FOR STEEL REINFORCEMENT, Fy = 60,000 P.S.I., n = 9.

CONCRETE: CLASS "A" SHALL BE USED THROUGHOUT.

BEVELED EDGES: ALL EXPOSED EDGES SHALL BE BEVELED ¾" UNLESS OTHERWISE NOTED.

REINFORCEMENT: DIMENSIONS SHOWN FROM THE FACE OF CONCRETE TO BARS ARE TO CENTER OF BARS UNLESS OTHERWISE SHOWN. SPACING OF BARS IS FROM CENTER TO CENTER OF BARS. CLEAR DISTANCE TO FACE OF CONCRETE IS 2" UNLESS OTHERWISE NOTED. BARS DESIGNATED BY SUFFIX (E) SHALL BE EPOXY COATED IN ACCORDANCE WITH SECTION 811.10 OF THE SPECIFICATIONS. BARS DESIGNATED BY SUFFIX (S) SHALL BE CONSIDERED STIRRUPS FOR THE PURPOSE OF BEND DIAMETERS.

BONDING TO EXISTING CONCRETE USING STRUCTURAL ADHESIVES: BOND PROPOSED PLASTIC CONCRETE TO EXISTING HARDENED CONCRETE IN ALL LOCATIONS USING A TYPE V EPOXY RESIN OR OTHER APPROVED STRUCTURAL ADHESIVE AS PRESCRIBED IN SECTION 826 OF THE SPECIFICATIONS. EPOXY GROUT REINFORCING STEEL IN DETAILED LOCATIONS USING A TYPE IV EPOXY MEETING THE REQUIREMENTS OF SECTION 826. FOLLOW THE MANUFACTURER'S APPLICATION INSTRUCTIONS. THE WORK & MATERIAL IS INCIDENTAL TO THE UNIT PRICE FOR CLASS "A" CONCRETE.

CONSTRUCTION NOTE: REMOVE PORTIONS OF THE EXISTING CULVERT TO THE LIMITS SHOWN HEREIN. CENTER 3'-0" LONG, #6 DOWEL BARS @ 12" SPACING INTO THE EXISTING SLAB AND WALLS, EMBEDDED 1'-6" INTO EXISTING CULVERT CONCRETE AND SET WITH AN ADHESIVE ANCHORAGE SYSTEM TO PROVIDE A PULLOUT STRENGTH OF EQUAL OR GREATER CAPACITY THAN THE CORRESPONDING REINFORCING STEEL. THE COST OF THE ALTERNATE SHALL BE INCIDENTAL TO THE UNIT PRICE FOR CLASS "A" CONCRETE.

TEMPORARY SHEETING, SHORING, COFFERDAMS, AND/OR A DEWATERING METHOD MAY BE REQUIRED FOR CONSTRUCTION OF THE CULVERT AND FOOTINGS. INCLUDE ALL COSTS IN THE PRICE BID FOR FOUNDATION PREPARATION.

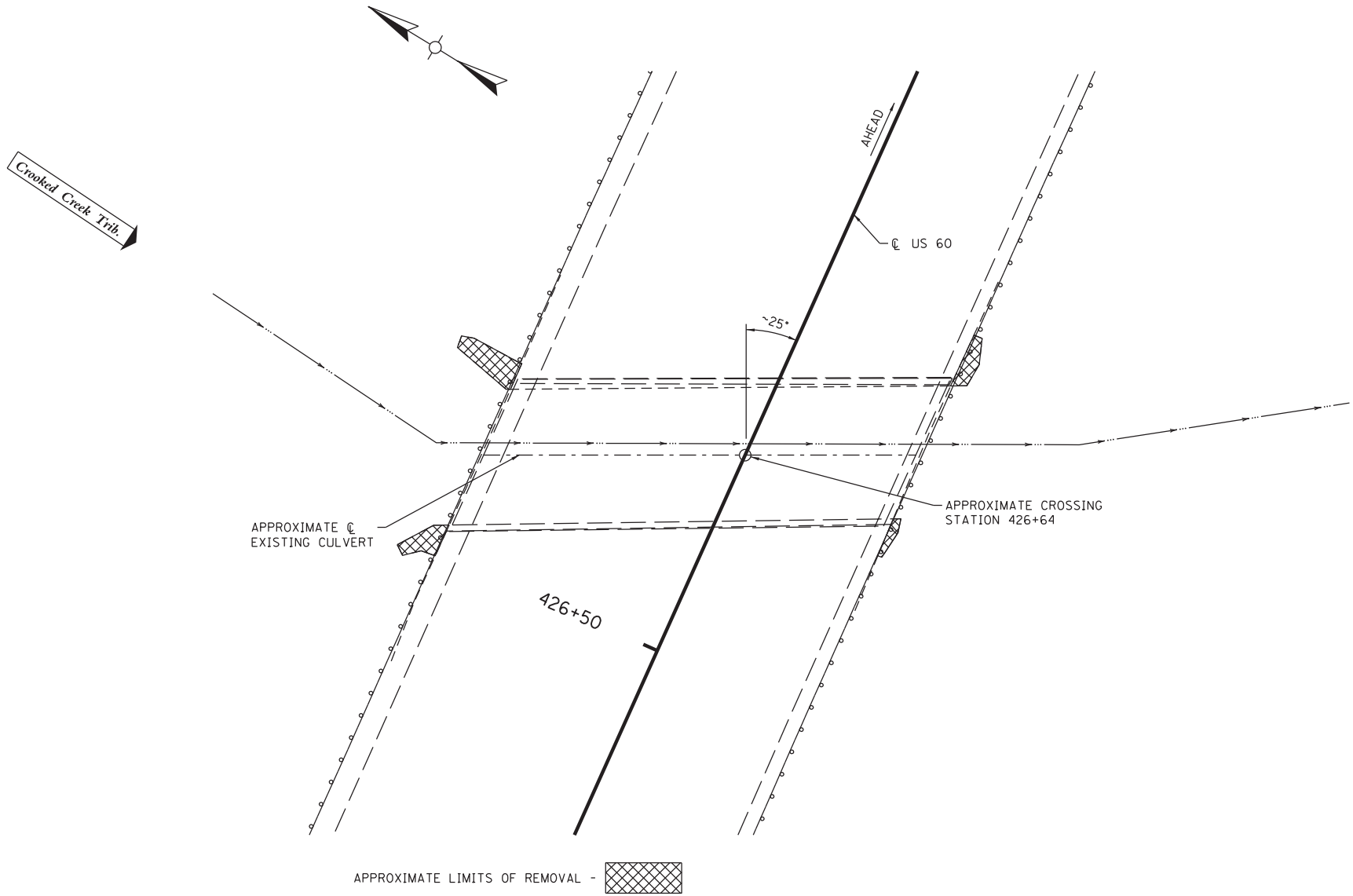
COMPLETION OF STRUCTURE: THE CONTRACTOR IS REQUIRED TO COMPLETE THE STRUCTURE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. MATERIAL, LABOR, OR CONSTRUCTION OPERATIONS, NOT OTHERWISE SPECIFIED, ARE TO BE INCLUDED IN THE BID ITEM MOST APPROPRIATE TO THE WORK INVOLVED. THIS MAY INCLUDE COFFERDAMS, SHORING, EXCAVATIONS, BACKFILLING, REMOVAL OF ALL OR PART OF EXISTING STRUCTURES, PHASED CONSTRUCTION, INCIDENTAL MATERIALS, LABOR OR ANY OTHER ITEMS REQUIRED TO COMPLETE THE STRUCTURE.

CULVERTS WITH UNYIELDING FOUNDATIONS: FOOTINGS MUST BE EXTENDED TO ROCK. THE USE OF GRANULAR REPLACEMENT IS PROHIBITED. CONCRETE QUANTITIES FOR FOOTINGS ARE BASED ON A 1 FT THICKNESS. FOOTINGS SHALL BE EMBEDDED A MINIMUM OF 6 INCHES INTO SOLID BEDROCK. ADDITIONAL CONCRETE REQUIRED ABOVE 1 FT THICKNESS SHALL BE INCIDENTAL TO CLASS "A" CONCRETE.

SOLID ROCK EXCAVATION WILL BE REQUIRED TO REACH FOOTING ELEVATIONS.

US 60 CULVERT EXTENSION
GENERAL NOTES
SHEET 1 OF 10

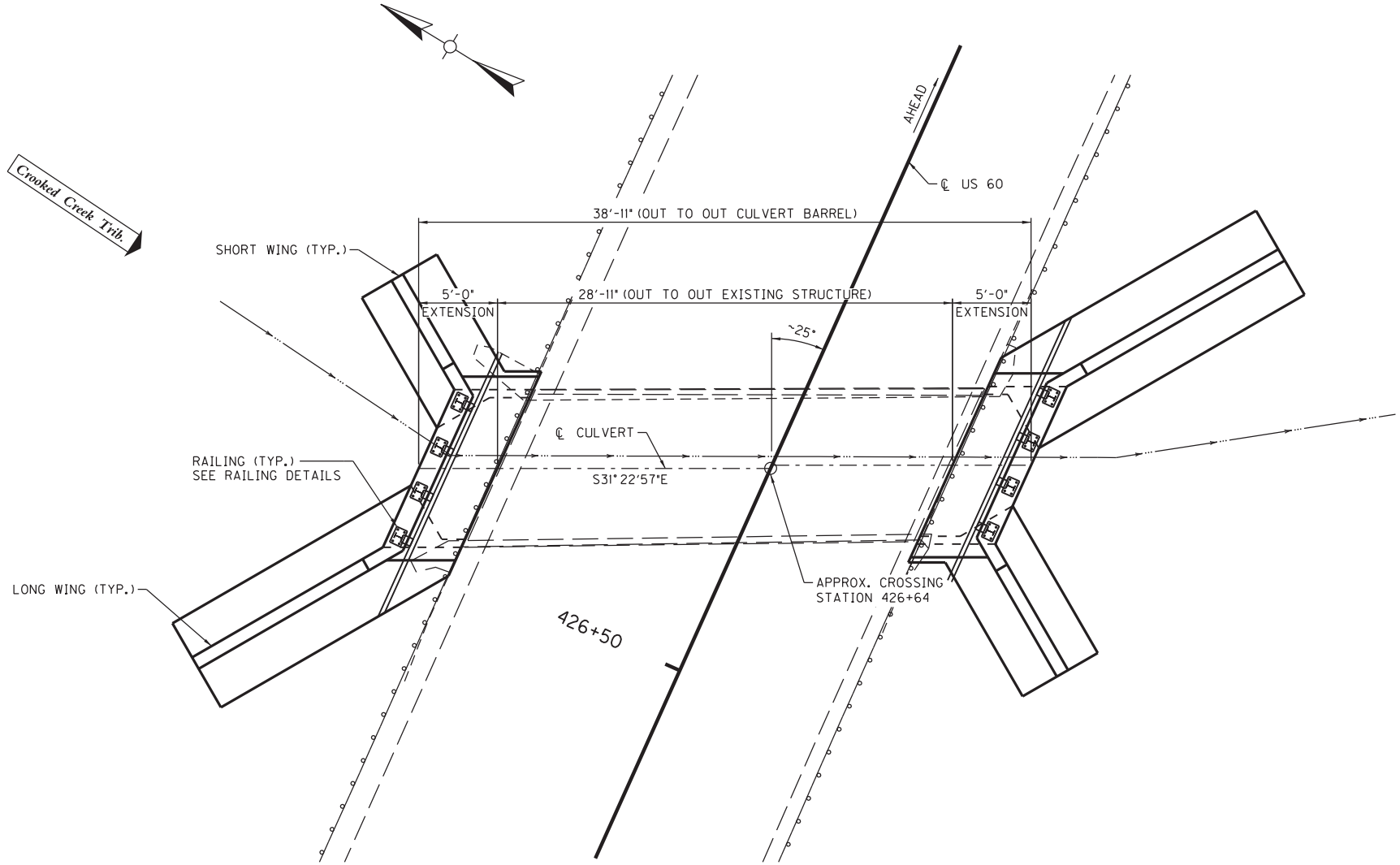
COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00



DEMOLITION OF EXISTING CULVERT

US 60 CULVERT EXTENSION
DEMOLITION LIMITS
SHEET 2 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



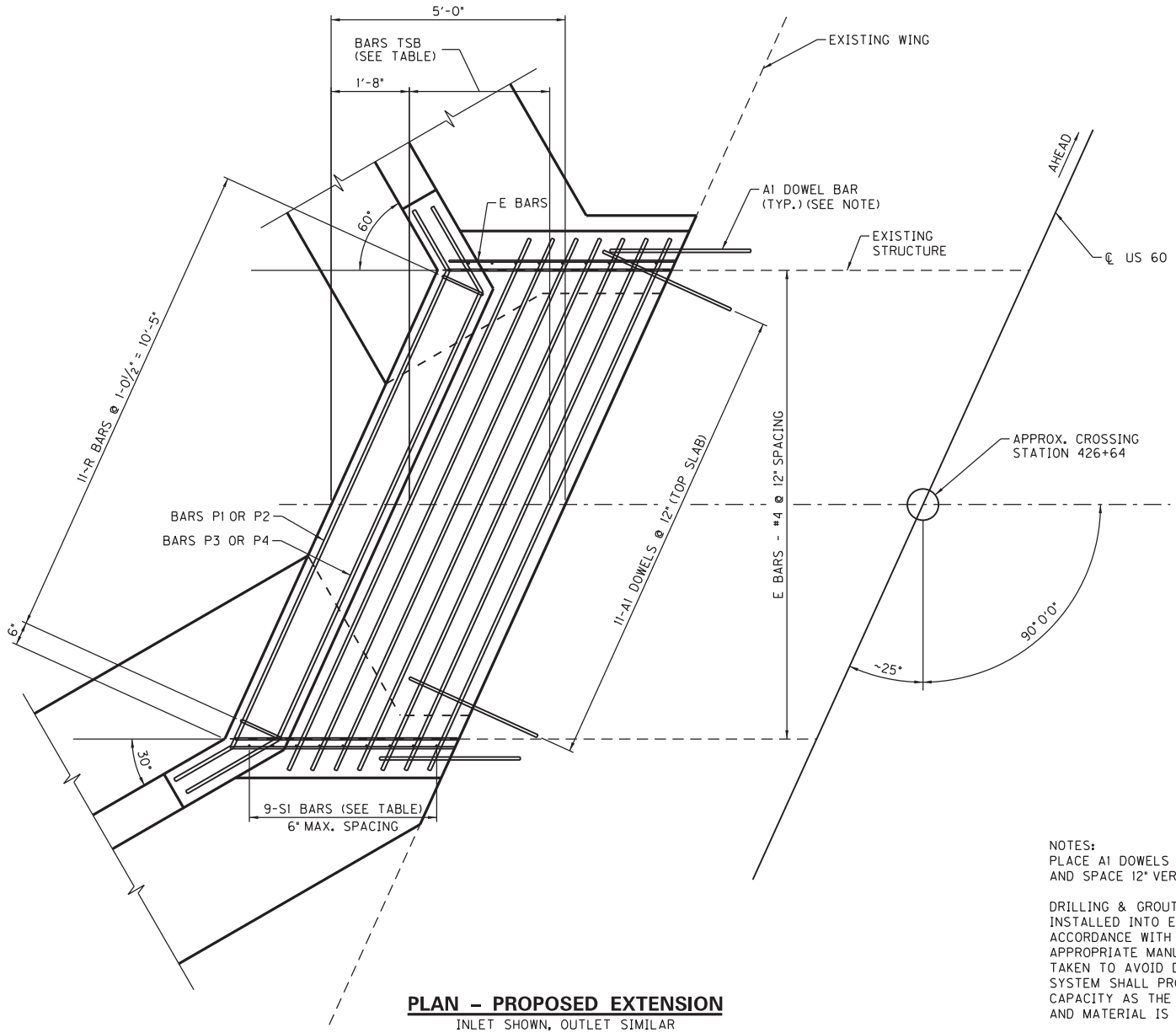
PLAN

NOTES:

1. EXISTING DIMENSIONS ARE FIELD MEASURED. ACTUAL DIMENSIONS, ELEVATIONS, STATIONS, AND SKEW MAY VARY AT TIME OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS, ELEVATIONS, AND SKEW, ADJUSTING AS NEEDED IN CONJUNCTION WITH THE PLANS HEREIN AND AS DIRECTED BY THE ENGINEER.
2. WIDTH OF CULVERT BARREL VARIES ACROSS THE LENGTH. CONTRACTOR TO VERIFY THE WIDTH AND HEIGHT OF BARREL AT INLET AND OUTLET AND MATCH THE EXTREME OUTSIDE BARREL DIMENSIONS.
3. ROADWAY GUARDRAIL IS ATTACHED TO STRUCTURE GUARDRAIL TO FORM A CONTINUOUS UNIT. SEE STD. DWG. BHS-007-08.

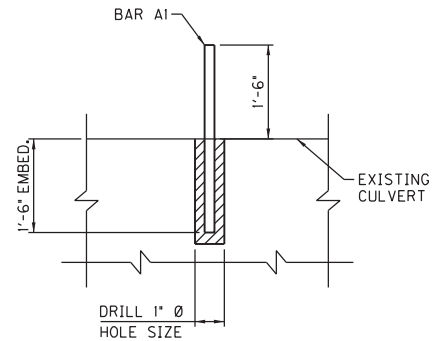
US 60 CULVERT EXTENSION
LAYOUT
SHEET 3 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



PLAN – PROPOSED EXTENSION

INLET SHOWN, OUTLET SIMILAR



DOWEL DETAIL

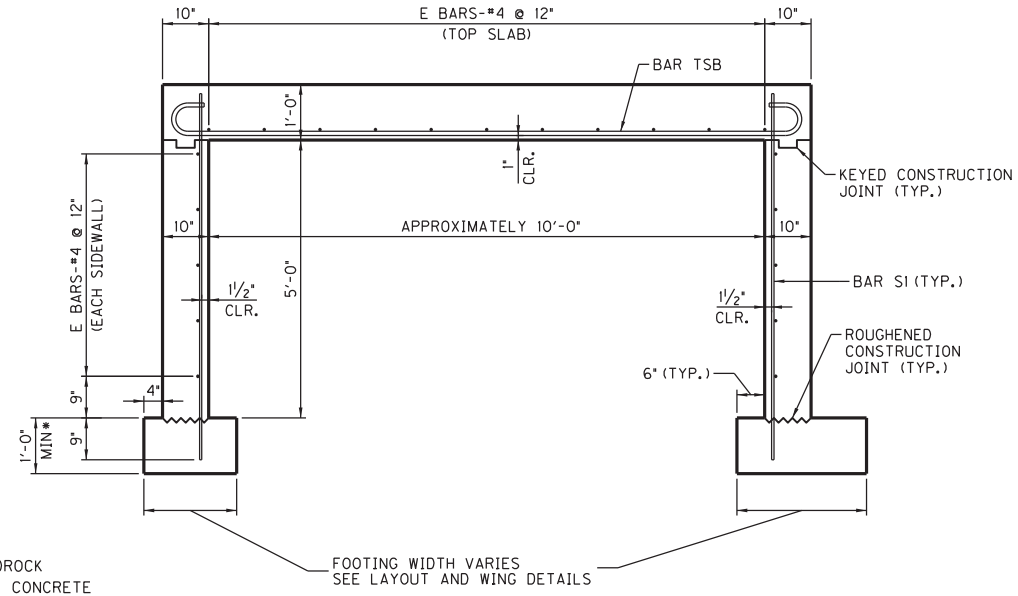
NOTES:
PLACE A1 DOWELS 6" ABOVE FLOWLINE
AND SPACE 12" VERTICALLY (TYP. EACH SIDEWALL)

DRILLING & GROUTING (A1): REINFORCING, DOWELS, AND ANCHORS INSTALLED INTO EXISTING CONCRETE SHALL BE PLACED IN ACCORDANCE WITH SECTION 511 OF THE SPECIFICATIONS AND ANY APPROPRIATE MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN TO AVOID DAMAGE TO EXISTING REINFORCING. THE ANCHORAGE SYSTEM SHALL PROVIDE A PULLOUT STRENGTH OF EQUAL OR GREATER CAPACITY AS THE CORRESPONDING REINFORCING STEEL. THIS WORK AND MATERIAL IS INCIDENTAL TO THE UNIT PRICE OF CONCRETE.

APPLY A COMMERCIAL GRADE CAULKING COMPOUND TO THE EXISTING & NEW TOP SLAB AND SIDEWALL INTERFACES PRIOR TO BACKFILLING. THIS WORK AND MATERIAL IS INCIDENTAL TO THE UNIT PRICE OF CONCRETE.

US 60 CULVERT EXTENSION
BARREL EXTENSION DETAILS
SHEET 4 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	I-9023.00



*KEY FOOTINGS A MINIMUM OF 6" INTO SOLID BEDROCK WITH A MINIMUM THICKNESS OF 1'-0". ANY EXTRA CONCRETE REQUIRED SHALL BE INCIDENTAL TO CLASS "A" CONCRETE.

TYPICAL BARREL SECTION

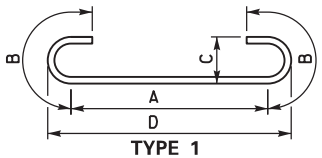
(PERPENDICULAR TO EXISTING ℄ OF CULVERT)

BARREL EXTENSION TABLE

EXIST. DATA		DIMENSIONS		"TSB" – TYPE 1								"S1"			"E"–#4		"A1"–#6	
WIDTH	HEIGHT	EXT. LENGTH	EXT. END	NO.	SIZE	SPA.	LENGTH	A	B	C	D	NO.	SIZE	LENGTH	NO.	LENGTH	NO.	LENGTH
10'-0"	5'-0"	5'-0"	BOTH	14	#7	6"	14'-1"	11'-9"	1'-2"	0'-7"	12'-4"	36	#4	6'-7"	42	4'-10"	42	3'-0"

TABLE NOTE:
EXISTING DATA SHOWN IS APPROXIMATE ONLY. DIMENSIONS SHOWN ARE BASED OFF A PERPENDICULAR BARREL WIDTH OF 10'-0". CONTRACTOR TO CONFIRM EXISTING CONDITIONS AND MAKE ADJUSTMENTS BEFORE ORDERING REINFORCING.

REBAR NOTES:
BARS "A1", "S1", & "E" ARE STRAIGHT BARS. THE TOTAL BAR NUMBER LISTED IN THE TABLE IS THE TOTAL NUMBER REQUIRED FOR STRUCTURE.



TYPE 1

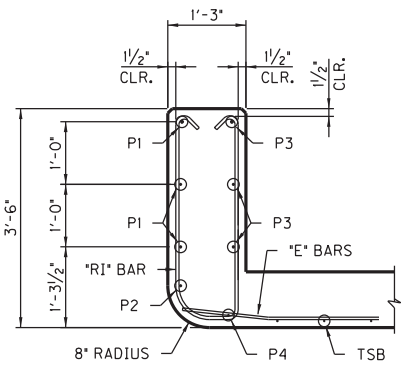
US 60 CULVERT EXTENSION
BARREL EXTENSION DETAILS
SHEET 5 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00

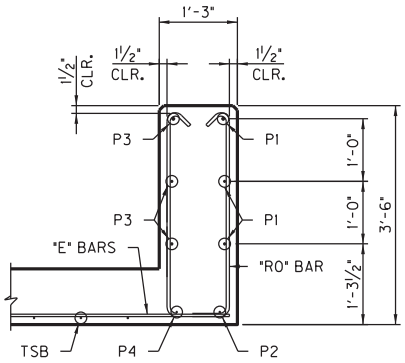
REINFORCED CONCRETE BOX CULVERT PARAPET TABULATION

EXTENSION END	"P1"–#6 & "P2"–#7 (TYPE 7)										"P3"–#6 & "P4"–#7 (TYPE 7)										"RI"	"RO"
	NUMBER		LENGTH	A	B	C	D	E	F	G	NUMBER		LENGTH	A	B	C	D	E	F	G	NO.	NO.
	P1	P2									P3	P4										
BOTH	6	2	14'-1"	11'-2"	1'-6"	1'-5"	1'-2⅝"	0'-10½"	0'-9⅞"	1'-1⅞"	6	2	14'-10"	10'-6"	2'-1"	2'-3"	1'-8½"	1'-2⅝"	1'-3¾"	1'-10⅛"	11	11

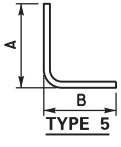
TABLE NOTE:
REINFORCEMENT DIMENSIONS SHOWN ARE APPROXIMATE ONLY. DIMENSIONS SHOWN ARE BASED OFF A PERPENDICULAR BARREL WIDTH OF 10'-0". CONTRACTOR TO CONFIRM EXISTING CONDITIONS AND MAKE ADJUSTMENTS BEFORE ORDERING REINFORCING.



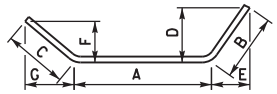
INLET PARAPET DETAIL



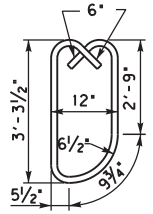
OUTLET PARAPET DETAIL



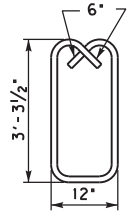
TYPE 5



TYPE 7



TYPE 11
SIZE = #5
LENGTH = 8'-2"

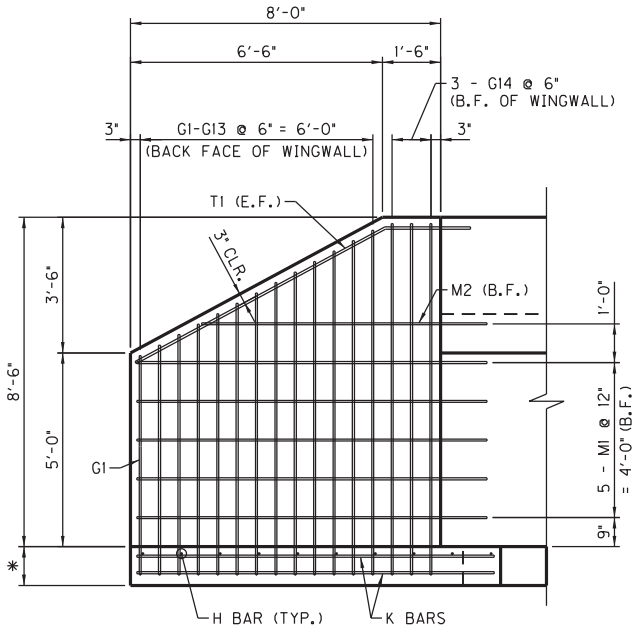


TYPE 12
SIZE = #5
LENGTH = 8'-3"

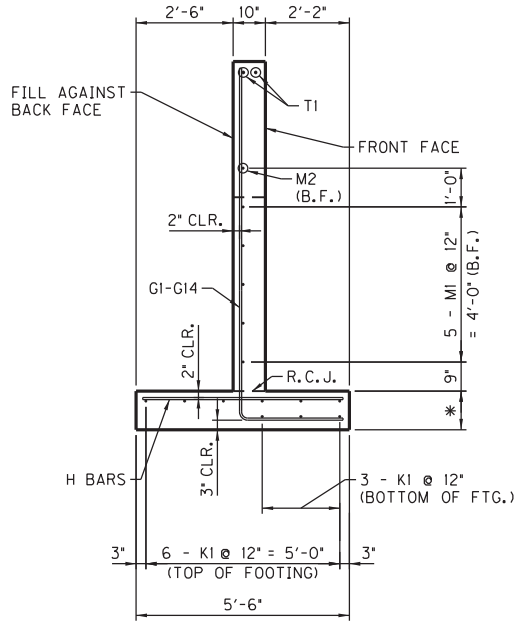
US 60 CULVERT EXTENSION
PARAPET DETAILS
SHEET 6 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00

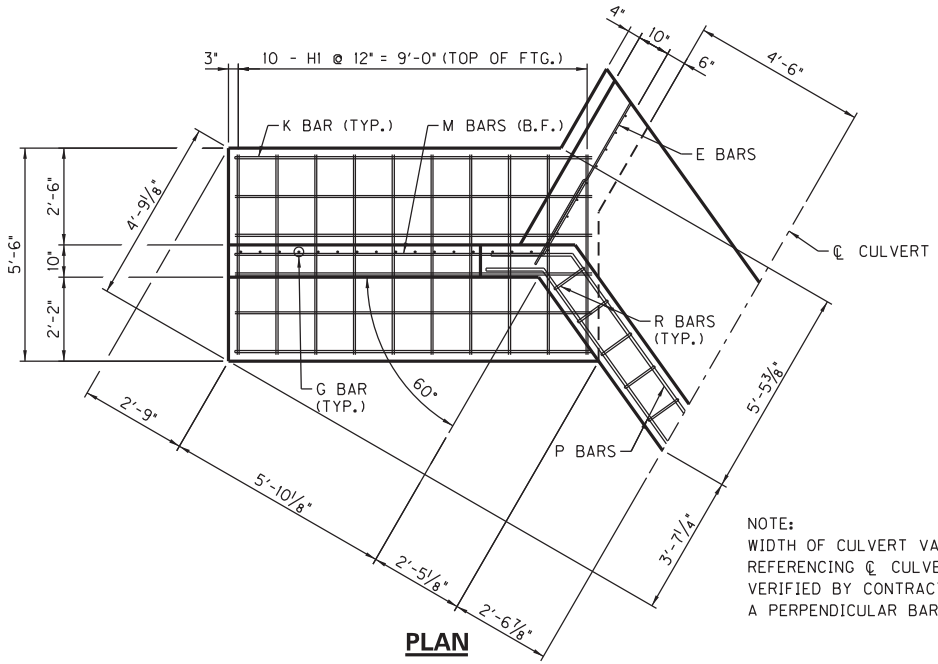
R.C.J. = ROUGHENED CONSTRUCTION JOINT
B.F. = BACK FACE
F.F. = FRONT FACE
E.F. = EACH FACE
DIA. = DIAMETER
FTG. = FOOTING
BOTT. = BOTTOM
TYP. = TYPICAL



ELEVATION



SECTION



PLAN

NOTE :
PLACE 4" DIAMETER WEEPHOLES IN WINGWALLS, 6" ABOVE GROUND LINE AT 8'-0" CENTERS.

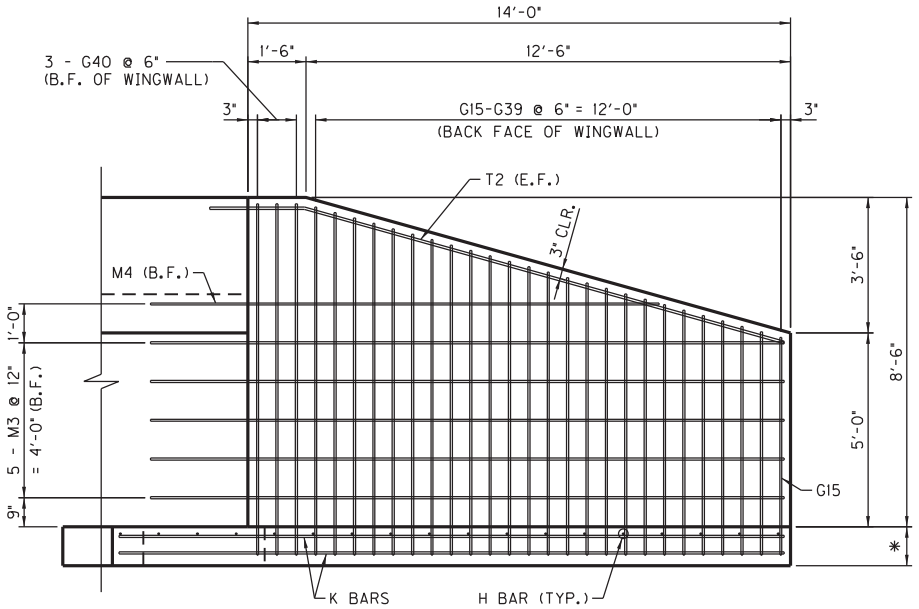
* KEY FOOTINGS A MINIMUM OF 6" INTO SOLID BEDROCK WITH A MINIMUM THICKNESS OF 1'-0". ANY EXTRA CONCRETE REQUIRED SHALL BE INCIDENTAL TO CLASS "A" CONCRETE.

NOTE:
WIDTH OF CULVERT VARIES AT INLET AND OUTLET. DIMENSIONS REFERENCING ℄ CULVERT ARE APPROXIMATE AND SHOULD BE VERIFIED BY CONTRACTOR. DIMENSIONS SHOWN ARE BASED OFF A PERPENDICULAR BARREL WIDTH OF 10'-0".

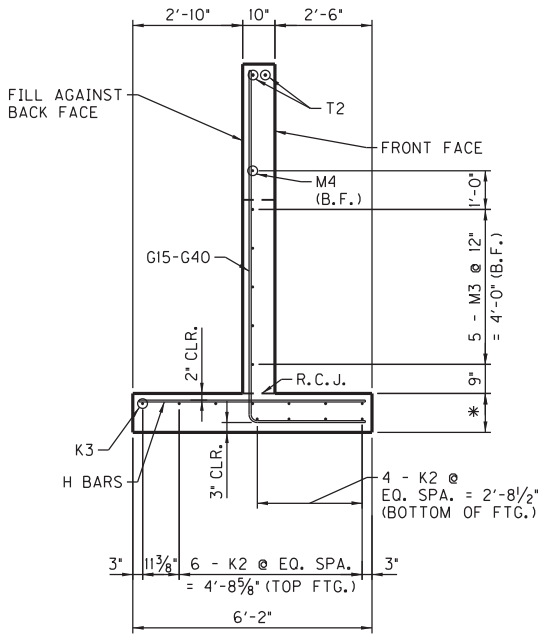
US 60 CULVERT EXTENSION
SHORT WINGWALL DETAILS
SHEET 7 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00

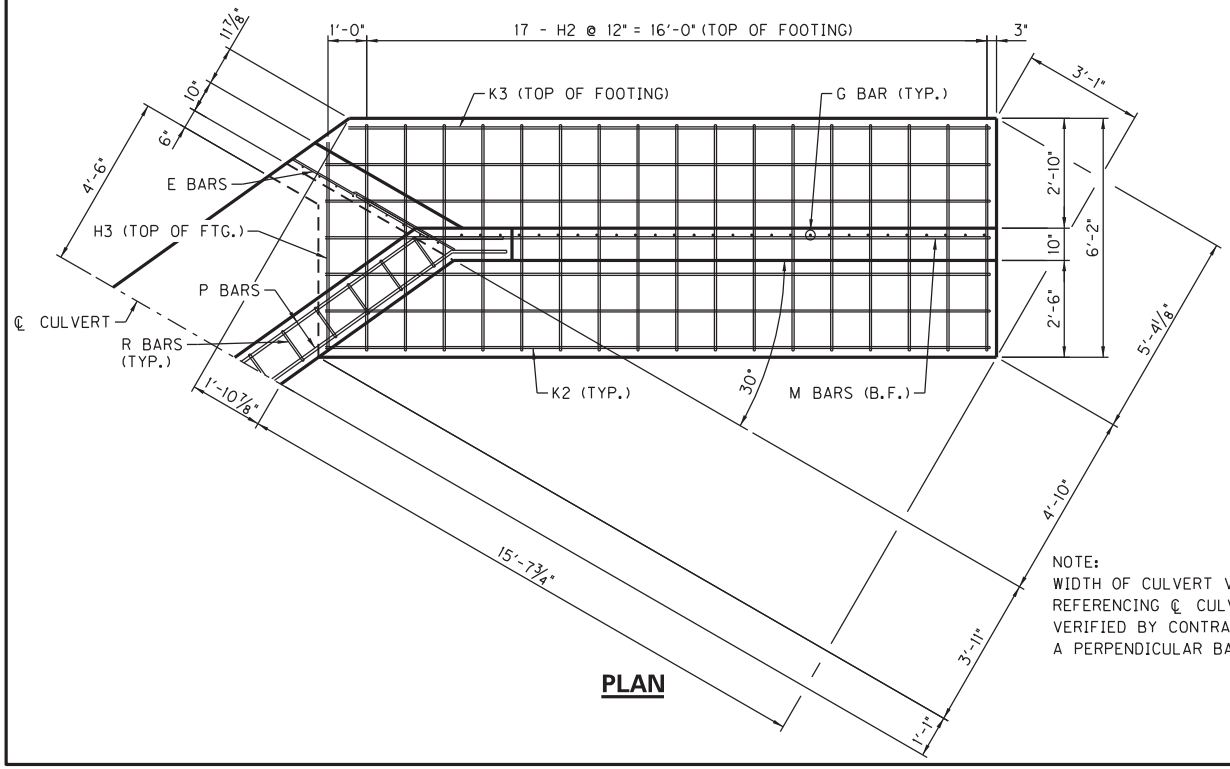
R.C.J. = ROUGHENED CONSTRUCTION JOINT
B.F. = BACK FACE
F.F. = FRONT FACE
E.F. = EACH FACE
DIA. = DIAMETER
FTG. = FOOTING
BOTT. = BOTTOM
EQ. SPA. = EQUAL SPACES
TYP. = TYPICAL



ELEVATION



SECTION



PLAN

NOTE :
PLACE 4" DIAMETER WEEPHOLES IN WINGWALLS, 6" ABOVE GROUND LINE AT 8'-0" CENTERS.

* KEY FOOTINGS A MINIMUM OF 6" INTO SOLID BEDROCK WITH A MINIMUM THICKNESS OF 1'-0". ANY EXTRA CONCRETE REQUIRED SHALL BE INCIDENTAL TO CLASS "A" CONCRETE.

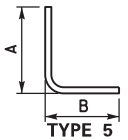
NOTE:
WIDTH OF CULVERT VARIES AT INLET AND OUTLET. DIMENSIONS REFERENCING ℄ CULVERT ARE APPROXIMATE AND SHOULD BE VERIFIED BY CONTRACTOR. DIMENSIONS SHOWN ARE BASED OFF A PERPENDICULAR BARREL WIDTH OF 10'-0".

US 60 CULVERT EXTENSION
LONG WINGWALL DETAILS
SHEET 8 OF 10

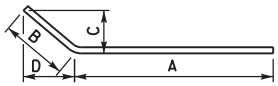
COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00

BILL OF REINFORCEMENT – WINGWALLS

MARK	TYPE	NUMBER	SIZE	LENGTH	LOCATION	A	B	C	D
G1	5	2	#5	8'-3"	B.F. OF WINGWALL-SHORT	5'-8"	2'-8"		
G2	5	2	#5	8'-6"	B.F. OF WINGWALL-SHORT	5'-11 1/4"	2'-8"		
G3	5	2	#5	8'-9"	B.F. OF WINGWALL-SHORT	6'-2 1/2"	2'-8"		
G4	5	2	#5	9'-1"	B.F. OF WINGWALL-SHORT	6'-5 3/4"	2'-8"		
G5	5	2	#5	9'-4"	B.F. OF WINGWALL-SHORT	6'-9"	2'-8"		
G6	5	2	#5	9'-7"	B.F. OF WINGWALL-SHORT	7'-0 1/4"	2'-8"		
G7	5	2	#5	9'-10"	B.F. OF WINGWALL-SHORT	7'-3 1/2"	2'-8"		
G8	5	2	#5	10'-2"	B.F. OF WINGWALL-SHORT	7'-6 3/4"	2'-8"		
G9	5	2	#5	10'-5"	B.F. OF WINGWALL-SHORT	7'-10"	2'-8"		
G10	5	2	#5	10'-8"	B.F. OF WINGWALL-SHORT	8'-1 1/4"	2'-8"		
G11	5	2	#5	10'-11"	B.F. OF WINGWALL-SHORT	8'-4 1/2"	2'-8"		
G12	5	2	#5	11'-3"	B.F. OF WINGWALL-SHORT	8'-7 3/4"	2'-8"		
G13	5	2	#5	11'-6"	B.F. OF WINGWALL-SHORT	8'-11"	2'-8"		
G14	5	6	#5	11'-8"	B.F. OF WINGWALL-SHORT	9'-1"	2'-8"		
G15	5	2	#5	8'-7"	B.F. OF WINGWALL-LONG	5'-7 5/8"	3'-0"		
G16	5	2	#5	8'-9"	B.F. OF WINGWALL-LONG	5'-9 3/8"	3'-0"		
G17	5	2	#5	8'-10"	B.F. OF WINGWALL-LONG	5'-11"	3'-0"		
G18	5	2	#5	9'-0"	B.F. OF WINGWALL-LONG	6'-0 3/4"	3'-0"		
G19	5	2	#5	9'-2"	B.F. OF WINGWALL-LONG	6'-2 3/8"	3'-0"		
G20	5	2	#5	9'-4"	B.F. OF WINGWALL-LONG	6'-4 1/8"	3'-0"		
G21	5	2	#5	9'-5"	B.F. OF WINGWALL-LONG	6'-5 3/4"	3'-0"		
G22	5	2	#5	9'-7"	B.F. OF WINGWALL-LONG	6'-7 1/2"	3'-0"		
G23	5	2	#5	9'-8"	B.F. OF WINGWALL-LONG	6'-9"	3'-0"		
G24	5	2	#5	9'-10"	B.F. OF WINGWALL-LONG	6'-10 3/4"	3'-0"		
G25	5	2	#5	10'-0"	B.F. OF WINGWALL-LONG	7'-0 1/2"	3'-0"		
G26	5	2	#5	10'-2"	B.F. OF WINGWALL-LONG	7'-2 1/8"	3'-0"		
G27	5	2	#5	10'-3"	B.F. OF WINGWALL-LONG	7'-3 7/8"	3'-0"		
G28	5	2	#5	10'-5"	B.F. OF WINGWALL-LONG	7'-5 1/2"	3'-0"		
G29	5	2	#5	10'-7"	B.F. OF WINGWALL-LONG	7'-7 1/4"	3'-0"		
G30	5	2	#5	10'-8"	B.F. OF WINGWALL-LONG	7'-8 7/8"	3'-0"		
G31	5	2	#5	10'-10"	B.F. OF WINGWALL-LONG	7'-10 1/2"	3'-0"		
G32	5	2	#5	11'-0"	B.F. OF WINGWALL-LONG	8'-0 1/4"	3'-0"		
G33	5	2	#5	11'-1"	B.F. OF WINGWALL-LONG	8'-1 7/8"	3'-0"		
G34	5	2	#5	11'-3"	B.F. OF WINGWALL-LONG	8'-3 5/8"	3'-0"		
G35	5	2	#5	11'-5"	B.F. OF WINGWALL-LONG	8'-5 1/4"	3'-0"		
G36	5	2	#5	11'-6"	B.F. OF WINGWALL-LONG	8'-7"	3'-0"		
G37	5	2	#5	11'-8"	B.F. OF WINGWALL-LONG	8'-8 5/8"	3'-0"		
G38	5	2	#5	11'-10"	B.F. OF WINGWALL-LONG	8'-10 3/8"	3'-0"		
G39	5	2	#5	11'-11"	B.F. OF WINGWALL-LONG	9'-0"	3'-0"		
G40	5	6	#5	12'-0"	B.F. OF WINGWALL-LONG	9'-1"	3'-0"		
H1	STR	20	#5	5'-2"	WINGWALL FOOTING-SHORT				
H2	STR	34	#5	5'-10"	WINGWALL FOOTING-LONG				
H3	STR	2	#5	5'-4"	WINGWALL FOOTING-LONG				
K1	STR	18	#5	9'-3"	WINGWALL FOOTING-SHORT				
K2	STR	20	#5	17'-2"	WINGWALL FOOTING-LONG				
K3	STR	2	#5	16'-7"	WINGWALL FOOTING-LONG				
M1	8	10	#5	10'-9"	B.F. OF WINGWALL-SHORT	7'-11 1/2"	2'-9"	2'-4 1/2"	1'-4 1/2"
M2	8	2	#5	9'-1	B.F. OF WINGWALL-SHORT	6'-3 1/2"	2'-9"	2'-4 1/2"	1'-4 1/2"
M3	8	10	#5	17'-3"	B.F. OF WINGWALL-LONG	14'-5 1/2"	2'-9"	2'-4 1/2"	1'-4 1/2"
M4	8	2	#5	14'-0"	B.F. OF WINGWALL-LONG	11'-3"	2'-9"	2'-4 1/2"	1'-4 1/2"
T1	8	4	#6	8'-10"	TOP OF WINGWALL-SHORT	7'-3 3/4"	1'-6"	0'-8 1/2"	1'-4"
T2	8	4	#6	14'-4"	TOP OF WINGWALL-LONG	12'-10"	1'-6"	0'-8 1/2"	1'-4"



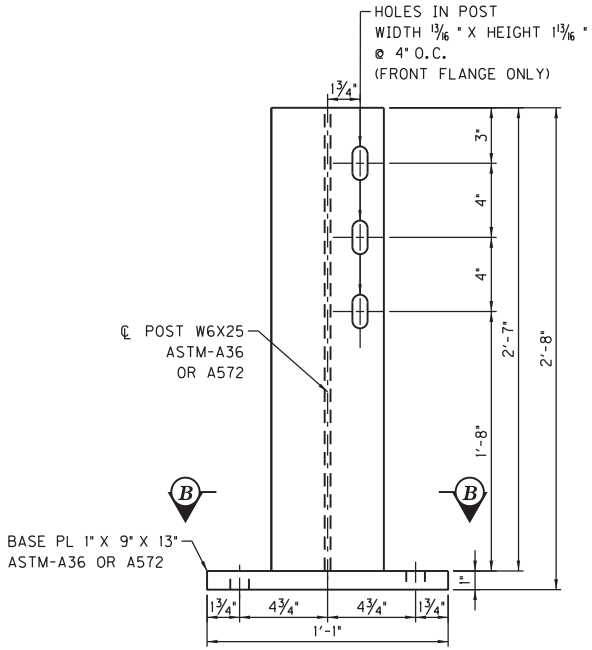
TYPE 5



TYPE 8

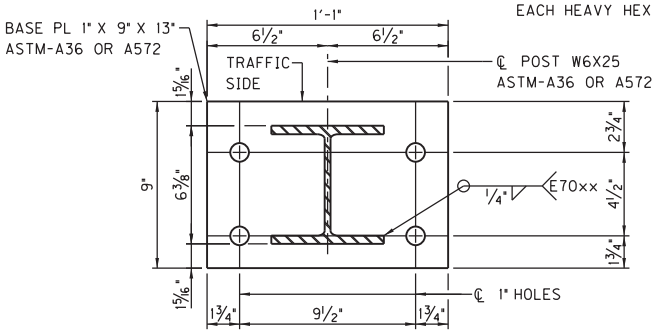
US 60 CULVERT EXTENSION
WINGWALL REINFORCEMENT
SHEET 9 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



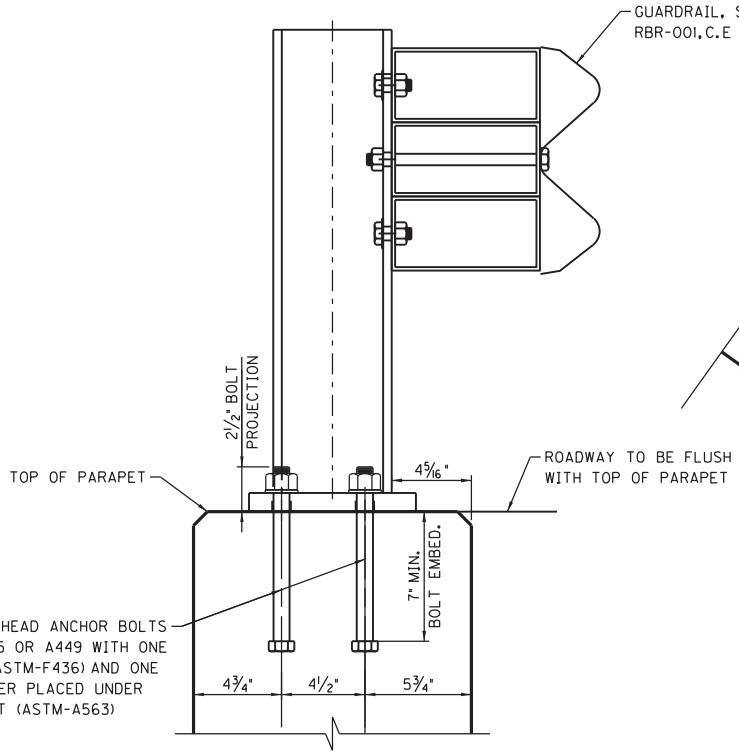
POST ELEVATION

(ONLY POST AND BASE PLATE SHOWN FOR CLARITY)

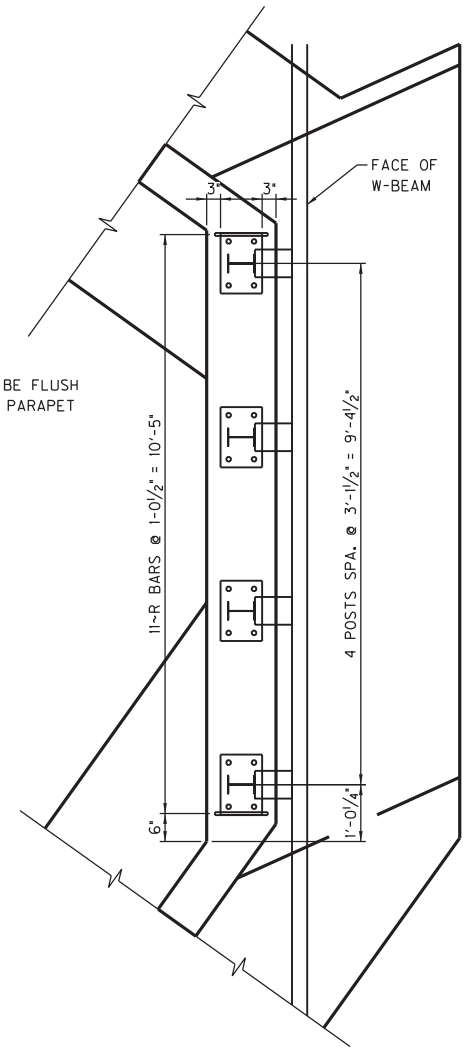


SECTION B–B

(BASE PLATE)



SECTION A–A



PLAN

(INLET SHOWN, OUTLET SIMILAR BUT OPPOSITE HAND)

GENERAL NOTES:

1. SEE BDP-005-06 FOR ALL DETAILS PERTAINING TO PARAPET MOUNTED GUARDRAIL COMPONENTS NOT DETAILED ON THIS SHEET.

CONSTRUCTION NOTES:

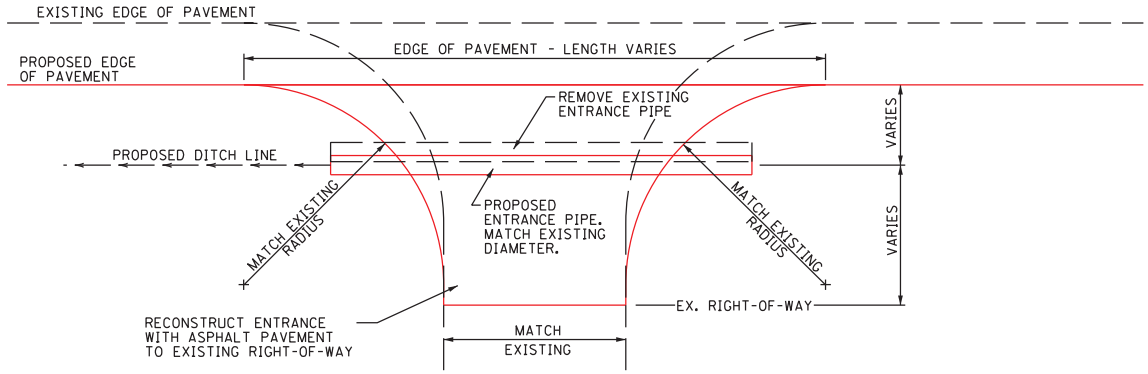
2. FACE OF RAIL POST MUST BE PLUMB UNLESS OTHERWISE APPROVED BY THE ENGINEER. POST MUST BE PERPENDICULAR TO ADJACENT ROADWAY GRADE.
3. USE EPOXY MORTAR WITH TYPE III BINDER CONFORMING TO SECTION 826 AND ASTM C881 UNDER POST BASE PLATES IF GAPS LARGER THAN 1/16" EXIST.
4. ROUND OR CHAMFER EXPOSED EDGES OF RAIL POSTS AND BACKER PLATE TO APPROXIMATELY 1/16" BY GRINDING.
5. SHOP DRAWINGS ARE NOT REQUIRED.

MATERIAL NOTES:

6. GALVANIZE ALL STEEL COMPONENTS.
7. ANCHOR BOLTS FOR BASE PLATE MUST BE 7/8"Ø ASTM-F3125 GR. A325 OR A449 BOLTS WITH ONE HARDENED WASHER (ASTM-F436) AND ONE REGULAR LOCK WASHER PLACED UNDER EACH HEAVY HEX NUT. NUTS MUST CONFORM TO ASTM-A563 REQUIREMENTS.
8. W-BEAM MUST MEET THE REQUIREMENTS OF STD. DWG. RBR-001, C.E. EXCEPT AS MODIFIED IN STD. DWG. BHS-012,C.E.

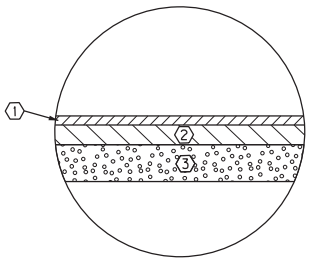
US 60 CULVERT EXTENSION
RAILING DETAILS
SHEET 10 OF 10

COUNTY OF	ITEM NO.
CRITTENDEN	1-9023.00



ENTRANCE DETAIL

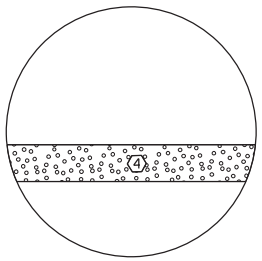
RT. STA. 281+97 (GRAVEL)
RT. STA. 299+30 (ASPHALT)



ASPHALT ENTRANCE

NTS

1. 1.50" CL2 ASPH SURFACE 0.38B PG64-22
2. 2.00" CL2 ASPH BASE 1.00D PG64-22
3. 4.00" DGA



GRAVEL ENTRANCE

NTS

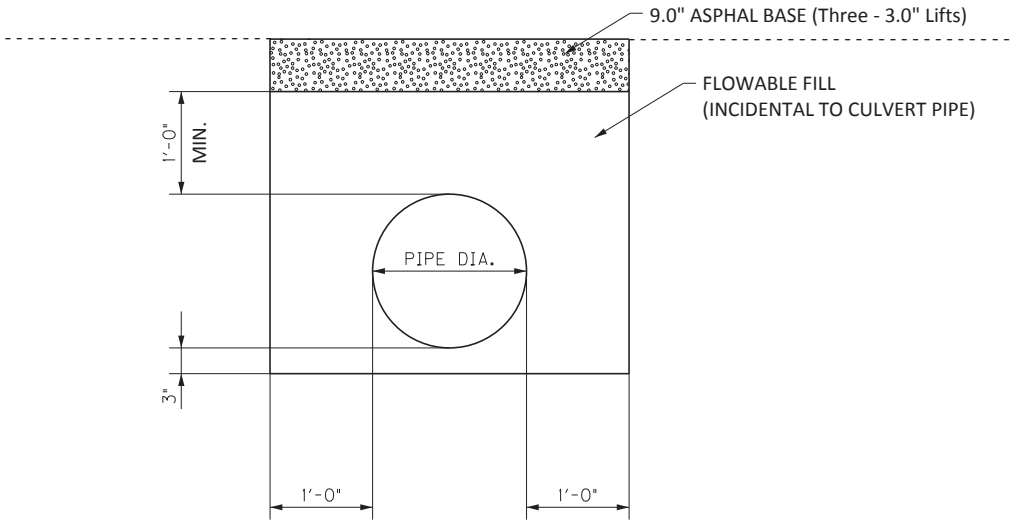
4. 6.00" DGA

N.T.S.

US 62
ENTRANCE DETAIL SHEET

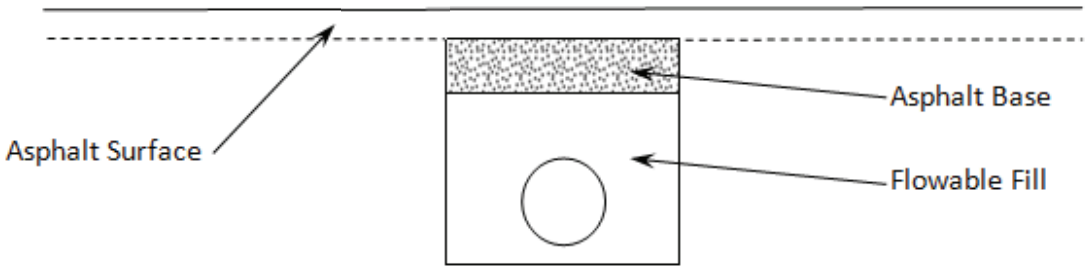
1-9023.00

CULVERT PIPE REPLACEMENT DETAIL

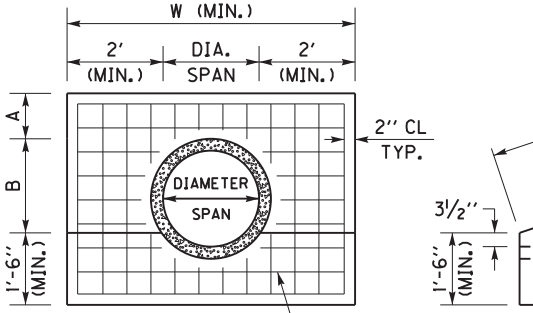


CULVERT PIPE REPLACEMENTS - INITAL BACKFILL

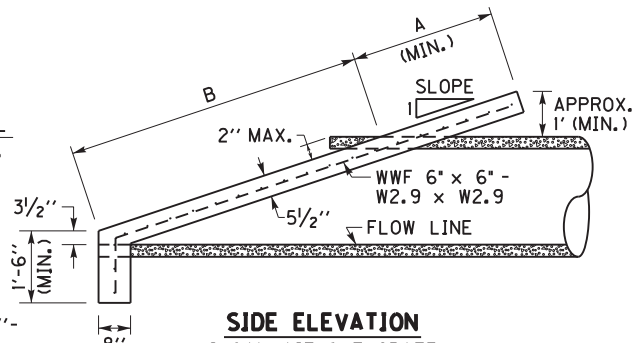
Culvert Pipe Replacements shall be constructed according to the Inital Backfill Detail shown above, or as directed by the Engineer. Allow the asphalt base to be exposed to traffic a minimum of 14 days to allow for settlement before placing asphalt surface.



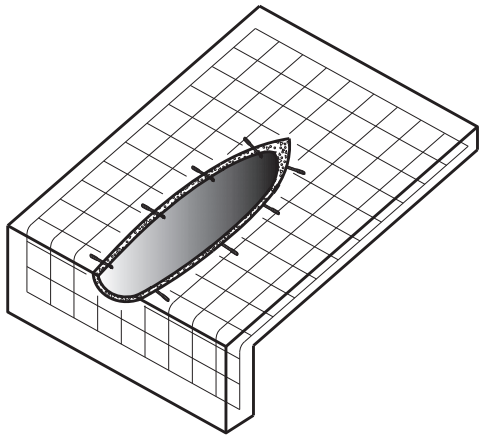
COUNTY OF	ITEM NO.	SHEET NO.



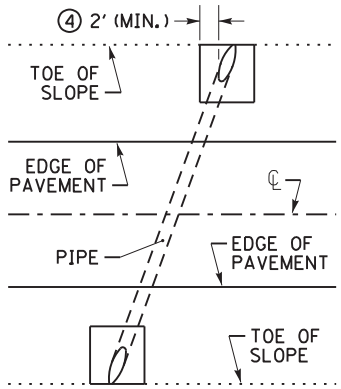
END ELEVATION
SHOWN WITH WOVEN WIRE REINFORCEMENT



SIDE ELEVATION
SHOWN WITHOUT GRATE



ISOMETRIC VIEW
SHOWN WITH WOVEN WIRE REINFORCEMENT AND WEDGE ANCHORS



PLAN VIEW
SHOWN WHEN THE PIPE IS ON A SKEW ④

~ NOTES ~

1. FOR PIPES THAT RECEIVE THE SLOPED & MITERED CONCRETE HEADWALL, THE PIPE LENGTH SHALL BE MEASURED TO THE FURTHEST POINT ALONG THE MITERED END OF THE PIPE.
2. THE EMBANKMENT FILL MATERIAL IS TO BE PLACED, COMPACTED, AND GRADED AROUND THE PIPE BEFORE THE CONCRETE SLOPE PAVING IS PLACED. THE INTENT IS FOR THE SLOPED & MITERED HEADWALL TO MATCH THE FINAL EMBANKMENT SLOPE.
3. THE PIPE SHALL BE MITERED AFTER THE CONCRETE SLOPE PAVING HAS BEEN PLACED AND SUFFICIENTLY CURED. THE PIPE SHOULD BE MITERED AS CLOSE TO FLUSH WITH THE SLOPE PAVING AS POSSIBLE, AND NO HIGHER THAN 2" ABOVE THE SLOPE PAVING. HAND FINISHING AND/OR CUTTING MAY BE NECESSARY.
④ WHEN THE PIPE IS ON A SKEW, INSTALL THE HEADWALL AND MITER THE PIPE SO THAT THE CONCRETE SLOPE PAVING IS PERPENDICULAR TO THE ROADWAY. FOR HEADWALLS ON SKEWED PIPES, THE HEADWALL WIDTH, W, SHALL BE WIDENED, AS NEEDED, SO THAT THE OUTSIDE EDGE OF THE CONCRETE SLOPE PAVING IS A MINIMUM OF 2' FROM THE OUTER MOST EDGE OF THE PIPE.
5. THE DIMENSION 'A' IS BASED ON THE FINAL GRADED SLOPE. THE DIMENSION 'B' IS BASED ON CIRCULAR REINFORCED CONCRETE PIPE AT 0° SKEW FOR THE LISTED SLOPE. THE DIMENSION 'W' IS BASED ON THE DIAMETER, OR SPAN, OF THE PIPE. THE FINAL HEADWALL DIMENSIONS AND CONCRETE QUANTITIES MAY VARY BASED ON THE FINAL GRADED SLOPE, PIPE SKEW, AND/OR TYPE OF PIPE.
6. WOVEN WIRE REINFORCEMENT (WWF 6"x6" - W2.9xW2.9) IS REQUIRED FOR THE SLOPE PAVING AND TOE WALL. UTILIZE 2" CLEARANCE FROM ALL EDGES.
7. DIMENSIONS AND CONCRETE QUANTITIES SHOWN ARE FOR ONE (1) HEADWALL, INSTALLED ON A PIPE WITH SKEW = 0°.
8. AFTER THE PIPE HAS BEEN MITERED, ANCHOR THE PIPE TO THE CONCRETE SLOPE PAVING BY CORE DRILLING AND INSTALLING 1/2" DIAMETER x 7" LENGTH STEEL WEDGE ANCHORS (3" MINIMUM EMBEDMENT) ON 18" CENTERS ALONG THE SIDES OF THE PIPE. HOLE SIZE & DEPTH, TORQUE, & INSTALLATION PROCEDURES PER RECOMMENDATION OF ANCHOR MANUFACTURE. NOTE: STEEL WEDGE ANCHORS ARE NOT REQUIRED FOR REINFORCED CONCRETE PIPE.
⑨ THE FOLLOWING SITUATIONS REQUIRE A HEADWALL WITH A GRATE:
-24" DIAMETER PIPE ON GREATER THAN 30° SKEW
-30" DIAMETER PIPE ON GREATER THAN 15° SKEW
-PIPE WITH GREATER THAN 30" DIAMETER.
-ELLIPTICAL PIPE GREATER THAN 24" EQUIVALENT DIAMETER
SEE SHEET 2 FOR GRATE DETAILS
10. ALL BOLTS AND HARDWARE SHALL BE RUST RESISTANT: ZINC PLATED, STAINLESS STEEL, OR STEEL THAT HAS BEEN GALVANIZED IN ACCORDANCE WITH AASHTO M 232.

DIMENSIONS AND CONCRETE QUANTITIES (FOR PIPE WITH SKEW = 0°) ④

PIPE SIZE	3:1 SLOPE				4:1 SLOPE				6:1 SLOPE				GRATE REQUIRED
	A	B	W	CU. YDS. CONCRETE	A	B	W	CU. YDS. CONCRETE	A	B	W	CU. YDS. CONCRETE	
15"	3'	3'-7½"	5'-3"	0.74	4'	4'-8¾"	5'-3"	0.93	6'	6'-11¾"	5'-3"	1.29	NO
18"	3'	4'-5¾"	5'-6"	0.85	4'	5'-10"	5'-6"	1.05	6'	8'-7¼"	5'-6"	1.48	NO
24"	3'	6'-2½"	6'-0"	1.05	4'	8'-1"	6'-0"	1.32	6'	11'-11"	6'-0"	1.87	SEE ⑨
30"	3'	7'-10¾"	6'-6"	1.43	4'	10'-3¾"	6'-6"	1.80	6'	15'-2½"	6'-6"	2.28	SEE ⑨

DIMENSIONS AND CONCRETE QUANTITIES ARE APPROXIMATE AND LISTED FOR INFORMATIONAL PURPOSES ONLY

BID ITEM AND UNIT TO BID: 24575ES610 HEADWALL (SLOPED & MITERED CONCRETE-FOR _ INCH PIPE) - EACH

SEE SHEET 2 FOR DIMENSIONS OF HEADWALLS FOR PIPE OVER 30" DIAMETER

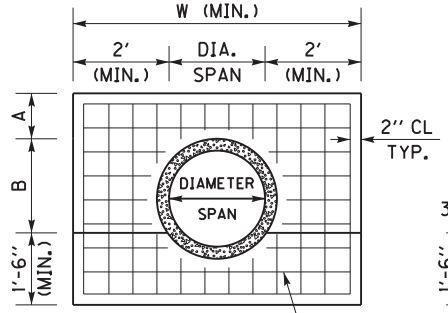
NOT TO SCALE

KENTUCKY DEPARTMENT OF HIGHWAYS

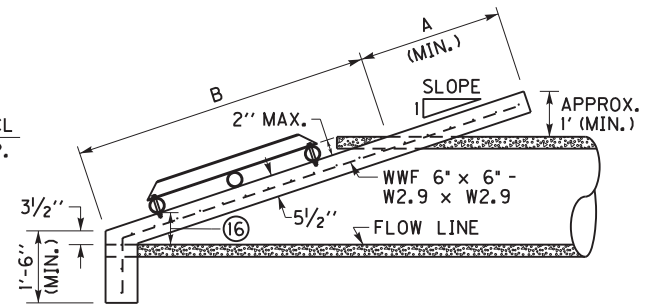
SLOPED & MITERED CONCRETE HEADWALL (SHEET 1 OF 2)

1-9023.00

COUNTY OF	ITEM NO.	SHEET NO.



END ELEVATION
SHOWN WITH WOVEN WIRE REINFORCEMENT

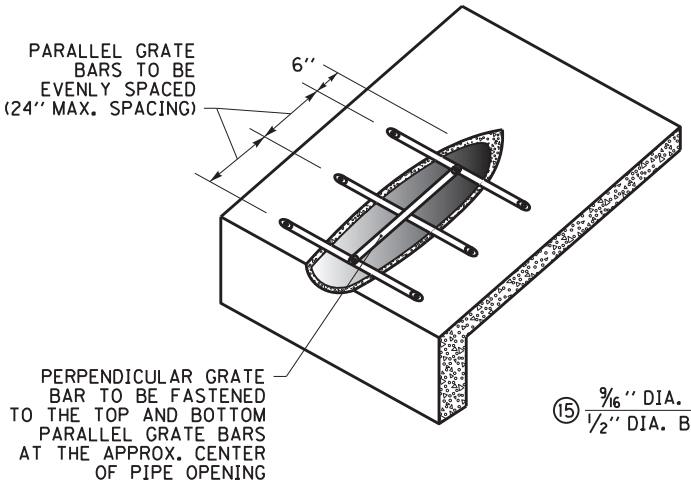


SIDE ELEVATION
SHOWN WITH GRATE

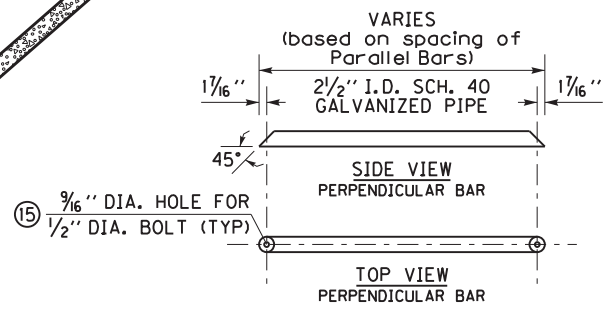
~ NOTES ~

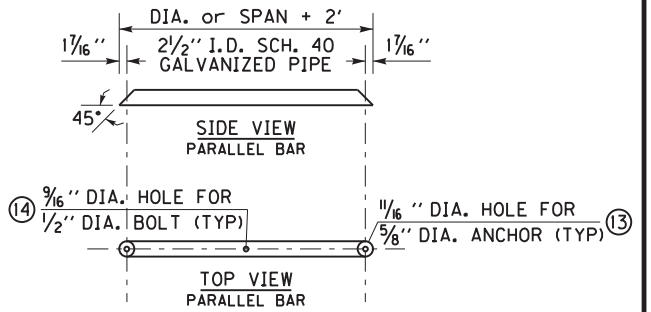
SEE SHEET 1 FOR NOTES 1 THRU 8

9. THE FOLLOWING SITUATIONS REQUIRE A HEADWALL WITH A GRATE:
-24" DIAMETER PIPE ON GREATER THAN 30° SKEW
-30" DIAMETER PIPE ON GREATER THAN 15° SKEW
-PIPE WITH GREATER THAN 30" DIAMETER.
-ELLIPTICAL PIPE GREATER THAN 24" EQUIVALENT DIAMETER
10. ALL BOLTS AND HARDWARE SHALL BE RUST RESISTANT: ZINC PLATED, STAINLESS STEEL, OR STEEL THAT HAS BEEN GALVANIZED IN ACCORDANCE WITH AASHTO M 232.
11. THE PIPE USED TO CONSTRUCT THE GRATE SHALL BE STEEL, SCHEDULE 40, CONFORMING TO ASTM A53, AND GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AFTER FABRICATION.
12. ANY RAW METAL EXPOSED BY FIELD CUTTING AND/OR DRILLING SHALL BE TREATED WITH A COLD GALVANIZING COMPOUND.
13. FASTEN PARALLEL BARS TO HEADWALL WITH 5/8" DIA. x 4½" LENGTH STEEL WEDGE ANCHORS, MINIMUM EMBEDMENT = 2¾" HOLE SIZE AND DEPTH, TORQUE, & INSTALLATION PROCEDURES PER RECOMMENDATION OF ANCHOR MANUFACTURE.
14. CENTER BOLT HOLE SHALL ONLY BE DRILLED IN THE TOP AND BOTTOM PARALLEL BARS.
15. FASTEN THE PERPENDICULAR BAR TO THE TOP AND BOTTOM PARALLEL BARS WITH ½" DIA. x 4" LENGTH HEX HEAD BOLTS, HEX HEAD NUTS, & FLAT WASHERS.
16. THE BOTTOM PARALLEL BAR IS TO BE PLACED SO THAT IT IS APPROX. 6" ABOVE THE FLOWLINE OF THE PIPE.



ISOMETRIC VIEW
SHOWING HEADWALL WITH GRATE





PIPE FOR GRATE DETAILS
SEE NOTE 9 TO DETERMINE IF GRATE IS REQUIRED

DIMENSIONS AND CONCRETE QUANTITIES (FOR PIPE WITH SKEW = 0°) (4)													
PIPE SIZE	3:1 SLOPE				4:1 SLOPE				6:1 SLOPE				GRATE REQUIRED
	A	B	W	CU. YDS. CONCRETE	A	B	W	CU. YDS. CONCRETE	A	B	W	CU. YDS. CONCRETE	
36"	3'	9'-7½"	7'-0"	1.51	4'	12'-6½"	7'-0"	1.91	6'	18'-6"	7'-0"	2.42	YES
42"	3'	11'-4"	7'-6"	1.76	4'	14'-9¼"	7'-6"	2.23	6'	21'-9½"	7'-6"	3.19	YES

DIMENSIONS AND CONCRETE QUANTITIES ARE APPROXIMATE AND LISTED FOR INFORMATIONAL PURPOSES ONLY

BID ITEM AND UNIT TO BID: 24575ES610 HEADWALL (SLOPED & MITERED CONCRETE-FOR _ INCH PIPE) - EACH

SEE SHEET 1 FOR DIMENSIONS OF HEADWALLS FOR PIPE 30" DIAMETER & LESS

NOT TO SCALE

KENTUCKY DEPARTMENT OF HIGHWAYS

SLOPED & MITERED CONCRETE HEADWALL (SHEET 2 OF 2)

1-9023.00

1-9023.00

FIGURE 1

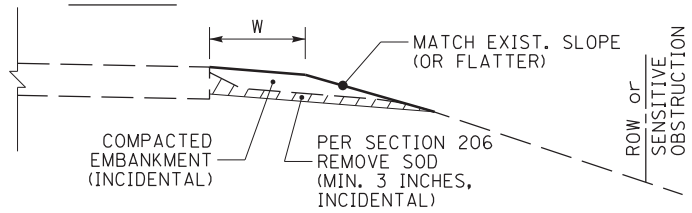


FIGURE 2

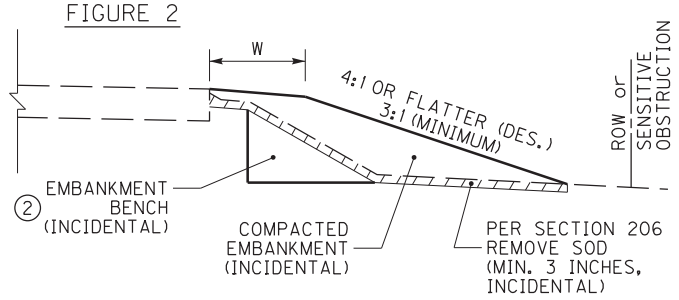


FIGURE 3

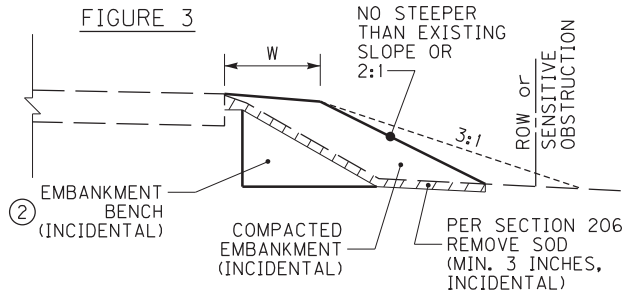


FIGURE 4

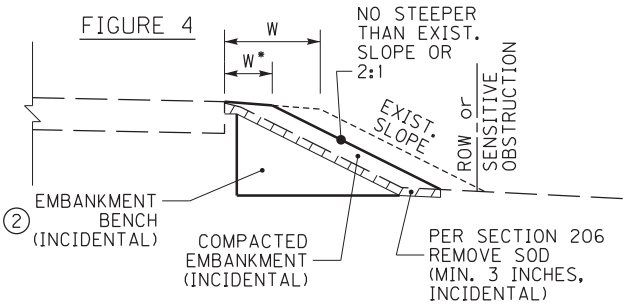


FIGURE 5

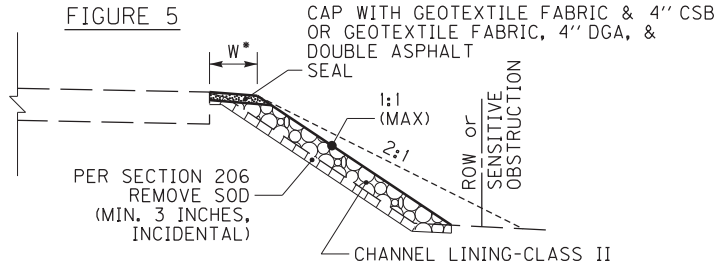
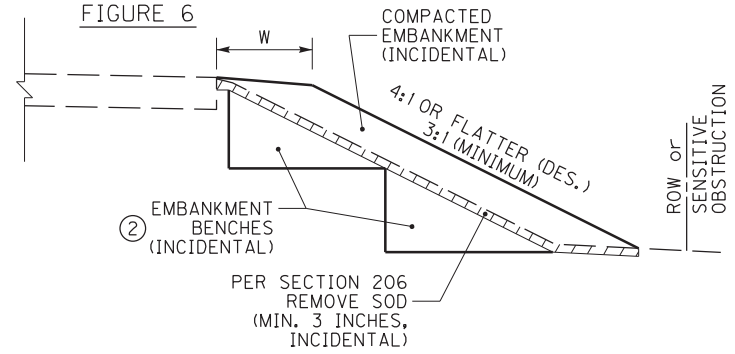


FIGURE 6



~ NOTES ~

BID ITEM AND UNIT TO BID:
2575 - DITCHING & SHOULDERING - LF

1. THE BID ITEM 'DITCHING & SHOULDERING' SHALL CONSIST OF ANY AND ALL NECESSARY CLEARING & GRUBBING, GRADING, AND/OR RESHAPING OF THE EXISTING SHOULDER, DITCH, AND/OR ROADSIDE TO ACHIEVE THE PROPOSED SHOULDER, DITCH, AND/OR ROADSIDE DIMENSIONS, AS DETAILED ON THE TYPICAL SECTIONS. FINAL PAYMENT WILL BE BASED ON THE ACTUAL LINEAR FEET OF DITCHING AND SHOULDERING PERFORMED, AND WILL INCLUDE ALL WORK AND INCIDENTALS NECESSARY TO PERFORM THE DITCHING AND SHOULDERING ACCORDING TO THESE DETAILS, NOTES, AND ANY OTHER INFORMATION FOUND ELSEWHERE IN THE PROPOSAL OR STANDARD SPECIFICATIONS. IN THE CASE OF A DISCREPANCY, REFER TO SECTION 105.05 OF THE STANDARD SPECIFICATIONS. DEPENDING ON THE EXISTING CONDITIONS ENCOUNTERED, DITCHING AND SHOULDERING MAY ALSO INCLUDE, BUT IS NOT LIMITED TO:
   - PROVIDING ADDITIONAL EARTH MATERIAL AND GRADING, SHAPING, AND COMPACTING THE EARTH MATERIAL TO ACHIEVE THE DIMENSIONS SHOWN ON THE TYPICAL SECTIONS. COMPACT MATERIAL ACCORDING TO SECTION 206 OF THE STANDARD SPECIFICATIONS.
     NOTE: ADDITIONAL EARTH MATERIAL PROVIDED SHALL BE SUITABLE FOR VEGETATION GROWTH.
   - EXCAVATING AND REMOVING EXCESS MATERIAL TO ACHIEVE THE DIMENSIONS SHOWN ON THE TYPICAL SECTIONS
   - EMBANKMENT BENCHING

② EMBANKMENT BENCHING WILL BE REQUIRED WHEN THE EXISTING GROUNDLINE HAS AN INCLINE GREATER THAN 15% (APPROX. 6:1). ANY AND ALL REQUIRED EMBANKMENT BENCHING SHALL BE INCIDENTAL TO THE BID ITEM 'DITCHING AND SHOULDERING'. THE FOLLOWING ARE GUIDELINES FOR EMBANKMENT BENCHING USED IN CONJUNCTION WITH THE BID ITEM 'DITCHING AND SHOULDERING':
   - THE TYPICAL HEIGHT (OR RISE) IS 1' TO 6'
   - THE TYPICAL WIDTH (OR RUN) WILL VARY BASED ON THE HEIGHT OF THE BENCH
   - MULTIPLE SMALL BENCHES MAY BE USED, AND MAY BE MORE ADVANTAGEOUS AS THIS WILL REQUIRE PROCESSING LESS EARTHWORK.

3. AS SHOWN IN FIGURE 1, IN SOME SITUATIONS, MINOR SHOULDERING, WITH MINIMAL ADDITIONAL EARTH MATERIAL, MAY BE ALL THAT IS REQUIRED TO RESHAPE THE EARTH SHOULDER TO THE PROPOSED WIDTH AND BRING IT FLUSH WITH THE EDGE OF PAVEMENT.
4. AS SHOWN IN FIGURE 2, MOST SITUATIONS WILL REQUIRE ADDITIONAL EARTH MATERIAL TO ACHIEVE THE PROPOSED EARTH SHOULDER WIDTH. IT IS DESIRED THAT THE RESULTING FILL SLOPE BE INSTALLED AS FLAT AS POSSIBLE AND REMAIN WITHIN THE RIGHT-OF-WAY AND/OR AVOID SENSITIVE OBSTRUCTIONS.
5. AS SHOWN IN FIGURE 3, IF A 3:1 FILL SLOPE WILL RESULT IN THE TOE OF SLOPE EXTENDING BEYOND THE RIGHT-OF-WAY OR IMPACT A SENSITIVE OBSTRUCTION, THEN THE FILL SLOPE MAY BE INSTALLED STEEPER THAN 3:1, BUT NO STEEPER THAN THE EXISTING FILL SLOPE, OR A 2:1, WHICHEVER IS FLATTER.
6. AS SHOWN IN FIGURE 4, IF MATCHING THE EXISTING FILL SLOPE OR INSTALLING A 2:1 FILL SLOPE (WHICHEVER IS FLATTER) STILL RESULTS IN THE TOE OF SLOPE EXTENDING BEYOND THE RIGHT-OF-WAY OR STILL IMPACTS A SENSITIVE OBSTRUCTION, THEN THE PROPOSED EARTH SHOULDER WIDTH MAY BE REDUCED SO THAT THE RESULTING TOE OF SLOPE WILL REMAIN WITHIN THE RIGHT-OF-WAY AND/OR NOT IMPACT THE SENSITIVE OBSTRUCTION.
7. AS SHOWN IN FIGURE 5, IF THE EXISTING FILL SLOPE IS STEEPER THAN 2:1 AND THERE IS NOT ENOUGH SPACE TO INSTALL A 2:1 FILL SLOPE WITHOUT EXTENDING BEYOND THE RIGHT-OF-WAY AND/OR IMPACTING A SENSITIVE OBSTRUCTION, THEN CLASS II CHANNEL LINING MAY BE INSTALLED ALONG THE STEEP EXISTING SLOPE IN ORDER TO ESTABLISH A WIDTH OF AGGREGATE SHOULDER. THESE LOCATIONS WILL BE NOTED ELSEWHERE IN THE PROPOSAL AS SLOPE PROTECTION. THE CHANNEL LINING IS TO BE CAPPED WITH GEOTEXTILE FABRIC TYPE IV AND 4" OF CRUSHED STONE BASE, OR 4" OF DGA WITH DOUBLE ASPHALT SEAL COAT.
8. AS SHOWN IN FIGURE 6, AS THE HEIGHT OF THE FILL INCREASES, MULTIPLE EMBANKMENT BENCHES MAY BE REQUIRED.

SEE SHEET 2 FOR
NOTES 9 THRU 13

NOT TO SCALE

KENTUCKY
DEPARTMENT OF HIGHWAYS

DITCHING & SHOULDERING
AND EMBANKMENT
BENCHING DETAILS
(SHEET 1 OF 2)

FIGURE 7

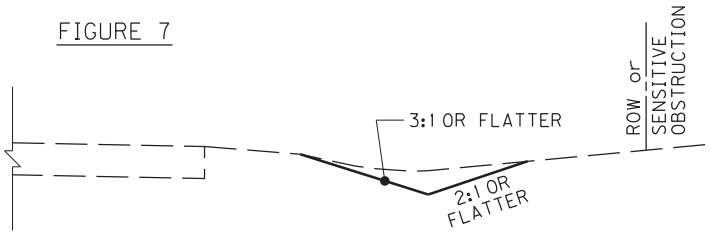


FIGURE 8

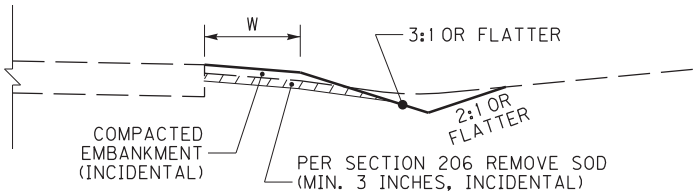


FIGURE 9

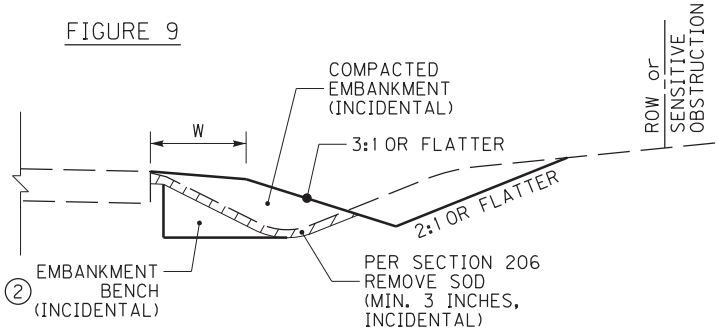


FIGURE 10

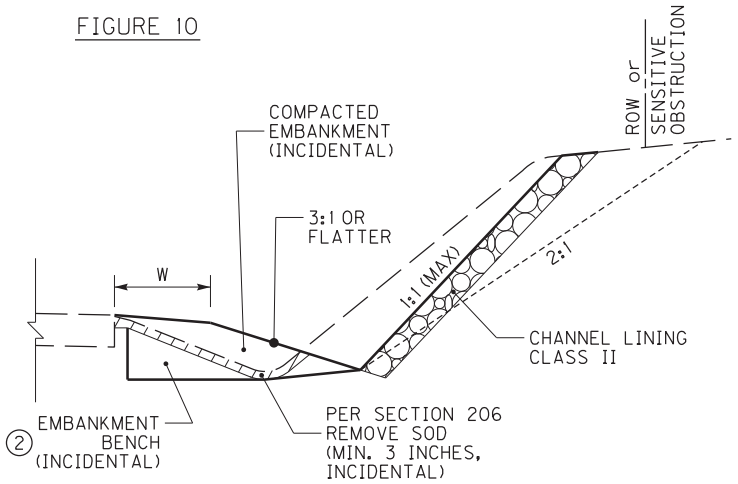
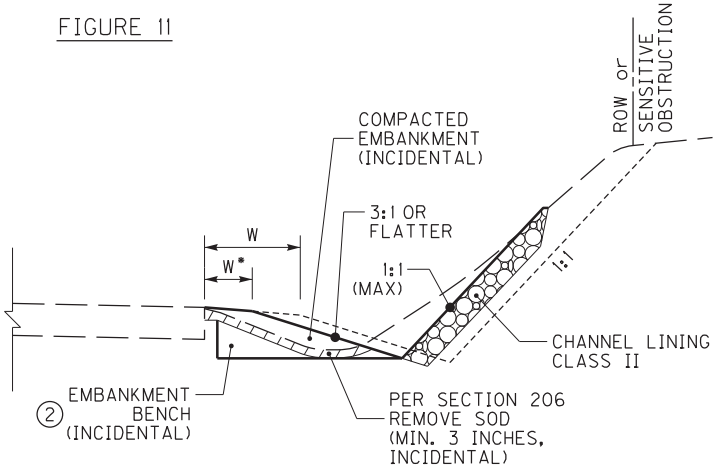


FIGURE 11



~ NOTES ~

BID ITEM AND UNIT TO BID:
2575 - DITCHING & SHOULDERING - LF

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   - PROVIDING ADDITIONAL EARTH MATERIAL AND GRADING, SHAPING, AND COMPACTING THE EARTH MATERIAL TO ACHIEVE THE DIMENSIONS SHOWN ON THE TYPICAL SECTIONS. COMPACT MATERIAL ACCORDING TO SECTION 206 OF THE STANDARD SPECIFICATIONS.
     NOTE: ADDITIONAL EARTH MATERIAL PROVIDED SHALL BE SUITABLE FOR VEGETATION GROWTH.
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   - EMBANKMENT BENCHING

② EMBANKMENT BENCHING WILL BE REQUIRED WHEN THE EXISTING GROUNDLINE HAS AN INCLINE GREATER THAN 15% (APPROX. 6:1). ANY AND ALL REQUIRED EMBANKMENT BENCHING SHALL BE INCIDENTAL TO THE BID ITEM 'DITCHING AND SHOULDERING'. THE FOLLOWING ARE GUIDELINES FOR EMBANKMENT BENCHING USED IN CONJUNCTION WITH THE BID ITEM 'DITCHING AND SHOULDERING':
   - THE TYPICAL HEIGHT (OR RISE) IS 1' TO 6'
   - THE TYPICAL WIDTH (OR RUN) WILL VARY BASED ON THE HEIGHT OF THE BENCH
   - MULTIPLE SMALL BENCHES MAY BE USED, AND MAY BE MORE ADVANTAGEOUS AS THIS WILL REQUIRE PROCESSING LESS EARTHWORK.

SEE SHEET 1 FOR NOTES 3. THRU 8.

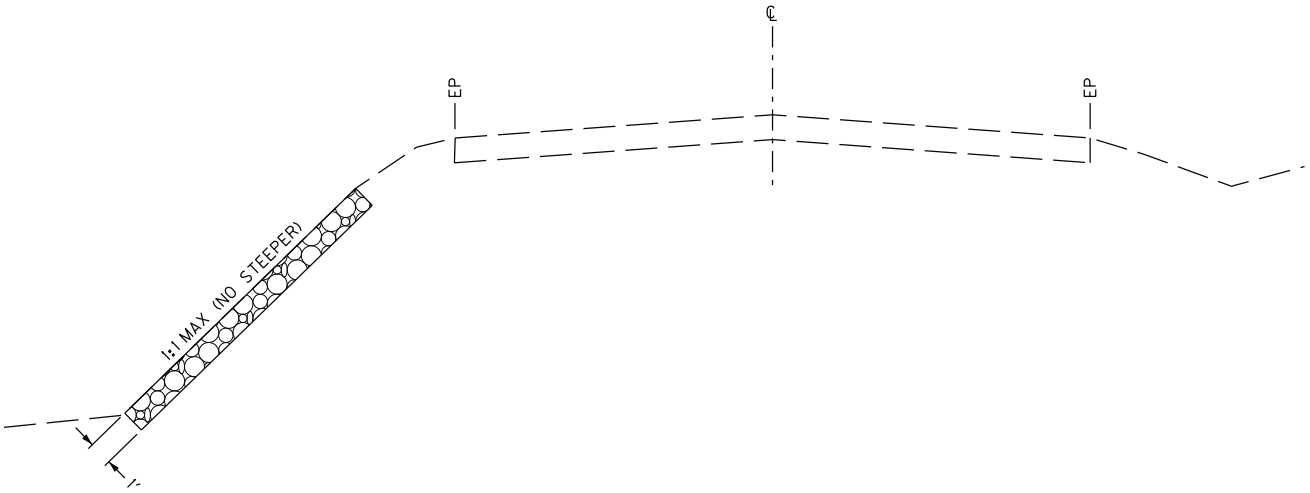
9. AS SHOWN IN FIGURE 7, IN SOME SITUATIONS, ALL THAT MAY BE REQUIRED IS TO CLEAN OUT THE EXISTING DITCH AND RESHAPE IT TO THE PROPOSED DIMENIONS. THE MATERIAL EXCAVATED FROM THE DITCH MAY BE RE-USED ELSEWHERE ON THE PROJECT, PROVIDED THE ENGINEER DETERMINES THE MATERIAL REMOVED FROM THE DITCH IS SUITABLE FOR THE INTENDED RE-USE.
10. AS SHOWN IN FIGURE 8, IN SOME SITUATIONS, THE DITCH AND SHOULDER MAY ONLY NEED MINOR REGRADING AND/OR RESHAPING. THE MATERIAL EXCAVATED FROM THE DITCH MAY BE USED TO RESHAPE THE EARTH SHOULDER, PROVIDED THE ENGINEER DETERMINES THE MATERIAL REMOVED FROM THE DITCH IS SUITABLE FOR SHOULDERING. IF THE MATERIAL IS NOT SUITABLE, ADDITIONAL EARTH MATERIAL MAY BE REQUIRED.
11. AS SHOWN IN FIGURE 9, IN MOST SITUATIONS, REGRADING AND RESHAPING THE ROADSIDE TO ACHIEVE THE PROPOSED SHOULDER, DITCH, AND/OR ROADSIDE DIMENSIONS WILL RESULT IN MOVING THE DITCH FURTHER AWAY FROM THE ROADWAY. IT IS DESIRED THAT DITCH FORESLOPES BE 3:1 OR FLATTER AND DITCH BACKSLOPES BE 2:1 OR FLATTER.
12. AS SHOWN IN FIGURE 10, IF INSTALLING A 2:1 DITCH BACKSLOPE WILL RESULT IN THE TOP OF CUT EXTENDING BEYOND THE RIGHT-OF-WAY OR IMPACTING A SENSITIVE OBSTRUCTION, THEN THE DITCH BACK SLOPE MAY BE INSTALLED STEEPER THAN 2:1, UP TO 1:1 MAXIMUM. IN THIS SITUATION, THE DITCH BACKSLOPE SHALL HAVE CLASS II CHANNEL LINING INSTALLED FOR SLOPE PROTECTION.
13. AS SHOWN IN FIGURE 11, IF USING A 1:1 DITCH BACKSLOPE STILL RESULTS IN THE TOP OF CUT EXTENDING BEYOND THE RIGHT-OF-WAY OR STILL IMPACTS A SENSITIVE OBSTRUCTION, THEN THE PROPOSED EARTH SHOULDER WIDTH MAY BE REDUCED SO THAT THE STEEP DITCH BACKSLOPE CAN BE INSTALLED WITHIN THE RIGHT-OF-WAY AND/OR TO AVOID A SENSITIVE OBSTRUCTION.

NOT TO SCALE

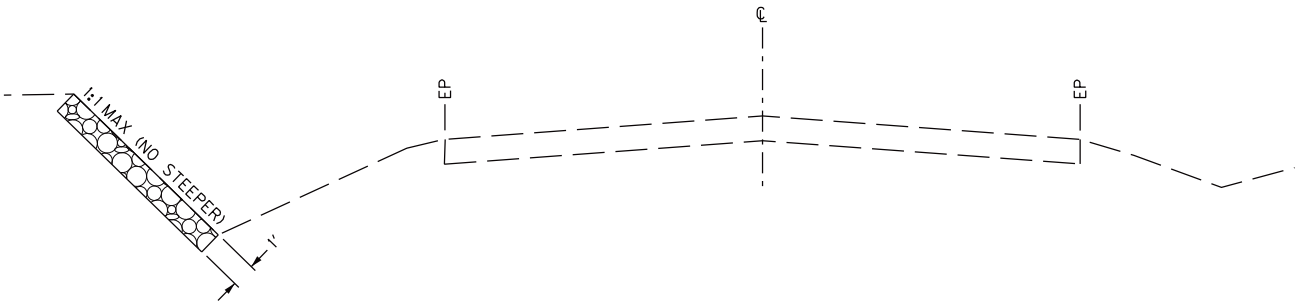
KENTUCKY DEPARTMENT OF HIGHWAYS

DITCHING & SHOULDERING AND EMBANKMENT BENCHING DETAILS (SHEET 2 OF 2)

COUNTY OF	ITEM NO.	SHEET NO.
	1-9023.00	



PROTECTION DETAIL FOR EMBANKMENT FILL SLOPE



PROTECTION DETAIL FOR DITCH BACKSLOPE

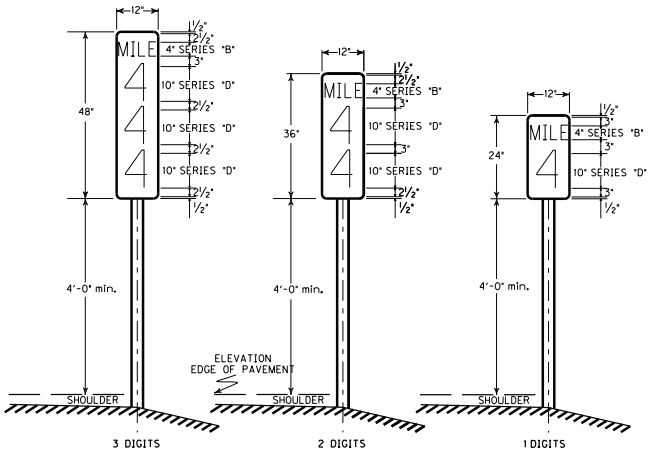
NOTES:

1. SEE CHANNEL LINING SUMMARY FOR APPROXIMATE LOCATIONS OF SLOPE PROTECTION.
2. FINAL LOCATIONS TO BE DETERMINED BY THE ENGINEER.
3. EXCAVATION IS INCIDENTAL TO THE PLACEMENT OF THE CHANNEL LINING.

SLOPE PROTECTION DETAILS

COUNTY OF	ITEM NO.	SHEET NO.
	1-9023.00	

MILEPOST MARKERS



TYPICAL SIGN PANEL DIMENSIONS AND MILEPOST LOCATIONS

MILE POST NUMBER	STATION NUMBER * ____ BOUND LANE (S)

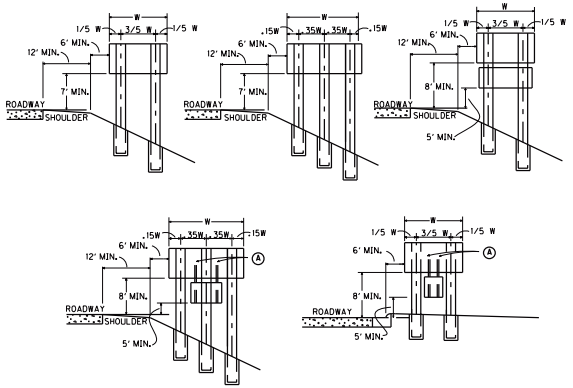
MILE POST NUMBER	STATION NUMBER * ____ BOUND LANE (S)

NOTE: STATION NUMBERS ARE GIVEN FOR NOTED DIRECTION OF TRAVEL ONLY. CORRESPONDING MILEPOST MARKERS FOR OTHER DIRECTION SHOULD BE PLACED DIRECTLY OPPOSITE THOSE FOR WHICH STATION NUMBERS ARE GIVEN.

IN JEFFERSON COUNTY, FINAL LOCATION OF MILEPOST MARKERS SHALL BE VERIFIED BY TRIMARC. NOTIFY TRIMARC AT LEAST TWO WEEKS PRIOR TO BEGINNING WORK ON THIS ITEM:

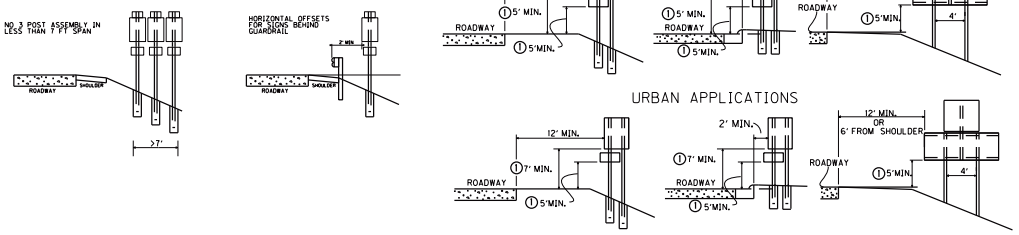
901 WEST MAIN STREET
LOUISVILLE, KY 40202
502-587-6624
270-307-7456

PANEL SIGNS



(A) ATTACHMENT OF SECONDARY SIGN TO MAJOR SIGN IS TO BE MADE WITH TWO (2) 3" X 3" X 3/8" ANGLES OF SUFFICIENT LENGTH TO EXTEND FROM THE LOWER EDGE OF THE SECONDARY SIGN TO AT LEAST THREE FEET UP THE BACK OF THE MAJOR SIGN. A MINIMUM OF ONE POST CLIP PER FOOT SHALL BE USED IN ATTACHING EXTRUSIONS TO EACH ANGLE.

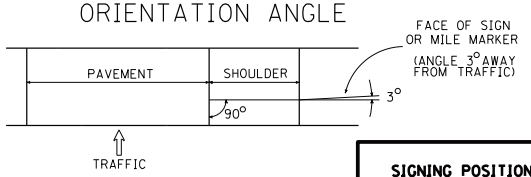
SHEETING SIGNS



NOTE: SHOULD A SIGN BE LOCATED AT A POINT WHERE GUARDRAIL IS CALLED FOR OR EXISTING, ALL SIGN SUPPORTS SHALL BE PLACED BEHIND THE GUARDRAIL AND LATERAL OFFSET SHALL BE MEASURED FROM THE GUARDRAIL.

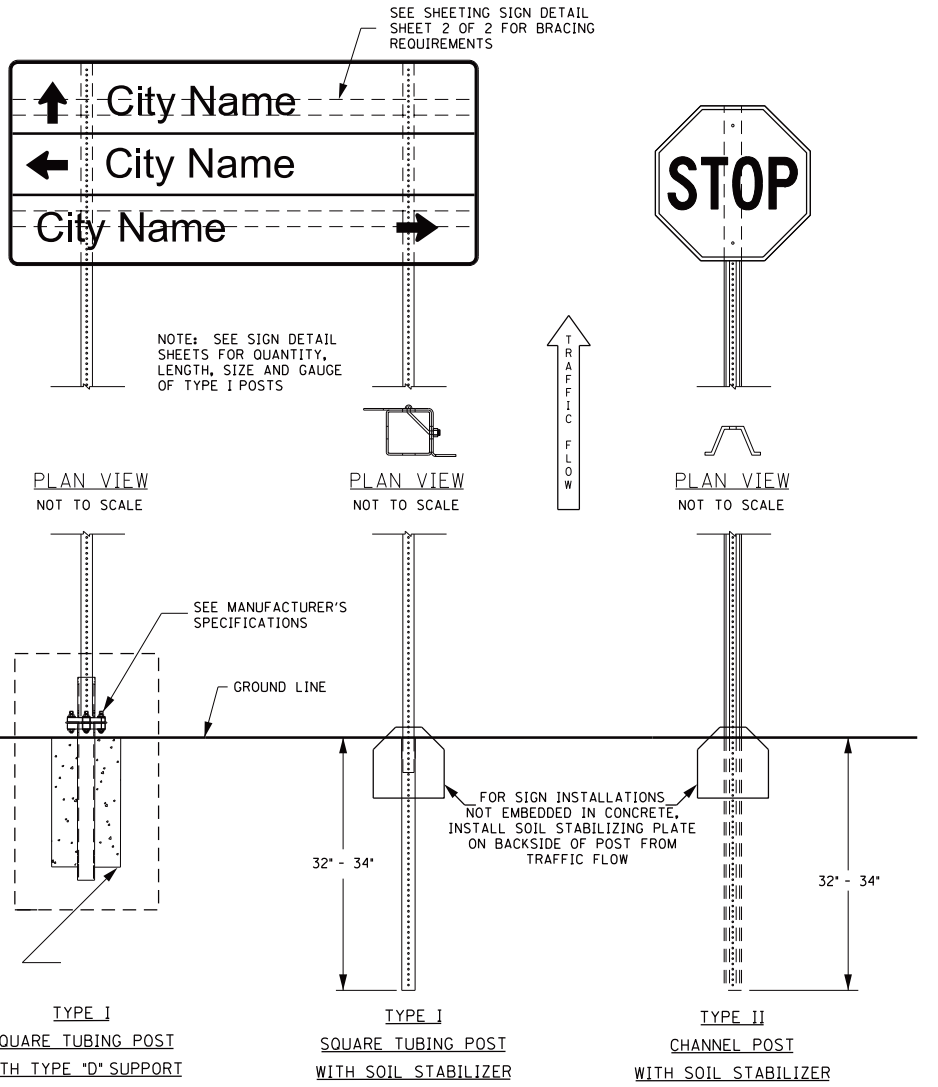
(1) NOT TO EXCEED 8' IN URBAN AREAS AND 6' IN RURAL AREAS UNLESS SPECIFIED BY THE ENGINEER

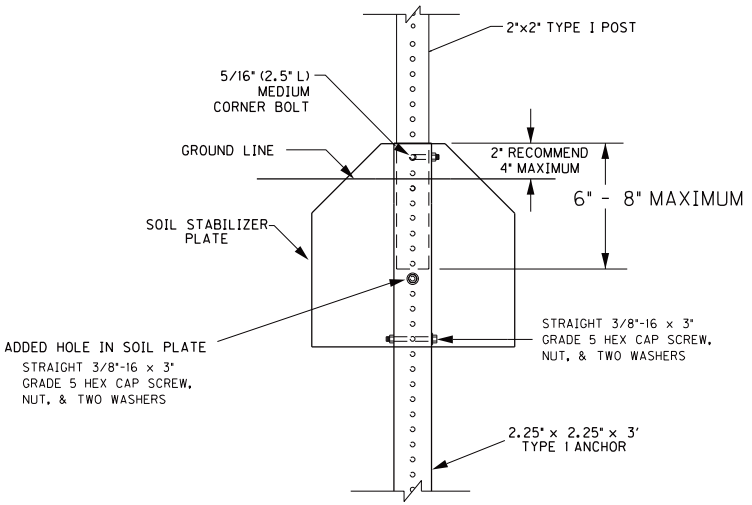
ORIENTATION ANGLE



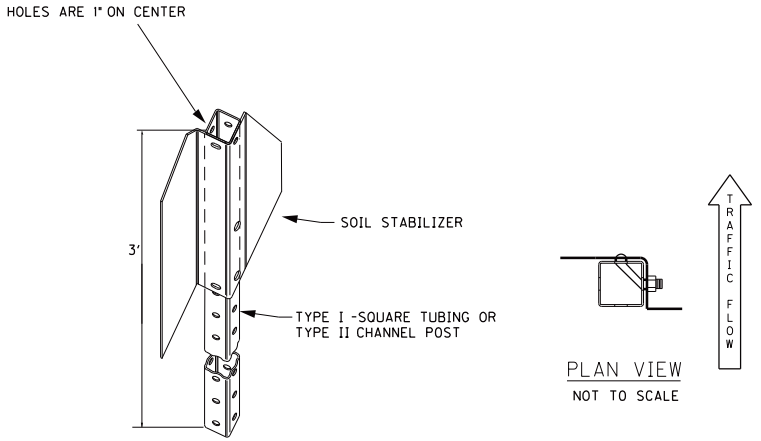
SIGNING POSITIONING DETAIL SHEET

COUNTY OF	ITEM NO.	SHEET NO.
	1-9023.00	





SOIL STABILIZER DETAIL
FOR TYPE I POST



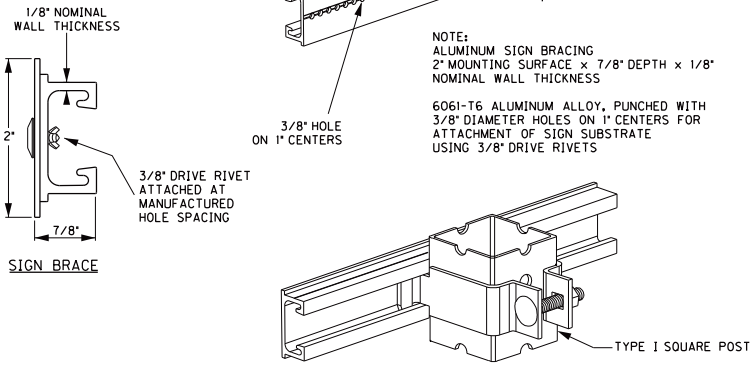
SOIL STABILIZER DETAIL

NOT TO SCALE

SHEETING SIGN DETAIL
SHEET 1 OF 2

COUNTY OF	ITEM NO.	SHEET NO.
	1-9023.00	

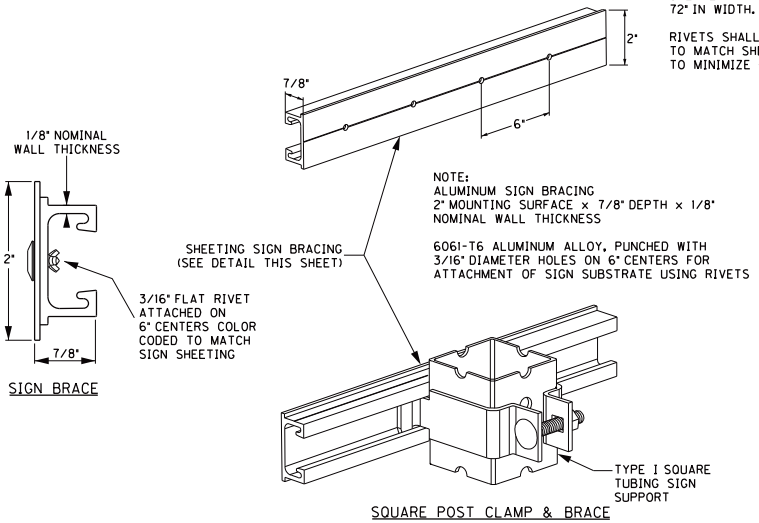
FOR ATTACHMENT OF SIGNS LESS THAN 72" IN WIDTH USING MANUFACTURED 3/8" HOLES ACCORDING TO 2004 STANDARD HIGHWAY SIGNS BLANK STANDARDS PGS 7-1 THRU 7-6



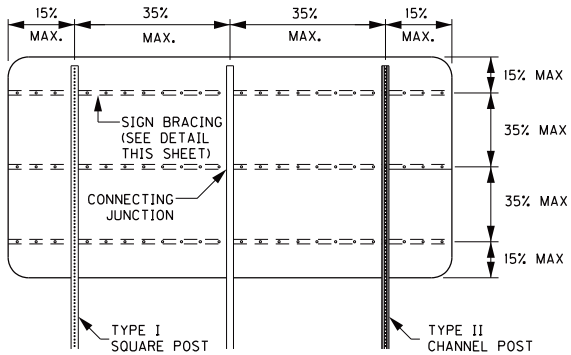
SQUARE POST CLAMP & BRACE

FOR ATTACHMENT OF SIGNS GREATER THAN, OR EQUAL TO, 72" IN WIDTH.

RIVETS SHALL BE COLOR CODED TO MATCH SHEETING IN ORDER TO MINIMIZE GLARE FROM RIVETS



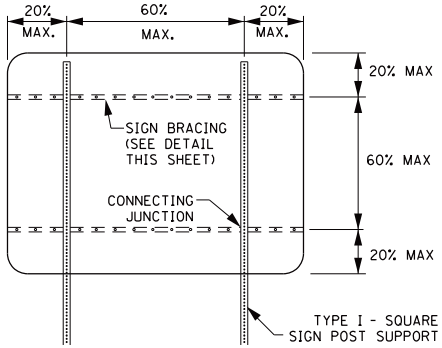
SQUARE POST CLAMP & BRACE



3 POST - BRACING DIAGRAM

NOTE:
1. MAXIMUM AREA PER CONNECTING JUNCTION = 16 SQ. FT.

2. BRACING SHOULD NOT BE SPLICED WITHIN 6" OF A BRACE TO POST JUNCTION.



2 POST - BRACING DIAGRAM

NOTE:
USE OF SIGN BRACING NOT SHOWN ON THIS SHEET MAY BE PERMITTED BY PROJECT ENGINEER AND/OR DISTRICT TRAFFIC ENGINEER.

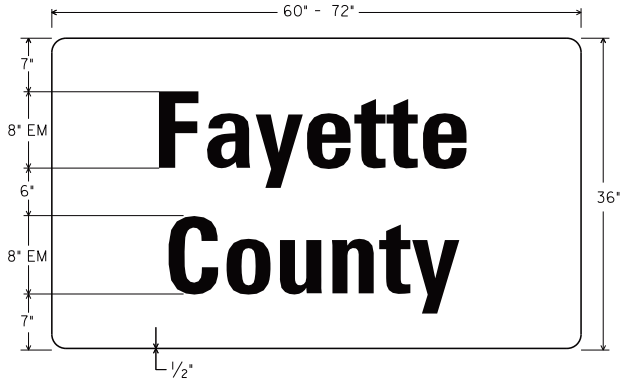
NOT TO SCALE

SHEETING SIGN DETAIL

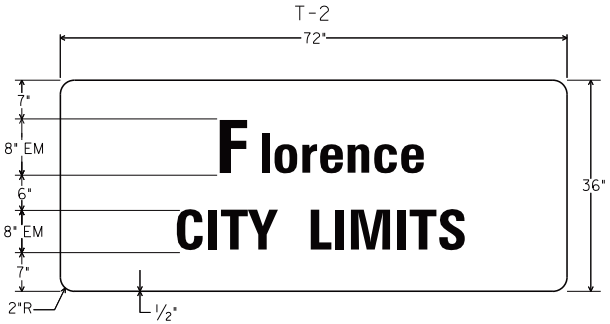
SHEET 2 OF 2

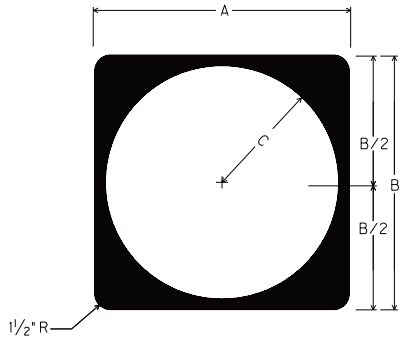
COUNTY OF	ITEM NO.	SHEET NO.
	1-9023.00	

T-1

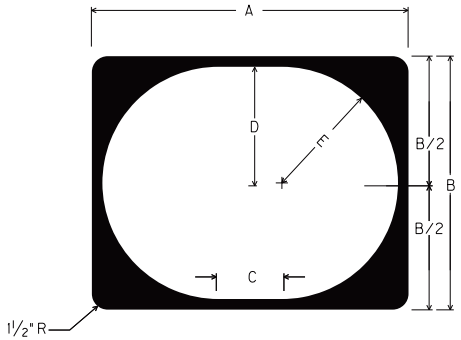


T-2





M1-5 (1 OR 2 DIGIT)



M1-5 (3 OR 4 DIGIT)

	A	B	C	FONT
CONVENTIONAL	24"	24"	11"	12D
EXPRESSWAY/ FREEWAY	36"	36"	17"	18D

	A	B	C	D	E	FONT	
						3 DIGIT	4 DIGIT
CONVENTIONAL	30"	24"	6"	11"	11"	12D	12B
EXPRESSWAY/ FREEWAY	45"	36"	9"	16.5"	16.5"	18D	18B

NOTE: FOR ROUTE MARKERS, IF NECESSARY, ADJUSTMENTS TO THE DIGIT LAYOUT AND/OR FONT TYPE MAY BE MADE TO ENSURE VISUAL ACUITY

NOTE: EXPRESSWAY/FREEWAY DEFINED AS A DIVIDED HIGHWAY WITH PARTIAL OR FULL CONTROL OF ACCESS

S-1

NOT TO SCALE

TYPICAL SIGNS

1-9023.00

2020 STANDARD DRAWINGS THAT APPLY

ROADWAY

~ BARRIERS ~

GUARDRAIL HARDWARE

STEEL BEAM GUARDRAIL (W-BEAM) RBR-001-13
GUARDRAIL COMPONENTS RBR-005-11
GUARDRAIL TERMINAL SECTIONS RBR-010-06
STEEL GUARDRAIL POSTS RBR-015-06
GUARDRAIL END TREATMENT TYPE 1 ..... RBR-020-07
DELINEATORS FOR GUARDRAIL RBR-005-01

~ DRAINAGE ~

PAVED DITCHES, FLUME INLETS AND CHANNEL LININGS

CHANNEL LINING CLASS II AND III RDD-040-05

PIPE AND BOX CULVERT HEADWALLS

12" – 27" - SINGLE LINE PIPE

CONCRETE HEADWALLS FOR 12" - 27" CIRCULAR PIPE CULVERTS RDH-005-02

TYPICAL DRAINAGE INSTALLATIONS

CULVERT, ENTRANCE & STORM SEWER PIPE TYPES & COVER HEIGHTS (12" – 24" PIPE) RDI-001-10
CULVERT, ENTRANCE & STORM SEWER PIPE TYPES & COVER HEIGHTS (27" – 42" PIPE) RDI-002-05
CULVERT & STORM SEWER PIPE TYPES & COVER HEIGHTS (48" – 54" PIPE) RDI-003-05
PIPE BEDDING FOR CULVERTS, ENTRANCE, AND STORM SEWER PIPE RDI-020-10
PIPE BEDDING FOR CULVERTS, ENTRANCE, AND STORM SEWER, REINFORCED CONC. PIPE RDI-021-01
EROSION CONTROL BLANKET SLOPE INSTALLATION RDI-040-01
EROSION CONTROL BLANKET CHANNEL INSTALLATION RDI-041-01

MISCELLANEOUS DRAINAGE

INTERMEDIATE AND END ANCHORS FOR CIRCULAR PIPE RDX-060-04
TEMPORARY SILT FENCE RDX-210-03
SILT TRAP - TYPE A RDX-220-05
SILT TRAP - TYPE B RDX-225-01
SILT TRAP - TYPE C RDX-230-01

~ FENCES AND GATES ~

WOVEN WIRE FENCE

FENCING DETAILS RFW-001-06
WOVEN WIRE FENCE TYPE 2 ..... RFW-006-07

~ GENERAL ~

MISCELLANEOUS STANDARDS

MISCELLANEOUS STANDARDS RGX-001-06
GABION RETAINING WALLS RGX-050-02

1-9023.00
Standard Drawings That Apply
Page 2 of 2

~ PAVEMENT ~

MEDIANS, CURBS, APPROACHES, ENTRANCES, ETC.

APPROACHES, ENTRANCES, AND MAIL BOX TURNOUT RPM-110-07

TRAFFIC

~ PERMANENT ~

MARKERS

PAVEMENT STRIPING DETAILS FOR TWO LANE TWO WAY ROADWAYS TPM-175

RUMBLE STRIPS

CENTERLINE RUMBLE STRIPS TPR-100
CENTERLINE RUMBLE STRIPS 6 INCH STRIPING TPR-110
SHOULDER & EDGELINE RUMBLE STRIPS PLACEMENT DETAILS TPR-115
EDGELINE RUMBLE STRIP DETAILS TWO LANE ROADWAYS TPR-120

~ TEMPORARY ~

TRAFFIC CONTROL

LANE CLOSURE TWO-LANE HIGHWAY TTC-100-05
SHOULDER CLOSURE TTC-135-03

DEVICES

DOUBLE FINES ZONE SIGNS TTD-120-03
PAVEMENT CONDITION WARNING SIGNS TTD-125-03
SPEED ZONE SIGNING FOR WORK ZONES TTD-130

SPECIAL NOTE FOR PIPELINE INSPECTION

1.0 DESCRIPTION. The Department will perform visual inspections on all pipe on the project. A video inspection will be required on projects having more than 250 linear feet of storm sewer and/or culvert pipe and on routes with an ADT of greater than 1,000 vehicles. Conduct video inspections on all pipe located under the roadway and 50 percent of the remaining pipe not under the roadway. Storm sewer runs and outfall pipes not under the roadway take precedence over rural entrance pipes. Contractors performing this item of work must be prequalified with the Department in the work type J51 (Video Pipe Inspection and Cleaning). Deflection testing shall be completed using a mandrel in accordance with the procedure outlined below or by physical measurement for pipes greater than 36inches in diameter. Mandrel testing for deflection must be completed prior to the video inspection testing. Unless otherwise noted, Section references herein are to the Department's 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	AASHTO Nominal Diameter	Max. Deflection Limit	
		5.0%	10.0%
(inches)	(inches)	(inches)	
15	14.76	14.02	13.28
18	17.72	16.83	15.95
24	23.62	22.44	21.26
30	29.53	28.05	26.58
36	35.43	33.66	31.89
42	41.34	39.27	37.21
48	47.24	44.88	42.52
54	53.15	50.49	47.84
60	59.06	56.11	53.15

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

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

% Deflection = [(AASHTO Nominal Diameter - D2) / AASHTO Nominal Diameter] x 100%

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

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

4.2 Record and submit all data.

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

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

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

RIGID PIPE REMEDIATION TABLE PIPE	
Crack Width (inches)	Payment
≤ 0.1	100% of the Unit Bid Price
Greater than 0.1	Remediate or Replace [(1)]

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

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

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

October 2021

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[1], %	50 min.	AASHTO T 59
Oil Distillate, %	1.0 max.	AASHTO T 59
Residue Penetration, 77 ˚ F	20 max.	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

[1] 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 1st to May 15th. 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 1st to May 15th. From September 1st to June 1st, 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.

October 2021

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 - 18 103 - 105	15 - 16 106 - 107	14 108 - 109	≤13 ≥ 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	20 max.	≤ 21	22 - 23	24 - 25	26 - 27	≥ 28
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, º 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

Code	Pay Item	Pay Unit
24970EC	Asphalt Material for Tack Non-Tracking	Ton

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

TC 62-226
Rev. 01/2016
Page 1 of 1

RIGHT OF WAY CERTIFICATION

☒ Original	☐ Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #	**COUNTY**	**PROJECT # (STATE)**	**PROJECT # (FEDERAL)**
1-9023.00	Crittenden	FD04 028 0060 004-009	N/A
PROJECT DESCRIPTION			
Roadway Departure - MP 4.9 to 8.4 near Crittenden County High School.			

☒ **No Additional Right of Way Required**

Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.

☐ **Condition # 1 (Additional Right of Way Required and Cleared)**

All necessary right of way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.

☐ **Condition # 2 (Additional Right of Way Required with Exception)**

The right of way has not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract

☐ **Condition # 3 (Additional Right of Way Required with Exception)**

The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction.

Total Number of Parcels on Project	0	**EXCEPTION (S) Parcel #**	**ANTICIPATED DATE OF POSSESSION WITH EXPLANATION**
Number of Parcels That Have Been Acquired			
Signed Deed			
Condemnation			
Signed ROE			

Notes/ Comments (Text is limited. Use additional sheet if necessary.)

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Greg L. Morgan
Signature		Signature	
Date		Date	
Right of Way Director		**FHWA**	
Printed Name		Printed Name	
Signature		Signature	
Date		Date	

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

TC 62-226
Rev. 01/2016
Page 1 of 1

RIGHT OF WAY CERTIFICATION

☒ Original	☐ Re-Certification	RIGHT OF WAY CERTIFICATION	
ITEM #	**COUNTY**	**PROJECT # (STATE)**	**PROJECT # (FEDERAL)**
01-80101.00	CRITTENDEN	1100 FD04 028 1273201R	N/A
PROJECT DESCRIPTION			
ADD LEFT TURN LANE ON GUM ST. BY THE ENTRANCE OF THE MIDDLE SCHOOL & HIGH SCHOOL.			

☐ **No Additional Right of Way Required**

Construction will be within the limits of the existing right of way. The right of way was acquired in accordance to FHWA regulations under the Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970, as amended. No additional right of way or relocation assistance were required for this project.

☐ **Condition # 1 (Additional Right of Way Required and Cleared)**

All necessary right of way, including control of access rights when applicable, have been acquired including legal and physical possession. Trial or appeal of cases may be pending in court but legal possession has been obtained. There may be some improvements remaining on the right-of-way, but all occupants have vacated the lands and improvements, and KYTC has physical possession and the rights to remove, salvage, or demolish all improvements and enter on all land. Just Compensation has been paid or deposited with the court. All relocations have been relocated to decent, safe, and sanitary housing or that KYTC has made available to displaced persons adequate replacement housing in accordance with the provisions of the current FHWA directive.

☒ **Condition # 2 (Additional Right of Way Required with Exception)**

The right of way has not been fully acquired, the right to occupy and to use all rights-of-way required for the proper execution of the project has been acquired. Some parcels may be pending in court and on other parcels full legal possession has not been obtained, but right of entry has been obtained, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish all improvements. Just Compensation has been paid or deposited with the court for most parcels. Just Compensation for all pending parcels will be paid or deposited with the court prior to AWARD of construction contract

☐ **Condition # 3 (Additional Right of Way Required with Exception)**

The acquisition or right of occupancy and use of a few remaining parcels are not complete and/or some parcels still have occupants. All remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. KYTC is hereby requesting authorization to advertise this project for bids and to proceed with bid letting even though the necessary right of way will not be fully acquired, and/or some occupants will not be relocated, and/or the just compensation will not be paid or deposited with the court for some parcels until after bid letting. KYTC will fully meet all the requirements outlined in 23 CFR 635.309(c)(3) and 49 CFR 24.102(j) and will expedite completion of all acquisitions, relocations, and full payments after bid letting and prior to AWARD of the construction contract or force account construction.

Total Number of Parcels on Project	8	**EXCEPTION (S) Parcel #**	**ANTICIPATED DATE OF POSSESSION WITH EXPLANATION**
Number of Parcels That Have Been Acquired		Parcel #2 - Gregory, Inc.	Property owner made a written counter offer that was accepted by KYTC on 4/25/2022.
Signed Deed	7		District is now waiting to receive the signed deed and MOU from owner.
Condemnation			Anticipated date of possession is 5/20/2022.
Signed ROE			

Notes/ Comments (Text is limited. Use additional sheet if necessary.)

LPA RW Project Manager		Right of Way Supervisor	
Printed Name		Printed Name	Greg L. Morgan
Signature		Signature	
Date		Date	
Right of Way Director		**FHWA**	
Printed Name		Printed Name	
Signature		Signature	
Date		Date	

UTILITIES AND RAIL CERTIFICATION NOTE

Crittenden County
FD04 028 0060 004-009
Safety Improvements along US 60
Item No. 1-9023.00

GENERAL PROJECT NOTE ON UTILITY PROTECTION

Utility coordination efforts determined that no significant utility relocation work is required to complete the project. Any work pertaining to these utility facilities is defined in the bid package and is to be carried out as instructed by the Kentucky Transportation Cabinet. The contractor will be responsible for any coordination or adjustments that are discussed or quantified in the proposal.

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

- Waterlines left and right of US 60 along the project length
- Utility poles left and right of US 60 along the project length

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

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

None

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

None

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

None

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

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

UTILITIES AND RAIL CERTIFICATION NOTE

Crittenden County
FD04 028 0060 004-009
Safety Improvements along US 60
Item No. 1-9023.00

UNDERGROUND FACILITY DAMAGE PROTECTION – BEFORE YOU DIG

The contractor shall make every effort to protect underground facilities from damage as prescribed in the Underground Facility Damage Protection Act of 1994, Kentucky Revised Statute KRS 367.4901 to 367.4917. It is the contractor's responsibility to determine and take steps necessary to be in compliance with federal and state damage prevention directives. The contractor is instructed to contact KY 811 for the location of existing underground utilities. Contact shall be made a minimum of two (2) and no more than ten (10) business days prior to excavation.

The contractor shall submit Excavation Locate Requests to the Kentucky Contact Center (KY 811) via web ticket entry. The submission of this request does not relieve the contractor from the responsibility of contacting non-member facility owners, whom are to be contacted through their individual Protection Notification Center. It may be necessary for the contractor to contact the County Court Clerk to determine what utility companies have facilities in the area. Non-compliance with these directives can result in the enforcement of penalties.

SPECIAL CAUTION NOTE – PROTECTION OF UTILITIES

The contractor will be responsible for contacting all utility facility owners on the subject project to coordinate his activities. The contractor will coordinate his activities to minimize and, where possible, avoid conflicts with utility facilities. Due to the nature of the work proposed, it is unlikely to conflict with the existing utilities beyond minor facility adjustments. Where conflicts with utility facilities are unavoidable, the contractor will coordinate any necessary relocation work with the facility owner and Resident Engineer. The Kentucky Transportation Cabinet maintains the right to remove or alter portions of this contract if a utility conflict occurs.

The utility facilities as noted in the previous section(s) have been determined using data garnered by varied means and with varying degrees of accuracy: from the facility owners, a result of S.U.E., field inspections, and/or reviews of record drawings. The facilities defined may not be inclusive of all utilities in the project scope and are not Level A quality, unless specified as such. It is the contractor's responsibility to verify all utilities and their respective locations before excavating.

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

UTILITIES AND RAIL CERTIFICATION NOTE

Crittenden County
FD04 028 0060 004-009
Safety Improvements along US 60
Item No. 1-9023.00

AREA UTILITIES CONTACT LIST

Utility Company/Agency	Contact Name	Contact Information
1. Atmos Energy	Kenny W. Nash	270-316-1571
2. AT&T	Amanda Berkeley	270-444-5047
3. Kentucky Wired	Gary Lady	859-619-9166
4. KU	Caroline Justice	502-627-3708
5. Mediacom	Brien Ramey	270-703-4364
6. Paducah Power System	Chris Giurintano	370-575-4000
7. Crittenden-Livingston Water District	Tyler Pierson	270-988-2680

NOTE: The Utilities Contact List is provided as informational only, and may not be a complete list of all Utility Companies with facilities in the project area.

UTILITIES AND RAIL CERTIFICATION NOTE

Crittenden County
FD04 028 1273201U
Mile point: 8.600 TO 8.620
ADD A LEFT TURN LANE ON GUM ST. BY THE ENTRANCE OF THE MIDDLE SCHOOL AND HIGH SCHOOL (2020CCN)
ITEM NUMBER: 01-80101.00

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

Crittenden County
FD04 028 1273201U
Mile point: 8.600 TO 8.620
ADD A LEFT TURN LANE ON GUM ST. BY THE ENTRANCE OF THE MIDDLE SCHOOL AND HIGH SCHOOL (2020CCN)
ITEM NUMBER: 01-80101.00

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

Crittenden-Livingston Water District - Water

Atmos Energy Corporation - Natural Gas

KY Wired (Managed by Ledcor) - Communication

AT&T - Communication

Mediacom Southeast LLC - CATV

Kentucky Utilities – Electric

City of Marion – Water and Sewer

Paducah Power FiberNet (MuniNet)

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

Form Revised 6/24/16

UTILITIES AND RAIL CERTIFICATION NOTE

Crittenden County
FD04 028 1273201U
Mile point: 8.600 TO 8.620
ADD A LEFT TURN LANE ON GUM ST. BY THE ENTRANCE OF THE MIDDLE SCHOOL AND HIGH SCHOOL (2020CCN)
ITEM NUMBER: 01-80101.00

THE FOLLOWING FACILITY OWNERS ARE RELOCATING/ADJUSTING THEIR FACILITIES WITHIN THE PROJECT LIMITS AND WILL BE COMPLETE PRIOR TO CONSTRUCTION

KY Wired (Managed by Ledcor) – Communication – North Side of US 60

Paducah Power System FiberNet (MuniNet) – Communication – North Side of US 60

(Both are expected to be moved, though they have not moved at the time of this note.)

THE FOLLOWING FACILITY OWNERS HAVE FACILITIES TO BE RELOCATED/ADJUSTED BY THE OWNER OR THEIR SUBCONTRACTOR AND IS TO BE COORDINATED WITH THE ROAD CONTRACT

AT&T – Communication - Throughout the project

Kentucky Utilities – Electric - Throughout the project, mostly on the north side of US 60

Mediacom – CATV - Throughout the project, mostly on the north side of US 60

Atmos Energy Corporation – Natural Gas – 400 lf along the north side of US 60

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

City of Marion – Water – see plans

RAIL COMPANIES HAVE FACILITIES IN CONJUNCTION WITH THIS PROJECT AS NOTED

☒ **No Rail Involvement** ☐ **Rail Involved** ☐ **Rail Adjacent**

Form Revised 6/24/16

UTILITIES AND RAIL CERTIFICATION NOTE

Crittenden County
FD04 028 1273201U
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ITEM NUMBER: 01-80101.00

AREA FACILITY OWNER CONTACT LIST

Facility Owner	Address	Contact Name	Phone	Email
AT&T - Communication	810 Kentucky Avenue Paducah KY 42003	Amanda Berkley	2704445047	as0063@att.com
Atmos Energy Corporation - Natural Gas	3034 Parker Street Paducah Ky 42003	Eddie Tucker	2704437235	ed.tucker@atmosenergy.com
City of Marion - Water	217 South Main Street Marion KY 42064	Jared Byford	2709652266	mayor@marionky.gov
Crittenden-Livingston Water District - Water	620 East Main Street Salem KY 42078	Ronny Sladen	2709882680	ajdossett@tds.net
Kentucky Utilities - Electric	820 West Broadway Louisville KY 40202	Caroline Justice	5026273708	Caroline.Justice@lge-ku.com
KY Wired (Managed by Ledcor) - Communication	200 Mercer Rd. 2nd Floor Lexington KY 40511	Roger Castle	8592295403	roger.castle@ledcor.com
Mediacom Southeast LLC - CATV	320B Taylor Ave Princeton KY 42445	Brien Ramey	2707034363	Bramey@mediacomcc.com
Paducah Power System FiberNet - Communication	1500 Broadway Paducah KY 42003	Brent Shelton	2705754004	bshelton@paducahpower.com

Form Revised 6/24/16

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:

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

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

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

CONTRACT ADMINISTRATION RELATIVE TO UTILITY WORK

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

SUBMITTALS AND CORRESPONDENCE

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

ENGINEER

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

INSPECTOR OR RESIDENT PROJECT REPRESENTATIVE

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

NOTICE TO UTILITY OWNERS OF THE START OF WORK

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

UTILITY SHUTDOWNS

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

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

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

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

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

STATIONS AND DISTANCES

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

RESTORATION

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

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

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

MATERIAL

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

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

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

SECURITY OF SUPPLIED MATERIALS

If any utility materials are to be supplied by the utility owner, it will be the responsibility of the utility contractor to secure all utility owner supplied materials after delivery to the project site. The utility

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

Standard Water Bid Item Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

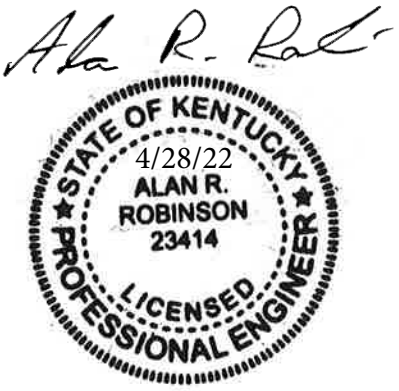
Specifications

for:

US 60 West Waterline Relocation

City of Marion
217 South Main Street
Marion, Kentucky 42064

April 2022



Prepared by:

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SOMERSET, KENTUCKY 42501
PHONE: 606-451-0959

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Bidding Requirements, Contract Forms and Requirements of the Contract

SECTION 00300 - BID FORM

BIDDER'S PROPOSAL
US 60 West Waterline Relocation
City of Marion

Proposal of _____ (hereinafter called "BIDDER"), a _____ (corporation, partnership, or individual) organized and existing under the laws of the state of _____, doing business as _____, to the **City of Marion**, (hereinafter called "OWNER").

In compliance with the Advertisement for Bids, BIDDER hereby proposes to furnish all equipment, materials and labor for the WORK required for the sewer system improvements included in this Bidder's proposal. The improvements shall be constructed in strict accordance with the CONTRACT DOCUMENTS, within the time set forth herein, and at the prices provided in this Bidder's proposal.

The OWNER will select the successful BIDDER based on criteria identified in the CONTRACT DOCUMENTS (total amount of base bid, qualifications, etc.).

The BID amounts provided shall include all labor, materials, overhead, profit, insurance and other costs necessary to cover the finished WORK of the several kinds. The BIDDER must fill in all blank spaces provided in the Bid Form including all unit and total costs.

By submission of this BID, the BIDDER certifies, and in the case of a joint BID, each party thereto certifies as to its own organization, that this BID has been arrived at independently, without consultation, communication or agreement as to any matter relating to this BID, with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this CONTRACT on or before a date to be specified in the Notice to Proceed and to fully complete the project within **ninety (90)** consecutive calendar days thereafter. BIDDER hereby agrees to complete the WORK for the price provided in the Bid Schedule. BIDDER further agrees to pay liquidated damages, in accordance with the Schedule of Liquidated Damages included provided in Section 00700 – General Conditions, for each consecutive calendar day beyond the authorized contract period.

BASE BID SCHEDULE
US 60 West Waterline Relocation

Item	Bid Code	Description – Drinking Water Items	Qty	Unit	Unit Cost	Total Amount
1.	14037	W PIPE DUCTILE IRON 08 IN	1,218	LF		
2.	14106	W VALVE 08 IN (Gate Valve)	1	EA		
3.	14019	W FIRE HYDRANT ASSEMBLY	1	EA		
4.	14009	W ENCASEMENT STEEL BORED RANGE 4 (16 IN)	76	LF		
5.	14085	W SERV PE/PLST SHORT SIDE ¾ IN	4	EA		
6.	14095	W TIE-IN 08 INCH	3	EA		
7.	14003	W CAP EXISTING MAIN	3	EA		
8.	14089	W TAPPING SLEEVE AND VALVE SIZE 1 (8 IN)	3	EA		
SUBTOTAL - DRINKING WATER ITEMS						$
Item	**Bid Code**	**Description – Miscellaneous Items**	**Qty**	**Unit**	**Unit Cost**	**Total Amount**
1.		BITUMINOUS PAVEMENT REPLACEMENT	50	SY		
SUBTOTAL – MISCELLANEOUS ITEMS						$
TOTAL BASE BID AMOUNT						**$**

TOTAL BASE BID AMOUNT expressed in words:

_____

_____Dollars and_____Cents.

Accompanying this Bidder's Proposal is a certified check or BID BOND in the sum of (words and figures):

_____

_____Dollars and_____Cents ($_____).

that equals five percent (5%) of the BID amount. The BIDDER, by submittal of this BID, agrees with the OWNER that the amount of the BID security deposited with this BID fairly and reasonably represents the amount of damages the OWNER will suffer due to the failure of the BIDDER to successfully secure and enter into the AGREEMENT.

BIDDER acknowledges receipt of the following ADDENDA:
Addendum No. __ dated _____ Addendum No. __ dated _____

BIDDER agrees that the OWNER reserves the right to delete the whole or any part of the PROJECT from the CONTRACT. BIDDER understands that the OWNER reserves the right to reject any or all BIDS and to waive any informalities in the Bidding. BIDDER agrees that this BID shall be good and may not be withdrawn for a period of ninety (90) consecutive calendar days after the actual date of BID opening.

Within ten (10) consecutive calendar days after receiving written Notice of Award of this BID

by the OWNER, the BIDDER will execute and deliver to the OWNER four (4) copies of the AGREEMENT and such other required CONTRACT DOCUMENTS.

BIDDER: _____

Signed By: _____

Name: _____
(type or print)

Title: _____

Address: _____

END OF SECTION 00300

SECTION 00400 - SUPPLEMENTS TO BID FORM

PART 1 - BIDDER'S QUALIFICATIONS

A. The required names and addresses of all persons interested in the foregoing Bid, as PRINCIPALS, are as follows:

_____

_____

_____

_____

_____

_____

B. The requested statement of work of a similar character to that included in the proposed Contract and references to enable the OWNER to judge the BIDDER'S experience, skill and business standing are as follows:

_____

_____

_____

_____

_____

_____

_____

_____

(Add supplementary pages if necessary)

PART 2 - SUBCONTRACTORS

Proposed subcontractors must be listed below with the corresponding branch of work (i.e. Seeding and Sodding, Pavement Restoration, etc.) to be performed by the named Subcontractor. All subcontractors are subject to the approval of the OWNER. Failure to submit a completed list may be cause for rejection of the Bid.

BRANCH OF WORK	NAME AND ADDRESS OF SUBCONTRACTOR
1.	
2.	
3.	

(Add supplemental pages if necessary)

PART 3 - LIST OF PROPOSED MANUFACTURERS

NOTICE: This list is required to be completed by the apparent low bidder within fifteen (15) minutes after completion of the Bid Tabulation by the Owner and then submitted to the Owner as a required part of the bidding process. All material manufacturers are subject to review and approval of the Owner. Failure to complete and submit this completed list can be cause of rejection of the Bid.

MATERIAL (EQUIPMENT)	NAME OF EQUIPMENT AND MATERIAL MANUFACTURER
1. Ductile Iron Pipe	
2. HDPE Pipe	
3. Encasement Pipe	
4. Gate Valves	
5. Tapping Sleeve and Valves	
6. Fire Hydrants	
7.	
8.	

Submission of this Material Manufacturers List by the apparent low bidder and subsequent acceptance by the Owner **does not** constitute approval by the Owner of specific product, nor does such acceptance waive the BIDDER'S responsibility to fully comply with all requirements of the Drawings or Specifications. Variance from this list can only be accomplished by written approval from the Owner and then only after approvable justification. If a manufacturer cannot

be accepted by the Owner within 24 hours of the bid opening, then the apparent low bidder must submit an approvable manufacturer within five (5) days of the bid opening or the Owner may select one of the manufacturers listed in Specifications. (Should no manufacturer be listed, then the Owner may select one that meets the requirements of the Specifications.)

END OF SECTION 00400

SECTION 00700 - GENERAL CONDITIONS

INDEX

SECTION 00700 - GENERAL CONDITIONS

PART I - GENERAL

1.01 CONTRACT DOCUMENTS

The Advertisement for Bids, Instructions to Bidders, Bidder's Proposal, Bid Bond, Agreement, Performance and Payment Bonds, Certificate of Insurance, Notice of Award, Notice to Proceed, Change Orders, General Conditions, Supplementary General Conditions, Special Conditions, Drawings, Addenda and Specifications shall all be binding on the Contractor, and shall be fully a part of the Contract as if thereto attached or therein repeated in words and figures.

1.02 DEFINITIONS AND MEANINGS OF TERMS

Whenever in the Contract Documents the following terms or pronouns referring to them are used, the intent and meaning shall be interpreted as follows which shall be applicable to both the singular and plural thereof:

A. The Contract shall mean the Contract executed by the OWNER and the Contractor, of which these General Conditions form a part; the terms Contract and Agreement are synonymous.

B. The terms OWNER and Contractor shall mean the respective parties to the Contract; the OWNER being a public or quasi-public body or authority, corporation, association, partnership, or individual for whom the work is to be performed; the Contractor being the individual, partnership or corporation with whom the OWNER has executed the Contract.

C. The term Engineer shall mean Eclipse Engineers, PLLC, successor, or duly authorized representative.

D. Addenda shall mean written or graphic instruments issued prior to the execution of the Agreement, which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.

E. Bid shall mean the offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the Work to be performed; the terms Bid and Proposal are synonymous.

F. BIDDER shall mean any individual, partnership or corporation submitting a Bid for the Work.

G. Bonds shall mean Bid, Performance, and Payment Bonds and other instruments of

security, furnished by the Contractor and his surety in accordance with the Contract Documents.

H. Change Order shall mean a written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract price or Contract time.

I. Contract Documents shall mean the Contract, including Advertisement for Bids, Instructions to Bidders, Bidder's Proposal, Bid Bond, Agreement, Payment Bond, Performance Bond, Certificate of Insurance, Notice of Award, Notice to Proceed, Change Orders, Drawings, General Conditions, Supplementary General Conditions, Special Conditions, Addenda and Specifications.

J. Contract price shall mean the total monies payable to the Contractor under the terms and conditions of the Contract Documents.

K. Contract time shall mean the number of consecutive calendar days stated in the Contract Documents for the completion of the Work.

L. Drawings shall mean the part of the Contract Documents, which show the characteristics, and scope of the Work to be performed and which have been prepared or approved by the Engineer.

M. Field order shall mean a written order effecting a change in the Work not involving an adjustment in the Contract price or an extension of the Contract time, issued by the Engineer to the Contractor during construction.

N. Notice of award shall mean the written notice of the acceptance of the Bid from the OWNER to the successful BIDDER.

O. Notice to proceed shall mean written communication issued by the OWNER to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

P. Project shall mean the undertaking to be performed as provided in the Contract Documents.

Q. Resident project representative shall mean the authorized representative of the OWNER who is assigned to the project site or any part thereof.

R. Shop drawings shall mean all drawings, diagrams, illustrations, brochures, schedules and other date which are prepared by the Contractor, a subcontractor, manufacturer, supplier, or distributor, which illustrate how specific portions of the Work shall be fabricated or installed; the terms shop drawings and submittals are synonymous.

S. Specifications shall mean a part of the Contract Documents consisting of written

descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

T. Subcontractor shall mean individual, partnership or corporation having a direct contract with the Contractor or with any other subcontractor for the performance of a part of the Work at the site.

U. Substantial completion shall mean that date as certified by the Engineer when the construction of the project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the project or specified part can be utilized for the purposes for which it is intended.

V. Suppliers shall mean any person, supplier or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

W. Work shall mean labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the project.

X. Written notice shall mean any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party of his authorized representative on the Work.

1.03 DRAWINGS AND SPECIFICATIONS

The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the Work in accordance with the Contract Documents and all incidental work necessary to complete the project in an acceptable manner, ready for use, occupancy or operation by the OWNER.

The Engineer, without charge, will furnish to the Contractor not more than three (3) sets of the Drawings and Specifications. If additional sets of documents are required by the Contractor for the proper handling of the work, such documents will be furnished to the Contractor at cost.

The Contractor shall keep one set of the Drawings and Specifications on the site of the work. This set shall be kept current by the addition of all reviewed changes, addenda and amendments thereto.

The Drawings and Specifications are intended to be explanatory to each other, but should any discrepancy appear or any misunderstanding arise as to the importance of anything contained in either, the Engineer shall make the necessary interpretation.

Corrections of errors or omissions in the Drawings or Specifications may be made by the Engineer when such corrections are necessary for the proper fulfillment of their intention as construed by the Engineer.
All work or materials shown on the Drawings and not mentioned in the Specifications, or any work specified and not shown on the Drawings, shall be furnished, performed, and done by the Contractor as if same were both mentioned in the Specifications and shown on the Drawings.

Should the Contractor in preparing his Bid find anything necessary for the construction of the project that is not mentioned in the Specifications or shown on the Drawings, or find any other discrepancy in the Contract Documents, he shall notify the Engineer so that such discrepancies may be corrected by Addenda prior to the Bid opening. Should the Contractor fail to notify the Engineer of such discrepancies, it will be assumed that his Bid included everything necessary for the complete construction in the spirit and intent of the designs shown.

The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents. The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.

1.04 SHOP DRAWINGS

The Contractor shall submit shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and materials and equipment for which such drawings are specifically requested.

Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract.

When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings. In such case, the requirements shall be as specified for shop and working drawings, insofar as possible, except that the submission shall be in quadruplicate.

The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the Work due to the absence of such drawings. Prior to the submittal of any shop drawings, the Contractor shall submit a schedule of proposed shop drawing transmittals. The schedule shall identify

the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. During the progress of the Work, the schedule shall be revised and resubmitted as necessary.

No material or equipment shall be purchased or fabricated especially for the Contract until the required shop and working drawings have been submitted as herein above provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations), the design or details of work, materials, equipment or other features for which review is required.

All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24-inch by 36-inch sheets, except those, which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of the OWNER, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitably numbered. Each shipment of drawings shall be accompanied by a letter of transmittal giving a list of the Drawing numbers and the names mentioned above.

Only drawings, which have been checked and corrected by the fabricator, should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy him that the subject matter thereof conforms to the Drawings and Specifications in all respects. All Drawings, which are correct, shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.

The review of shop and working drawings hereunder will be general only, and nothing contained in these general conditions shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance specified there under.
Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires and appurtenances, layout, etc., detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the OWNER, shall do all work necessary to make such modifications.

The marked-up shop and working drawings or one marked-up copy of catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when so requested.

1.05 DISCREPANCIES IN DRAWINGS, SPECIFICATIONS AND SHOP DRAWINGS

In case of a discrepancy on the Drawings, figure dimensions shall govern over scale dimensions and large-scale drawings shall govern over small-scale drawings. In case of a discrepancy in the Specifications and Contract Documents, detailed technical specifications and special or supplementary conditions shall govern over general conditions and other sections of the Contract Documents. In case of a discrepancy between the Drawings and Specifications, the Specifications shall govern; addenda shall govern over all Drawings, Specifications and Contract Documents. Supplementary conditions shall govern over these General Conditions.

In case of discrepancy between the shop drawings and the requirements of the Drawings, Specifications and Contract Documents, the provisions of the Drawings, Specifications, and Contract Documents shall prevail, even though the shop drawings have been specifically waived in writing by the Engineer.

Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. Work done by the Contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be done at the Contractor's risk.

1.06 CONTRACTOR

Only one Contractor is recognized as a party to this Contract and where the term Contractor is used, the prime Contractor who signed this Contract is referred to. For convenience, the Specifications may have been divided into separate headings or divisions to cover the various trades represented in the work, and where "Electrical Contractor", "Mechanical Contractor", "Plumbing Contractor" and other such "Contractors" are referred to, it is for convenience only.

It is understood and agreed that the Contractor has satisfied himself as to the nature and location of the work, the topography of the ground, the character and quality of materials to be encountered, the character of equipment or other facilities needed for the proper execution of the Work, the general and local conditions, and all other matters which in any way affect the work under the Contract. No verbal statement of any officer, agent or employee of the OWNER or the Engineer, either before or after the execution of the Contract, shall affect or modify any of the terms or obligations contained herein.

1.07 NOTICE AND SERVICE THEREOF ON CONTRACTOR

The address given in the Proposal upon which this Contract is founded and the Contractor's office at or near the site of the work are hereby designated as places to either of which notices, letters and other communications to the Contractor shall be certified, mailed or delivered. The delivering at the above name places, or depositing in a postpaid wrapper directed to the first named place, in any post office box regularly maintained by the United States Postal Service, of any notice, letter or other communication to the Contractor shall be deemed sufficient service thereof upon the Contractor, and the date of said service shall be the date of delivery or mailing. The first named address may be changed at any time by an instruction in writing, executed and acknowledged by the Contractor and delivered to the Engineer and the OWNER. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon the Contractor personally.

1.08 ASSIGNMENT OF CONTRACT

The Contractor shall not assign, sell, transfer or otherwise dispose of his Contract or any monies due or that may become due there under, without the prior written consent of the OWNER.

1.09 SUBLETTING CONTRACT

The Contractor may utilize the services of specialty subcontractors on those parts of the Work, which, under contracting practices, are performed, by specialty subcontractors. However, the Contractor will not be permitted to sublet any portion of his contract to any individual, co-partnership, or corporation without the prior written consent of the OWNER and the approval of the Engineer. The Contractor shall not sublet more than fifty percent (50%) of the work without the consent of the OWNER and the approval of the Engineer prior to the receipt of Bids. The Contractor shall, if requested, notify the OWNER in writing of the names of subcontractors proposed for the work.

The Contractor shall be as fully responsible to the OWNER for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to the Contractor by the terms of the General Conditions and other Contract Documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the OWNER may exercise over the Contractor under any provisions of the Contract Documents. Nothing contained in this contract shall create any contractual relation between any subcontractor and the OWNER.

1.10 COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall commence work on a date to be specified in a written order of the OWNER, and shall fully complete all work under the Contract within the number of consecutive calendar days set out in the Bid and Contract. As set forth in the Bid and Contract, the work under the Contract will be subject to liquidated damages in the event the work is not completed within the Contract time.

1.11 PROSECUTION OF WORK

The Contractor shall give his personal superintendence to the work or shall have a competent superintendent, satisfactory to the OWNER and the Engineer on the work at all times during its progress with full authority to act for him. The superintendent shall have been designated in writing by the Contractor as the Contractor's representative at the site. All communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall also provide an adequate staff for properly coordinating and expediting his work. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction.

The Contractor shall be prepared to start the work as stipulated in the Proposal, but not until he has received official notice from the OWNER to do so. Official notice will be in the form of a written Notice to Proceed. The work shall be prosecuted in a manner and with sufficient materials, equipment, and labor as is considered necessary to insure completion within the time set forth in the Contract. The Contractor shall not suspend the work or any portion of it without the written consent of the OWNER and the approval of the Engineer.

1.12 CONTRACT TIME - DELAYS AND EXTENSIONS

The number of consecutive calendar days in which the Contractor shall fully perform the proposed work has been set out in the Proposal and/or Contract. The date of beginning and the time for completion of the Work are essential conditions of the Contract.

In arriving at any credit due the Contractor for an extension of time on the Contract, the OWNER, upon the recommendation of the Engineer, may allow such credit as in his judgment is deemed equitable and just for all delays occasioned by any act, or failure to act, on the part of the Contractor or caused by forces beyond the Contractor's control. Additional time will also be allowed the Contractor to cover approved over-runs or additions to the Contract in the same proportion that the said over-runs or additions in monetary value bears to the original Contract amount. Delays caused by normal and ordinary weather conditions foreseeable at the time the work is Bid will not be the basis for an extension of the Contract time.

If the Contractor claims that any instructions by Drawings or otherwise involve an extension of time, he shall give the Engineer written notice of said claim within ten

(10) consecutive calendar days after the receipt of such instructions, and in any event before proceeding to execute the work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

The Contractor shall make no claim for extra compensation due to delays of the project beyond his control. Such delays may include those caused by any act of neglect on the part of the OWNER or Engineer, or by any employee of either, or by any separate contractor employed by the OWNER, or by changes ordered in the work, or by labor disputes, fire, unusual delays in transportation, adverse weather conditions not reasonably anticipated, unavoidable casualties, or by delay authorized by the OWNER pending arbitration, or by any other cause which the Engineer determines may justify the delay.

Time extensions may be granted upon proper justification by the Contractor. Any claim for time extensions under these provisions shall be submitted in writing to the Engineer not more than twenty (20) consecutive calendar days following commencement of the delay; otherwise claim will be waived. With submission of claim, Contractor shall provide an estimate of the probable effect of such delay on the progress of the work.

Additional costs incurred in accelerating the work to compensate for such delays (as defined above) shall also not form the basis for extra compensation claims.

1.13 FAILURE TO COMPLETE WORK ON TIME

Should the Contractor fail or refuse to complete the work within the time specified in his Proposal and/or Contract (or extension of time granted by the OWNER), the Contractor shall pay liquidated damages in an amount set out in said Proposal and/or Contract. The amount of liquidated damages shall in no event be considered as a penalty, nor other than an amount agreed upon by the Contractor and the OWNER for damages, losses, additional engineering, additional resident representation and other costs that will be sustained by the OWNER, if the Contractor fails to complete the work within the specified time. Liquidated damages will be applied on a rate per day for each and every calendar day (Sundays and holidays included) beyond the Contract expiration date stipulated in the Contract Documents, considering all time extensions granted.

Should no liquidated damages amount be specified in the Proposal and/or Contract, then the following amounts shall be fixed and agreed upon by and between the contractor and OWNER because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the OWNER would in such event sustain.

SCHEDULE OF LIQUIDATED DAMAGES

Original Amount of Contract	Liquidated Damages Per Day

Up to $100,000	$150
$100,000 to $500,000	$200
$500,000 to $1,000,000	$250
$1,000,000 to $2,000,000	$300
Over $2,000,000	$300 plus $150 per each additional million dollars or fractions thereof

1.14 CHARACTER OF WORKMEN, EQUIPMENT, AND MATERIAL

The Contractor shall employ only workmen skilled in their various duties and shall remove from the project, at the request of the Engineer, any person employed in, about, or upon the work, which misconducts himself or is incompetent or negligent in the performance of the duties assigned to him.

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him. Any careless, untrustworthy, or incompetent workman shall be removed forthwith upon the request of the Engineer or his duly authorized representative. Particular application shall be to workmen who ignore quality specifications on pipe bedding, laying, and backfilling, below grade building, concrete pouring, and other work to be covered up or assuming an unalterable set.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. The Contractor shall furnish satisfactory evidence as to the kind and quality of materials. Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt review. Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or any subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by
the seller.

Review of manufacturer's shop drawings of materials and equipment shall not mean final acceptance, but shall be subject to review and test on delivery and installation. The Contractor shall repair, replace, or adjust any materials or equipment found

defective or not operating properly due to improper materials, workmanship, and adjustment on his part, for a period of one year after completion and acceptance of his work.

1.15 ENGINEER'S STATUS

In rendering general engineering service, resident engineering and review of construction, the Engineer is not in charge of, and shall not be responsible for, the methods of construction, the construction forces or the construction equipment, construction safety procedures, or Contractor payment for labor and materials on the project.

The Engineer may review the work as the authorized representative of the OWNER and will have authority to stop the work whenever, in his opinion, such action is necessary to insure the proper execution of the Contract. He will also have authority to reject work and materials, which do not conform to the Drawings, Specifications and Contract Documents, and to direct the place or places where work shall be prosecuted. The Engineer is the agent of the OWNER only to the extent provided in the Specifications and Contract Documents, except in special instances when this authority is extended; in such latter instances he will, upon request, show the Contractor written proof of his authority.

The Engineer will also interpret the meaning and requirements of the Drawings, Specification and Contract Documents, decide all engineering questions, and decide all disputes that may arise between the OWNER and the Contractor. The Engineer's decisions on these matters will be final and binding on both the Contractor and the OWNER unless the dispute is submitted to arbitration or either party resorts to legal action for settlement.

The Engineer is the interpreter of the conditions of the Contract and the judge of its performance. In this duty, he will not favor either the OWNER or the Contractor but will use his authority under the Contract to insure and enforce its faithful performance by both parties.

In case of the termination of the employment of the Engineer, the OWNER will appoint a capable and reputable Engineer, whose status under the Contract will be the same as that of the former Engineer; any dispute in connection with such appointment shall be subject to arbitration.

1.16 ENGINEER'S DECISION

The Engineer shall, within a reasonable time after their presentation to him, make decisions on all claims of the OWNER or Contractor and on all matters relating to the execution and progress of the work or the interpretations of the Drawings, Specifications and Contract Documents.
Unless otherwise expressly provided in the Specifications and Contract Documents,

all the Engineer's decisions are subject to arbitration, provided arbitration is agreed to by both the OWNER and the Contractor.

If, however, the Engineer fails to render a decision within ten (10) consecutive calendar days after the parties have presented their evidence, either party may then request arbitration. If the Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not disturb or interrupt such proceedings except when acceptable to the parties concerned.

1.17 REVIEW OF WORK

The City's Superintendent of Public Works shall serve as the City's on-site representatives for the purposes of coordination with the Contractor, resolving technical issues, and inspecting the materials and work. All materials and each part or detail of the work shall be subject to inspection by the Superintendent. The Superintendent shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is needed to adequately evaluate the work. Should the need arise, the City's Street Superintendent may consult with the City Administrator on particular issues.

1.18 REVIEW OF WORK AWAY FROM THE SITE

If work to be done away from the construction site is to be inspected on behalf of the OWNER during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the review can be made.

1.19 STANDARD SPECIFICATIONS

Where standard specifications, such as those of the American Society for Testing and Materials, the American National Standards Institute, the American Water Works Association, the American Association of State Highway and Transportation Officials, The Federal Aviation Agency, the Federal Specifications, etc., are referred to in the Specifications and Contract Documents and on the Drawings, said references shall be construed to mean the latest amended and/or revised versions of the said standard or tentative specification.

1.20 SPECIFIC BRANDS, MAKES OR MANUFACTURERS

Wherever in the Specifications one or more specific brands, makes or manufacturers are set out and qualified by the "or equal" clause, it is intended to denote the quality standard of the article desired, but unless otherwise noted does not restrict the Contractor to the specific brand, make or manufacturer. In cases where one or more specific brands, makes or manufacturers are named and these names are not qualified

by the "or equal" clause, it is intended that the Contractor be restricted to one of those named unless otherwise set out.

The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the Specifications by reference to brand name or catalogue number, and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may accept its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract price and the Contract Documents shall be appropriately modified by Change Order. The Contractor warrants that if substitutes are accepted, no major changes in the function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute shall be made by the Contractor without a change in the Contract price or Contract time.

1.21 "OR EQUAL" CLAUSE

Whenever the words "or approved equal", or "or equal", or "similar to", etc., appear in the Specifications, they shall be interpreted to mean an item of material or equipment that, in the opinion of the Engineer is similar to that named, suited to the same use, capable of performing the same function as that named, has a record of service equal to that named, and is equal in quality, capacity and/or efficiency to that named.

The Engineer's decision as to the equality of any material or equipment to that specified shall be final, but acceptance by the Engineer shall not relieve the Contractor from his responsibility concerning such materials or equipment or affect the guarantee covering the workmanship, materials and equipment.

1.22 PERMITS AND CODES

Unless otherwise set out in the Specifications or required by the agencies involved, the Contractor shall make application for, obtain and pay for all licenses and permits of a temporary nature necessary for the prosecution of the Work and shall pay for all fees and charges in connection therewith. Permits, licenses and easements for permanent structures or permanent changes in existing facilities will be secured and paid for by the OWNER, unless otherwise specified. The Contractor shall be required to comply with all state or municipal ordinances, laws, and/or codes insofar as the same are binding on the OWNER.

The intent of this Contract is that the Contractor shall base his Bid upon the Drawings and Specifications, but that all work installed shall comply with all applicable codes and regulations as amended by any waivers. Before installing the work, the Contractor shall examine the Drawings and the Specifications for compliance with applicable codes and regulations bearing on the Work, and shall immediately report any discrepancy to the Engineer. Where the requirements of the Drawings and Specifications fail to comply with the applicable code or regulation, the OWNER will

adjust the Contract by change order to conform to the code or regulation (unless waivers in writing covering the differences have been granted by the governing authority) and shall make appropriate adjustment in the Contract price. Should the Contractor fail to observe the foregoing provisions and install work at variance with any applicable code or regulation as may be amended by waivers (notwithstanding the fact that such installation is in compliance with the Drawings and Specifications), the Contractor shall remove and/or replace such work without cost to the OWNER, except that a change order will be issued to cover any additional cost the Contractor would have been entitled to receive if the change had been made before the Contractor commenced work on the items involved.

1.23 WAGES AND HOURS

Neither State nor Federal wage rates apply to this Project. The Contractor shall abide by the Kentucky Department of Labor as described in Section 01030.

1.24 NON-REBATE OF WAGES

The Contractor shall comply with the regulations, rulings and interpretations of the Secretary of Labor of the United States, pursuant to the Federal Anti-Kickback Act of June 13, 1934, as amended, 48 Stat. 948; 62 Stat. 74; 63 Stat. 108 (Title 18, U.S.C. Sec. 874 and Title 40 U.S.C. Sec. 276c) including all subsequent amendments which makes it unlawful to induce any person employed in the construction or repair of public buildings or public works to give up any part of the compensation to which he is entitled under his Contract of Employment; and the Contractor agrees to insert a like provision in all subcontracts hereunder. The Contractor may be required to execute an affidavit covering each weekly payroll and certifying compliance with said Anti-Kickback Act.

1.25 CONTRACT SECURITY OR PERFORMANCE AND PAYMENT BOND

The Contractor will be required to furnish the OWNER with a Performance Bond and a Payment Bond to run for one year after the date of final acceptance of the Work by the OWNER and the Engineer. The Bonds shall be executed by a surety company duly authorized to do business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular 570. Each Bond shall be in the amount not less than one hundred percent (100%) of the Contract price, as security for the faithful performance of this Contract and as security for the payment of all persons performing labor and furnishing materials in connection with this Contract. These Bonds must be executed in the form provided as a part of the Contract Documents, and the surety company shall hold a current certificate of authority, as issued by the Treasury Department, as an acceptable surety on Federal Bonds under an act of Congress approved July 30, 1947. The expense of these Bonds shall be borne by the Contractor.

If at any time a surety on any such Bond is declared bankrupt or loses its right to do business in the state in which the Work is to be performed or is removed from the list of Surety Companies acceptable on Federal Bonds, the Contractor shall within ten (10) consecutive calendar days after notice from the OWNER to do so, substitute an acceptable Bond (or Bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The Contractor shall pay the premiums on such Bond. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond to the OWNER.

1.26 SAFETY

The Contractor shall take all necessary precautions and provide all necessary safeguards to prevent personal injury and property damage. The Contractor shall provide protection for all persons including but not limited to his employees and employees of other contractors or subcontractors; members of the public; and employees, agents, and representatives of the OWNER, the Engineer, and regulatory agencies that may be on or about the Work. The Contractor shall provide protection for all public and private property including but not limited to structures, pipes, and utilities, above and below ground.

The Contractor shall provide and maintain all necessary safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire-fighting equipment and shall take such other action as is required to fulfill his obligations under this subsection.

The Contractor shall comply with all federal, state and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

1.27 INSURANCE, CONTRACTOR'S COVERAGE AND CANCELLATION PROVISION

The Contractor will not be permitted to commence work until he has obtained all insurance required by these documents and such insurance has been approved by the OWNER, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all insurance required has been so obtained and approved. Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the Work.

Such insurance shall be secured from an insurance company authorized to write

casualty insurance in the state where the Work is located and shall protect the Contractor, his subcontractors, and the OWNER from claims of bodily injury, death, property damage, fire and other risks set out herein.

Each policy of insurance covering the Contractor's operations under the Contract shall provide either in the body of the policy, or by appropriate endorsement (rider) to the policy, that such policy cannot be altered or canceled in less than ten (10) consecutive calendar days after the mailing of written notice of such alteration or cancellation to the OWNER (insured) or not less than five (5) consecutive calendar days after actual receipt by the OWNER (insured), of written notice of such pending alteration or cancellation.

Certificates of Insurance coverage shall include a statement of alteration or cancellation provisions of the policy, sufficient to show definitely that such provisions comply with the requirements stated herein.

1.28 INSURANCE, WORKER'S COMPENSATION

The Contractor shall take out and maintain during the life of this Contract, Workmen's Compensation Insurance, as required by statute, for all of his employees employed at the site of the Project, and in case any work is sublet, for all the subcontractor's employees not otherwise insured. In case any class of employees engaged in hazardous work under this Contract at the site of the project is not protected under the Workmen's Compensation Statute, the Contractor shall provide adequate coverage for the protection of the employees not otherwise protected.

1.29 INSURANCE, PUBLIC LIABILITY

The Contractor shall take out and maintain during the life of this Contract such Public Liability (Bodily Injury and Property Damage) Insurance as shall protect him and any subcontractor performing work covered by this Contract from claims for damages because of bodily injury, including accidental death and from claims for property damages, which may arise from operations under this Contract, whether such operations be by him or by any subcontractor, or by anyone directly or indirectly employed by either of them.

Where work on railroad rights-of-way is involved, the Contractor shall also be covered by Railroad Protective Liability Insurance with limits of liability as required by the railroad company on whose property the work is being performed.

1.30 INSURANCE, BUILDERS RISK

The Contractor shall provide Builders Risk Insurance (fire and extended coverage) on all work in place and/or materials stored at the site where there is any considerable risk from such causes for damage. Such insurance shall provide coverage as set forth in Paragraph 1.31 hereinafter. The policy shall name as the insured the Contractor, the

Engineer and the OWNER.

1.31 MINIMUM INSURANCE LIMITS

The minimum amounts of insurance to be furnished by and for the Contractor and the subcontractors, and for the OWNER as a named insured, under this Contract are:

A. Workmen's Compensation:
   1. Applicable state statutes.
   2. Employers Liability = $100,000 limit of liability.

B. Commercial General Liability:
   1. Coverage A - Bodily Injury Liability and Property Damage:
      a. General Policy Aggregate = $1,000,000.
      b. Products - Completed Operations Aggregate = $1,000,000.
      c. Each Occurrence = $500,000.
   2. Coverage B - Personal and Advertising Injury Liability = $1,000,000.

C. Comprehensive Automobile Liability:
   1. Bodily Injury Liability:
      a. $500,000 each person.
      b. $1,000,000 each accident.
   2. Property Damage Liability: $100,000 each accident or a combined single limit of $500,000.

D. Builders Risk Insurance: To include coverage for not less than the losses due to Fire, Explosion, Hail, Lightning, Vandalism, Malicious Mischief, Wind, Collapse, Riot, Aircraft, Smoke, Transportation and Extended Coverage for benefit of the OWNER, Engineer, Contractor, and subcontractors as their interests may appear during the Contract time and until the Work is accepted by the OWNER.

   Property insurance to the full insurable value of the Work in accordance with the scope of Work as defined in these General Conditions as provided by the OWNER.

E. Railroad Protection Insurance - (where work to be within railroad right-of-way):
   1. Loss of Life or Injury to Person: As required by Railroad.
   2. Property Damage: As required by Railroad.

1.32 INSURANCE, PROOF OF CARRIAGE

The Contractor shall furnish the OWNER and the Engineer with satisfactory proof of carriage of the insurance required by submitting completed Insurance Certificates.

1.33 ROYALTIES AND PATENT FEES

The Contractor shall pay license fees and royalties and assume all costs incident to the

use of any invention, design, process or device which is the subject of patent rights or copyrights held by others. As set forth in Paragraph 1.34, hereinafter, he shall indemnify and hold harmless the OWNER and all of its officers, agents and employees from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of such rights during or after completion of the work, and shall defend all such claims in connection with any alleged infringement of such rights.

1.34 RESPONSIBILITY FOR DAMAGE, CLAIMS, ETC.

The Contractor shall indemnify and save harmless the OWNER, the Engineer and sub consultants and all of their officers, agents and employees, from all claims, damages, losses and expenses including attorneys' fees of any character, name and description brought for, or on account of any injuries or damages received or sustained by any person, persons, or property by or from the said Contractor or by or in consequence of any neglect in safeguarding the Work or through the use of unacceptable materials used on construction or by or on account of any act or omission, neglect, or misconduct of the said Contractor or by or on account of any claims or amounts recovered from any infringement of patent, trademark or copyright, or from any claims or amounts arising or recovered under any law, ordinance, order, or decree, and so much of the money due the said Contractor under and by virtue of his Contract as shall be considered necessary by the OWNER may be retained for the use of the OWNER, or in case no money is due, his surety shall be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid, shall have been settled and suitable evidence to that effect furnished to the OWNER. Contractor shall purchase public liability, workers compensation and automobile liability insurance, for OWNER'S protection in the amounts set forth in Paragraph 1.31.

In any and all claims against the OWNER or the Engineer, or any of their agents or employees, by any employee of the Contractor, and subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under Workmen's Compensation acts, disability benefit acts or other employee benefit acts.

The obligation of the Contractor under this paragraph shall not extend to the liability of the Engineer, his agents or employees arising out of the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications.

1.35 HANDLING AND DISTRIBUTION

The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work; and shall be responsible for the protection, loss of, or damage to materials and

equipment furnished by him, until the final completion and acceptance of the Work.

Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

1.36 MATERIALS - SAMPLES - REVIEW

Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the review of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.

As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications. The Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

The Contractor shall furnish facilities and labor for the storage, handling, and inspection of all materials and equipment. Defective materials and equipment shall be removed immediately from the site of the Work. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests, as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for making concrete test cylinders.

All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, review and testing before the materials and equipment are

needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.

When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

1.37 PAYMENT FOR MATERIALS STORED AT SITE OF PROJECT

Payment for materials or equipment purchased and stored at the site of the Project will be allowed by the OWNER at the cost of such materials or equipment, less the same percentage of retanage applicable to payment for completed work, upon specific recommendation of the Engineer. Such payment shall be conditional upon submission by the Contractor of bills of sale of such other procedure as will establish the OWNER'S title to such material or otherwise adequately protect the OWNER'S interest.

Only durable materials and equipment, which in the opinion of the Engineer have been properly stored and protected shall be included in materials, furnished in partial payment estimates. Clay pipe, brick and tile will be excluded. In the interest of simplification of checking and bookkeeping, miscellaneous supplies will also be excluded.

1.38 MATERIALS

A. Materials, Domestic and Foreign Manufacture: Unless otherwise specified, only such non-manufactured articles, materials and supplies as have been mined or produced in the United States of America, and only such manufactured articles, materials and supplies as have been manufactured in the United States of America substantially all from articles, materials, or supplies mined, produced, or manufactured--as the case may be--in the United States of America, shall be employed under this Contract in the construction of the Project.

B. Materials, Convict Manufacture: No materials manufactured or produced in a penal or correctional institution shall be incorporated in the Work under this Contract.

1.39 DEFECTIVE MATERIALS AND WORKMANSHIP

Materials brought to the site which are not in accordance with the Specifications shall

be removed from the site of the Work by the Contractor at his own expense. Such material shall be so disposed of that there will be no probability of their being used on the work or in the construction.

Upon notice from the Engineer, the Contractor, at his own expense, shall immediately remedy all defective workmanship.

If the Contractor fails to remove defective materials or to correct defective workmanship within a reasonable time, fixed in the notice from the Engineer, the OWNER may remove the defective materials and/or correct the defective work and charge all the expense in connection therewith to the Contractor.

1.40 GUARANTY

The Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other Work that may be made necessary by such defects, the OWNER may do so and charge the Contractor the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

1.41 FIELD OFFICE

(NOT USED IN THIS CONTRACT)

1.42 SANITARY FACILITIES

The Contractor shall provide adequate sanitary facilities for the use of those employed on the Work. Such facilities shall be made available when the first employees arrive on the site of the Work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the Work in suitable numbers and at such points and in such manner as may be required.

The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the OWNER, or on adjacent property.

1.43 EMPLOYMENT QUALIFICATIONS

No person under the age of eighteen (18) years and no convict labor shall be employed to perform any work under this Contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health or safety of others shall be employed to perform any work under this Contract, provided that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform. There shall be no discrimination because of race, creed, color, sex or political affiliation in the employment of persons for work under this Contract.

1.44 EMPLOYMENT SERVICES AND LABOR PREFERENCES

(NOT USED IN THIS CONTRACT)

1.45 PAYMENT OF EMPLOYEES

The Contractor and each of his subcontractors shall pay each of his employees engaged in work on the Project in full (less deductions made mandatory by law) in cash or by check once each week.

1.46 SCHEDULES, REPORTS AND RECORDS

The Contractor shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the OWNER may request concerning Work performed or to be performed.

When required, the Contractor shall furnish the OWNER with proof that all payrolls for services rendered and invoices for materials or equipment supplied have been duly paid. The Contractor shall provide all such other data as the Engineer and/or OWNER may require.

In connection with all lump sum contracts or lump sum portions of unit price contracts, the Contractor shall furnish the Engineer a detailed breakdown on which to base partial payment estimates. The detailed breakdown shall be subject to review by the Engineer.

The Contractor shall furnish and keep current a progress chart or schedule showing the estimated and actual progress of the Work. The progress chart or schedule shall be subject to review by the Engineer.

The Contractor shall furnish all the necessary information for and assist in the preparation of, and/or prepare the partial payment estimates on forms furnished by the Engineer.

1.47 PLANNING AND PROGRESS SCHEDULES

Before starting the Work and from time to time (at least once per month) during its

progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the Work and the various steps he intends to take. Within fifteen (15) consecutive calendar days after the date of formal execution of the Agreement, the Contractor shall prepare and submit to the Engineer: (a) a written schedule fixing the dates on which additional drawings, if any, will be needed by the Contractor; and (b) a written schedule fixing the respective dates for the start and completion of various parts of the Work. Each such schedule shall be subject to review from time to time during the progress of the Work.

The Contractor shall also submit a schedule of payments that he anticipates he will earn during the course of the Work.

The OWNER, or his authorized representatives and agents, shall be permitted to inspect all payroll, records of personnel, invoices for materials or equipment and other relevant data and records.

For lump sum bid projects, the Progress Schedule shall contain at least 10 line items showing labor and material for each item and shall be made current and submitted as a part of the partial payment estimate. For unit price bid projects, the Bid Schedule shall contain all the unit price line items, however should the OWNER require additional break-down of bid items, then the Contractor shall provide whatever the OWNER requests without change in the Contract price.

1.48 PAYMENTS BY CONTRACTOR

The Contractor shall pay: (a) for all transportation and utility services not later than the 20th day of the calendar month following the month in which such services are rendered; (b) for all materials, tools and other expendable equipment to the extent of ninety percent (90%) of the cost thereof, not later than the 20th day of the calendar month following the month in which such materials, tools and equipment are delivered at the site of the Project, and the balance of the cost thereof not later than the 30th day following completion of that part of the work in or on which such materials, tools and equipment are incorporated or used; and (c) to each of his subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his subcontractors, to the extent of each subcontractor's interest therein.

1.49 FUNDS FOR PARTIAL PAYMENT ESTIMATES

The OWNER has provided funds for partial payment estimates so that they may be paid as set out herein. The Contractor must understand, however, that in handling the financing of such work, delays beyond the control of the OWNER are liable to occur in meeting the partial payments, and a reasonable delay on the part of the OWNER in making payment to the Contractor for any period shall not be construed as a breach of contract on the part of the OWNER.

1.50 PARTIAL PAYMENT ESTIMATES

On or about the 15th of each calendar month, the OWNER will make partial payment to the Contractor on the basis of a duly certified approved estimate of the Work performed during the preceding calendar month by the Contractor, but the OWNER will retain not more than ten percent (10%) of the amount of each estimate until final completion and acceptance of all Work covered by this Contract, subject to possible modification as set out hereinafter. After fifty percent (50%) of the Work has been completed, if the Engineer and the OWNER determines that the Contractor's performance and progress have been satisfactory, the OWNER may make the remaining partial (monthly) payments for the Work completed in full, thereby decreasing the retainage to five percent (5%) of the total Contract price upon completion but prior to acceptance.

The partial payment estimate shall be completed and signed by the Contractor and shall be supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect his interest therein, including applicable insurance. The Engineer will, within ten (10) consecutive calendar days after receipt of each partial payment estimate, either indicate in writing his approval of payment or present the partial payment estimate to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within ten (10) consecutive calendar days of presentation to him of an approved partial payment estimate, pay the Contractor a progress payment on the basis on the approved partial payment estimate.

The request for payment may also include an allowance for the cost of such major materials and equipment, which are suitably stored either at or near the site.
All Work covered by partial payment made shall thereupon become the sole property of the OWNER, but this provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work upon which payments have been made or the restoration of any damaged Work, or as a waiver of the right of the OWNER to require the fulfillment of all terms of the Contract Documents.

Upon completion and acceptance of the Work, the Engineer shall issue a certificate attached to the final payment request that the Work has been accepted by him under the conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the Contractor within thirty (30) consecutive calendar days of completion and acceptance of the Work.

The Contractor will indemnify and save the OWNER and the OWNER'S agents harmless from all claims growing out of the lawful demands of subcontractors,

laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work. The Contractor shall, at the OWNER'S request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the OWNER may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the OWNER shall be considered as a payment made under the Contract Documents by the OWNER to the Contractor and the OWNER shall not be liable to the Contractor for any such payments made in good faith.

If the OWNER fails to make payment thirty (30) consecutive calendar days after approval by the Engineer, in addition to other remedies available to the Contractor, there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor.

1.51 OWNER'S RIGHT TO WITHHOLD PAYMENTS

In order to protect the OWNER from loss, payment may be withheld which would otherwise be due the Contractor on account of:

A. Defective work not remedied or defective materials not removed from site.

B. Claims filed, or reasonable evidence indicating imminent filing of claims, against the Contractor.

C. Failure of the Contractor to make payments properly to subcontractors or for material or labor.

D. A reasonable doubt that the Contract can be completed for the balance then unpaid.

E. Damage to another Contractor.

F. Performance of work in violation of the terms of the Contract.

G. Expiration of Contract time.

Should the OWNER withhold payment for any of the reasons listed in Article 1.51, the OWNER will provide written notice to the Contractor giving reason for

withholding payment.

1.52 DEDUCTIONS FOR UNCORRECTED WORK

If the Engineer and OWNER deem it inexpedient to correct work damaged or not done in accordance with the Contract, a deduction from the Contract price may be negotiated.

1.53 PROTECTION OF WORK, PROPERTY AND PERSONS

The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He shall erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. He shall notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor shall remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor of anyone directly and indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the Contract Documents or to the acts or omissions of the OWNER or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor.

In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor with special instruction or authorization from the Engineer or OWNER, shall act to prevent threatened damage, injury or loss. He shall give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

1.54 WORK ON "PRIVATE PROPERTY"

Private property is defined as property other than that belonging to the OWNER.

Highway and railroad rights-of-way, public parks, schoolyards and other such properties shall be considered "private properties" for the purpose of this Paragraph.

In connection with water line, sewer line, gas line or similar work performed on "private property", the Contractor shall confine his equipment, the storage of materials and the operations of his workmen to the limits indicated on the Drawings, or to lands and rights-of-way provided for the Project by the OWNER, and shall take every precaution to avoid damage to the buildings, grounds and facilities of the owners' of private property.

Fences, walls, hedges, shrubs, etc., shall be carefully removed, preserved, and replaced when the construction is completed. Grassed areas, other than lawns, shall be graded, fertilized and seeded when construction is completed and in accordance with the requirements of the technical Specifications. Where ditches or excavations cross lawns, the sod shall be removed carefully and replaced when the backfilling has been completed. If sod is damaged or not handled properly, it shall be replaced with new sod equal to existing sod at the Contractor's expense. When construction is completed, the facilities and grounds of the private property owners shall be restored to as good or better condition than found as quickly as possible at the Contractor's expense.

When directed by the Engineer, large trees or other facilities that cannot be preserved and replaced shall be removed by the Contractor. The OWNER will assume the responsibility for settling with the property owner for the loss of said trees or facilities. The Contractor shall be solely and entirely responsible for any damage to all other trees or facilities.

Foundations, adjacent to where an excavation is to be made below the bottom of the foundation, shall be supported by shoring, bracing or underpinning as long as the excavation shall remain open, or thereafter if required to insure the stability of the foundation and the Contractor shall be held strictly responsible for any damage to said foundations.

1.55 LANDS FOR WORK

The OWNER will provide the lands upon which the work under this Contract is to be done or the necessary easements over said lands to include sufficient space for the proper execution of the work, together with right of access to same. The OWNER will provide the Contractor information, which delineates and describes the lands owned and rights-of-way acquired. The Contractor shall, at his own expense and without liability to the OWNER, provide land required for storage of his construction materials and for any temporary construction facilities for the storage of his equipment. The Contractor will construct at his own expense, any temporary roads or bridges necessary for his own use; he will also furnish his own power and water supply unless otherwise specifically set out herein.

1.56 INTERFERENCE WITH AND PROTECTION OF STREETS

The Contractor shall not close or obstruct any portion of a street, road, or private way without obtaining permits therefore from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the proper authorities.

Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.

The Contractor shall, at least twenty-four (24) hours in advance, notify the Police and Fire Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

1.57 EXISTING UTILITIES

Special precautions shall be taken by the Contractor to avoid damage to existing overhead and underground utilities owned and operated by the OWNER or by public or private utility companies.

The location of existing underground utilities is *sometimes* shown on the Drawings. When utilities are shown, it is believed that the locations are reasonably correct but neither the Engineer nor the OWNER can guarantee the accuracy or adequacy of the information presented. Before proceeding with the Work, the Contractor shall confer with all public or private companies, agencies or departments that own and operate utilities in the vicinity of the Construction Work. The purpose of the conference, or conferences, shall be to notify said companies, agencies or departments of the proposed construction schedule, verify the location of, and possible interference with, the existing utilities that are shown on the Drawings, arrange for necessary suspension of service, and make arrangements to locate and avoid interference with all utilities (including house connections) that are not shown on the Drawings. The Engineer and OWNER have no objection to the Contractor arranging for the said utility companies, agencies, or departments to locate and uncover their own utilities; however, the Contractor shall bear the entire responsibility and cost for locating and avoiding, or repairing, damage to said existing utilities.

The Contractor shall locate all unknown metallic hazards, namely buried pipe, metals,

etc., by using a pipe locator. The pipe locator shall immediately precede the trench ditching and all hazards located shall be marked in such a manner as to notify the machine operator of such hazard.

Where existing utilities or appurtenant structures, either underground or aboveground, are encountered, they shall not be displaced or molested unless necessary, and in such case shall be replaced in as good or better condition than found as quickly as possible. Relocation and/or replacement of all utilities and appurtenant structures to accommodate the construction work shall be at the Contractor's expense, unless such relocation and/or replacement is by statute or agreement the responsibility of the owner of the utility.

1.58 ARBITRATION

A. Request for Arbitration: Any decision of the Engineer, which is subject to arbitration, may be submitted to arbitration only upon agreement of both parties to the dispute.

The Contractor shall not cause a delay of the Work because of pending arbitration proceedings, except with the written permission of the Engineer, and then only until the arbitrators shall have had an opportunity to determine whether or not the Work shall continue until they decide the matters in dispute.

The request for arbitration shall be delivered in writing to the Engineer and the adverse party, either personally or by registered mail to the last known address of each, within ten (10) consecutive calendar days of the receipt of the Engineer's decision, and in no case after final payment has been accepted except as otherwise expressly stipulated in the Contract Documents. If the Engineer fails to make a decision within a reasonable time, a request for arbitration may be made as if his decision has been rendered against a requesting party.

B. Arbitrator: No one shall be nominated or act as an arbitrator who is in any way financially interested in this Contract or in the business affairs of the OWNER, or the Contractor, or the Engineer or otherwise connected with any of them. Each arbitrator shall be a person in general familiar with the work or the problem involved in the dispute submitted to arbitration, preferably a recognized Engineer, experienced in the type of construction in question.

Unless otherwise provided by controlling statutes, the parties may agree upon one arbitrator; otherwise there shall be three, one named in writing by each party to this Contract, and a third chosen by these two arbitrators, or, if they should fail to select a third within fifteen (15) consecutive calendar days, then he shall be appointed by the presiding officer, if a disinterested party, of the Bar Association nearest to the location of the Work. Should the party requesting arbitration fail to name an arbitrator within ten (10) consecutive calendar days and upon his failure to do so then such arbitrator shall be appointed, on the petition of the party requesting arbitration, by a judge of the Federal Court in the District where such arbitration is to be held.

The said presiding officer shall have the power to declare the position of any arbitrator vacant by reason of refusal or inability to act, sickness, death, resignation, absence or neglect. Any vacancy shall be filled by the party making the original appointment, and unless so filled within five (5) consecutive calendar days after the same has been declared vacant, it shall be filled by the said presiding officer. If testimony has been taken before the presiding officer has filled a vacancy, the matter must be reheard unless a rehearing is waived in the submission or by the written consent of the parties. If there be one arbitrator, his decision shall be binding; if three, the decision of any two shall be binding in respect to both the matters submitted and the procedure followed during the arbitration.

C. Arbitration Procedure: The arbitrators shall deliver a written notice to each of the parties and to the Engineer, either personally or by registered mail to the last known address of each, of the time and place for the beginning of the hearing of the matters submitted to them. Each party may submit to the arbitrators such evidence and argument as he may desire and the arbitrators may consider pertinent. The arbitrators shall, however, be the judge of all matters of law and fact relating to both the subject matter of and the procedure during arbitration and shall not be bound by technical rules of law or procedure. They may hear evidence in whatever form they desire. The parties may be represented before them by such person or persons as each may select, subject to the disciplinary power of the arbitrators if such representative shall not interfere with the orderly or speedy conduct of the proceedings.

Each party and the Engineer shall supply the arbitrators with such papers and information as they may request, or with any witness whose movements are subject to the respective control, and upon refusal to comply with such requests, the arbitrators may render their decision without the evidence which might have been elicited there from and the absence of such evidence shall afford no ground for challenge of the award by the party refusing or neglecting to comply with such demand.

The submission to arbitrators (the statement of the matters in dispute between the parties to be passed upon by the arbitrators) shall be in writing duly acknowledged before a notary. Unless waived in writing by both parties to the arbitration, the arbitrators, before hearing testimony, shall be sworn by an officer authorized by law to administer an oath, to faithfully and fairly hear and examine the matters in controversy and to make a just award according to the best of their understanding.

The arbitrators, if they deem the case demands it, are authorized to award to the party whose contention is sustained such sums as they shall consider proper for the time, expense and trouble incident to the arbitration, and if the arbitration was requested without reasonable cause, damages for delay and other losses. The arbitrators shall fix their own compensation, unless otherwise provided by agreement, and shall assess the costs and charges of the arbitration upon either or both parties.

The award of the arbitrators shall be in writing and acknowledged like a deed to be

recorded, and a duplicate shall be delivered personally or by registered mail, forthwith upon its rendition, to each of the parties to the controversy and to the Engineer. Judgment may be rendered upon the award by the Federal Court or the highest State Court having jurisdiction to render same.

The award of the arbitrators shall not be open to objection on account of the form of proceedings or the award, unless otherwise provided by controlling statutes. In the event such statutes provide otherwise on any matter covered by this Article than hereinbefore specified, the method procedure throughout and the legal effect of the award shall be wholly in accord with said statutes, it being the intention hereby to lay down a principle of action to be followed, leaving its local application to be adapted to the legal requirements of the jurisdiction having authority over the arbitration. The Engineer shall not be deemed a party to the dispute. He is given the right to appear before the arbitrators to explain the basis of his decision and give such evidence as they may require.

1.59 ALTERATION IN DRAWINGS AND SPECIFICATIONS

The OWNER reserves the right to make such alteration in the Drawings and Specifications or in the character of the Work as may be considered by the Engineer necessary or desirable from time to time to complete the Project in an acceptable manner; provided that, if alterations are made, the general character of the Work as a whole is not changed thereby.

Such alterations shall not be considered as a waiver of any condition of the Contract nor to invalidate any of the provisions nor to release the bond thereof.

1.60 CHANGES IN THE WORK

The OWNER may make changes in the work of the Contractor by making alterations therein, or by making additions thereto, or by omitting work there from, without invalidating the Contract, and without relieving or releasing the Contractor from any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such changes shall be in the form of a Change Order issued by the Engineer, and executed by the OWNER and Contractor, under the conditions of the original Contract.

Except in an emergency endangering life or property, no change shall be made by the Contractor unless in pursuance of a written Change Order. No claim for an adjustment of the Contract price or time shall be valid unless so ordered.

The Engineer, also, may at any time, by issuing a field order, make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such field order entitles him to a change in Contract price or time, or both, in which

event he shall give the Engineer written notice thereof within fifteen (15) consecutive calendar days after the receipt of the ordered change, and the Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the OWNER.

Should the Contractor encounter or discover during the progress of the Work subsurface or latent conditions at the site materially differing from those shown on the Drawings or indicated in the Specifications, the attention of the Engineer shall immediately be called to such conditions before they are disturbed. If the Engineer finds that they so materially differ, he will at once make such changes in the Drawings or Specifications as he may find necessary. Any adjustment in the Contract price or time as may be justifiable shall be made by means of a written change order as provided herein.

1.61 CLAIMS FOR EXTRA WORK

If the Contractor claims that any instructions by Drawings or otherwise involve extra cost, he shall give the Engineer written notice of said claim within ten (10) consecutive calendar days after the receipt of such instructions, and in any event before proceeding to execute the Work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

Claims for additional compensation for extra work, due to alleged errors in spot elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work than would reasonably be estimated from the Drawings and topographical maps issued.

Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the Engineer, and Work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the Engineer.

If, on the basis of the available evidence, the Engineer determines that an adjustment of the Contract price or time is justifiable, the procedure shall then be as provided herein for "Changes in the Work".

By execution of this Contract, the Contractor warrants that he has visited the site of the proposed work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties, and restrictions attending the execution of the work under this Contract. The Contractor further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The Contractor further warrants that by execution of this Contract his failure when he was bidding on this Contract to receive or examine any form, instrument or document, or

to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract, and the Contractor agrees that the OWNER shall be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof.

1.62 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK

The value of extra (additional) or omitted work shall be determined in one or more of the following ways:

A. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials, and use of equipment, plus fifteen percent (15%) which shall cover the Contractor's general supervision, overhead and profit. In case of subcontracts, the fifteen percent (15%) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional five percent (5%) may then be added to such costs to cover the Contractor's supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current rental rates in the areas where the work is being performed but, in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, IL.

B. By estimate and acceptance in a lump sum.

C. By unit prices named in the Contract or subsequently agreed upon. Provided, however, that the cost or estimated cost of all extra (additional) work shall be determined in advance of authorization by the Engineer and approved by the OWNER.

All extra (additional) work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the work unless negotiated on another basis.

Except for over-runs in Contract unit price items, no extra (additional) work shall be done except upon a written change order from the Engineer, and no claim on the part of the Contractor for pay for extra (additional) work shall be recognized unless so ordered in writing by the Engineer.

1.63 SEPARATE CONTRACTS

The OWNER reserves the right to let other contracts in connection with this Work. The Contractor shall afford other contractors reasonable opportunity for ingress, egress, storage of their materials, the execution of their work, and shall properly connect and coordinate his work with theirs. The respective rights of various interests involved shall be established by the Engineer to secure proper completion of the

various portions of the Work.

If the proper execution or results of any part of the Contractor's Work depends upon the work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

1.64 OWNER'S RIGHT TO DO WORK

If the Contractor should neglect or fail to prosecute the Work properly or fail or refuse to perform any provision of the Contract, the OWNER, after ten (10) consecutive calendar days written notice to the Contractor, may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from any monies due or which may thereafter become due to the Contractor.

1.65 SUSPENSION OF WORK

The OWNER shall have authority to suspend the Work in whole or in part by giving five (5) consecutive calendar days notice to the Contractor in writing. The written notice shall fix the date on which the Work shall be resumed, and the Contractor shall resume the Work on the date so fixed. The OWNER shall reimburse the Contractor for expenses incurred by him in connection with the Work under this Contract as a result of suspension if the suspension of the Work is caused through no fault of the Contractor himself.

1.66 RIGHT OF OWNER TO TERMINATE CONTRACT

If the Contractor fails to begin the Work under the Contract within the specified time, or fails to perform the Work with sufficient workmen and equipment or with sufficient materials to insure the prompt completion of said Work within the specified time, or shall, in the opinion of the Engineer, perform the Work improperly, or shall neglect or refuse to remove materials or perform anew such Work as shall be rejected as defective or unsuitable or shall be stopped by court order resulting from injunctive action, or shall become insolvent or be declared bankrupt or commit any act of bankruptcy or insolvency, or allow any final judgment to stand against him unsatisfied for a period of five (5) consecutive calendar days, or shall fail or refuse to remove within forty-eight (48) hours after receipt of proper notice, any employee or person engaged in work under the Contract, or shall make an assignment for the benefit of creditors or from any other cause whatsoever shall not carry out the Work in an acceptable manner, the OWNER shall give notice in writing to the Contractor and his surety, of such delay, neglect, or default, specifying the same, and if the Contractor within a period of ten (10) consecutive calendar days after such notice shall not proceed in accordance therewith, then the OWNER shall, upon written certificate from the Engineer of the face of such delay, neglect or default, and the Contractor's failure to comply with such notice, have full power and authority without violating the Contract to terminate the Contractor's right to proceed with the Work, to take over the

prosecution of the work of said Contractor, to appropriate or use any and all materials and equipment on the ground as may be suitable and acceptable, and may enter into an agreement for the completion of said Contract according to the terms and provisions thereof, and use such other methods as in the OWNER'S opinion shall be required for the completion of said Contract in an acceptable manner. All costs and charges incurred by the OWNER, together with the costs of completing the work under Contract, shall be deducted from any monies due or which may become due said Contractor. In case the expense so incurred by the OWNER shall be less than the sum which would have been payable under the Contract, if it had been completed by said Contractor, then the Contractor shall be entitled to receive the difference, and in case such expense shall exceed the sum which would have been payable under the Contract, then the Contractor and/or his surety shall be liable and shall pay to the OWNER the amount of said excess.

After ten (10) consecutive calendar days from delivery of a Written Notice to the Contractor and the Engineer, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable profit.

1.67 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the Work shall be stopped under an order of any court, or other public authority, for a period of three (3) months, through no fault of the Contractor or of anyone employed by him, or if the Engineer should fail to issue any estimate of payment within thirty (30) consecutive calendar days after it is due, or if the OWNER shall fail to pay the Contractor within thirty (30) consecutive calendar days of its maturity and presentation of any sum certified by the Engineer or award by arbitrators, then the Contractor may, upon fifteen (15) consecutive calendar days written notice to the OWNER and the Engineer, terminate this Contract and recover from the OWNER payment for all work executed, plus loss sustained upon any plant or materials, plus reasonable profit and damages.

In addition and in lieu of terminating the Contract, if the Engineer has failed to make any payment as aforesaid, the Contractor may upon ten (10) consecutive calendar days notice to the OWNER and the Engineer stop the Work until he has been paid all amounts then due, in which event and upon resumption of the Work, Change Orders shall be issued for adjusting the Contract price or extending the Contract time or both to compensate for the costs and delays attributable to the stoppage of the Work.

1.68 USING COMPLETED PORTION OF WORK

The OWNER shall have the right to take possession of and use any completed portion or portions of the Work even though the time of completing the entire work or such portions may not have expired. The possession and use by the OWNER shall not be deemed an acceptance of any work not completed in accordance with the Contract. If

such prior use increases the cost of or delays the Work, the Contractor shall be entitled to such extra compensation, or extension of time, or both as the Engineer may determine. The use by the OWNER of any portion of the Work shall release the Contractor from his Builders Risk Insurance covering such portion used.

1.69 ACCEPTANCE AND FINAL PAYMENT

Upon written notice from the Contractor that the work is ready for final inspection, the Engineer will make such a review and subsequent reviews as required. When, in the Engineer's opinion, the Work is acceptable under the Contract, he will promptly issue a Certificate of Acceptance.

Upon acceptance of the Work by the OWNER, the balance due the Contractor including the percentage retained during the construction period, will then be paid in approximately sixty (60) consecutive calendar days, and said final payment shall evidence the OWNER'S acceptance of the Work unless the OWNER has made acceptance or partial acceptance thereof in writing prior to said final payment.

Before the OWNER makes final payment, the Contractor shall submit to the OWNER a final release, as described hereinafter, stating that all payrolls, material bills, subcontractors, and other indebtedness connected with the Work have been paid and providing for handling claims that may be outstanding or that may arise after the settlement.

Any payment, however, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bond.

1.70 CONTRACTOR'S FINAL RELEASE

Before the OWNER pays the Contractor his final payment on the Work, the Contractor will be required to sign a final release as set out hereinbefore. This final release shall be notarized and shall state that all claims against the OWNER on the Contractor's part have been met in full; it shall further state that all accounts for labor performed, materials furnished, liens, judgments and claims of every nature against the Contractor have been satisfied by him. It shall further state that any obligation or lawsuit whatsoever arising from the Contractor's operations on the Project, which may be presented or filed after the settlement, shall be borne by the Contractor. In case the Contractor is unable to settle any claim that may be in dispute or litigation, the OWNER may allow him to furnish a proper bond to indemnify the OWNER against the claim and then release the final payment to him.

It is understood that the Contractor is to guarantee to the OWNER all construction against defective materials, equipment and workmanship for a period of twelve (12) months after acceptance, and shall take immediate steps to correct or replace such defective materials, equipment or workmanship without cost to the OWNER.

1.71 FINAL CLEAN UP

The Work will not be considered as completed, and final payment will not be made, until all final clean up has been done by the Contractor in a manner satisfactory to the Engineer.

END OF SECTION 00700

Division 1 – General Requirements

SECTION 01010 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The scope of work includes the installation of approximately 1,218 LF of 8-inch DI waterline, 76 LF of 16-inch casing pipe (bore and jack), 1 fire hydrant assembly, and related appurtenances.

B. The Contractor shall include all materials, labor and equipment necessary for completion of the Project. The Contract Documents are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonably implied or necessary for proper performance of the Project shall be included.

C. Continuous Operations: The existing system must be maintained in continuous operation in such a manner that it meets all local, state, and federal requirements. The Contractor is responsible not to deactivate, demolish, or interfere with any system required for the continuous operation until a temporary or new permanent-like system has been installed and is operational. The Contractor is responsible for payment of all fines resulting from any action or inaction on his part or the part of his subcontractors during performance of the Work that is illegal.

D. The following major Work items are included in the Contract:
1. Waterline installation
2. Valve installations
3. Water service line reconnections
4. Fire hydrant installations

1.02 PERMITS

Obtain any permits related or required by the Work in this Contract.

1.03 CODES

Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, citations and similar communication to the Owner.

1.04 EXISTING CONDITIONS AND DIMENSIONS

A. The Work in this Contract will primarily be performed in or around existing facilities of which must remain functional. This Contractor must maintain the required items and/or systems functional without additional effort by the Owner's personnel and at no extra costs to the Owner.

B. The Contractor is responsible for verifying all existing conditions, elevations, dimensions, etc., and providing his finished work to facilitate existing conditions.

END OF SECTION 01010

SECTION 01015 - WORK SEQUENCE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall conform to all miscellaneous requirements as contained in the Contract.

1.02 RELATED REQUIREMENTS

A. Section 00700 - General Conditions.

B. Section 01010 - Summary of Work.

C. Section 01040 - Coordination.

PART 2 - PRODUCTS

2.01 MATERIALS

The Contractor shall comply with the Specifications for type of work to be done.

PART 3 - EXECUTION

3.01 SEQUENCE OF CONSTRUCTION OPERATIONS

A. The Contractor shall submit to the Engineer for review and acceptance a complete schedule (progress chart) of his proposed sequence of construction operations prior to commencement of work. However, the Engineer shall not accept a construction schedule that fails to utilize the entire time allocated for the construction of the Project. The Contractor shall schedule the various construction activities to complete the Project throughout the entire allotted time period. This schedule requirement in no way prevents the Contractor from completing the Project in a shorter time frame than scheduled. The construction schedule along with a cost breakdown schedule shall be submitted and approved by the Owner prior to the submittal of the first partial payment request in accordance with the General Conditions. A revised construction schedule shall be submitted to the Owner with each pay request. This revised schedule must be approved by the Owner prior to payment.

B. **The existing waterlines and all connecting lines must be maintained in full operation throughout the duration of this project unless indicated otherwise.** The Contractor shall develop a sequence of construction that avoids and/or minimizes

disruption to the existing system. The Contractor shall provide proper notification and coordination to the Engineer and Owner should a temporary disruption be anticipated or required. The Contractor shall submit a written request to the Engineer and Owner ten (10) days prior to any specific construction activity that disrupts existing operations. The Owner must pre-approve any construction activity that will cause a temporary shutdown of any existing water or sewer lines.

END OF SECTION 01015

SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The CONTRACTOR shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, services and other necessary supplies and perform all Work shown on the Drawings and/or described in the Specifications and Contract Documents at the unit or lump sum price.

1.02 COMPUTATION OF QUANTITIES

For estimating quantities, the appropriate "industry standard" method (where applicable) will be utilized. The ENGINEER can require the CONTRACTOR to provide a detailed itemization of the materials and labor required.

1.03 PROGRESS AND PAYMENT SCHEDULES (Also see Section 00700)

A. Within fifteen (15) days after the date of formal execution of the Agreement, the CONTRACTOR shall prepare and submit to the ENGINEER, for approval, a *Construction Schedule* which depicts the CONTRACTOR'S plan for completing the Contract requirements and show work placement in dollars versus Contract time. The CONTRACTOR'S *Construction Schedule* must be approved by the ENGINEER before any payments will be made on this Contract. Smaller projects may not require a *Construction Schedule*. It is the Contractor's responsibility to contact the ENGINEER to inquire as to whether a schedule is required. In the absence of such communication, the CONTRACTOR shall prepare a *Construction Schedule.*

B. Within fifteen (15) days after the date of formal execution of the Agreement, the CONTRACTOR shall prepare and submit to the ENGINEER, for approval, an *Application and Certificate for Payment*. The *Application and Certificate for Payment* shall depict the CONTRACTOR'S cost for completing the Contract requirements and show, by major unit of the project Work, the CONTRACTOR'S dollar value for the Work to be used as a basis for the periodic payments. The CONTRACTOR'S *Application and Certificate for Payment* must be approved by the ENGINEER before any payments will be made on this Contract.

C. The ENGINEER'S decision as to sufficiency and completeness of the CONTRACTOR'S *Construction Schedule* and *Application and Certificate for Payment* will be final.

D. The CONTRACTOR must make current, to the satisfaction of the ENGINEER, the *Construction Schedule* and *Application and Certificate for Payment* each time he requests a payment on this Contract.

E. The CONTRACTOR'S *Construction Schedule* and *Application and Certificate for Payment* must be maintained at the construction site available for inspection and shall be revised to incorporate approved change orders as they occur.

F. When the CONTRACTOR requests a payment on this Contract, it must be on the approved *Application and Certificate for Payment* form and be current. Further, the current *Application and Certificate for Payment* and *Construction Schedule* (both updated and revised) shall be submitted for review and approved by the ENGINEER before monthly payments will be made by the OWNER. The CONTRACTOR shall submit six (6) current copies of each (*Application and Certificate for Payment* and *Construction Schedule*) when requesting payment.

1.04 CONDITIONS FOR PAYMENT (See also Article 1.50/Section 00700)

A. The OWNER will make payments for acceptable Work in place and materials properly stored on-site. The value of payment shall be as established on the approved *Application and Certificate for Payment* and *Construction Schedule*, EXCEPT the OWNER will retain five percent (5%) of the Work in place and a percentage as hereinafter listed for items properly stored or untested.

B. No payment will be made for stored materials unless a proper invoice from the supplier is attached to the pay request. Furthermore, no item whose value is less than $1,000.00 will be considered as stored materials for pay purposes.

C. Payment for equipment items shall be limited to ninety percent (90%) of their scheduled value (materials portion only) until they are set in place. Ninety percent (90%) payment for stored materials and equipment shall be contingent on proper on-site storage as recommended by the manufacturer or required by the ENGINEER.

D. Payment for equipment items set in-place shall be limited to ninety percent (90%) of their scheduled value until they are ready for operation and have been certified by the manufacturer. Ninety percent (90%) payment for installed equipment shall be contingent on proper routine maintenance of the equipment in accordance with the manufacturer's recommendations.

E. Payment for the labor portion of equipment items will be subject only to the degree of completeness and the appropriate retainage.

F. Since retainage is held at five (5) percent of the Work throughout construction, the OWNER will not reduce the percent of retainage at any completion stage during construction.

1.05 CLAIMS FOR EXTRA WORK (See also Article 1.61/Section 00700)

A. If the CONTRACTOR claims that any instructions by Drawings or otherwise involve extra cost, he shall give the ENGINEER written notice of said claim within ten (10) days after the receipt of such instructions, and in any event before proceeding to execute the Work, stating clearly and in detail the basis of his claim or claims. No such claim shall be valid unless so made.

B. Claims for additional compensation for extra Work, due to alleged errors in spot elevations, contour lines or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material or performing more Work than would be reasonably estimated from the Drawings and topographical maps issued.

C. Any discrepancies which may be discovered between actual conditions and those represented by the topographical maps and Drawings shall at once be reported to the ENGINEER, and Work shall not proceed, except at the CONTRACTOR'S risk, until written instructions have been received by him from the ENGINEER.

D. If, on the basis of the available evidence, the ENGINEER determines that an adjustment of the Contract Price or time is justifiable, the procedure shall then be as provided herein for "Changes in Work."

E. By execution of this Contract, the CONTRACTOR warrants that he has visited the site of the proposed Work and fully acquainted himself with the conditions there existing relating to construction and labor, and that he fully understands the facilities, difficulties and restrictions attending the execution of the Work under this Contract. The CONTRACTOR further warrants that he has thoroughly examined and is familiar with the Drawings, Specifications and all other documents comprising the Contract. The CONTRACTOR further warrants that, by execution of this Contract, his failure when he was bidding on this Contract to receive or examine any form, instrument or document or to visit the site and acquaint himself with conditions there existing, in no way relieves him from any obligation under the Contract.

1.06 DETERMINATION OF THE VALUE OF EXTRA (ADDITIONAL) OR OMITTED WORK (See also, Article 1.62/Section 00700)

A. The value of extra (additional) or omitted Work shall be determined in one or more of the following ways:

1. On the basis of the actual cost of all the items of labor (including on-the-job supervision), materials and use of equipment plus a maximum of fifteen percent (15%) which shall cover the CONTRACTOR'S general supervision, overhead and profit. In case of subcontracts, the fifteen percent (15%) is interpreted to mean the subcontractor's supervision, overhead and profit, and an additional five percent (5%) may then be added to such costs to cover the General CONTRACTOR'S supervision, overhead and profit. The cost of labor shall include required insurance, taxes and fringe benefits. Equipment costs shall be based on current

rental rates in the areas where the Work is being performed, but in no case shall such costs be greater than the current rates published by the Associated Equipment Distributors, Chicago, Illinois.

2. By estimate and acceptance in a lump sum.
3. By unit prices named in the Contract or subsequently agreed upon.

B. All extra (additional) Work shall be executed under the conditions of the original Contract. Any claim for extension of time shall be adjusted according to the proportionate increase or decrease in the final total cost of the Work unless negotiated on another basis.

C. Except for over-runs in Contract unit price items, no extra (additional) Work shall be done except upon a written Change Order from the OWNER, and no claim on the part of the CONTRACTOR for pay for extra (additional) Work shall be recognized unless so ordered in writing by the OWNER. Unit price item overruns shall be limited to 130% of the quantity listed on the Bid form without prior approval from the ENGINEER.

PART 2 - PRODUCTS

2.01 WATERLINES / SERVICE LINES

A. Payment for waterlines will be made at the CONTRACT unit price per linear foot in place, which shall include compensation for furnishing pipe and fittings, trenching (including sawcutting and rock excavation), bedding material, laying, jointing, temporary trench shoring, sheeting and bracing, backfill, traffic regulation, and all other appurtenances required but not specifically delineated herein.

B. The quantity of waterline to be paid for shall be the length of pipe measured along the centerline of the completed pipeline without deducting the length of branches and fittings.

C. Payment for final backfill shall be included in this pay item except for bituminous material and concrete required in restoration of paved areas and defined in Sections 02510 and 02520. Bituminous binder and concrete shall be included in the pay item "Bituminous Pavement Replacement" and "Concrete Pavement Replacement", if applicable. Class II material (DGA) required in the restoration of gravel roadways and drives, if applicable, shall be included in this pay item and is not a separate pay item. Flowable fill required in this item is a separate pay item (if applicable) as described below.

D. Rock excavation is included in this pay item and will not be paid for separately.

E. Payment for this item shall include the testing of the completed lines and the complete transfer of use onto the new waterlines.

F. Payment for this item shall include any and all traffic regulation that may be necessary to

complete the work.

G. Payment for seeding and final clean-up including furnishing and placing topsoil, finish grading, seeding mulching and erosion control, removal of construction materials and debris, cleaning, and site restoration is included in this pay item.

2.02 ENCASEMENT PIPE

Payment for pipelines crossing roadways on the DRAWINGS, if applicable, shall include the respective encasement pipe bored under roadway and will be paid for at the CONTRACT unit price per linear foot of encasement pipe for the size and type, if applicable. This work shall include the encasement pipe, complete in place with fittings, blocking, spacers, and all items necessary for its construction and installation. Carrier pipe is paid separately under item 2.01.

2.03 TAPPING SLEEVE AND VALVES

Payment for tapping sleeves and valves shall be paid for at the CONTRACT unit price and shall include all appurtenances necessary to complete the WORK per the drawings and specifications.

2.04 GATE VALVES

Payment for gate valves shall be paid for at the CONTRACT unit price and shall include all appurtenances necessary to complete the WORK per the drawings and specifications.

2.05 FIRE HYDRANT ASSEMBLY

Payment for fire hydrant assemblies shall be paid for at the CONTRACT unit price and shall include all appurtenances necessary to complete the WORK per the drawings and specifications. 6-inch waterline, isolation valves, etc. (as shown in the detail) will NOT be paid for as a separate item.

2.06 CONNECT WITH WATERLINE

Payment for connection to existing waterline will be made at the CONTRACT unit price each and shall include connecting new waterline to the existing pipe per the DRAWINGS and all other appurtenances necessary to complete the WORK.

2.07 CUT AND CAP EXISTING WATERLINE

Payment for cutting and capping existing waterlines shall be paid for at the CONTRACT unit price and shall include all appurtenances necessary to complete the WORK per the drawings and specifications.

2.08 BITUMINOUS PAVEMENT REPLACEMENT

Payment for bituminous pavement and/or pavement replacement will be paid for at the CONTRACT unit price per square yard, which shall include base, placement of bituminous binder, final pavement, compaction and all appurtenances necessary for a complete installation.

PART 3 - EXECUTION

3.01 PAY ITEMS

A. The pay items listed hereinbefore refer to the items listed in the Bid Schedule and cover all of the pay items for this Contract.

B. Any and all other items of Work listed in the Specifications or shown on the Drawings for this Contract shall be considered incidental to and included in those pay items.

3.02 QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the documents, including the Bid Proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall not give cause for claims or liability for damages. The Engineer will not be financially responsible for any omissions from the Contract Documents and therefore not included by the Contractor in his proposal.

END OF SECTION 01025

SECTION 01040 - COORDINATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall coordinate the Work of all crafts, trades and subcontractors engaged on the Work, and he shall have final responsibility in regards to the schedule, workmanship and completeness of each and all parts of the Work.

B. It shall be the Contractor’s responsibility to ensure cooperation and coordination of all crafts, trades, subcontractors and others as they may be involved in the installation of work which adjoins, incorporates, precedes or follows the work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to execution of subcontract agreements and the assignment of the parts of the Work. Each craft, trade and subcontractor shall be made responsible to the Owner, for furnishing embedded items, giving directions for doing all cutting and fitting, making all provisions for accommodating the Work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the Work.

C. The Contractor shall be responsible for all cutting, digging and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the Project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.

D. Each subcontractor is expected to be familiar with the General Requirements and all Sections of the Detailed Specifications for all other trades and to study all Drawings applicable to his work to the end that complete coordination between the trades will be affected. Each Contractor shall consult with the Engineer if conflicts exist on the Drawings.

E. No extra compensation will be allowed to cover the cost of removing piping, conduits, etc., or equipment found encroaching on space required by others.

END OF SECTION 01040

SECTION 01045 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

A. Perform cutting and patching to properly complete work of the project in accordance with the Contract Documents. Cutting and patching may be required for connection to existing sewer lines, water lines, storm sewers, roadways, fencing, structures, and other existing improvements.

B. Do not cut and/or patch in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.

PART 2 - PRODUCTS

2.01 MATERIALS

Match existing materials for cutting and patching work with new materials conforming to project requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Inspect conditions prior to work to identify scope and type of work required. Clean work area and areas affected by cutting and patching operations. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.

B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.

C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.

D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.

E. The Engineer or his representative shall approve proper cutting and patching methods prior to the work being performed.

END OF SECTION 01045

SECTION 01070 - ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Where any of the following abbreviations are used in the Contract Documents, they shall have the meaning set forth as follows.

1.02 QUALITY ASSURANCE

A. For products or workmanship specified by association, trade or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. The date of the standard is that in effect as of the Bid date, or date of Owner-Contractor Agreement when there are no bids, except when a specific date is specified.

C. When required by individual Specifications section, obtain copy of standard. Maintain a copy at job site during submittals, planning and progress of the specific work, until Substantial Completion.

1.03 SCHEDULE OF REFERENCES

ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers Association
AGMA	American Gear Manufacturers Association
IEEE	Institute of Electrical and Electronics Engineers, Inc.
AISC	American Institute of Steel Construction
ANS	American National Standard
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood-Preservers' Association
AWWA	American Water Works Association
IBR	Institute of Boiler and Radiator Manufacturers
IPS	Iron Pipe Size
NBS	National Bureau of Standards
NEC	National Electrical Code; latest edition
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.
Fed. Spec.	Federal Specifications issued by the Federal Supply Service of the General Services Administration, Washington, DC
125-lb. ANS	American National Standard for Cast-Iron Pipe
250-lb. ANS	Flanges and Flanged Fittings, Designation B16.1-1975, for the appropriate class
AWG	American or Brown and Sharpe Wire Gage
NPT	National Pipe Thread
Stl. WG	U.S. Steel Wire, Washburn and Moen, American Steel and Wire or Roebling Gage
UL	Underwriters' Laboratories

END OF SECTION 01070

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED

Shop drawing, descriptive literature, project data and samples (when samples are specifically requested) for all manufactured or fabricated items shall be submitted by the Contractor to the Engineer for examination and review in the form and in the manner required by the Engineer. All submittals shall be furnished in at least three (3) copies to be retained by the Engineer and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the submittal by the Engineer shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Review of such submittal will not relieve the Contractor of the responsibility for any errors, which may exist, as the Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

1.02 RELATED REQUIREMENTS

A. Section 00700 - General Conditions.

B. Section 01720 - Project Record Documents (As-Builts).

1.03 DEFINITIONS

The term "submittals" shall mean shop drawings, manufacturer's drawings, catalog sheets, brochures, descriptive literature, diagrams, schedules, calculations, material lists, performance charts, test reports, office and field samples, and items of similar nature which are normally submitted for the Engineer's review for conformance with the design concept and compliance with the Contract Documents.

1.04 GENERAL CONDITIONS

Review by the Engineer of shop drawings or submittals of material and equipment shall not relieve the Contractor from the responsibilities of furnishing same of proper dimension, size, quantity, materials and all performance characteristics to efficiently perform the requirements and intent of the Contract Documents. Review shall not relieve the Contractor from responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Review of shop drawings shall not be construed as releasing the Contractor from the responsibility of complying with the Specifications.

1.05 GENERAL REQUIREMENTS FOR SUBMITTALS

A. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Documents. Where applicable, show fabrication, layout, setting and erection details. Shop drawings are defined as original drawings prepared by the Contractor, subcontractors, suppliers, or distributors performing work under this Contract. Shop drawings illustrate some portion of the work and show fabrication, layout, setting or erection details of equipment, materials and components. The Contractor shall, except as otherwise noted, have prepared the number of reviewed copies required for his distribution plus three (3) which will be retained by the Engineer and Owner. Shop drawings shall be folded to an approximate size of 8-1/2 inch x 11 inch and in such manner that the title block will be located in the lower right-hand corner of the exposed surface.

B. Project data shall include manufacturer's standard schematic drawings modified to delete information that is not applicable to the Project, and shall be supplemented to provide additional information applicable to the Project. Each copy of descriptive literature shall be clearly marked to identify pertinent information as it applies to the Project. Submittals shall include descriptive literature, catalog cuts, dimensioned prints, installation drawings/instructions, operation and maintenance instructions. The data provided with the shop drawings shall be complete with respect to dimensions, materials of construction, wiring diagrams, and the like, to enable the Engineer to review the information as required.

C. Operating and maintenance instructions and separate parts lists shall be provided with equipment submittals. Operating instructions shall incorporate a functional description of the entire system including the system schematics, which reflect “as built” instructions. Special maintenance requirements particular to the system shall be clearly defined along with special calibration and test procedures.

D. The submittals shall identify special wrenches or other special tools necessary for assembling, disassembling, aligning and calibrating the equipment. These special wrenches and/or other special tools shall be provided in a kit and shall become the property of the Owner upon acceptance of the equipment.

E. Where samples are required, they shall be adequate to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged. Provide sufficient size and quantity to clearly illustrate functional characteristics of product and material, with integrally related parts and attachment devices, along with a full range of color samples.

F. All submittals shall be referenced to the applicable item, section and division of the Specifications, and to the applicable Drawing(s) or Drawing schedule(s) and shall be with transmittal forms and format provided by the Engineer.

G. The Contractor shall review and check submittals, and indicate his review and

approval by initials and date.

H. If the submittals deviate from the Contract Drawings and/or Specifications, the Contractor shall advise the Engineer, in letter of transmittal of the deviation and the reasons therefore. All changes shall be clearly marked on the submittal with a bold mark other than red. Any additional costs for modifications shall be borne by the Contractor.

I. In the event the Engineer does not specifically reject the use of material or equipment at variance to that which is shown on the Drawings or specified, the Contractor shall, at no additional expense to the Owner, and using methods reviewed by the Engineer, make any changes to structures, piping, controls, electrical work, mechanical work, etc., that may be necessary to accommodate this equipment or material. Should equipment other than that on which design drawings are based be accepted by the Engineer, shop drawings shall be submitted detailing all modification work and equipment changes made necessary by the substituted item.

J. Additional information on particular items, such as special drawings, schedules, calculations, performance curves, and material details, shall be provided when specifically requested in the technical Specifications.

K. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing lead, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.

L. Equipment shop drawings shall indicate all factory or shop paint coatings applied by suppliers, manufacturers and fabricators; the Contractor shall be responsible for insuring the compatibility of such coatings with the field-applied paint products and systems.

M. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.

N. Where manufacturer's brand names are given in the Specifications for building and construction materials and products, such as grout, bonding compounds, curing compounds, masonry cleaners, waterproofing solutions and similar products, the Contractor shall submit names and descriptive literature of such materials and products he proposes to use in this Contract.

O. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.

P. All bulletins, brochures, instructions, parts lists, and warranties packaged with and accompanying materials and products delivered to and installed in the Project shall be saved and transmitted to the Owner through the Engineer.

Q. All submittals shall be made by the use of a multi-copy transmittal form supplied by the Engineer. All applicable blanks on the form shall be filled in with the appropriate data.

1.06 CONTRACTOR RESPONSIBILITIES

A. Verify field measurements, field construction criteria, catalog numbers and similar data.

B. Coordinate each submittal with requirements of Work and Contact Documents.

C. Notify Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

D. Begin no work, and have no material or products fabricated or shipped which required submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

END OF SECTION 01300

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Work of all crafts and trades shall be laid out to lines and elevations as established by the Contractor from the Drawings or from instructions by the Engineer.

B. Unless otherwise shown, all work shall be plumb and level, in straight lines and true planes, parallel or square to the established lines and levels. The Work shall be accurately measured and fitted to tolerance as established by the best practices of the crafts and trades involved, and shall be as required to fit all parts of the Work carefully and neatly together.

C. All equipment, materials and articles incorporated into the Work shall be new and of comparable quality as specified. All workmanship shall be first-class and shall be performed by mechanics skilled and regularly employed in their respective trades.

D. The Contractor shall determine that the equipment he proposes to furnish can be brought into the facility and installed in the space available. Equipment shall be installed so that all parts are readily accessible for inspection and maintenance.

1.02 WORKMANSHIP

Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

1.03 MANUFACTURERS' INSTRUCTION

Comply with manufacturer's instructions in full detail as to shipping, handling, storing, installing, start-up and operation.

1.04 TESTING SERVICES

A. Tests, inspections and certifications of materials, equipment, subcontractors or completed work, as required by the various sections of the Specifications and as shown on the Drawings, except as otherwise noted, shall be provided by the Contractor and all costs shall be included in the Contract Price.

B. The Contractor shall submit to the Owner for approval the name of the independent testing laboratory to be employed by the Contractor.

C. Contractor shall deliver written notice to the Engineer at least two (2) work days in advance of any inspections or tests to be made at the Project site. All inspections or

tests to be conducted in the field shall be done in the presence of the Owner or his representative.

D. Certifications by independent testing laboratories shall include properly attested copies of the data with scientific procedures and test results.

END OF SECTION 01400

SECTION 01535 - PROTECTION OF INSTALLED WORK

PART 1 - GENERAL

1.01 WORK INCLUDED

Protection for products, including Owner-provided products, after installation.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.

B. Restrict traffic of any kind across planted lawn and landscape areas.

END OF SECTION 01535

SECTION 01540 - SECURITY

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Project area must remain safely accessible to Owner's personnel; however, the Contractor will provide any non-interfering security he deems necessary to protect his work, equipment, etc.

B. Provide an adequate system to secure the Project area at all times, especially during non-construction periods; the Contractor shall be solely responsible for taking proper security measures.

1.02 COSTS

Contractor shall pay for all costs for protection and security systems.

END OF SECTION 01540

SECTION 01550 - ACCESS ROADS AND PARKING AREAS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Access roads.

B. Temporary parking.

C. Existing pavements and parking areas.

D. Permanent pavements and parking areas.

E. Maintenance.

F. Removal and repair.

1.02 RELATED REQUIREMENTS

A. Section 01045 - Cutting and Patching.

B. Section 01510 - Temporary Utilities.

PART 2 - PRODUCTS

2.01 MATERIALS

For temporary construction: Contractor's option but must be approved by the Owner.

PART 3 - EXECUTION

3.01 PREPARATION

Clear areas, provide proper surface and storm drainage of premises and adjacent areas. Install erosion protection.

3.02 ACCESS ROADS

A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

B. Construct temporary bridges and/or culverts to span low areas and allow unimpeded drainage.

C. Extend and relocate as work progress requires, and provide detours as necessary for unimpeded traffic flow.

D. Locate temporary access roads as approved by the Owner and/or the Engineer.

E. Provide and maintain access to all Owner facilities.

3.03 TEMPORARY PARKING

Construct temporary parking areas to accommodate use of construction personnel in an area acceptable to the Owner and/or the Engineer. Pay all costs relating to temporary parking.

3.04 MAINTENANCE

A. Maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, products, mud, snow and ice. Use whatever dust control measures required to prevent airborne particles.

B. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water and other deficiencies to maintain paving and drainage in original and/or specified condition.

3.05 REMOVAL AND REPAIR

A. Remove temporary materials and construction when permanent facilities are usable as directed by the Engineer.

B. Remove underground work and compacted materials to a depth of two (2) feet; fill and grade site as specified.

C. Repair existing permanent facilities damaged by usage to original and/or specified condition.

END OF SECTION 01550

SECTION 01560 - TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Dust control.

B. Erosion and sediment control.

1.02 RELATED REQUIREMENTS

A. Section 01510 - Temporary Utilities.

B. Section 01565 - Erosion and Sediment Control.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 DUST CONTROL

Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere. Provide spraying of dust with water so no dust leaves the site.

3.02 EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize amount of bare soil exposed at one time.

C. Provide temporary measures such as berms, dikes, drains, hay bales, gabions, etc., as directed by the Engineer so as to minimize siltation due to runoff.

D. Construct fill and waste areas by selective placement to avoid erosive exposed surface of silts or clays.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

END OF SECTION 01560

SECTION 01565 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall do all Work and take all measures necessary to control soil erosion resulting from construction operations, shall prevent the flow of sediment from the construction site, and shall contain construction materials (including excavation and backfill) within his protected working area so as to prevent damage to the adjacent wetlands and water courses.

B. The Contractor shall not employ any construction method that violates a rule, regulation, guideline or procedure established by Federal, State or local agencies having jurisdiction over the environmental effects of construction.

C. Pollutants such as chemicals, fuels, lubricants, bitumen, raw sewage and other harmful waste shall not be discharged into or alongside of any body of water or into natural or man-made channels leading thereto.

PART 2 - PRODUCTS

2.01 MATERIALS

Bales may be hay or straw, and shall be reasonably clean and free of noxious weeds and deleterious materials. Filter fabric for sediment traps shall be of suitable materials acceptable to the Engineer.

PART 3 - EXECUTION

3.01 METHODS OF CONSTRUCTION

A. The Contractor shall use any of the acceptable methods necessary to control soil erosion and prevent the flow of sediment to the maximum extent possible. These methods shall include, but not be limited to, the use of water diversion structures, diversion ditches and settling basins.

B. Construction operations shall be restricted to the areas of work indicated on the Drawings and to the area which must be entered for the construction of temporary or permanent facilities. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations and to direct the Contractor to provide immediate permanent or temporary pollution control measures to prevent contamination of the wetlands and adjacent

watercourses. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and use of temporary mulches, mats, or other control devices or methods as necessary to control erosion.

C. Excavated soil material shall not be placed adjacent to the wetlands or watercourses in a manner that will cause it to be washed away by high water or runoff. Earth berms or diversions shall be constructed to intercept and divert runoff water away from critical areas. Diversion outlets shall be stable or shall be stabilized by means acceptable to the Engineer. If for any reason construction materials are washed away during the course of construction, the Contractor shall remove those materials from the fouled areas as directed by the Engineer.

D. For Work within easements or rights-of-way, all materials used in construction such as excavation, backfill, roadway, and pipe bedding and equipment shall be kept within the limits of these easements or rights-of-way.

E. The Contractor shall not pump silt-laden water from trenches or other excavation into the wetlands, or adjacent watercourses. Instead, silt-laden water from his excavations shall be discharged within areas surrounded by baled hay or into sediment traps or ensure that only sediment-free water is returned to the watercourses. Damage to vegetation by excessive watering or silt accumulation in the discharge area shall be avoided.

F. Prohibited construction procedures include, but are not limited to the following:
   1. Dumping of spoil material into any streams, wetlands, surface waters, or unspecified locations.
   2. Indiscriminate, arbitrary, or capricious operation of equipment in wetlands or surface waters.
   3. Pumping of silt-laden water from trenches or excavations into surface waters, or wetlands.
   4. Damaging vegetation adjacent to or outside of the construction area limits.
   5. Disposal of trees, brush, debris, paints, chemicals, asphalt products, concrete curing compounds, fuels, lubricants, insecticides, washwater from concrete trucks or hydroseeders, or any other pollutant in wetlands, surface waters, or unspecified locations.
   6. Permanent or unauthorized alteration of the flow line of any stream.
   7. Open burning of debris from the construction work.

G. Any temporary working roadways required shall be clean fill approved by the Engineer. In the event fill is used, the Contractor shall take every precaution to prevent the fill from mixing with native materials of the site. All such foreign fill materials shall be removed from the site following construction.

3.02 EROSION CHECKS

The Contractor shall furnish and install baled hay or straw erosion checks surrounding the base of all deposits of stored excavated material outside of the disturbed area, and where indicated by the Engineer. Checks located surrounding stored material shall be located approximately 6 feet from that material. Bales shall be held in place with two 2 inch by 2 inch by 3 feet wooden stakes. Each bale shall be butted tightly against the adjoining bale to preclude short circuiting of the erosion check.

END OF SECTION 01565

SECTION 01570 - TRAFFIC REGULATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Construction parking control.

B. Flagmen.

C. Flares and lights.

D. Haul routes.

E. Removal.

PART 2 - PRODUCTS

2.01 SIGNS AND DEVICES

A. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.

B. Flagman Equipment: As required by local jurisdictions.

PART 3 - EXECUTION

3.01 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles and Owner's operations.

B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.

C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.02 TRAFFIC CONTROL

A. Whenever and wherever, in the Engineer's opinion, traffic is sufficiently congested or public safety is endangered, Contractor shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.

B. Contractor shall abide by county and state regulations governing utility construction work.

C. Traffic control shall be provided according to the Kentucky Department of Highways Manual on Uniform Traffic Control Devices for Streets and Highways.

3.03 FLAGMEN

Provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroach on public traffic lanes.

3.04 FLARES AND LIGHTS

Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.05 HAUL ROUTES

A. Consult with authorities, establish public thoroughfares to be used for haul routes and site access.

B. Confine construction traffic to designated haul routes.

C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.06 REMOVAL

Remove equipment and devices when no longer required.

END OF SECTION 01570

SECTION 01600 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.01 STORAGE OF MATERIALS AND EQUIPMENT

All excavated materials and equipment to be incorporated in the Work shall be placed so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

1.02 HANDLING AND DISTRIBUTION

A. The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until final completion and acceptance of the Work.

B. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

1.03 MATERIALS, SAMPLES, INSPECTION

A. Unless otherwise expressly provided on the Drawings or in any of the other Contract Documents, only new materials and equipment shall be incorporated in the Work. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer. No material shall be processed or fabricated for the Work or delivered to the Work site without prior concurrence of the Engineer.

B. As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the Work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product

and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

C. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the Work.

D. If the Engineer so requires, either prior to or after commencement of the Work, the Contractor shall submit samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed. The Contractor shall furnish suitable molds for and make the concrete test cylinders. Except as otherwise expressly specified, the Contractor shall make arrangements for, and pay for, the tests.

E. All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples.

F. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences of his failure to do so shall be the Contractor's sole responsibility.

G. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., the Contractor shall provide such samples of workmanship of wall, floor, finish, etc., as may be required.

H. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

I. After review of the samples, data, etc., the materials and equipment used on the Work shall in all respects conform therewith.

END OF SECTION 01600

SECTION 01620 - STORAGE AND PROTECTION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. General storage.

B. Enclosed storage.

C. Exterior storage.

D. Maintenance of storage.

1.02 RELATED REQUIREMENTS

Division 1 - General Requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 GENERAL STORAGE

A. Store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact. Protect until installed.

B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.

3.02 ENCLOSED STORAGE

A. Store products, subject to damage by the elements, in substantial weathertight enclosures.

B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.

C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.

D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

E. The OWNER will not be responsible for providing closed storage when needed. This is the responsibility of the Contractor.

3.03 EXTERIOR STORAGE

A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.

B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.

C. Store loose granular materials on clean, solid surfaces such pavement, or on rigid sheet materials, to prevent mixing with foreign matter.

D. Provide surface drainage to prevent erosion and ponding of water.

E. Prevent mixing of refuse or chemically injurious materials.

3.04 MAINTENANCE OF STORAGE

A. Periodically, inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Engineer on request.

B. Verify that storage facilities comply with manufacturer's product storage requirements.

C. Verify that manufacturer required environmental conditions are maintained continually.

D. Verify that surfaces of products exposed to the elements are not adversely affected. Weathering of finishes is unacceptable under the requirements of the Contract Documents.

3.05 MAINTENANCE OF EQUIPMENT STORAGE

A. For mechanical and electrical equipment in long-term storage, provide manufacturer's service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.

B. Service equipment on a regularly scheduled basis, in accordance with the manufacturer's recommendations, maintaining a log of services; submit as a record document.

END OF SECTION 01620

SECTION 01700 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

A. Section 00700 - General Conditions.

B. Section 01710 - Cleaning.

C. Section 01720 - Project Record Documents.

1.02 SUBSTANTIAL COMPLETION

A. Contractor:
   1. Submit written certification to Engineer that project is substantially complete.
   2. Submit list of major items to be completed or corrected.

B. Engineer will make an inspection within seven days after receipt of certification, together with the Owner's representative.

C. Should Engineer consider that work is substantially complete:
   1. Contractor shall prepare, and submit to Engineer, a list of the items to be completed or corrected, as determined by on-site observation.
   2. Engineer will prepare and issue a Certificate of Substantial Completion, containing:
      a. Date of Substantial Completion.
      b. Contractor's list of items to be completed or corrected, verified and amended by Engineer.
      c. The time within which Contractor shall complete or correct work of listed items.
      d. Time and date Owner will assume possession of work or designated portion thereof.
      e. Responsibilities of Owner and Contractor for:
         (1) Insurance.
         (2) Utilities.
         (3) Operation of mechanical, electrical and other systems.
         (4) Maintenance and cleaning.
         (5) Security.
      f. Signatures of:
         (1) Engineer.
         (2) Contractor.
         (3) Owner.

3. Contractor: Complete work listed for completion or correction, within designated time.

D. Should Engineer consider that work is not substantially complete:
1. He shall immediately notify Contractor, in writing, stating reasons.
2. Contractor: Complete work, and send second written notice to Engineer, certifying that Project, or designated portion of project is substantially complete.
3. Engineer will re-review work.

1.03 FINAL INSPECTION

A. Contractor shall submit written certification that:
1. Contract Documents have been reviewed.
2. Project has been inspected for compliance with Contract Documents.
3. Work has been completed in accordance with Contract Documents.
4. Equipment and systems have been tested in presence of Owner's representative and are operational.
5. Project is completed and ready for final inspection.

B. Engineer will make final on-site observation/review within seven (7) days after receipt of certification.

C. Should Engineer consider that work is finally complete in accordance with requirements of Contract Documents, he shall request Contractor to make Project Closeout submittals.

D. Should Engineer consider that work is not finally complete:
1. He shall notify Contractor, in writing, stating reasons.
2. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Engineer certifying that work is complete.
3. Engineer will re-review the work.

1.04 FINAL CLEANING UP

The work will not be considered as completed and final payment made until all final cleaning up has been done by the Contractor in a manner satisfactory to the Engineer. See Section 01710 for detailed requirements.

1.05 CLOSEOUT SUBMITTALS

A. Project Record Documents: to requirements of Section 01720.

B. Operation and Maintenance Data: to requirements of particular technical specifications and Section 01730.

C. Warranties and Bonds: to requirements of particular technical specifications and

Section 01740.

1.06 INSTRUCTION

Instruct Owner's personnel in operation of all systems, mechanical, electrical and other equipment.

1.07 FINAL APPLICATION FOR PAYMENT

Contractor shall submit final applications in accordance with requirements of General Conditions.

1.08 FINAL CERTIFICATE FOR PAYMENT

A. Engineer will issue final certificate in accordance with provisions of General Conditions.

B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-final Certificate for payment.

END OF SECTION 01700

SECTION 01710 - CLEANING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.

B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave Project clean and ready for occupancy.

1.02 RELATED REQUIREMENTS

A. Section 01045 - Cutting and Patching.

B. Section 01700 - Project Closeout.

C. Cleaning for Specific Products or Work: Specification Section for that work.

1.03 SAFETY REQUIREMENTS

A. Hazards control:
1. Store volatile wastes in covered containers, and remove from premises daily.
2. Prevent accumulation of wastes which create hazardous conditions.
3. Provide adequate ventilation during use of volatile or noxious substances.

B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
1. Do not burn or bury rubbish and waste materials on Project site without written permission from the Owner.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

A. Execute cleaning to ensure that building, grounds and public properties are maintained free from accumulations of waste materials and rubbish.

B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

C. At reasonable intervals but no less than once every two weeks during progress of Work, clean site and public properties, and dispose of waste materials, debris and rubbish.

D. Provide on-site containers for collection of waste materials, debris and rubbish.

E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.

F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

G. The Contractor shall thoroughly clean all materials and equipment installed.

3.02 FINAL CLEANING

A. Employ experienced workmen, or professional cleaners, for final cleaning.

B. In preparation for substantial completion, conduct final inspection of sight-exposed interior and exterior surface, and of concealed spaces.

C. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

D. Broom clean paved surfaces; rake clean other surfaces of grounds.

E. Maintain cleaned areas until Project, or portion thereof, is occupied by Owner.

F. The Contractor shall restore or replace existing property or structures as promptly and practicable as work progresses.

END OF SECTION 01710

SECTION 01720 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

A. Section 00700 - General Conditions.

B. Section 01300 - Submittals.

1.02 MAINTENANCE OF DOCUMENTS

A. Maintain at job site, one copy of:
1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Reviewed Shop Drawings.
5. Change Orders.
6. Other Modifications to Contract.

B. Store documents in approved location, apart from documents used for construction.

C. Provide files and racks for storage of documents.

D. Maintain documents in clean, dry legible condition.

E. Do not use record documents for construction purposes.

F. Make documents available at all times for inspection by Engineer and Owner.

1.03 MARKING DEVICES

Provide colored pencil or felt-tip marking pen for all marking.

1.04 RECORDING

A. Label each document "RECORD DRAWING" in 2-inch high printed letters.

B. Keep record documents current.

C. Do not permanently conceal any work until required information has been recorded.

D. Contract Drawings: Legibly mark to record actual construction:
   1. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
   2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
   3. Field changes of dimension and detail.
   4. Changes made by Change Order or Field Order.
   5. Details not on original Contract Drawings.

E. Specifications and Addenda: Legibly mark up each Section to record:
   1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
   2. Changes made by Change Order or Field Order.
   3. Other matters not originally specified.

F. Shop Drawings: Maintain as record documents; legibly annotate Shop Drawings to record changes made after review.

1.05 SUBMITTAL

A. At completion of project, deliver record documents to Engineer.

B. Accompany submittal with transmittal letter, in duplicate, containing:
   1. Date.
   2. Project title and number.
   3. Contractor's name and address.
   4. Title and number of each record document.
   5. Certification that each document as submitted is complete and accurate.
   6. Signature of Contractor or his authorized representative.

END OF SECTION 01720

SECTION 01740 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Compile specified warranties and bonds.

B. Compile specified service and maintenance contracts.

C. Co-execute submittals when required.

D. Review submittals to verify compliance with Contract Documents.

1.02 RELATED REQUIREMENTS

A. Bid Bond.

B. Performance and Payment Bonds.

C. Guaranty.

D. General Warranty of Construction.

E. Warranties and Bonds required for specific products: As listed in other Specification sections.

1.03 (NOT USED)

1.04 SUBMITTALS REQUIREMENTS

A. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.

B. Furnish two (2) original signed copies.

C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
   1. Product, equipment or work item.
   2. Firm name, address and telephone number.
   3. Scope.
   4. Date of beginning of warranty, bond or service and maintenance contract.
   5. Duration of warranty, bond or service and maintenance contract.
   6. Provide information for Owner's personnel:
      a. Proper procedure in case of failure.

b. Instances which might affect the validity of warranty or bond.

7. Contractor name, address and telephone number.

1.05 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format:

1. Size 8 1/2-inch x 11 inches, punch sheets for 3-ring binder: Fold larger sheets to fit into binders.
2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
   a. Title of Project.
   b. Name of Contractor.

C. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.

1.06 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during progress of construction: Submit documents within ten (10) days after inspection and acceptance.

B. Otherwise, make submittals within ten (10) days after date of substantial completion, prior to final request for payment.

C. For items of work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing the date of acceptance as the start of the warranty period.

1.07 SUBMITTALS REQUIRED

Submit warranties, bonds, service and maintenance contracts as specified in the respective sections of the Specifications. Additionally, the Contractor shall warrant the entire contract, including all concrete, paving, building, plumbing, HVAC, mechanical and electrical equipment to be free from defects in design and installation for one (1) year from the date of startup. In the event a component fails to perform as specified or is proven defective in service during the warranty period, the Contractor shall repair the defect without cost to the Owner.

END OF SECTION 01740

Division 2 – Site Work

SECTION 02150 - SHORING AND BRACING

PART 1 - GENERAL

1.01 SUMMARY

A. Shore and brace sidewalls in deep excavations with steel sheet, soldier piles or timber lagging as required to protect existing buildings, utilities, roadways, and improvements. Prevent cave-ins, loss of ground, or damage to people and property.

B. Maintain shoring and bracing during construction activities, and remove shoring and bracing if practical when construction and filling is complete.

1.02 SUBMITTALS

Submit for approval shop drawings and information on methods proposed for use.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Sheet Steel: Heavy-gauge steel sheet suitable for service.

B. Soldier Piles: Steel H-beams in serviceable condition.

C. Timber Lagging: Heavy timber pressure treated with wood preservative.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install in proper relation with adjacent construction. Coordinate with work of other sections.

B. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

END OF SECTION 02150

SECTION 02221 - ROCK REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The Contractor shall excavate rock, if encountered, as required to perform the required work, and shall dispose of the excavated material or stockpile for later use in non-structural areas. Contractor shall furnish acceptable material for backfill in place of the excavated rock.

B. In general, rock in pipe trenches shall be excavated so as to be not less than 6-inches from the pipe (bottom and sides) after pipe has been laid.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Rock Definition: Solid mineral material that cannot be removed by heavy excavating equipment with ripping tools.

PART 3 - EXECUTION

3.01 MEANS OF REMOVAL

A. No blasting will be allowed in this Contract.

B. The Contractor shall be solely responsible for rock removal operations. The Contractor shall not hold the Owner and/or the Engineer liable for any damages resulting from rock removal operations on this project.

3.02 PAYMENT

Rock excavation shall be bid as unclassified and will not be paid for separately.

END OF SECTION 02221

SECTION 02222 - EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Structure excavation.

B. Shoring excavations.

1.02 RELATED REQUIREMENTS

A. Section 02221 - Rock Removal.

B. Section 02223 – Embankments and Backfill.

C. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

1.03 PROTECTION

A. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent cave-in or loose soil from falling into excavation.

B. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.

C. Notify Engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.

D. Protect bottom of excavations and soil adjacent to and beneath foundations from frost.

E. Grade excavation top perimeter to prevent surface water run-off into excavation.

F. Contractor shall provide ample means and devices with which to intercept any water entering the excavation area.

1.04 ROCK EXCAVATION

Any rock encountered within foundation excavations for recommended soil bearing elements should be removed to a depth sufficient to provide a minimum 24 inch cushion between the bottom of the footing and the top of rock. The cushion should be constructed of properly compacted KY DOT #610 stone or DGA free of organics and deleterious materials. See Section 02223, Embankments and Backfill.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Subsoil: Excavated material, graded free of lumps larger than 12-inches, rocks larger than 12-inches, and debris.

PART 3 - EXECUTION

3.01 PREPARATION

Identify required lines, levels, contours, and datum.

3.02 EXCAVATION

A. Excavate subsoil required for structure foundations, construction operations, and other work.

B. Contractor is responsible to adequately brace open cuts and protect workmen and equipment from cave-in.

C. Remove lumped subsoil, boulders, and rock up to 1/3 cu. yd., measured by volume.

D. Correct unauthorized excavation at no cost to Owner.

E. Fill over-excavated areas under structure bearing surfaces in accordance with direction by Engineer.

F. Stockpile excavated material in area designated on site.

3.03 EXCAVATION FOR STRUCTURES

A. For structures, excavate to elevations and dimensions indicated, plus ample space for construction operations and inspection of foundations.
   1. Unless otherwise shown on drawings, excavate for foundation bearing a minimum of 24-inches below existing grade. Structure foundations shall bear entirely on rock, or entirely on compacted granular fill. Where structures are not to be supported on rock and rock is encountered, under cut rock 24-inches and backfill with granular material, as directed.

   2. Structure foundations shall be installed immediately after excavation is completed, or if this cannot be done, the last 4 to 6-inches of material should not be removed until preparations for installing the foundation are complete. In no case should foundations be installed in excavations that contain water. Any soft, saturated areas in the bottom of excavations shall be removed or stabilized using granular material.

3. Make no excavation to the full depth indicated when freezing temperatures may be expected unless foundations can be installed after the excavation has been completed. Bottom of excavation shall be protected from frost if foundation installation is delayed.

3.04 REMOVAL OF WATER

A. The Contractor, at his own expense, shall provide adequate facilities for promptly and continuously removing water from all excavation.

B. To ensure proper conditions at all times during construction, the Contractor shall provide and maintain ample means and devices (including spare units kept ready for immediate use in case of breakdowns) with which to remove promptly and dispose properly of all water entering trenches and other excavations. Such excavation shall be kept dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be floated or otherwise damaged.

C. All water pumped or drained from the Work shall be disposed of in a suitable manner without undue interference with other work, damage to pavements, other surfaces, or property. Suitable temporary pipes, flumes, or channels shall be provided for water that may flow along or across the site of the Work.

D. If necessary, the Contractor shall dewater the excavations by means of an efficient drainage wellpoint system that will drain the soil and prevent saturated soil from flowing into the excavation. The wellpoints shall be designed especially for this type of service. The pumping unit shall be designed for use with the wellpoints, and shall be capable of maintaining a high vacuum and of handling large volumes of air and water at the same time.

E. The installation of the wellpoints and pump shall be done under the supervision of a competent representative of the manufacturer. The Contractor shall do all special work such as surrounding the wellpoints with sand or gravel or other work which is necessary for the wellpoint system to operate for the successful dewatering of the excavation.

3.05 UNAUTHORIZED EXCAVATION

If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted KY DOT #610 stone or DGA free of organics and deleterious materials in accordance with Section 02223, Embankment and Backfill, or with Class A concrete, if the excavation was for a structure.

3.06 ELIMINATION OF UNSUITABLE MATERIAL

A. If material unsuitable for foundation (in the opinion of the Engineer) is found at or below the grade to which excavation would normally be carried in accordance with the Drawings and/or Specifications, the Contractor shall remove such material to the required width and depth and replace it with thoroughly compacted, KY DOT #610 stone or DGA free of organics and deleterious materials or Controlled Low Strength Material.

B. No excavated materials shall be removed from the site of the work or disposed of by the Contractor except as directed or permitted.

C. Surplus excavated materials suitable for backfill shall be used to backfill normal excavations in rock or to replace other materials unacceptable for use as backfill; shall be neatly deposited and graded so as to make or widen fills, flatten side slopes, or fill depressions. All work shall be as directed or permitted and without additional compensation.

D. Surplus excavated materials not needed as specified above shall be hauled away and dumped by the Contractor, at his expense, at appropriate on-site locations as designated by the Owner, and in accordance with arrangements made by the Contractor.

3.07 EXCESS MATERIAL

Disposal of excess material shall be the responsibility of the Contractor. The Contractor shall determine the best method and area for disposal and obtain all permits and required permission. On-site areas have been designated by the Owner.

3.08 EXISTING UTILITIES AND OTHER OBSTRUCTIONS

Prior to the commencement of construction on the project, the Contractor shall contact the utility companies whose lines, above and below ground, may be affected during construction and verify the locations of the utilities as shown on the Contract Drawings. The Contractor shall ascertain from said companies if he will be allowed to displace or alter, by necessity, those lines encountered or replace those lines disturbed by accident during construction, or if the companies themselves are only permitted by policy to perform such work. If the Contractor is permitted to perform such work, he shall leave the lines in as good condition as were originally encountered and complete the Work as quickly as possible. All such lines or underground structures damaged or molested in the construction shall be replaced at the Contractor's expense, unless in the opinion of the Engineer, such damage was caused through no fault of the Contractor.

3.09 FIELD QUALITY CONTROL

Provide for visual inspection of rock surfaces under provisions of Section 01400.

END OF SECTION 02222

SECTION 02223 – EMBANKMENTS AND BACKFILL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Structure perimeter backfilling to subgrade elevations.

B. Site backfilling.

C. Compaction requirements.

D. Access road subgrade preparation.

1.02 RELATED WORK

A. Section 00700 - Submittals (General Conditions).

B. Section 01400 - Quality Control: Compaction requirements of backfill.

C. Section 02222 - Excavation.

D. Section 02225 - Excavation, Backfilling and Compacting for Utilities.

1.03 REFERENCES

A. Commonwealth of Kentucky, Standard Specifications for Road and Bridge Construction.

B. ANSI/ASTM D698 - Moisture-Density Relations of Soils and Soil-Aggregate Mixture Using 5.5 lb Rammer and 12 inch Drop.

C. ANSI/ASTM D1556 - Density of Soil in Place by the Sand-Cone Method.

D. ASTM 2922 - Density of Soil and Soil-Aggregate in Place by Nuclear Methods.

E. ASTM 3017 - Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.04 TESTS

A. Tests and analysis of fill materials will be performed in accordance with ANSI/ASTM D698 and under provisions of Section 01400. Tests shall include but not be limited to gradation analysis and moisture/density relationships.

B. Test will be performed by an approved independent testing laboratory and shall be the responsibility of the Contractor at no additional cost to the Owner.

C. Density test shall be performed in sufficient number to insure the specified densities are being obtained.

D. When ASTM D2922 is used, the calibration curves shall be checked and adjusted if necessary by the procedure described in ASTM D2922, paragraph ADJUSTING CALIBRATION CURVE. ASTM D2922 results in a wet unit weight of soil; and when using this method, ASTM D3017 shall be used to determine moisture content of the soil. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the testing laboratory.

1.05 SUBMITTALS

Results of soil moisture and density tests by an approved testing laboratory shall be submitted to the Engineer for review.

1.06 DEFINITIONS

Structural Areas: All locations under concrete foundations, floor slabs, footers, buildings, concrete structures, bridges, etc.

Non-structural Areas: Locations such as landscaped areas, sidewalks, roadways, etc.

PART 2 - PRODUCTS

2.01 SELECT FILL MATERIALS

A. The on-site residual soils are considered suitable for use as compacted fill in non-structural areas. A minimum of 95 percent of the maximum dry density and plus or minus 2 percent of optimum moisture content should be obtained for fill soils supporting non-structural areas. Field density tests should be performed on each lift placed to determine if proper compaction is being achieved. If sufficient suitable material is not available from the excavations, the backfill material in non-structural areas shall be screened gravel, crushed stone or selected borrow as directed. Backfill material in structural areas shall be KY DOT #610, DGA, or Controlled Low Strength Material.

B. Frozen material shall not be placed in the backfill nor shall backfill be placed upon frozen material. Previously frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.

C. All material, whether from the excavations or from borrow, shall be of such nature

that after it has been placed and properly compacted, it will make a dense, suitable fill. It shall not contain vegetation, masses of roots, individual roots more than 18-inches long or more than 1/2-inch in diameter, stones over 6-inches in diameter, or porous matter.

2.02 COMPACTED FILL

A. Soil used for compacted fill in non-structural areas should be inorganic clayey soils free of deleterious debris or rocks whose largest dimension is no larger than 3-inches. The soil should have a liquid limit (LL) of less than 50, a plasticity index (PI) of less than 30, and a maximum dry density according to the standard Proctor compaction test of at least 100 pcf. The fill should be compacted to at least 95 percent of the SPMDD. The top foot of structural fill shall be compacted to 100 percent of the SPMDD.

B. The moisture content of the compacted fill material shall be within 2% of the optimum moisture content as determined by ASTMD-698.

2.03 STRUCTURAL BACKFILL

A. An underdrain system shall be provided for the soil bearing structures. The underdrain should be constructed of 12-inches of #57 crushed stone and designed in a manner that would promote positive drainage away from the foundation elements. Final site grading should be accomplished in such a manner as to divert surface runoff and roof drains away from all foundation elements.

B. All structures, unless otherwise noted on the Drawings, shall be supported entirely by bedrock or well compacted crushed stone consisting of Kentucky No. 610 size aggregate, DGA, or Controlled Low Strength Material. Structures that have pressure relief valves shall have a 12-inch blanket of #57 stone to allow for proper drainage around the PRV's. Any building supported by stone should have a minimum of 12-inches of compacted crushed stone beneath the bottom of the slab (i.e. foundation elements). Structures should not be supported on a combination of crushed stone and bedrock.

C. Crushed stone used as a bearing medium should be placed in uniform, loose lifts not exceeding 8-inches in thickness. It is recommended that each lift be compacted by a minimum of five (5) passes of a smooth drum vibratory roller having a total static weight of not less than 20,000 pounds. The diameter of the drum should be between 5.0 and 5.5 feet and 6.0 and 6.5 feet wide.

D. Walls below final grade should be backfilled with a minimum 12-inch thick layer of free draining material up to two feet below final grade. The two feet above this free draining material should be backfilled with an impervious material that would retard surface water infiltration. The free draining material should extend down to a rock blanket beneath the bottom slab. Areas within five (5) feet horizontally from vertical walls, the Contractor shall use a hand compactor.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify foundation perimeter drainage installation has been inspected.

B. Verify areas to be backfilled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

3.02 PREPARATION

A. When necessary, compact subgrade surfaces to density requirements for the backfill material and prepare subgrade or previous layer of compacted fill prior to placement of additional fill by scarifying or disking.

B. Cut out soft areas of subgrade not readily capable of in-situ compaction. Backfill with subsoil and compact to density equal to requirements for subsequent backfill material.

3.03 BACKFILLING - GENERAL

A. Backfill areas to contours and elevations. Use unfrozen materials. The Contractor shall keep the foundation and subgrade free from water or unacceptable materials after the fill operations have started.

B. Backfill systematically, as early as possible, to allow maximum time for natural settlement. Do not backfill over porous, wet, or spongy subgrade surfaces.

C. Place and compact fill materials in continuous layers not exceeding 8-inches loose depth. Field density tests shall be preformed on each lift.

D. Employ a placement method so not to disturb or damage foundation drainage.

E. Maintain optimum moisture content of backfill material to attain required compaction density as specified. Material deposited on the fill that is too wet shall be removed or spread and permitted to dry, assisted by disking or blading, if necessary, until the moisture content is reduced to the specified limits.

F. All crushed stone fill and crushed stone backfill under structures and pavements adjacent to structures shall be DGA or #610 crushed stone per Kentucky Highway Department Standard Specifications for Road and Bridge Construction, unless indicated otherwise. Fill and backfill materials shall be placed in layers not exceeding eight (8) inches in thickness and compacted to 95 percent of maximum dry density.

G. Backfill shall not be placed against or on structures until they have attained sufficient

strength to support all loads to which subjected without distortion, cracking, or damage. Deposit soil evenly around the structure.

H. Slope grade away from structures minimum 2-inches in 10-feet, unless noted otherwise.

I. Make changes in grade gradual. Blend slopes into level areas.

J. Remove surplus excavation materials to designated areas.

3.04 TOLERANCES

Top Surface of Backfilling: Plus or minus 1-inch.

3.05 FIELD QUALITY CONTROL

A. Compaction testing will be performed in accordance with ASTM D1556 or ASTM D2922 and under provisions of Sections 01400.

B. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to Owner.

END OF SECTION 02223

SECTION 02225 - EXCAVATING, BACKFILLING, AND COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall make excavations in such widths and depths as will give suitable room for below grade vaults, pump stations, etc., laying pipe to the lines, grades and elevations, furnish, place and compact all backfill materials specified herein or denoted on the Drawings. The materials, equipment, labor, etc., required herein are to be considered as part of the requirements and costs for installing the various pipes, structures and other items they are incidental to.

1.02 RELATED WORK

A. Section 02221 - Rock Removal.

B. Section 02610 - Water Pipe and Fittings.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Crushed stone material shall conform with the requirements of the applicable sections of the Kentucky Bureau of Highways Standard Specifications and shall consist of clean, hard, and durable particles or fragments, free from dirt, vegetation or objectionable materials.

B. Two classes of crushed stone material are used in this Section. The type of material in each class is as follows:
   1. Class I - No. 9 Aggregate.
   2. Class II - Dense Graded Aggregate (DGA).

PART 3 - EXECUTION

3.01 EXCAVATION OF TRENCHES

A. Unless otherwise directed by the Engineer, trenches are to be excavated in open cuts.
   1. Where pipe is to be laid in gravel bedding or concrete cradle, the trench may be excavated by machinery to, or just below, the designated subgrade, provided that the material remaining at the bottom of the trench is no more than slightly disturbed.
   2. Where pipe is to be laid directly on the trench bottom, the lower part of trenches

in earth shall not be excavated to subgrade by machinery. However, just before the pipe is to be placed, the last of the material to be excavated shall be removed by means of hand tools to form a flat or shaped bottom, true to grade, so that the pipe will have a uniform and continuous bearing and support on firm and undisturbed material between joints except for limited areas where the use of pipe slings may have disturbed the bottom.

B. Trenches shall be sufficient width to provide working space on each side of the pipe and to permit proper backfilling around the pipe.
   1. The Contractor shall remove only as much of any existing pavement as is necessary for the prosecution of the Work. The pavement shall be cut with pneumatic tools, without extra compensation to the Contractor, to prevent damage to the remaining road surface. Where pavement is removed in large pieces, it shall be disposed of before proceeding with the excavation.

C. All excavated materials shall be placed a safe distance back form the edge of the trench.

D. Unless specifically directed otherwise by the Engineer, not more than 500 feet of trench shall be opened ahead of the pipe laying work of any one crew, and not more than 500 feet of open ditch shall be left behind the pipe laying work of any one crew. Watchmen or barricades, lanterns and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions, shall be provided by and at the expense of the Contractor.

E. When so required, or when directed by the Engineer, only one-half of street crossings and road crossings shall be excavated before placing temporary bridges over the side excavated, for the convenience of the traveling public. All backfilled ditches shall be maintained in such manner that they will offer no hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged at the direction of the Engineer.

F. Trench excavation shall include the removal of earth, rock, or other materials encountered in the excavating to the depth and extent shown or indicated on the Drawings.

3.02 WATER PIPE BEDDING

A. Piping for water mains shall be supported as follows:
   1. The trench bottom for water main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter and shall be prepared with a minimum of 6 inches of crushed stone per the Drawings. The foundation for water main piping shall be prepared so that the entire load of the backfill on top

of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6-inches of clearance around the pipe. Class I granular bedding or earth material free of rocks shall be used to bring the trench bottom to grade.

B. After each pipe has been brought to grade, aligned, and placed in final position, crushed stone material for water main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.

C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.

D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.

E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.

F. It should be noted that no pipe shall be laid on solid or blasted rock.

G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

3.03 WATER PIPE BACKFILLING

A. Initial Backfill:
   1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 12-inches above the top of the pipe. For water main piping, initial backfill material shall be Class I material.
   2. Material used in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of water main.

B. Final Backfill:
   1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
      a. Case I - Areas not subject to vehicular traffic.
      b. Case II - Paved areas including streets, drives, parking areas, and walks.

2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 12-inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
   a. Case I - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 8-inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
   b. Case II - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 12-inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain the maximum possible compaction. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to maximum possible compaction. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder coarse detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of water main.
4. Class II material used in final backfill shall be included in the unit price of the pipe.

C. A sufficient amount of Class II material shall be stockpiled to ensure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.

D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.04 GRAVITY SEWER AND FORCE MAIN PIPE BEDDING

A. Piping for gravity sewers and force mains shall be supported as follows:
   1. All gravity sewer piping shall be laid on a bed of granular material except when a concrete encasement situation occurs. All pipe bedding material shall be Class I (No. 9 crushed stone aggregate) and shall be placed to a depth of 6-inches in an earth trench and 6-inches in a rock trench. Aggregate bedding shall be graded to provide for a uniform and continuous support beneath the pipe at all points.
   2. The trench bottom for force main piping shall be stable, continuous, relatively smooth and free of frozen material, clodded dirt, foreign material and rock or granular material larger than 1/2 inch in diameter. The foundation for force main

piping shall be prepared so that the entire load of the backfill on top of the pipe will be carried uniformly on the barrel of the pipe. Any uneven areas in the trench bottom shall be shaved-off or filled-in with Class I granular bedding. When the trench is made through rock, the bottom shall be lowered to provide 6-inches of clearance around the pipe. Class I granular bedding shall be used to bring the trench bottom to grade.

B. After each pipe has been brought to grade, aligned, and placed in final position, Class I material for gravity sewer piping and earth material for force main piping shall be deposited and densified under the pipe haunches and on each side of the pipe up to the spring line of the pipe to prevent lateral displacement and hold the pipe in proper position during subsequent pipe jointing, bedding, and backfilling operations.

C. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective.

D. Where an unstable (i.e., water, mud, etc.) trench bottom is encountered, stabilization of the trench bottom is required. This is to be accomplished by undercutting the trench depth and replacing to grade with a foundation of crushed stone aggregate.

E. The depth of the foundation is dependent upon the severity of the trench bottom. The size of stone aggregate used in the foundation will be determined by the condition of the unstable material. Once the trench bottom has been stabilized, the required Class I bedding material can be placed.

F. It should be noted that no pipe shall be laid on solid or blasted rock.

G. Pipe bedding as required in Paragraphs A, B, and D of this Section is **not** considered a separate pay item.

3.05 GRAVITY SEWER AND FORCE MAIN BACKFILL

A. Initial Backfill:

1. This backfill is defined as that material which is placed over the pipe from the spring line to a point 12-inches above the top of the pipe. For gravity sewer piping the material shall be Class I (No. 9 crushed stone aggregate) and may be machine placed without compaction. Uneven places in the backfill shall be leveled by hand. For force main piping, initial backfill material shall be earth material free of rocks, acceptable to the Engineer or with Class I material when a condition exists mentioned in Paragraph A, 3. below.
2. Material used, whether earth or Class I, in the initial backfilling is **not** a separate pay item. Payment for the material is included in the unit price per linear foot of gravity sewer or force main.

3. In areas where large quantities of rock are excavated and the available excavated earth in the immediate vicinity is insufficient for placing the required amount of backfill over the top of the pipe as set forth in Paragraph A.1, the Contractor shall either haul in earth or order Class I material for backfilling over the pipe. Neither the hauling and placement of earth nor the ordering and placement of Class I material to fulfill the backfill requirements set forth herein is considered a separate pay item.

B. Final Backfill:
   1. There are two cases where the method of final backfilling varies. The various cases and their trench situations are as follows:
      a. Case I - Areas not subject to vehicular traffic.
      b. Case II - Paved areas including streets, drives, parking areas, and walks.
   2. In all cases, walking or working on the completed pipelines, except as may be necessary in backfilling, will not be permitted until the trench has been backfilled to a point 12-inches above the top of the pipe. The method of final backfilling for each of the above cases is as follows:
      a. Case I - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 8-inches below the surface of the ground with earth material free from large rock (over one-half cubic foot in volume), acceptable to the Engineer. The remainder of the trench shall be backfilled with earth material reasonably free of any rocks.
      b. Case II - The trench shall be backfilled from a point 12-inches above the top of the pipe to a point 12-inches below the existing pavement surface with Class I (No. 9 crushed stone aggregate) material. The backfill shall be mechanically tamped in approximately 6-inch layers to obtain a compaction of 95 percent density as measured by the modified Procter Test. The remaining backfill shall be Class II (dense graded aggregate) material mechanically tamped to the compaction as required above for Class I material. The trench may be left with a slight mound if permitted by the Engineer. Where required by state or local regulations, a bituminous binder coarse detailed on the Drawings and specified in Section 02510 shall be incorporated in the final backfill.
   3. Earth and Class I material used in final backfill is not a separate pay item. Payment shall be included in the price of gravity sewer and force main.
   4. Class II material used in final backfill shall be included in the unit price for gravity sewer and force main.

C. A sufficient amount of Class II material shall be stockpiled to insure immediate replacement by the Contractor of any settled areas. No extra payment will be made for the filling in of settled or washed areas by the Contractor.

D. Excavated materials from trenches, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. It shall be the responsibility of the Contractor to obtain location or permits for its disposal, unless specific waste areas have been designated on the Drawings or noted in these Specifications. The cost of disposal of

excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.06 PLACEMENT OF IDENTIFICATION TAPE

A. The placement of detectable mylar underground marking tape shall be installed over all utility lines. Care shall be taken to insure that the buried marking tape is not broken when installed and shall be Lineguard brand encased aluminum foil, Type III. The identification tape is manufactured by Lineguard, Inc., P.O. Box 426, Wheaton, IL 60187.

B. The identification tape shall bear the printed identification of the utility line below it, such as "Caution - Buried Below". Tape shall be reverse printed; surface printing will not be acceptable. The tape shall be visible in all types and colors of soil and provide maximum color contrast to the soil. The tape shall meet the APWA color code, and shall be 2-inches in width. Colors are: yellow - gas, green - sewer, red - electric, blue - water, orange - telephone, brown - force main.

C. The tape shall be the last equipment installed in the trench so as to be first out. The tape shall be buried 18-inches below top of grade. After trench backfilling, the tape shall be placed in the backfill and allowed to settle into place with the backfill. The tape may be plowed in after final settlement, installed with a tool during the trench backfilling process, unrolled before final restoration or installed in any other way acceptable to the Owner or Engineer.

3.07 COPPER TRACING WIRE

No. 12 solid copper wire shall be laid in top 12 inches of trench over all plastic pipe. The copper tracing wire shall be wrapped around a line marker at least three (3) times and tied one (1) foot above grade.

END OF SECTION 02225

SECTION 02510 - ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. Provide asphalt concrete paving for following applications and prepared subbase and compacted base.
   1. Roads.
   2. Parking areas.
   3. Driveways.
   4. Walkways.
   5. Curbs.

B. Provide striping for parking, roadway, and handicapped markings.

1.02 SUBMITTALS

Submit for approval product data, test reports.

1.03 QUALITY ASSURANCE

Comply with governing codes and regulations. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Prime coat: Cut-back asphalt.

B. Tack coat: Emulsified asphalt.

C. Asphalt cement: AASHTO M226 and as required by local authorities.

D. Aggregate: Crushed stone or crushed gravel.

E. Traffic paint: Quick-drying chlorinated-rubber alkyd type, color as approved.

F. Wheelstops: Precast concrete of uniform color and texture with steel stakes.

PART 3 - EXECUTION

3.01 NEW PAVEMENT INSTALLATION

A. Asphalt/aggregate Mixture: Comply with local DPW Standard Specifications for Highways and Bridges. Class as required by loading and use.

B. Remove loose material from compacted subbase. Proof roll and check for areas requiring additional compaction. Report unsatisfactory conditions in writing. Beginning of work means acceptance of subbase.

C. Apply tack coat to previous laid work and adjacent in-place concrete surfaces.

D. Place asphalt concrete at minimum temperature of 225 degrees F in strips not less than 10' wide overlapping previous strips. Complete entire base course before beginning surface course.

E. Construct curbs to dimensions indicated or if not indicated to standard shapes. Provide tack coat between curb and pavement.

F. Begin rolling when pavement can withstand weight of roller. Roll while still hot to obtain maximum density and to eliminate roller marks.

G. Provide 4" lane and striping paint in uniform, straight lines. Provide wheelstops where indicated and securely dowel into pavement. Protect work from traffic and damage.

H. Test in-place asphalt work for thickness and smoothness. Remove and replace defective work and patch to eliminate evidence of patching. Provide the following minimum thickness and smoothness unless otherwise greater thickness is required on the Drawings:
   1. Subbase course: 4-inch No. 2 stone and 4-inch DGA.
   2. Base course: 2-1/2-inch.
   3. Surface course: 1-1/2-inch plus or minus 1/4-inch at drives and parking; 1-inch plus or minus 1/4-inch at walks.
   4. Surface course smoothness: Plus or minus 1/8-inch in 10 feet. No ponding of water is acceptable.

3.02 REPLACEMENT PAVEMENT FOR UTILITIES

A. Sections of pavement shall be replaced as required to install the pipelines. Disturbed pavement shall be reconstructed to original lines and grades with bituminous binder as detailed on the Drawings and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to these operations.

B. Prior to trenching, the pavement shall be scored or cut to straight edges along each side of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be recut and trimmed as necessary to square, straight edges after the pipe has been installed and prior to placement of the binder course or concrete.

C. Backfilling of trenches shall be in accordance with the applicable portions of Section 02225.

D. Bituminous concrete binder shall be one course construction in accordance with applicable provisions of the Kentucky Department of Highways Standard Specifications, Section 402.
   1. Placement and compaction of binder courses shall be in accordance with Section 402 of the Kentucky Department of Highways Standard Specifications. Minimum thickness after compaction shall be 2-inches for driveways and 5 ½ inches for roads.

E. Pavement restoration shall be in accordance with the above unless shown otherwise on the plans.

END OF SECTION 02510

SECTION 02610 – WATER PIPE AND FITTINGS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install water main piping together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

A. Section 02222 - Excavation.

B. Section 02223 – Embankments.

C. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

D. Section 02640 - Water Valves and Gates.

E. Section 02675 - Disinfection of Potable Water Pipe.

1.03 REFERENCES

A. AWWA C104.

AWWA C110.

AWWA C111.

AWWA C115.

AWWA C150.

AWWA C151.

AWWA C153.

ASTM C443.

ASTM C478.

ASTM D1785.

ASTM D2467.

ASTM D2564.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE (DIP) AND FITTINGS

A. Ductile iron pipe (DIP) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe shall conform to pressure class 350 minimum unless noted otherwise. All pipe, fittings and joints must be capable of accommodating pressure up to 350 psi. The ductile iron pipe shall be as manufactured by Clow Corp., U.S. Pipe & Foundry Co., American Cast Iron Pipe Co., or equal.

B. Fittings shall be restrained mechanical joint or push-on joint ductile iron per the Drawings in accordance with AWWA C153 and have a body thickness and radii of curvature conforming to ANSI A21.10 or ANSI A21.53 for compact fittings. Fittings and joints shall be supplied with all accessories.

1. Restrained mechanical joint fittings shall have joints in accordance with ANSI/AWWA C111/A21.11. Fitting restraint shall be by set screw retainer rings Ford UFR 1400-DA-8-I, or equal.

2. Push-on type joints shall be single rubber gasket, with cast gasket socket and recessed bell with a tapered annular opening and flared socket. Plain spigot ends shall be suitably beveled to permit easy entry into the bell, centering and compressing the gasket. Push-on joints shall be equal to the “Fastite” joint as manufactured by American Cast Iron Pipe Company, or "Tyton Joint" as manufactured by US Pipe & Foundry Company, or approved equal. Push-on fittings shall have a restraint system as per paragraph 2.01.I of this section.

C. Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A 21.15 Standard and have a thickness Class of 53. The pipe shall have a rated working pressure of 250 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8 inch. Flange bolts shall conform to ANSI B 16.1.

D. Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 (or A21.53 for compact fittings) and have Class 125 flanges. Fittings shall accommodate a working pressure up to 250 psi and be supplied with all accessories.

E. All pipe and fittings shall be asphaltic coated outside and shall receive a standard cement lining with asphaltic seal coat on the inside in accordance with ANSI/AWWA C104/A21.4.

F. Cement mortar lining and seal coating for pipe and fittings, where applicable shall be in accordance with ANSI/AWWA C104/A21.4. Asphaltic outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA

C110/A21.10 for fittings.

G. All ductile fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 70-50-05 per ANSI/AWWA C110/A21.10.

H. No separate pay item has been established for fittings and no determination of the number of fittings required on the job has been made. The Contractor, during the bidding phase, shall determine the number of fittings required on the job and include the cost of the fittings and installation in the unit price for pipe.

I. Restrained joint pipe and push-on fittings shall be a boltless system equal to “Fast-Grip” restraining gaskets or “Flex-Ring” joint as manufactured by American Cast Iron Pipe Company, or "Field-Lok" restraining gaskets or "TRFLEX Joint" as manufactured by US Pipe & Foundry Company, or equal.

J. Ball and socket restrained joint pipe and fittings shall be a boltless system equal to USIFLEX manufactured by U.S. Pipe and Foundry Company or FLEX-LOK manufactured by American Cast Iron Pipe Company. Pipe shall have a working pressure rating of 250 psi and have a maximum joint deflection of 15 degrees. Nominal laying lengths shall be in the range of 18-feet 6-inches to 20-feet 6-inches.

K. Pipe shall be as manufactured by U.S. Pipe & Foundry Company, American Cast Iron Pipe Company, or equal.

2.02 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

A. Polyvinyl chloride (PVC) pipe for buried water mains smaller than 4-inches in diameter shall be Class 250 (SDR 17) PVC pressure rated pipe with either twin gasket joints or integral bell joints with rubber O-ring seals. All Class 250 pipe shall meet the requirement of SDR 17.

B. All PVC pipe shall conform to the latest revisions of ASTM D-1784 (PVC Compounds), ASTM D-2241 (PVC Plastic Pipe, SDR), and ASTM D-2672 (Bell-end PVC Pipe). PVC pipe shall have a minimum cell classification of 12454B or 12454C as defined in ASTM D-1784. Rubber gasketed joints shall conform to ASTM D-3139. The gaskets for the PVC pipe joint shall conform to ASTM F-477 and D-1869.

C. Rubber gasket joints shall provide adequate expansion to allow for a 50 degree change in temperature on one length of pipe. Lubrication for rubber connected couplings shall be water soluble, non-toxic, be non-objectionable in taste and odor and have no deteriorating affect on the PVC or rubber gaskets and shall be as supplied by the pipe manufacturer.

D. All pipe and couplings shall bear identification markings that will remain legible during normal handling, storage and installation, which have been applied in a manner

what will not reduce the strength of the pipe or the coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio number, ASTM Pressure Class, ASTM designation number for this standard, manufacturer's name or trademark, seal (mark) of the testing agency that verified the suitability of the pipe material for potable-water service. Each marking shall be applied at intervals of not more than 5 feet for the pipe and shall be marked on each coupling.

2.02 High Density Polyethylene (HDPE) and Copper Pipe

A. Underground Tubing with Compression Joints

Small piping underground shall be of standard soft copper tubing for water service pipe, ASTM Specifications B 88-93, Type "K," or PE SDR-9, Class 200-psi, with bronze fittings, stops, and valves having compression connections for flared copper tubing. See drawings for the type of service pipe to be installed. Copper piping 2” and larger shall be Type “L” copper.

PART 3 - EXECUTION

3.01 LAYING DEPTHS

In general, water mains shall be laid with a minimum cover of 36-inches, except as otherwise indicated on the Drawings.

3.02 UTILITY CROSSING CONCRETE ENCASEMENT

A. At locations shown on the Contract Drawings, required by the Specifications, or as directed by the Engineer, concrete encasement shall be used when the clearance between the proposed water pipe and any existing utility pipe is 18-inches or less. Utility pipe includes underground sewer, gas, telephone, and electrical conduit, storm sewers, and any other pipe as determined by the Engineer.

B. There are two cases of utility crossing encasement. Case I is applicable when the proposed water line is **above** the existing utility line. Case II is applicable when the proposed water line is laid **below** the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.

C. Concrete shall be 3000 psi and shall be mixed sufficiently wet to permit it to flow between the pipes to form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade or line of either pipe or damage the joints.

D. Concrete for this Work is not a separate pay item and will be considered incidental to utility pipe installation.

3.03 PIPE LAYING

A. All pipe shall be laid with ends abutting and true to the lines and grades indicated on the plans. Pipe shall be fitted and matched so that when laid in the Work, it will provide a smooth and uniform invert. Supporting of pipe shall be as set out in Section 02225 and in no case shall the supporting of pipe on blocks be permitted.

B. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to ensure it is clean. Any piece of pipe or fitting which is known to be defective shall not be laid or placed in the lines. If any defective pipe or fittings shall be discovered after the pipe is laid, it shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe. Bevel can be made with hand or power tools.

C. The interior of the pipe, as the Work progresses, shall be cleaned of dirt, jointing materials, and superfluous materials of every description. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted so as to exclude earth or other material and precautions taken to prevent floatation of pipe by runoff into trench.

D. Anchorage of Bends:

1. At all tees, plugs, caps and bends of 11 ¼ degrees and over, and at reducers or in fittings where changes in pipe diameter occur, movement shall be prevented by using suitable harness, thrust blocks or ballast. Thrust blocks shall be as shown on the Drawings, with sufficient volumes of concrete being provided; however, care shall be taken to leave weep holes unobstructed and allow for future tightening of all nearby joints. Unless otherwise directed by the Engineer, thrust blocks shall be placed so that pipe and fitting joints will be accessible for repair.

2. Bridles, harness or pipe ballasting shall meet with the approval of the Engineer. Steel rods and clamps shall be stainless steel. No extra pay shall be allowed for work to provide proper anchorage of pipe, fittings or other appurtenances. Such items shall be included in the price bid for the supported item.

E. No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has the opportunity to make an inspection of the joints, alignment and grade in the section laid, but such inspection shall not relieve the Contractor of further liability in case of defective joints, misalignment caused by backfilling and other such deficiencies that are noted later.

3.04 JOINTING

All joint surfaces shall be cleaned immediately before jointing the pipe. The bell or

groove shall be lubricated in accordance with the pipe manufacturer's recommendations. Each pipe unit shall then be carefully pushed into place without damage to pipe or gasket. All pipe shall be provided with home marks to insure proper gasket seating. Details of gasket installation and joint assembly shall follow the direction of the manufacturer's of the joint material and of the pipe. The resulting joints shall be watertight and flexible.

3.05 TESTING OF WATER PIPE

A. The completed work shall comply with the provisions listed herein, or similar requirements which will insure equal or better results. Suitable test plugs, water pump or other equipment and apparatus, and all labor required to properly conduct the tests shall be furnished by the Contractor at no expense to the Owner.

B. Water main piping shall be pressure tested to a minimum of 150 pounds per square inch (psi). At no time shall the test pressure exceed 150 percent of the pipe's rated working pressure. A pipe section shall be accepted if the test pressure does not fall more than 5 psi during the minimum 2-hour test period. The pipe shall be tested for allowable leakage according to AWWA C-600 (latest revision) concurrently with the pressure test.

C. Where practicable, pipelines shall be tested between line valves or plugs in lengths of not more than 6,000 feet. Testing shall proceed from the source of water toward the termination of the line. The line shall be tested upon the completion of the first 6,000 feet. After the completion of two (2) consecutive tests without failure, the Contractor, at his option and with the Engineer's approval, may discontinue testing until the system is complete.

D. All pipe, fittings and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.

E. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at high points within the test section, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water.

F. All piping shall be tested for leakage at a pressure no less than that specified for the pressure test. The leakage shall be defined as the quantity of water that must be supplied to the tested section to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water. The leakage shall be less than an allowable amount determined by guidelines listed in AWWA Manual of Water Supply Practices “PVC PIPE--DESIGN AND INSTALLATION”, or appropriate guidelines for other pipe materials. For PVC pipe, the following equation applies:

$L = \frac{N*D*P^{0.5}}{}$ Where: L = allowable leakage (gallons/hour)

7400

N = number of joints in the length of pipelines
D = nominal diameter of pipe (inches)
P = average pressure during the leakage test (psig)

G. Should the sections under test fail to meet the requirements, the Contractor shall do all work of locating and repairing the leaks and retesting as the Engineer may require without additional compensation. All visible leaks are to be repaired regardless of the amount of leakage.

H. If in the judgement of the Engineer, it is impracticable to follow the foregoing procedures for any reason, modifications in the procedures shall be made as required and as acceptable to the Engineer, but in any event, the Contractor shall be responsible for the ultimate tightness of the line within the above test requirements.

3.06 PLACEMENT OF IDENTIFICATION TAPE

The placement of detectable underground mylar marking tape shall be installed over all water mains as specified in Section 02225.

3.07 COPPER TRACING WIRE

The placement of copper tracing wire shall be laid over all plastic water mains as specified in Section 02225.

END OF SECTION 02610

SECTION 02630 - ENCASEMENT PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install encasement pipe together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

A. Section 02222 - Excavation.

B. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

C. Section 02610 - Water Pipe and Fittings.

D. Section 02731 – Gravity Sewers

E. Section 02732 – Sewage Force Mains

1.03.1 REFERENCES

A. ASTM A139 – Standard Specifications for Electric-Fusion (Arc) Welded Steel Pipe (NPS 4 and over).

PART 2 - PRODUCTS

2.01 STEEL PIPE

A. Steel seamless pipe shall be new material, with a minimum yield of 35,000 psi and a wall thickness as shown below. All joints encasement pipe joints shall be welded.

Nominal Diameter Inches	**Minimum Wall Thickness Inches**	
	Highway Crossing	**Railroad Crossing**
14 & Under	0.250	0.219
16	0.375	0.250
18	0.375	0.281
20 & 22	0.375	0.312
24	0.500	0.344
26	0.500	0.375
28	0.500	0.406
30	0.500	0.438

32	0.500	0.469
34 & 36	0.500	0.500
42	0.625	0.625
48	0.625	0.625

B. Weldings of the steel casing pipe shall be solidly butt-welded with a smooth non-obstructing joint inside and conform to all specifications as required by American Welding Society (AWS). The casing pipe shall be installed without bends. All welders and welding operators shall be qualified as prescribed by AWS requirements.

C. The material shall conform to the chemical and mechanical requirements of the latest revision of ASTM A139 "Electric-Fusion (ARC) - Welded Steel Pipe (NPS 4 and Over)," unless otherwise stated herein.

D. Grade B steel shall be used. The steel shall be new and previously unused.

E. Hydrostatic testing shall not be necessary.

F. The wall thickness at any point shall be within 0.025 inches of the nominal metal thickness specified.

G. A protective coating shall be applied to each length of pipe. Following an SSPC SP-7 "Brush-Off Blast Cleaning" surface preparation, 3 (dry) mils of Tnemec-Primer 10-99 (red), or of an approved equal shall be applied in the manner recommended by the respective paint manufacturer.

H. Each length of pipe shall be legibly marked, stating: manufacturer, diameter, wall thickness and primer.

I. Precaution shall be taken to avoid deforming the pipe and damaging the primer during shipping.

J. Pipe shall be within the following tolerances:

Straightness 1/4 -- 3/8.
Roundness 1 Percent.
Thickness 12 1/2 Percent.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Where shown on the Drawings, the Contractor shall install encasement pipe. Two methods of installation are designated, the open-cut method and the boring method.

1. The open-cut method shall consist of placing the encasement pipe in the excavated trench, then installing the carrier pipe inside the encasement pipe. Excavation, bedding and backfilling shall be in accordance with Section 02225.

2. The boring method consists of pushing or jacking the encasement pipe into the hole as an auger cuts out the material or after the auger has completed the bore. The encasement pipe shall be installed in a manner that will not disrupt traffic.

B. The carrier pipe shall be ductile iron, polyvinyl chloride, or polyethylene pipe as designated on the Drawings. The carrier pipe will not be permitted to rest on bells or couplings.

C. Pipeline Spacers

1. Carrier pipes installed inside encasement pipes shall be centered throughout the length of encasement pipe. Centering shall be accomplished by the installation of polyethylene pipeline spacers attached to the carrier pipe in such manner as to prevent the dislodgement of the spacers as the carrier pipe is pulled or pushed through the encasement pipe. Spacers shall be of such dimensions to provide: full supportive load capacity of the pipe and contents; of such thickness to allow installation and/or removal of the pipe; and to allow no greater than 1/2 inch movement of the carrier pipe within the cover pipe after carrier pipe is installed.

2. Spacers shall be located immediately behind each bell and at a maximum spacing distance as follows:

Carrier Pipe Diameter (inches)	Maximum Spacing (feet)
2 - 2-1/2	4
3 - 8	7
10 - 26	10
28	9
30	8
32	7
34	6
36 - 38	5.5
40 - 44	5
46 - 48	4

The materials and spacing to be used shall be accepted by the Engineer prior to installation. The polyethylene pipeline spacers shall be manufactured by Pipeline Seal and Insulator, Inc. (PSI), Raci Spacers, Inc., or equal. Installation shall be in accordance with manufacture's recommendations.

3.02 SEALING

After installation of the carrier pipe within the encasement pipe, the ends of the casing shall be sealed in the following manner. The space between the casing and the carrier pipe shall be filled with a waterproofing bitumastic compound until a tight seal is obtained. An Ethylene Propylene Diene Monomer (EPDM) elastomeric membrane shall be wrapped around the end of the encasement pipe in three layers and securely bound to the casing and the carrier pipe barrel with stainless steel bands. The EPDM membrane shall be 0.045 inches thick and have a tear resistance of 125 pounds/inches. The membrane shall be manufactured by Carlisle Tire & Rubber Company, Firestone Industrial Products Company, or approved equal. The casing sealant should be constructed to allow drainage of liquid (water).

3.03 DAMAGE

The cost of repairing damage that is caused by the boring operation to the highway or railroad shall be borne by the Contractor.

END OF SECTION 02630

SECTION 02640 - WATER VALVES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material, and equipment necessary to install valves together with all appurtenances as shown and detailed on the Drawings and specified herein.

1.02 RELATED WORK

A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

B. Section 02610 - Water Pipe and Fittings.

1.03 SUBMITTALS

A. Complete shop drawings of all valves and appurtenances shall be submitted to the Engineer in accordance with the requirements of Section 01300.

B. The manufacturer shall furnish the Engineer two (2) copies of an affidavit stating that the valve and all materials used in its construction conform to the applicable requirements of the latest revision of the applicable AWWA Standard, and that all tests specified therein have been performed and that all test requirements have been met.

C. The Engineer shall be furnished two (2) copies of affidavit that the "Valve Protection Testing" has been done and that all test requirements have been met.

D. The Engineer shall be furnished with two (2) copies of affidavit that inspection, testing and rejection are in accordance with the latest revision of the applicable AWWA Standard.

PART 2 - PRODUCTS

2.01 GATE VALVES

A. All gate valves shall be of the resilient seat type in accordance with the latest revision of AWWA C509 Standard. The valve body, bonnet and gate castings shall be ductile iron or cast iron. The valve shall have a non-rising stem (NRS), fully bronze mounted with o-ring seals. Valve body and bonnet, inside and out, shall be fully coated with fusion bonded epoxy coating in accordance with AWWA C550 Standard. Valves shall have a rated working pressure of 200 psi.

B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the Drawings or specified herein. The end connection shall be suitable to receive ductile iron or PVC pipe.

C. Gate valves for meter pits, pump stations, or other installations as shown on the Drawings shall be furnished with flanged joint and connections, outside screw and yoke and handwheel operator. The gate valve shall have the direction of opening cast on the rim of the handwheel and provided with chain and lock.

D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working pressure cast on the body of the valve.

E. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).

F. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the Drawings. They shall be set vertically and properly adjusted so that the cover will be in the same plane as the finished surface of the ground or street.

G. Valves 4-inch and larger shall be model A-2630 as manufactured by Mueller, or equal. Valves smaller than 4-inch shall be model A-2630-8 (threaded) as manufactured by Mueller, or equal.

2.02 CHECK VALVES

A. General:

Check valves shall be all iron body, bronze mounted, full opening swing type. Valve clapper shall swing completely clear of the waterway when valve is full open, permitting a "full flow" through the valve equal to the nominal pipe diameter. They shall comply with AWWA Standard C-508 latest revision. The valves shall be M & H Valve Company, Anniston, AL, Valve Type 159-Lever Weight, or equal.

B. Rating

Check valves shall be rated at 175 psi water working pressure, 350 psi hydrostatic test for structural soundness (2-inch through 12-inch) and 150 psi water working pressure and 300 psi hydrostatic test (sizes 14-inch through 30-inch). Seat tightness at rated working pressure shall be in accordance with valves shown in AWWA Standard C-500 for gate valves and fully conform to AWWA C508.

C. End Configurations:

Check valves shall be furnished with 125-pound ANSI flanges ends with accessories.

D. Materials:

All cast iron shall conform to ASTM-A-126 Class B. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed. Clappers shall be all bronze for sizes through 4-inch and cast iron, neoprene faced for sizes 6-inch and larger. Hinge pins shall be 18-8 stainless steel rotating in bronze plugs. Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307 and A-563, respectively.

E. Design:

Check valves shall be constructed to permit top entry for complete removal of internal components without removing the valve from the line. Glands shall be o-rings, 2-inch to 12-inch sizes and conventional in 14-inch to 30-inch sizes. Check valves shall be equipped with adjustable outside lever and weight to accomplish faster closing and to minimize slamming effect. All valves 14-inch and larger shall have extended hinge pins for future addition of levers and springs required. Valves shall be suitable for installation in either horizontal or vertical position.

F. Painting:

The inside and outside of all valves, together with the working parts except bronze and machined surfaces, shall be coated in accordance with the latest revision of AWWA C550 Standard.

G. Marking:

Marking shall be in accordance with AWWA C-508 and shall include size, working pressure, and cast arrow to indicate direction of flow, name of manufacturer, and year of manufacture.

2.03 AIR RELEASE AND AIR/VACUUM VALVES

A. The air/vacuum valves shall be APCO Series 140 DAT as manufactured by Valve and Primer Corp., or equal.

B. The air release valves shall be APCO Series 140 C as manufactured by Valve and Primer Corp., or equal.

C. The Combination air/vacuum valves shall be APCO Series 140 C as manufactured by Valve and Primer Corp., or equal.

D. The valves shall be of the type that automatically exhausts large quantities of air during the filling of a system and allows air to re-enter during draining or when a vacuum occurs. The over-all height less back wash accessories shall not exceed 21

inches. Valves shall be constructed of cast iron body and cover, stainless trim and float with Buna-N seat for positive seating.

E. The baffle shall be ductile iron and shall protect float from direct impact of air and water. The seat shall slip fit into the baffle or cover and lock in place without any distortion. The float and baffle assembly shall be shrouded with a water diffuser. The float shall be stainless steel center guided for positive seating and be rated at 1000 psi non-shock service.

F. The discharge orifice shall be fitted with a double-acting throttle device to regulate and restrict air venting.

G. All parts of the valves and the opening mechanisms shall be made of non-corrodible materials.

2.04 TAPPING VALVES AND TAPPING SLEEVES AND CROSSES

A. Tapping Valves

1. Tapping valves for use with tapping sleeve and crosses shall be in accordance with the specifications for gate valves, except that one end shall have a flanged connection and the other end either a hub or mechanical joint connection.
2. Valves shall be rated for 250 psi in sizes 2 inch thru 24-inch.
3. Valves shall open by turning counterclockwise.
4. Inlet flanges of valves shall meet ANSI B16.1, Class 125 standard.

B. Tapping Sleeves and Tapping Crosses

1. Tapping sleeves and tapping crosses shall have heavy cross sections to strengthen the existing water main at the point of installation.
2. Mainline end connections to existing pipeline shall be mechanical joint with large and small gaskets.
3. Mechanical joint tapping sleeves and crosses shall have a maximum working pressure of 250 psi.
4. Outlet end of tapping sleeves and crosses shall have ANSI B16.1, Class 125 flanges.

C. Quality Standard

1. For full body tapping valves, tapping sleeves and tapping crosses shall be model T-2360-16 with Tapping Sleeve H-615 as manufactured by Mueller Company, or equal.
2. Saddles for tapping branch lines smaller than 4-inch shall be Smith Blair Series 313 or Mueller BR 2 B Series.

D. Test and Certification

1. Tests on tapping valves shall be in accordance with these Specifications for gate valves.

E. Protection

1. Tapping Valves
   a. Protection of tapping sleeves and valves shall be in accordance with these Specifications for gate valves.

2. Tapping Sleeves and Crosses

   a. Protection for tapping sleeves and crosses shall be in accordance with these Specifications for ductile iron pipe fittings.

2.05 FIRE HYDRANTS

A. All post-type dry barrel fire hydrants will have compression type vales, operating against pressure. They shall meet all requirements of ANSI/AWWA Specification C502-94.

B. They shall have two 2-1/2 inch hose connection nozzles and one 4-1/2 inch steamer connection nozzle, all with caps and drains, and have national support threads.

C. Main valve opening size shall be 5-1/4 inch, which must remain closed when the above ground breakable safety section of the hydrant barrel is broken off.

D. All hydrants shall have 6 inch mechanical joint bell connection designed for 200 pounds working water pressure, in accordance with ANSI/AWWA C110/A21.10-98. Joint accessories are to be furnished with the hydrant.

E. Finish paint color of the hydrant barrel above ground line shall be red.

F. All hydrants shall have an automatic drain feature providing positive barrel drainage after hydrant use.

G. The lowest outlet level of the hydrant shall be located sufficiently above the indicated ground level to permit a 360° swing of a 15 inch hydrant wrench. One standard hydrant wrench is to be provided. All hydrants shall open by turning counterclockwise. All hydrants shall be installed plumb and at proper bury depth. OWNER may require concrete stabilizing collar (2.5' x 2.5' x 0.5') with rebar around hydrants.

H. QualityStandard

1. All post type fire hydrants shall have the features, and be equal to those of Mueller Super Centerion 250 A-423.

2.04 VALVE BOXES

A. Each buried stop and valve shall be provided with a suitable valve box equivalent to the OWNER'S standard valve box. Boxes shall be of the adjustable, telescoping, heavy-pattern type with the lower part of cast iron and the upper part of steel or cast iron. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.

B. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settling. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and rest on the valve bonnet.

C. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.

D. The inside diameter of boxes for valves shall be at least 4-1/2 inch, and the lengths shall be as necessary for the depths of the valves or stops with which the boxes are to be used.

E. Covers for valves shall be close fitting and substantially dirt-tight.

F. The top of the cover shall be close flush with the top of the box rim. An arrow and the word OPEN to indicate the direction of turning to open the valve shall be cast in the top of the valve covers.

2.04 MISCELLANEOUS STOPS AND SERVICE COUPLINGS

A. Corporation Stops

1. Corporation stops to be used with threaded pipe where connected into cast iron pipe, shall be brass ground joint type with AWWA CC or CS taper thread inlets. Stops shall be F1000-3-Q, as manufactured by Ford Meter Box Company, Inc., or equal.
2. Corporation stops to be used with copper pipe with compression type connections, where connected into cast iron or asbestos-cement pipe, shall be the same, except with compression type outlet connections.
3. Corporation stops shall be factory tested to 250 psi to be compatible with the pipes in which they are installed.
4. Quick joint couplings for ¾" copper or plastics tubing shall be C44-33Q as manufactured by Ford Meter Box Company, Inc., or equal.

2.05 PRESSURE GAUGES

A. Pressure gauges shall have cast brass cases with bourdon tubes and precision rotary movements of bronze, nickel, or other material suitable to the environment in which

they will be located. Dials shall be 6 inches in diameter with a pressure range of 0 to 100 psi. Provide female quick coupler for connection to corporation stop. Each gauge shall be provided with snuffer.

B. Corporation stops shall be similar to Mueller and shall have iron pipe threads with pack joint connection outlets. Provide male quick coupler for attachment of pressure gauge.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Valves shall be installed as nearly as possible in the positions indicated on the Drawings consistent with conveniences of operating the handwheel or wrench. All valves shall be carefully erected and supported in their respective positions free from all distortion and strain on appurtenances during handling and installation.

B. All material shall be carefully inspected for defects in workmanship and material, all debris and foreign material cleaned out of valve openings and seats, all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness.

C. Valves and other equipment that do not operate easily or are otherwise defective shall be repaired or replaced at the Contractor's expense.

D. Valves shall be installed with stems in the vertical position unless an alternate position has been accepted by the Engineer.

E. Valves shall be set plumb and supported adequately in conformance with the instructions of the manufacturer. Valves mounted on the face of concrete shall be shimmied vertically and grouted in place. Valves in the control piping shall be installed so as to be easily accessible.

F. Where chain wheels are provided for remote operation of valves, two (2) S-shaped hooks shall be provided for each valve to enable the chains to be hooked so as not to interfere with personnel traffic.

G. Valves shall be provided with extension stems where required for convenience of operation. Extension stems shall be provided for valves installed underground and elsewhere so that the operating wrench does not exceed 6 feet in length.

H. A permanent type gasket of uniform thickness shall be provided between flanges of valves and sluice gates and their wall thimble.

I. Wall thimbles shall be accurately set in the concrete walls so that the gates can be

mounted in their respective positions without distortion or strain.

J. Floorstand operators and stem guides shall be set so that the stems shall run smoothly in true alignment. Guides shall be anchored firmly to the walls. Distances from the centerlines of gates to the operating level or base of floorstand shall be checked by the Contractor and adjusted if necessary to suit the actual conditions of installation.

3.02 PAINTING

A. Valves shall be factory primed and fully coated, inside and out, with fusion bonded epoxy in accordance with the latest revision of AWWA C550 Standard.

B. Other painting (if required) is specified in Division 9.

END OF SECTION 02640

SECTION 02675 - DISINFECTION OF POTABLE WATER PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, material and water necessary to disinfect the potable water pipe as shown on the Drawings and specified herein.

1.02 RELATED WORK

A. Section 02225 - Excavating, Backfilling and Compacting for Utilities.

B. Section 02610 - Water Pipe and Fittings.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 DISINFECTION OF WATER MAINS

A. All water pipe shall be disinfected by the use of chlorine or chlorine compound in such amounts as to produce a concentration of at least 50 ppm and a residual of at least 25 ppm at the end of the twenty-four (24) hours. Pipes shall be thoroughly flushed upon meeting the chlorine residual requirements. Before the pipes are placed in service, samples of the water must be taken by the Contractor and submitted to the State Department of Health for testing. No pipes shall be placed in service until the samples have been approved by the Health Department. The Contractor shall bear all the cost of sampling, testing, and postage. The cost of the disinfection and sampling shall be included in the unit price of the pipe.

B. Copies of the results of the testing shall be submitted to the Owner and/or Engineer.

END OF SECTION 02675

SECTION 02930 - SEEDING AND SODDING

PART 1 - WORK INCLUDED

1.01 CLEAN-UP

Upon completion of the Project, the Contractor shall remove all debris and surplus construction materials resulting from his work. The Contractor shall grade the ground along each side of the pipe trenches and/or structures in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line, or as shown on the Drawings.

PART 2 - PRODUCTS

2.01 SEED

Grass seed shall be mixed and guaranteed by the supplier to consist of the following:

Annual Rye	60 percent
Kentucky Bluegrass	20 percent
Falcon Fescue	20 percent

2.02 TOPSOIL

Topsoil shall be material stripped and stored under work of Section 02200 and shall be used for all work under this Section. If the quantity of stored topsoil is inadequate or if none has been salvaged from the Project site, the Contractor shall furnish at his own expense sufficient topsoil to properly install all work as specified herein. Topsoil shall be original surface loam obtained from well drained areas from which topsoil has not been removed previously, either by erosion, clearing and removal of tress or mechanical means. It shall not contain subsoil material and shall be clean and free of clay lumps, roots, stones or similar substances more than 2 inches in any dimension, debris, discarded fragments of building materials or weeds and weed seeds.

2.03 SOIL IMPROVEMENTS

A. Commercial fertilizers shall be of analyses specified, or as recommended by the Agricultural Extension Service for treatment of topsoil in the area from which removed, and shall conform to the applicable state fertilizer laws. Fertilizer shall be uniform in composition, dry and free flowing, and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guaranteed analysis. Any fertilizer which becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.

B. Lime, if recommended for soil treatment by the Agricultural Extension Service, shall

be ground limestone (Dolomite) containing not less than 85 percent of total carbonates, and shall be ground to such a fineness that 50 percent will pass through a 100-mesh sieve, and 90 percent will pass through a 20-mesh sieve. Coarser material shall be acceptable provided that required rates of application are increased proportionally on the basis of quantities passing the 100-mesh sieve.

PART 3 - EXECUTION

3.01 SEEDING AND SODDING

A. After installation of the Project, topsoil shall be spread evenly to a minimum 4-inch depth and lightly compacted. No topsoil shall be spread in a frozen or muddy condition.

1. Any stored topsoil remaining after work is in place shall be disposed of by the Contractor as directed by the Engineer.

B. Soil improvement shall be made if and as recommended by the Agricultural Extension Service prior to seeding.

1. Ground limestone, if required, shall be applied at the recommended rates per square yard and shall be thoroughly mixed into the topsoil.
2. Fertilizers, if required shall be of analysis and rates per square yard as recommended in the topsoil analysis and shall be mixed lightly in the top few inches of topsoil.

C. Immediately before any seed is to be sown, the ground shall be scarified as necessary and shall be raked until the surface is smooth, friable and of a uniformly fine texture. Areas shall be seeded evenly with a mechanical spreader at a rate of 2 pounds per 1,000 square feet, lightly raked and watered with a fine spray.

D. After seed has been distributed, the Contractor shall cover areas that are likely to washout with straw to a depth of 1-1/2 inches.

E. Seeded areas shall be protected and maintained by watering, regular mowing and reseeding as may be necessary to produce a uniform stand of grass. Maintenance shall continue throughout the guarantee period until a dense, uniform turf is established.

F. All paved streets, roads, sidewalks, curbs, fences, stonewalls, lawns, etc., disturbed during construction shall be restored, repaired, or replaced to as good a condition as existed prior to construction. All materials and workmanship shall conform to standard practices and specifications of the Owner and/or the Kentucky Department of Highways, whichever applies.

G. The Contractor shall remove from the site all equipment, unused materials and other

items at his expense. The construction site shall be left in a neat, orderly condition, clear of all unsightly items, before the Work is finally accepted.

END OF SECTION 02930

Division 3 – Concrete

SECTION 03310 - STRUCTURAL CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

The work in this section shall include all formwork, shoring, bracing, anchorage, concrete reinforcement and accessories for cast-in-place concrete.

1.02 GENERAL REQUIREMENT

All concrete construction shall conform to all applicable requirements of ACI 301, ACI 318 and ACI 350 R, except as modified by the supplemental requirements specified herein.

1.03 RELATED WORK

A. Section 02222 - Excavation.

1.04 REFERENCES

A. The Contractor shall obtain and have available in the field office at all times the following references:
   1. Specifications for Structural Concrete for Building ACI 301 (latest revision).
   2. Field Reference Manual: Specifications for Structural Concrete for Buildings ACI Sp-15(88).
   3. Manual of Standard Practice - CRSI (latest revision).
   4. Placing Reinforcing Bars - CRSI (latest revision).
   5. Building Code Requirements for Reinforced Concrete ACI 318.
   6. Environmental Engineering Concrete Structures ACI 350R.

B. The following standard shall also apply to this work:
   1. ASTM C-143.
   2. ASTM C-150.
   3. ASTM C-33.
   4. ASTM C-260.
   5. ASTM C-494.
   6. ASTM A-615.
   7. ASTM D-638.
   8. ASTM D-695.
   9. ASTM D-570.
   10. ASTM D-1252.
   11. ASNI A-116.1.
   12. ASTM A-120.
   13. ASTM C-94.

14. ASTM D-2146.
15. Federal Specifications FF-S-325.

1.05 SUBMITTALS

A. The Contractor shall submit the following data to the Engineer for review:
   1. Proposed mix designs, test results, plotted curves and all other substantiating data as required by Sections 3.8 and 3.9 of ACI 301.
   2. Mix designs for all mixes proposed or required to be used, including all mixes containing admixtures.
   3. A certified copy of the control records of the proposed production facility establishing the standard deviation as defined in Section 3.9 of ACI 301.

B. Certification attesting that admixtures equal or exceeds the physical requirements of ASTM C-494 for Type A admixture and when required, for Type D admixture.

C. Notarized certifications by the manufacturer that epoxy bonding adhesive meets the specification contained herein.

D. Drawings showing locations of all proposed construction joints.

E. Shop drawing for reinforcing steel showing bar schedules, location, and splices.

1.06 QUALITY ASSURANCE

A. Consistency:
   1. Concrete shall be of such consistency that it can be worked readily into all parts of the forms and around embedded work, without permitting the materials to segregate, or free water to collect on the surface. Consistency shall be measured by the ASTM Standard Test Method for Slump of Portland Cement Concrete, Designation C143-78. The consistency of concrete shall be as given in Table I.
   2. Slump tests shall be made in the field by the Contractor, as directed by the Engineer.

B. Compression Tests:
   1. During the progress of the work, at least one set of four compression test cylinders shall be made for each 50 cubic yards of concrete or major fraction thereof, and not less than one such set for each type of concrete for each days' pouring. Cylinders made in the field shall be made and cured in accordance with ASTM Standard Method of Making and Curing Concrete Test Specimens in the Field, Designation C31-69, except that wherever possible molds shall be left on cylinders until they have reached the laboratory.
   2. One (1) cylinder of each set shall be broken in accordance with ASTM C-39 at seven (7) days and two (2) at twenty-eight (28) days. Two (2) copies of these test results shall be submitted to the Engineer on the same day of the tests. The remaining cylinder shall be reserved for future testing if required.

3. On evidence of these tests, any concrete that fails to meet the specified strength requirements shall be strengthened or replaced as directed by the Engineer at the Contractor's expense.

C. Inserts in Concrete by Other Trades:
1. All trades shall be notified, at the proper time, to install items to be embedded in concrete.
2. All castings, inserts, conduits, and other metalwork shall be accurately built into or encased in the concrete by the Contractor as directed and all necessary precautions shall be taken to prevent the metalwork from being displaced or deformed.
3. Anchor bolts shall be set by means of substantial templates.
4. The Contractor shall build into new concrete against which facing brick or tile is to be laid, suitable, acceptable, non-corrodible metal, dovetail grooves for ties for securing the brickwork to the concrete.

D. Testing:
1. All testing shall be in accordance with provisions of ACI 301.
2. Testing services listed in ACI 301 Sections 16.3, 16.4 and 16.5 shall be performed by a testing agency acceptable to the Engineer. Testing services to meet the requirements of ACI shall be paid for by the Contractor at his expense. Test shall be made for each 50 cubic yards of concrete and/or each day concrete is placed.

E. Additional Requirements:
1. Unless otherwise directed by the Engineer, the vertical surfaces of all footings shall be formed. Excavations and reinforcement for all footings shall have been inspected by the Engineer before any concrete is placed.
2. The installation of underground and embedded items shall be inspected before slabs are placed. Pipes and conduits shall be installed below the concrete unless otherwise indicated. Fill required to raise the subgrade shall be placed as specified in Division 2. Unless shown otherwise, porous fill not less than 6 inches in compacted thickness shall be installed under all slabs, tank bottoms, and foundations. The fill shall be leveled and uniformly compacted to a reasonably true and even surface. The surfaces shall be clean, free from frost, ice, mud and water. Where indicated, waterproof paper, polyethylene sheeting of nominal 4-mil minimum thickness, or polyethylene coated burlap shall be laid over surfaces receiving concrete. Structures having pressure relief valves shall have a free draining granular stone layer of not less than 12” directly beneath the base slab.

F. Hot Weather Requirements: Placing of concrete under conditions of high temperatures, low humidity or wind shall be done in accordance with the American Concrete Institute "Hot Weather Concreting" (ACI 305R-77).

G. Cold Weather Requirements: Cold weather concreting procedures and precautions shall conform with American Concrete Institute "Cold Weather Concreting" (ACI 306 R-78).

PART 2 - PRODUCTS

2.01 Contractor shall supply concrete only from an approved ready mixed concrete supplier.

2.02 CONCRETE MIX WITHOUT FLY ASH

Structural concrete required for this project shall be proportioned by Section 3.9 of ACI 301 to produce the following 28-day compressive strengths:

A. Selection of Proportions for Class A Concrete:
1. 4,500 psi compressive for strength at 28 days.
2. Type II cement plus water reducing, dispersing agent and air. Type IP cement may be used in place of Type II.
3. Maximum water/cement plus water reducing dispersing agent ratio = 0.42.
4. Minimum cement content = 564 pounds (6.0 bags)/cubic yards concrete.
5. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
6. Air content = 6 percent plus or minus 2 percent by volume.
7. Slump = 2 inches to 3 inches in accordance with ASTM C-143.

2.03 OPTIONAL CONCRETE MIX USING FLY ASH

A. Selection of Proportions for Class A Concrete:
1. 4,500 psi compressive for strength at 28 days.
2. Type II cement plus water reducing dispersing agent and air.
3. Maximum (water)/(cement plus water reducing dispersing agent) ratio = 0.42.
4. Minimum cement content = 517 pounds (5.5 bags)/cubic yards concrete.
5. Maximum Fly Ash Content = 71 pounds/cubic yards
6. Nominal maximum size coarse aggregate = No. 67 (3/4-inch maximum) or No. 57 (1-inch maximum).
7. Air content = 6 percent plus or minus 2 percent by volume.
8. Slump = 2 inches to 3 inches in accordance with ASTM C-143.

B. Applicable Standards:
1. ANSI C 311-77 "Standard Methods of Sampling and Testing Fly Ash for Use as an Admixture in Portland Cement Concrete".
2. ANSI C 618-80 "Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete".

C. All concrete work shall use Class A concrete.

D. All testing shall be or have been performed by an approved independent testing laboratory.

E. Cement for exposed concrete shall have a uniform color classification.

F. Type II cement conforming to ASTM C-150 shall be used in all structural concrete. The

alkali content shall not exceed 0.6 percent calculated as sodium oxide. Type IP Cement may be used in place of Type II cement.

G. Coarse aggregate shall conform to all requirements of ASTM C-33.

H. Manufactured sand shall not be used as fine aggregate in concrete.

2.04 FLY ASH CONCRETE

A. In the absence of a verified and acceptable history of fly ash concrete mixes, the following procedure is required to establish the quality of the concrete mix.

B. Trial batches must be made starting thirty (30) days ahead of initial concrete pour. Four (4) mixes shall be designed and produced at no cost to the Owner or the Engineer as follows:
1. Mix using Type II cement with water reducing admixture for normal temperatures (Class A).
2. Mix using Type II cement with water reducing admixture for cold weather temperatures (Class A).
3. Mix using Type II cement with water reducing admixture for hot weather temperatures (Class A).

C. Four (4) test cylinders shall be cast for each of the three (3) mixes. Two (2) cylinders shall be broken at 7 days, and two (2) cylinders shall be broken at 28 days, for each of the three (3) mixes. The trial batch design report shall include strength breaks at 7 days and 28 days, air content, etc.

D. The water-reducing, cement dispersing admixture (such as Master Builders Pozzolith 344-N, Nox-Crete Plastiflow, Plastocrete 161 by SIKA Chemical Company, or approved equal) used in fly ash concrete, shall be a normal, accelerated, or retarded hardening admixture. The admixture shall be used at optimum dosage to offset the slow strength development and setting characteristics of the fly ash. Only those brands of admixture that can provide readily available field service on short notice to provide field services, inspection, and assistance, will be acceptable.

E. Prior to the use of fly ash concrete, recent mill reports shall be submitted on a regular basis during the project. Maximum loss of ignition (LOI) shall be 6 percent.

F. Tests for air content shall be made twice a day at the jobsite prior to pouring, for all mixes containing fly ash.

2.05 ADMIXTURES

A. An air entraining admixture shall be used on all concrete and shall be the neutralized vinsol resin type such as Master Builders MB-VR, or Euclid Chemical Co. AIR-MIX or equal. The admixture shall meet the requirements of ASTM C-260. Certification

attesting to the percent of effective solids and compliance of the material with ASTM C-260 shall be furnished, if requested.

B. A water reducing, set controlling admixture (non-lignin type) shall be used in all concrete. The admixture shall be a combination of polyhydroxylated polymers including catalysts and components to produce the required setting time based on job site conditions, specified early strength development, finishing characteristics required, and surface texture, as determined by the Engineer.

C. Certification shall be furnished attesting that the admixture exceeds the physical requirements of ASTM C-494, Type A, water reducing and normal setting admixture, and when required, for ASTM C-494, Type D, water reducing and retarding admixture when used with local materials with which the subject concrete is composed.

D. The admixture manufacturer, when requested, shall provide a qualified concrete technician employed by the manufacturer to assist in proportioning concrete for optimum use. He also will be available when requested to advise on proper addition of the admixture to the concrete and on adjustment of the concrete mix proportions to meet changing job conditions.

E. The use of admixtures to retard setting of the concrete during hot weather, to accelerate setting during cold weather, and to reduce water content without impairing workability will be permitted if the following conditions are met.

F. The admixture shall conform to ASTM C-494 except that the durability factor for concrete containing the admixture shall be at least 100 percent of control, the water content a maximum of 90 percent of control and length change shall not be greater than control, as defined in ASTM C-494.

G. Where the Contractor finds it impractical to employ fully the recommended procedures for hot weather concreting, the Engineer may at his discretion require the use of a set retardant admixture for mass concrete greater than 2.5 feet thick and for all concrete whenever the temperature at the time concrete is cast exceeds 80 degrees F. The admixture shall be selected by the Contractor subject to the review of the Engineer. The admixture and concrete containing the admixture shall meet all the requirements of these Specifications. Preliminary tests of this concrete shall be required at the Contractor's expense.

H. Admixtures shall be used in concrete design mixes in the same manner and proportions as in the field so that the effects of the admixtures are included in preliminary tests submitted to the Engineer for review prior to the start of construction.

I. When more than one admixture is used, all admixtures shall be compatible. They should preferably be by the same manufacturer.

J. Calcium chlorine will not be permitted as an admixture in any concrete.

2.06 WATER

The water for concrete shall be clean, fresh, and free from injurious amounts of oil, acid, alkali, organic matter, or other deleterious substances. Mix water shall also be potable.

2.07 AGGREGATES

A. Fine aggregates shall be natural sand having clean, hard, uncoated grains, free from injurious amounts of clay, dust, organic matter or other deleterious substances, and shall conform to ASTM C-33.

B. Coarse aggregates shall be crushed stone having clean, hard, uncoated particles, and shall be free from injurious amounts of soft, friable, thin, elongated or laminated pieces. Shale may not be used as aggregate. Coarse aggregates shall conform to ASTM C-33 and shall not exceed the following maximum sizes:
   1. 3/4-inch for slabs, beams, girders, and walls.
   2. 1-inch for all other concrete.

2.08 TESTING AGGREGATES AND DETERMINING PROPORTIONS

A. No concrete shall be used in the work until the materials and mix design have been accepted by the Engineer.

B. The conformity of aggregates to the specifications hereinbefore given shall be demonstrated and determined by tests per ASTM C-33 made with representative samples of the materials to be used on the work.

C. The actual proportions of cement, aggregates, admixtures and water necessary to produce concrete conforming to the requirements set forth shall be determined by making test cylinders using representative samples of the materials to be used in the work. A set of four (4) standard 6-inch cylinders shall be made and cured per ASTM C-31. Two (2) shall be tested at 7 days and two (2) at 28 days per ASTM C-39. The slump shall not be less than the greatest slump expected to be used in the work.

D. Reports on the tests and a statement of the proportions proposed for the concrete mixture, shall be submitted in triplicate to the Engineer for review as soon as possible, but not less than five (5) days prior to the proposed beginning of the concrete work. If the Contractor furnishes in writing, similar, reliable detailed information from an acceptable source, and of date not more than four (4) months prior to the time when concrete will be used on this project, the above requirements for laboratory tests may be modified by the Engineer. Such data shall derive from mixtures containing constituents, including the admixtures where used, of the same types and from the same sources as will be used on this project.

E. The Engineer shall have the right to make check tests of aggregates and concrete, using the same materials, and to order changes as may be necessary to meet the specified

requirements.

F. The Contractor may request permission to add water at the job site, and when the addition of water is permitted by the Engineer, the quantity added shall be the responsibility of the Contractor and in no case shall the total water per bag of cement exceed that determined by the designed mix.

G. All concrete exposed to weather, such as foundations, walls, exterior steps and retaining walls, etc. shall be air entrained.

H. If concrete of the required characteristics is not being produced as the work progresses, the Engineer may order such changes in proportions or materials, or both, as may be necessary to secure concrete of the specified quality. The Contractor shall make such changes at his own expense and no extra compensation will be allowed because of such changes.

2.09 MIXING

All central plant and rolling stock equipment and methods shall conform to the Truck Mixer and Agitator Standards of the Truck Mixer Manufacturers' Bureau of the National Ready Mixed Concrete Assn., as well as the ACI Standards for Measuring, Mixing and Placing Concrete (ACI 614), and with Sections 7 to 14, inclusive, of the ASTM Standard Specification for Ready Mixed Concrete, Designation C94-78a, insofar as applicable.

2.10 WATERSTOPS

See Section 03251 - Expansion and Contraction Joints.

PART 3 - EXECUTION

3.01 PLACING AND COMPACTING CONCRETE

A. At least 24 hours before the Contractor proposes to make any placement of concrete, he shall notify the Engineer of his intention and planned procedure. Unless otherwise permitted, the work shall be so executed that a section begun on any day shall be completed during daylight of the same day.

B. Ready mixed concrete shall be transported to the site in watertight agitator or mixer trucks. The quantity of concrete to be mixed or delivered in any one batch shall not exceed the rated capacity of the mixer or agitator for the respective conditions as stated on the nameplates.

C. Central mixed concrete shall be plant mixed a minimum of 1-1/2 minutes per batch, and then shall be truck mixed or agitated a minimum of 8 minutes. Agitation shall begin immediately after the premixed concrete is placed in the truck and shall continue without interruption until discharge. For transit mixed concrete, the major portion of the mixing water shall be added and mixing started immediately after the truck is charged.

D. The amount of water initially added shall be recorded on the delivery slip for the Engineer's information, no additional water shall be added, either in transit or at the site, except as directed. Mixing (at mixing speed) shall be continued for at least 10 minutes followed by agitation without interruption until discharge. Concrete shall be discharged at the site within 1-1/2 hours after water was first added to the mix, and shall be mixed at least 5 minutes after all water has been added.

E. Concrete that has become compacted or segregated during transportation to or on the site of the work shall be satisfactorily remixed just prior to being placed in the forms.

F. Partially hardened concrete shall not be deposited in the forms. The retempering of concrete that has partially hardened (that is, the remixing of concrete with or without additional cement, aggregate, or water) will not be permitted.

G. The concrete shall be mixed only in the quantity required for immediate use. Concrete that has developed an initial set shall not be used. The Contractor shall have sufficient plant capacity and transporting apparatus to insure continuous delivery at the rate required.

H. The temperature of the concrete mixture immediately before placement shall be between 50 degrees F and 90 degrees F.

I. Concrete mixed in stationary mixers and transported by non-agitating equipment shall be placed in the forms within 45 minutes from the time ingredients are charged into the mixing drum. Concrete that is truck mixed or transported in truck mixers or truck agitators shall be delivered to the site of the work and discharge completed in the forms

within the time specified in paragraph 10.7 of ASTM C-94, except that when the concrete temperature exceeds 85 degrees F, the time shall be reduced to 30 minutes. Transmit mixed concrete that is completely mixed at the site of concrete placement or batched cement and aggregates transported to mixers shall be placed in the forms within 1-1/2 hours after cement has been added. Concrete shall be placed in the forms within 15 minutes after discharge from the mixer at the job site.

J. If concrete is placed by pumping, no aluminum shall be used in any parts of the pumping system that contact or might contaminate the concrete. Aluminum chutes and conveyors shall not be used.

K. No concrete shall be placed on frozen subgrade or in water, or until the subgrade, forms, and preliminary work have been accepted. No concrete shall be placed until all materials to be built into the concrete have been set and have been accepted by the various trades and by the Engineer. All such materials shall be thoroughly clean and free from rust, scale, oil, or any other foreign matter.

L. Forms and excavations shall be free from water and all dirt, debris, and foreign matter when concrete is placed. Except as otherwise directed, wood forms and embedded wood called for or allowed shall be thoroughly wetted just prior to placement of concrete.

M. Concrete placed at air temperatures below 40 degrees F shall have a minimum temperature of 50 degrees F and a maximum of 70 degrees F when placed.

N. Chutes for conveying concrete shall be metal or metal lined and of such size, design, and slope as to ensure a continuous flow of concrete without segregation. The slope of chutes shall have approximately the same slope. The discharge end of the chute shall be provided with a baffle, or if required, a spout and the end of the chute. The spout shall be kept as close as practicable to, but in no event more than 5 feet above the surface of the fresh concrete. When the operation is intermittent, the chute shall discharge into a hopper.

O. In thin sections of considerable height (such as walls and columns), concrete shall be placed in such manner as will prevent segregation and accumulations of hardened concrete on the forms or reinforcement above the mass of concrete being placed. To achieve this end, suitable hoppers spouts with restricted outlets, etc. shall be used as required or permitted unless the forms are provided with suitable openings.

P. Chutes, hoppers, spouts, etc. shall be thoroughly cleaned before and after each run and the water and debris shall not be discharged inside the form.

Q. For any one placement, concrete shall be deposited continuously in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams and planes of weakness within the section, and so as to maintain until the completion of the unit, an approximately horizontal plastic surface.

R. No wooden spreaders shall be left in the concrete.

S. During and immediately after being deposited, concrete shall be thoroughly compacted by means of suitable tools and methods, such as internal type mechanical vibrators operating at not less than 5,000 rpm. or other tool spading to produce the required density and quality of finish. Vibration shall be done only by experienced operators and shall be carried in such manner and only long enough to produce homogeneity and optimum consolidation without permitting segregation of the solid constituents, "pumping" of air, or other objectionable results.

T. The concrete shall be thoroughly rodded and tamped about embedded materials so as to secure proper adhesion and prevent leakage. Care shall be taken to prevent the displacement of such materials during concreting.

U. The distance between construction joints shall not exceed 25 feet for all concrete construction and not less than 48 hours shall elapse between casting of adjoining units unless these requirements are waived by the Engineer. Provision shall be made for jointing successive units as indicated or required. Where joints are not shown on the Drawings, they are required to be made at a spacing of approximately 25 feet. Additional construction joints required to satisfy the 25 foot spacing requirement shall be located by the Contractor subject to the review of the Engineer. The Contractor shall submit for review Drawings separate from the steel reinforcing Drawings, showing the location of all proposed construction joints. All construction joints shall be prepared for bonding as specified in paragraph 6.1.4.3 of ACI Standard 301 and Section 3.02 Bonding Concrete at Construction Joints. Joints in walls and columns shall be maintained level.

V. Formwork for beam soffits and slabs and other parts that support the weight of concrete shall remain in place until the concrete has reached its specified 28-day strength, unless otherwise specified or permitted.

3.02 BONDING CONCRETE AT CONSTRUCTION JOINTS

A. In order to secure full bond at construction joints, the surface of the concrete previously placed (including vertical, inclined, and substantially horizontal areas) shall be thoroughly cleaned of foreign materials and laitance, if any, and then roughened.

B. The previously placed concrete at the joint shall be free of standing water.

C. Waterstops shall be used on all construction joints below water level and as otherwise indicated on the drawings.

3.03 CURING AND PROTECTION

A. All concrete, particularly slabs and including finished surfaces, shall be treated immediately after concreting or cement finishing is completed, to provide continuous moist curing for at least seven days, regardless of the adjacent air temperature. Walls and vertical surfaces may be covered with continuously saturated burlap, or kept moist by other acceptable means. Horizontal surfaces, slabs, etc., shall be ponded to a depth of 1/2-inch wherever practicable, or kept continuously wet by the use of lawn sprinklers, a complete covering of continuously saturated burlap, or by other acceptable means.

B. For at least seven days after having been placed, all concrete shall be so protected that the temperature at the surface will not fall below 45 degrees F. The methods of protecting the concrete shall be as specified in that section of the General Specifications titled "Precautions During Adverse Weather" and shall be subject to the review of the Engineer.

C. No manure, salt, or other chemicals shall be used for protection.

D. The above mentioned 7-day periods may be reduced to 3 days in each case if high-early-strength cement is allowed to be used in the concrete.

E. Wherever practicable, finished slabs shall be protected from the direct rays of the sun to prevent checking and crazing.

3.04 TRIMMING AND REPAIRS

A. The Contractor shall use suitable forms, mixture of concrete, and workmanship so that concrete surfaces, when exposed, will not require patching. Concrete which, in the opinion of the Engineer has excessive honeycomb, aggregate pockets, or depressions will be rejected and the Contractor shall, at his own expense remove the entire section containing such defects and replace it with acceptable concrete.

B. As soon as the forms have been stripped and the concrete surfaces exposed, fins and other projections shall be removed, recesses left by the removal of form ties shall be filled and surface defects which do not impair structural strength shall be repaired.

C. Defective concrete shall be cut perpendicular to the surface until sound concrete is reached, but not less than 1-inch deep. The remaining concrete shall be thoroughly roughened and cleaned. Concrete around the cavity or the form tie recess shall be thoroughly wetted and promptly painted with a 1/16-inch brush coat of neat cement mixed to the consistency of thick paint. The hole shall then be filled with mortar.

D. Mortar shall be 1:1-1/2 cement and sand mix with sufficient white cement, or fine limestone screening in lieu of sand, to produce a surface matching the adjoining work. Cement and sand shall be from the same sources as in the parent concrete.

E. Mortar in patches shall be applied so that after partial set it can be compressed and rubbed

to produce a finish flush and uniform in texture with the adjoining work. All patches shall be warm-moist cured as above specified.

F. The use of mortar patching as above specified shall be confined to the repair of small defects in relatively green concrete. If substantial repairs are required, the defective portions shall be cut out to sound concrete and the defective concrete replaced by means of a cement gun, or the structure shall be taken down and rebuilt, all as the Engineer may decide or direct.

3.05 FINISHES

A. Exposed to View Concrete Surfaces:
1. All concrete exposed to view in the completed structure shall be produced using materials and workmanship to such quality that only nominal finishing will be required. The provisions of paragraphs 13.3, 13.4, and 13.6 of ACI shall apply to all exposed to view concrete surfaces (limited to 1 foot below grade and 1 foot below the minimum liquid level for structures that will contain liquids).
2. Forms for exposed concrete surfaces shall be exterior grade, high density overlay plywood, steel, or wood forms with smooth tempered hard board form liners.
3. Forms shall be coated with Nox-Crete Form Coating Release Agent, Debond Form Coating by L & M Construction Chemicals, Inc. or an approved equal, before initial pour and between subsequent pours, in accordance with the manufacturer's printed instructions. Form boards shall not be wet with water prior to placing concrete.
4. Recessed joints in concrete shall be formed using lacquer coated wooden battens or forms, milled to indicated profiles. Battens and corner strips shall be carefully inspected before concrete is placed and damaged pieces replaced.
5. Chamfer strips shall be 1-inch radius with leg, polyvinyl chloride strips by Gateway Building Products, Saf-T-Grip Specialties Cor., Vinylex Corp., or equal.
6. Particular attention is directed to the requirements of paragraphs 10.2.2 and 13.3 of ACI 301. Form panels shall be provided in the maximum form joints. Wherever practicable, form joints shall occur at recessed joints. All form joints in exterior exposed to view surfaces shall be carefully caulked with an approved nonstaining caulking compound. Joints shall not be taped. Form oil or other material which will impart a stain to the concrete shall not be allowed to contact concrete surfaces.
7. Care shall be taken to prevent chipping of corners or other damage to concrete when forms are removed. Exposed corners and other surfaces which may be damaged by ensuing operations shall be protected from damage by boxing, corner boards or other approved means until construction is completed.
8. Form ties shall remain in the walls and shall be equipped with a waterseal to prevent passage of water through the walls. Particular care shall be taken to bend tie wire ends away from exposed faces of beams, slabs and columns. In no case shall ends to tie wires project toward or touch formwork. Minimum set back of form ties shall be 1 inch from faces of wall. The hole left by removal of tie ends shall be sealed and grouted as per ACI Par. 9.3 and in accordance with procedure described hereinafter in Par. 3.04.E. Form ties will be permitted to fall within as

cast areas of architecturally treated wall surfaces (ACI Chapter 13); this does not apply to walls receiving textured decorative waterproof masonry coating.

9. All formed exposed to view concrete shall be prepared as paragraph 3.04 B, then receive a grout-cleaned finish. The grout-cleaned finish shall use a mix of one part white Portland cement and 1½ parts of fine sand mixed with sufficient water to form a grout having the consistency of thick paint. Apply to damp surface and rub down in such a manner as to obtain a smooth, filled surface uniform in color and free from defects and blemishes. Exterior vertical surfaces shall be finished to one foot below grade. Interior exposed to view vertical surfaces of dry pits shall be finished full height, interior vertical surfaces of liquid containers shall be finished to one foot below the minimum liquid level that will occur during normal operations.
10. Slope all slabs to prevent water pocketing.

B. All vertical surfaces below minimum liquid level in liquid containing structures shall have a smooth form finish.

C. All smooth form concrete vertical surfaces shall be true plane within 1/4-inch in 10 feet as determined by a 10 foot straight edge place anywhere on the surface in any direction. Abrupt irregularities shall not exceed 1/8-inch.

D. Basin, flume, conduit and tank floors shall have a "troweled" finish unless shown otherwise on Drawings.

E. Weirs and overflow surfaces shall be given a troweled finish.

F. Exterior platforms, steps and landings shall be given a broom finish. Broom finish shall be applied to surfaces which have been steel troweled to an even smooth finish. The troweled surface shall then be broomed with a fiber bristle brush in the direction transverse to that of the main traffic.

G. Walking surfaces of slabs shall have a troweled finish unless shown otherwise on Drawings.

H. Patching of holes due to removal of tie ends and other repairable defective areas shall be as follows: Entire contact area of hole shall be coated with two part moisture insensitive epoxy bonding compound in accordance with manufacturer's specifications, and prior to placing of freshly mixed patching mortar. Patching mortar shall be mixed and placed in general accordance with ACI Par. 9.2.2, 9.2.3, and 13.6.

I. Nox-Crete Harbeton, Chem Hard by L & M Construction Chemicals hardener treatment, or an approved equal shall be applied to all exposed concrete floors in occupied spaces. The floors shall be thoroughly cured, cleaned, and perfectly dry with all work above them completed. The hardener shall be applied evenly and freely and in conformance with manufacturer's instructions, using not less than three (3) coats, allowing 24 hours between coats. One gallon of hardener shall cover not more than 100 square feet. After the final

coat is completed and dry, surplus hardener shall be removed from the surface of the concrete by scrubbing and mopping with water.

3.06 CONCRETE WALKS AND CURBS:

A. Subgrade shall be true and well compacted at the required grades. Spongy and otherwise unsuitable material shall have been removed and replaced with properly compacted, approved material. Concrete walks shall be placed upon 8-inch DGA unless noted otherwise on the Drawings.

B. Concrete walks shall be not less than 4 inches in thickness. Walks shall have contraction joints every 5 linear feet in each direction, formed in the fresh concrete by cutting a groove in the top surface of the slab to a depth of at least one-fourth the slab thickness with a jointing tool. Transverse expansion joints shall be installed at driveways, and opposite expansion joints in adjacent curbs. Where curbs are not adjacent, transverse expansion joints shall be installed at intervals of approximately 25 feet. Sidewalks shall receive a broomed finish. Scoring shall be in a transverse direction. Edges of the sidewalks and joints shall be edged with a tool having a radius not greater than 1/6-inch. Sidewalks adjacent to curbs shall have a slope of 1/4-inch per foot toward the curb. Sidewalks not adjacent to curbs shall have a transverse slope of 1/4-inch per foot or shall be crowned as directed by the Engineer. The surface of the concrete shall show no variation in cross section in excess of 1/4-inch in 5 feet. Concrete walks shall be reinforced with 6 x 6 - W1.4 x W1.4 welded wire fabric unless noted otherwise on the Drawings.

C. Concrete curbs shall be constructed to the section indicated on the Drawings, and all horizontal and vertical curves shall be incorporated as indicated or required. Forms shall be steel or as approved by the Engineer. At the option of the Contractor, the curbs may be precast or cast-in-place. Cast-in-place curbs shall be divided into Sections 8 to 10 feet in length using steel divider plates. The divider plates shall extend through the concrete and shall be removed. Precast curbs shall be finished smooth. Dividers shall be installed where the curb crosses pipe trenches or other insecure area. Transverse expansion joints shall be installed at all curb returns and at intervals of approximately 40 feet.

3.07 WATERTIGHTNESS

A. The structures which are intended to contain liquids and/or will be subjected to exterior hydrostatic pressures shall be so constructed that when completed and tested, there shall be no loss of water and no wet spots shall show.

B. As soon as practicable after the completion of the structures, the Contractor shall fill such structures with water and if leakages develop or wet spots show, the Contractor shall empty such structures and correct the leakage in an approved manner. Any cracks which appear in the concrete shall be dug out and suitably repaired. Temporary bulkheads over pipe openings in walls shall be provided as required for the testing.

C. After repairs, if any are required, the structures shall be tested again and further repaired if necessary until satisfactory results are obtained. All work in connection with these tests and repairs shall be at the expense of the Contractor.

D. Waterstops shall be placed in all locations as indicated on the Drawings and as may be required to assure the watertightness of all containers of liquids. Special shop fabricated ells, tees and crosses shall be provided at junctions. Waterstops shall be extended at least 6 inches beyond end of placement in order to provide splice length for subsequent placement. In slabs and tank bottoms, waterstops shall be turned up to be made continuous with waterstops at bottom of walls or in walls. All joints between adjacent, continuing, and intersecting sections of waterstop including butt joints, tee joints, and other angled joints shall be heat fused to form a watertight seal. Waterstops shall not be lapped. Waterstops shall be secured in place to maintain proper position during placement of concrete. Care shall be taken to avoid folding while concrete is being placed and to prevent voids in the concrete surrounding the waterstop. All materials shall be installed in accordance with the manufacturer's recommendations.

E. Joints between pipe (except cast iron wall pipe) and cast-in-place concrete walls shall be sealed as required by the Drawings.

F. The top surface of all concrete decks (except slabs on grade) shall be coated with Sikagard-70 water-repellant penetrating sealer as manufactured by the Sika Corporation, Nox-Crete Stifel, or another approved equal. The manufacturer's recommendations shall be followed in all areas of application.

3.08 GROUTING BASE PLATES, BEARING PLATES AND MACHINE BASES

A. Column base plates, bearing plates for beams and similar structural members, machinery and equipment bases shall, after being plumbed and properly positioned, be provided with full bearing on epoxy nonshrink grout. Concrete surfaces shall be rough, clean, free of oil, grease and laitance and shall be moistened thoroughly immediately before grout is placed. Metal surfaces shall be clean and free of oil, grease and rust. Mixing and placing shall be in conformance with the material manufacturer's printed instructions.

B. Grout fill that is formed in place by using rotating equipment as a screed, such as for clarifiers and similar types of equipment, shall be mixed in proportions and consistencies as required by the manufacturer or supplier of the equipment.

3.09 EQUIPMENT PADS

Unless otherwise shown or directed, all equipment and items such as lockers, motor control centers, etc., shall be installed on concrete bases. The bases shall be constructed to the dimensions shown on the Drawings or as required to meet plan elevations. Where no specific plan elevations are required, the bases shall be 6 inches thick and shall extend 3 inches outside the equipment base. In general, the concrete bases shall be placed up to 1-inch below the base. The equipment shall then be properly shimmed to grade and the 1-

inch void filled with nonshrink epoxy grout.

END OF SECTION 03310

Kentucky Transportation Cabinet

Highway District 1

And

_____(2), Construction

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

Groundwater protection plan

For Highway Construction Activities

For

Highway Safety Improvement Project on US 60 in Crittenden County

Item No.: 1-9023

Revised 3/4/2016

KYTC BMP Plan for Item No. 1-9023

Project information

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

1. Owner – Kentucky Transportation Cabinet, District 1
2. Resident Engineer: (2)
3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):
4. Project Control Number: (2)
5. Route (Address): US 60
6. Latitude/Longitude (project mid-point): 37° 19’ 34”, -88° 07’ 41”
7. County (project mid-point): Crittenden
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

KYTC BMP Plan for Item No. 1-9023

A. Site description:

1. Nature of Construction Activity (from letting project description): Safety improvements to US 60 from MP 4.9 to MP 8.4 in Crittenden County

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

3. Projected volume of material to be moved: 5200 LF Ditching & Shouldering

4. Estimate of total project area (acres): 25.8

5. Estimate of area to be disturbed (acres): 6.5

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.

7. Data describing existing soil condition: (1) & (2)

8. Data describing existing discharge water quality (if any): (1) & (2)

9. Receiving water name: Coefield Creek, Crooked Creek

10. TMDLs and Pollutants of Concern in Receiving Waters: *No TDML's were involved on this project.*

11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

12. Potential sources of pollutants:
    The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

B. Sediment and Erosion Control Measures:

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

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

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as “Do Not Disturb” until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP’s shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA’s as the work progresses. <u>All DDA’s will have adequate BMP’s in place before being disturbed.</u>

3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

   - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
   - At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants. Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.
   - Clearing and Grubbing – The following BMP’s will be considered and used where appropriate.

- Leaving areas undisturbed when possible.
- Silt basins to provide silt volume for large areas.
- Silt Traps Type A for small areas.
- Silt Traps Type C in front of existing pipes 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 and drop inlets after they are placed
  - Channel Lining
  - Erosion Control Blanket
  - Temporary mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
  - Non-standard or innovative methods

➢ Profile and X-Section in place – The BMP Plan will be modified to show elimination of BMP's which had to be removed and the addition of new BMP's as the roadway was shaped. Probably changes include:
  - Silt Trap Type A, Brush and/or other barriers, Temporary Mulch, and any other BMP which had to be removed for final grading to take place.
  - Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
  - Additional Channel Lining and/or Erosion Control Blanket.
  - Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
  - Special BMP's such as Karst Policy

➢ Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probable 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: *This project does not include storm water BMPs or flow controls for post-construction use.*

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.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

➢ **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.

- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill cleanup 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. *There are no other local (MS4) requirements that are expected to be necessary for this project.*

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. *There are no such BMP's for this project.*

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.

G. Non – Storm Water discharges

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

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

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

H. Groundwater Protection Plan (3)

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

- Contractors statement: (3)

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

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

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

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

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

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

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

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

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

The contractor is responsible for the preparation of a plan that addresses the 401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

KYTC BMP Plan for Item No. 1-9023

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

KYTC BMP Plan for Item No. 1-9023

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

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

Subcontractor

Name:
Address:
Address:

Phone:

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

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

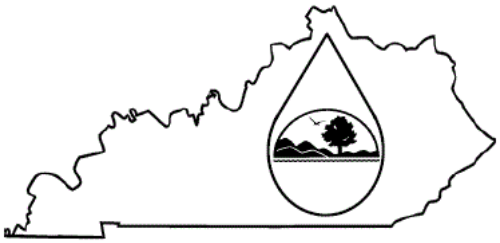
Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Crittenden County
Highway Safety Improvement Project along US-60
from MP 4.900 – 8.400
Item No.: 1-9023.00

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

eForm Submittal ID: 274518



KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)

Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000

Click here for Instructions (Controls/KPDES_FormKYR10_Instructions.htm)

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

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

Reason for Submittal:(*)	Agency Interest ID:	Permit Number:(✓)
Application for New Permit Coverage	Agency Interest ID	KPDES Permit Number

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

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

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

SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
Kentucky Transportation Cabinet, District 1	Kyle	MI	Poat

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
5501 Kentucky Dam Rd.	Paducah	Kentucky	42003

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
Kyle.Poat@ky.gov	270-898-7457	Phone

SECTION II -- GENERAL SITE LOCATION INFORMATION

Project Name:(*)	Status of Owner/Operator(*)	SIC Code(*)
KYTC Item No. 1-9023	State Government	1611 Highway and Street Cons

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
Company Name	First Name	MI	Last Name

Site Physical Address:(*)
US 60

City:(*)	State:(*)	Zip:(*)
Marion	Kentucky	42064

County:(*)	Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal)	Longitude(decimal degrees)(*)
Crittenden	37.326009	-88.128097

SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION

Project Description:(*)
Highway Safety Improvement Program consisting of various improvements such as Trenching, Asphalt Paving, Pipe Replacement & Extension, Guardrail, Box Culvert Ext

a. For single projects provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
25.8	6.5
Anticipated Start Date:(✓)	Anticipated Completion Date:(✓)

b. For common plans of development provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
# Acre(s)	# Acre(s)
Number of individual lots in development, if applicable:(✓)	Number of lots in development:(✓)
# lot(s)	# lot(s)
Total acreage of lots intended to be developed:(✓)	Number of acres intended to be disturbed at any one time:(✓)
Project Acres	Disturbed Acres
Anticipated Start Date:(✓)	Anticipated Completion Date:(✓)

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

	Company Name	
+		

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

Discharge Point(s):

	Unnamed Tributary?	Latitude	Longitude	Receiving Water Name	
1	No	37.328850	-88.102910	Coefield Creek	Delete
2	No	37.328975	-88.103007	Coefield Creek	Delete
3	Yes	37.317819	-88.142744	Coefield Creek	Delete
4	Yes	37.317927	-88.142833	Coefield Creek	Delete
5	Yes	37.317062	-88.144611	Coefield Creek	Delete
6	Yes	37.317192	-88.144677	Coefield Creek	Delete
7	Yes	37.316759	-88.145663	Coefield Creek	Delete
8	Yes	37.316893	-88.145773	Coefield Creek	Delete
9	Yes	37.316482	-88.146683	Coefield Creek	Delete

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

Name of MS4:

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

	Latitude	Longitude	
+			

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

Will the project require construction activities in a water body or the riparian zone?: (*)	Yes
If Yes, describe scope of activity: (✓)	describe scope of activity
Is a Clean Water Act 404 permit required?:(*)	No

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

SECTION VII -- NOI PREPARER INFORMATION

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

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
Mailing Address	City		Zip

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

SECTION VIII -- ATTACHMENTS

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

SECTION IX -- CERTIFICATION

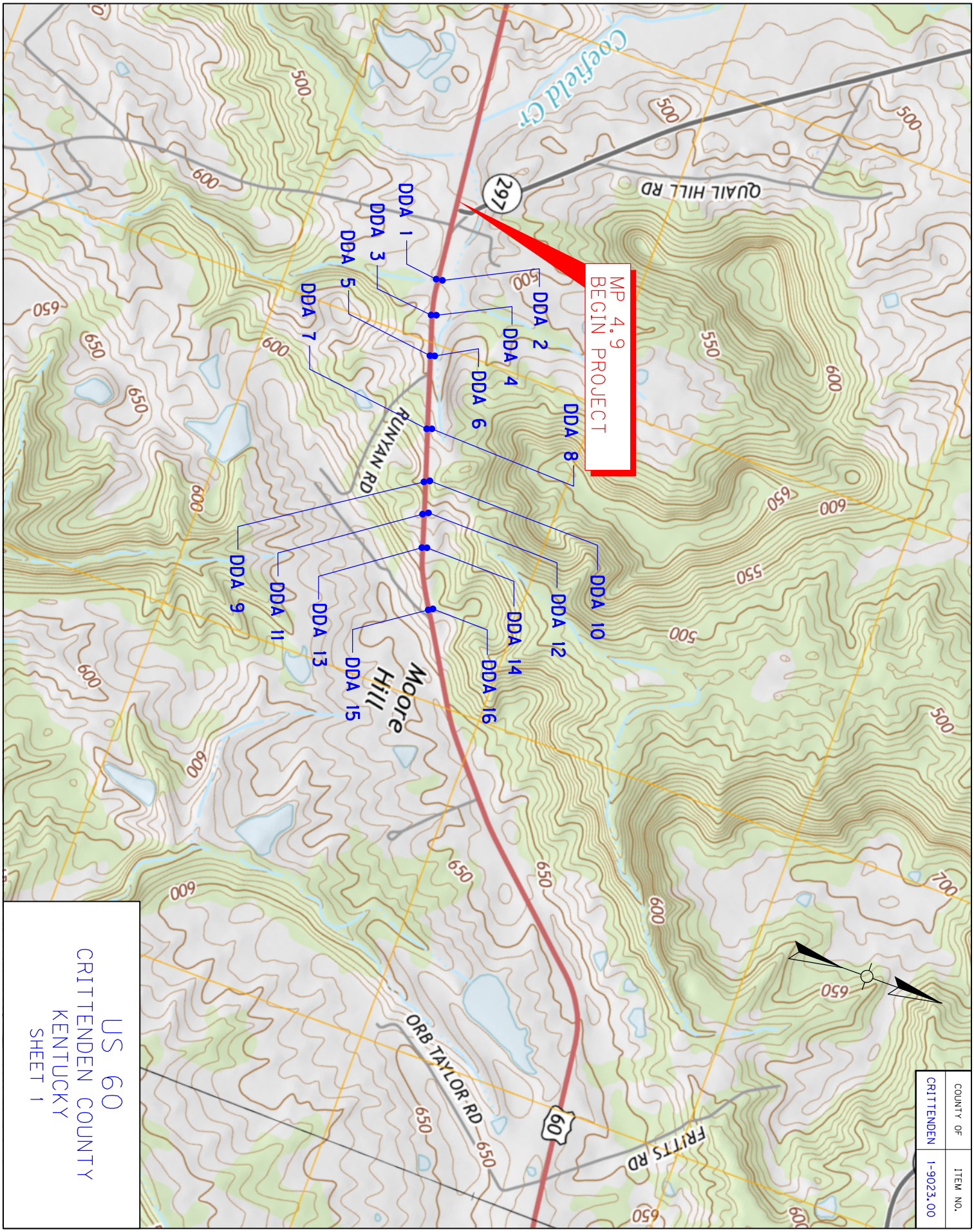
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage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

Signature:(*)	Title:(*)
Signature	Title

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

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

Click to Save Values for Future Retrieval | Click to Submit to EEC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QUAIL HILL RD
RUNYAN RD
Moore Hill
ORB TAYLOR RD
FRITTS RD
297
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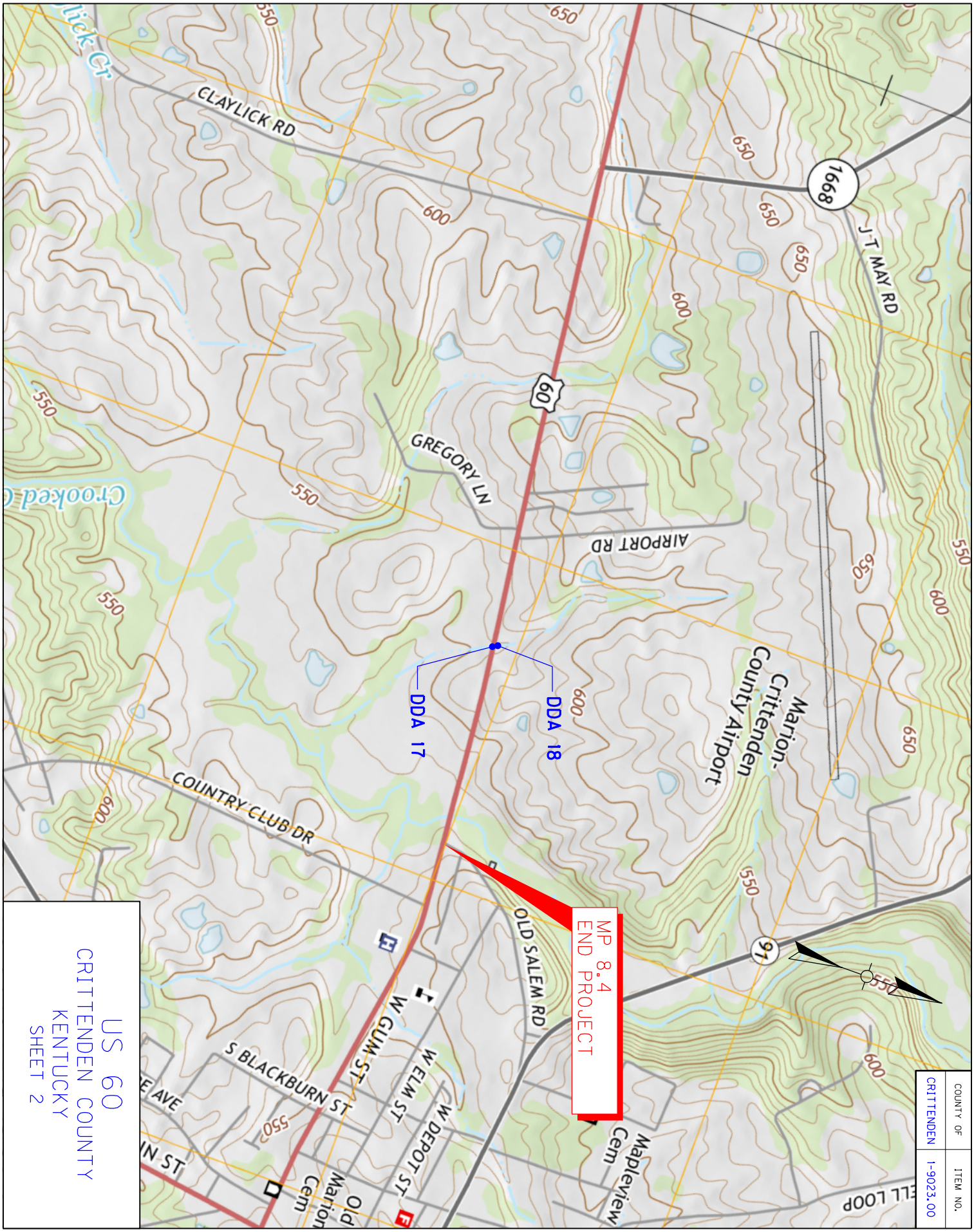
CRITTENDEN COUNTY
KENTUCKY
SHEET 1
COUNTY OF
CRITTENDEN
ITEM NO.
1-9023.00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GREGORY LN
AIRPORT RD
Marion-Crittenden County Airport
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DDA 18
COUNTRY CLUB DR
MP 8.4
END PROJECT
OLD SALEM RD
W GUM ST
W ELM ST
W DEPOT ST
S BLACKBURN ST
Mapleview Cem
91
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US 60
CRITTENDEN COUNTY
KENTUCKY
SHEET 2
COUNTY OF
CRITTENDEN
ITEM NO.
1-9023.00

KyTC BMP Plan for Project CID 01 - 801

Kentucky Transportation Cabinet

Highway District 1

And

_____(2), Construction

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

Groundwater protection plan

For Highway Construction Activities

For

Add Left Turn Lane on US 60 at Crittenden County High School US 60 Crittenden County, KY

Project: PCN ##-####

Revised 3/4/2016

Project information

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

1. Owner – Kentucky Transportation Cabinet, District 1

2. Resident Engineer: (2)

3. Contractor name: (2)
   Address: (2)

   Phone number: (2)
   Contact: (2)
   Contractors agent responsible for compliance with the KPDES permit requirements (3):

4. Project Control Number (2)

5. Route (Address) US 60, Marion KY 42064

6. Latitude/Longitude (project mid-point) 37^19’47”N, 88^05’34”W

7. County (project mid-point) - Crittended

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

9. Projected completion date: (2)

KyTC BMP Plan for Project CID 01 - 801

A. Site description:

1. Nature of Construction Activity (from letting project description) – Widen US 60 to construct a left turn lane from Crittenden Co HS to Country Club Dr.

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

3. Projected volume of material to be moved 1,325 CY

4. Estimate of total project area (acres) 2.66 acres

5. Estimate of area to be disturbed (acres) 2.66 acres

6. Post construction runoff coefficient will be included in the project drainage folder. Persons needing information pertaining to the runoff coefficient will contact the resident engineer to request this information.

7. Data describing existing soil condition - The geologic mapping indicates that alluvial soils consisting of sand, silt, sandy gravel, and cherty rubble are present at the site.

8. Data describing existing discharge water quality (if any) (1) & (2)

9. Receiving water name – Crooked Creek

10. TMDLs and Pollutants of Concern in Receiving Waters: (1 DEA)

11. Site map – Project layout sheet plus the erosion control sheets in the project plans that depict Disturbed Drainage Areas (DDAs) and related information. These sheets depict the existing project conditions with areas delineated by DDA (drainage area bounded by watershed breaks and right of way limits), the storm water discharge locations (either as a point discharge or as overland flow) and the areas that drain to each discharge point. These plans define the limits of areas to be disturbed and the location of control measures. Controls will be either site specific as designated by the designer or will be annotated by the contractor and resident engineer before disturbance commences. The project layout sheet shows the surface waters and wetlands.

12. Potential sources of pollutants:

The primary source of pollutants is solids that are mobilized during storm events. Other sources of pollutants include oil/fuel/grease from servicing and operating construction equipment, concrete washout water, sanitary wastes and trash/debris. (3)

B. Sediment and Erosion Control Measures:

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

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

2. Following award of the contract, the contractor and resident engineer will annotate the erosion control sheets showing location and type of BMPs for each of the DDAs that will be disturbed at the outset of the project. This annotation will be accompanied by an order of work that reflects the order or sequence of major soil moving activities. The remaining DDAs are to be designated as “Do Not Disturb” until the contractor and resident engineer prepare the plan for BMPs to be employed. The initial BMP’s shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA’s as the work progresses. <u>All DDA’s will have adequate BMP’s in place before being disturbed.</u>

3. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

   - Construction Access – This is the first land-disturbing activity. As soon as construction begins, bare areas will be stabilized with gravel and temporary mulch and/or vegetation.
   - At the beginning of the project, all DDAs for the project will be inspected for areas that are a source of storm water pollutants.

Areas that are a source of pollutants will receive appropriate cover or BMPs to arrest the introduction of pollutants into storm water. Areas that have not been opened by the contractor will be inspected periodically (once per month) to determine if there is a need to employ BMPs to keep pollutants from entering storm water.

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

- Finish Work (Paving, Seeding, Protect, etc.) – A final BMP Plan will result from modifications during this phase of construction. Probably changes include:
  - Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMP's which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
  - Permanent Seeding and Protection
  - Placing Sod
  - Planting trees and/or shrubs where they are included in the project
- BMP's including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMP's to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are : Channel Lining

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.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

- **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

- **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

- **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup**:**

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

E. Maintenance

1. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

- Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

- Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for

the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

F. Inspections

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

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

G. Non – Storm Water discharges

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

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

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

H. Groundwater Protection Plan (3)

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

- Contractors statement: (3)

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

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

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

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

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

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

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

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

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

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

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

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

KyTC BMP Plan for Project CID 01 - 801

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

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

Subcontractor

Name:
Address:
Address:

Phone:

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

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

Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

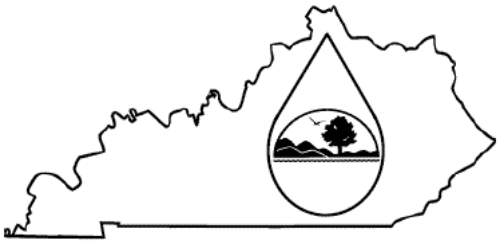
SPECIAL NOTE

Filing of eNOI for KPDES Construction Stormwater Permit

County: Crittenden **Route: US 60**
Item No.: 1-80101.00 **KDOW Submittal ID:**
Project Description: Reconstruct US 60 near Crittenden CO HS

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

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



KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM (KPDES)

Notice of Intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000

Click here for Instructions (Controls/KPDES_FormKYR10_Instructions.htm)

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

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

Reason for Submittal:(*)	Agency Interest ID:	Permit Number:(✓)
Application for New Permit Coverage	Agency Interest ID	KPDES Permit Number

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

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

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

SECTION I -- FACILITY OPERATOR INFORMATION (PERMITTEE)

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
Kentucky Transportation Cabinet	Kyle	M	Poat

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
5501 KY Dam Road	Paducah	Kentucky	42003

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
kyle.poat@ky.gov	270-898-2431	Phone

SECTION II -- GENERAL SITE LOCATION INFORMATION

Project Name:(*)	Status of Owner/Operator(*)	SIC Code(*)
SYP ITEM #01-80101.00	State Government	1611 Highway and Street Const

Company Name:(✓)	First Name:(✓)	M.I.:	Last Name:(✓)
KYTC	Kyle	M	Poat

Site Physical Address:(*)
520 W Gum St

City:(*)	State:(*)	Zip:(*)
Marion	Kentucky	42064

County:(*)	Latitude(decimal degrees)(*)DMS to DD Converter (https://www.fcc.gov/media/radio/dms-decimal)	Longitude(decimal degrees)(*)
Crittenden	36.329708	-88.092416

SECTION III -- SPECIFIC SITE ACTIVITY INFORMATION

Project Description:(*)
Grade and Drain project to construct new turning lane in front of high school

a. For single projects provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
Project Acres	Disturbed Acres
Anticipated Start Date:(✓)	Anticipated Completion Date:(✓)
6/1/2022	11/30/2022

b. For common plans of development provide the following information

Total Number of Acres in Project:(✓)	Total Number of Acres Disturbed:(✓)
# Acre(s)	# Acre(s)
Number of individual lots in development, if applicable:(✓)	Number of lots in development:(✓)
# lot(s)	# lot(s)
Total acreage of lots intended to be developed:(✓)	Number of acres intended to be disturbed at any one time:(✓)
Project Acres	Disturbed Acres
Anticipated Start Date:(✓)	Anticipated Completion Date:(✓)

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

	Company Name	
+		

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

Discharge Point(s):

	Unnamed Tributary?	Latitude	Longitude	Receiving Water Name	
+					

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

Name of MS4:

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

	Latitude	Longitude	
+			

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

Will the project require construction activities in a water body or the riparian zone?: (*)	
If Yes, describe scope of activity: (✓)	describe scope of activity
Is a Clean Water Act 404 permit required?:(*)	

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

SECTION VII -- NOI PREPARER INFORMATION

First Name:(*)	M.I.:	Last Name:(*)	Company Name:(*)
Kyle	M	Poat	KYTC

Mailing Address:(*)	City:(*)	State:(*)	Zip:(*)
5501 KY Dam Road	Paducah	Kentucky	42003

eMail Address:(*)	Business Phone:(*)	Alternate Phone:
kyle.poat@ky.gov	270-898-2431	Phone

SECTION VIII -- ATTACHMENTS

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

SECTION IX -- CERTIFICATION

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

Signature:(*)	Title:(*)
Signature	Title

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

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

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

MATERIAL SUMMARY

CONTRACT ID: 221027 **028GR22D027** **0102800602201**

US HIGHWAY 60 (US 60) FROM KY 297 EXTENDING EAST 3.5 MILES TO OLD SALEM ROAD ASPHALT SURFACE WITH GRADE & DRAIN, A DISTANCE OF 3.5 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0005	00001	DGA BASE	783.00	TON
0010	00100	ASPHALT SEAL AGGREGATE	83.00	TON
0015	00103	ASPHALT SEAL COAT	10.00	TON
0020	00190	LEVELING & WEDGING PG64-22	67.00	TON
0025	00212	CL2 ASPH BASE 1.00D PG64-22	410.00	TON
0030	00301	CL2 ASPH SURF 0.38D PG64-22	630.00	TON
0035	24970EC	ASPHALT MATERIAL FOR TACK NON-TRACKING	4.80	TON
0040	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	20.00	EACH
0045	02159	TEMP DITCH	9,364.00	LF
0050	02160	CLEAN TEMP DITCH	4,682.00	LF
0055	02203	STRUCTURE EXCAV-UNCLASSIFIED	9.00	CUYD
0060	02263	FENCE-WOVEN WIRE TYPE 2	200.00	LF
0065	02265	REMOVE FENCE	200.00	LF
0070	02355	GUARDRAIL-STEEL W BEAM-S FACE A	100.00	LF
0075	02360	GUARDRAIL TERMINAL SECTION NO 1	1.00	EACH
0080	02367	GUARDRAIL END TREATMENT TYPE 1	5.00	EACH
0085	02381	REMOVE GUARDRAIL	963.00	LF
0090	02483	CHANNEL LINING CLASS II	1,040.00	TON
0095	02555	CONCRETE-CLASS B	1.50	CUYD
0100	02562	TEMPORARY SIGNS	288.00	SQFT
0105	02575	DITCHING AND SHOULDERING	5,200.00	LF
0110	02585	EDGE KEY	104.00	LF
0115	02602	FABRIC-GEOTEXTILE CLASS 1	281.00	SQYD
0120	02610	RETAINING WALL-GABION	18.00	CUYD
0125	02650	MAINTAIN & CONTROL TRAFFIC - (CRITTENDEN US 60 ITEM 1-9023)	1.00	LS
0130	02671	PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH
0135	02697	EDGELINE RUMBLE STRIPS	7,830.00	LF
0140	02701	TEMP SILT FENCE	9,364.00	LF
0145	02703	SILT TRAP TYPE A	6.00	EACH
0150	02704	SILT TRAP TYPE B	6.00	EACH
0155	02705	SILT TRAP TYPE C	6.00	EACH
0160	02706	CLEAN SILT TRAP TYPE A	6.00	EACH
0165	02707	CLEAN SILT TRAP TYPE B	6.00	EACH
0170	02708	CLEAN SILT TRAP TYPE C	6.00	EACH
0175	02726	STAKING - (CRITTENDEN US 60 ITEM 1-9023)	1.00	LS
0180	05950	EROSION CONTROL BLANKET	1,000.00	SQYD
0185	05952	TEMP MULCH	18,676.00	SQYD
0190	05953	TEMP SEEDING AND PROTECTION	14,000.00	SQYD
0195	05963	INITIAL FERTILIZER	.80	TON
0200	05964	MAINTENANCE FERTILIZER	.50	TON
0205	05985	SEEDING AND PROTECTION	15,635.00	SQYD
0210	05992	AGRICULTURAL LIMESTONE	10.00	TON

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0215	06510	PAVE STRIPING-TEMP PAINT-4 IN	14,000.00	LF
0220	06542	PAVE STRIPING-THERMO-6 IN W	7,830.00	LF
0225	06543	PAVE STRIPING-THERMO-6 IN Y	4,629.00	LF
0230	08801	GUARDRAIL-STEEL W BEAM-S FACE BR	19.00	LF
0235	20191ED	OBJECT MARKER TY 3	5.00	EACH
0240	20458ES403	CENTERLINE RUMBLE STRIPS	3,915.00	LF
0245	20748ED	SHOULDER MILLING/TRENCHING	1,742.00	SQYD
0250	21802EN	G/R STEEL W BEAM-S FACE (7 FT POST)	710.00	LF
0255	00441	ENTRANCE PIPE-18 IN	86.00	LF
0260	00462	CULVERT PIPE-18 IN	93.00	LF
0265	00464	CULVERT PIPE-24 IN	46.00	LF
0270	00470	CULVERT PIPE-48 IN	16.00	LF
0275	01204	PIPE CULVERT HEADWALL-18 IN	1.00	EACH
0280	01208	PIPE CULVERT HEADWALL-24 IN	1.00	EACH
0285	01310	REMOVE PIPE	208.00	LF
0290	01726	SAFETY BOX INLET-18 IN SDB-1	1.00	EACH
0295	02625	REMOVE HEADWALL	5.00	EACH
0300	08002	STRUCTURE EXCAV-SOLID ROCK	16.00	CUYD
0305	08003	FOUNDATION PREPARATION - (RCBC STA. 426+65)	1.00	LS
0310	08100	CONCRETE-CLASS A	.86	CUYD
0315	08100	CONCRETE-CLASS A - (RCBC STA. 426+65)	31.60	CUYD
0320	08150	STEEL REINFORCEMENT - (RCBC STA. 426+65)	3,777.00	LB
0325	26131ED	SLOPED AND MITERED HEADWALL-18 IN	1.00	EACH
0330	26132ED	SLOPED AND MITERED HEADWALL-24 IN	1.00	EACH
0335	06406	SBM ALUM SHEET SIGNS .080 IN	78.06	SQFT
0340	06407	SBM ALUM SHEET SIGNS .125 IN	26.68	SQFT
0345	06410	STEEL POST TYPE 1	185.00	LF
0350	21134ND	REMOVE-STORE AND REINSTALL SIGN	5.00	EACH
0355	21373ND	REMOVE SIGN	11.00	EACH
0360	24631EC	BARCODE SIGN INVENTORY	24.00	EACH
0365	02569	DEMOBILIZATION	1.00	LS

CONTRACT ID: 221027 **028GR22D027** **DE02800602228**

US-60 WIDEN US-60 TO PROVIDE TURN LANES AT CRITTENDEN COUNTY HIGH SCHOOL AND CRITTENDEN HOSPITAL WIDENING, A DISTANCE OF .21 MILES.

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0370	00003	CRUSHED STONE BASE	955.00	TON
0375	00020	TRAFFIC BOUND BASE	200.00	TON
0380	00190	LEVELING & WEDGING PG64-22	237.00	TON
0385	00212	CL2 ASPH BASE 1.00D PG64-22	947.00	TON
0390	00301	CL2 ASPH SURF 0.38D PG64-22	456.00	TON
0395	20071EC	JOINT ADHESIVE	2,801.00	LF
0400	24970EC	ASPHALT MATERIAL FOR TACK NON-TRACKING	4.10	TON
0405	00078	CRUSHED AGGREGATE SIZE NO 2	300.00	TON
0410	01314	PLUG PIPE	2.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0415	01987	DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	3.00	EACH
0420	02014	BARRICADE-TYPE III	3.00	EACH
0425	02159	TEMP DITCH	634.00	LF
0430	02160	CLEAN TEMP DITCH	317.00	LF
0435	02200	ROADWAY EXCAVATION	1,325.00	CUYD
0440	02242	WATER	11.00	MGAL
0445	02351	GUARDRAIL-STEEL W BEAM-S FACE	287.50	LF
0450	02360	GUARDRAIL TERMINAL SECTION NO 1	1.00	EACH
0455	02381	REMOVE GUARDRAIL	27.00	LF
0460	02429	RIGHT-OF-WAY MONUMENT TYPE 1	19.00	EACH
0465	02483	CHANNEL LINING CLASS II	151.00	TON
0470	02484	CHANNEL LINING CLASS III	16.00	TON
0475	02545	CLEARING AND GRUBBING - 2.0 ACRES	1.00	LS
0480	02562	TEMPORARY SIGNS	235.00	SQFT
0485	02585	EDGE KEY	145.00	LF
0490	02602	FABRIC-GEOTEXTILE CLASS 1	500.00	SQYD
0495	02650	MAINTAIN & CONTROL TRAFFIC	1.00	LS
0500	02690	SAFELOADING	2.70	CUYD
0505	02697	EDGELINE RUMBLE STRIPS	1,863.00	LF
0510	02701	TEMP SILT FENCE	634.00	LF
0515	02703	SILT TRAP TYPE A	2.00	EACH
0520	02704	SILT TRAP TYPE B	2.00	EACH
0525	02705	SILT TRAP TYPE C	2.00	EACH
0530	02706	CLEAN SILT TRAP TYPE A	2.00	EACH
0535	02707	CLEAN SILT TRAP TYPE B	2.00	EACH
0540	02708	CLEAN SILT TRAP TYPE C	2.00	EACH
0545	02726	STAKING	1.00	LS
0550	05950	EROSION CONTROL BLANKET	2,160.00	SQYD
0555	05952	TEMP MULCH	6,557.00	SQYD
0560	05953	TEMP SEEDING AND PROTECTION	3,279.00	SQYD
0565	05963	INITIAL FERTILIZER	.50	TON
0570	05964	MAINTENANCE FERTILIZER	.30	TON
0575	05985	SEEDING AND PROTECTION	7,221.00	SQYD
0580	05992	AGRICULTURAL LIMESTONE	5.80	TON
0585	06406	SBM ALUM SHEET SIGNS .080 IN	106.00	SQFT
0590	06411	STEEL POST TYPE 2	156.00	LF
0595	06510	PAVE STRIPING-TEMP PAINT-4 IN	2,000.00	LF
0600	06514	PAVE STRIPING-PERM PAINT-4 IN	5,159.00	LF
0605	06568	PAVE MARKING-THERMO STOP BAR-24IN	31.00	LF
0610	06574	PAVE MARKING-THERMO CURV ARROW	10.00	EACH
0615	06610	INLAID PAVEMENT MARKER-MW	10.00	EACH
0620	06612	INLAID PAVEMENT MARKER-BY	26.00	EACH
0625	21289ED	LONGITUDINAL EDGE KEY	2,086.00	LF
0630	23608EC	YELLOW PAINT FOR MEDIAN SAFETY NOSE	21.00	SQFT
0635	24631EC	BARCODE SIGN INVENTORY	27.00	EACH
0640	00440	ENTRANCE PIPE-15 IN	162.00	LF
0645	00443	ENTRANCE PIPE-24 IN	34.00	LF
0650	00464	CULVERT PIPE-24 IN	71.00	LF
0655	00524	STORM SEWER PIPE-24 IN	95.00	LF
0660	01434	SLOPED BOX OUTLET TYPE 1-24 IN	3.00	EACH

MATERIAL SUMMARY

Project Line No	Bid Code	DESCRIPTION	Quantity	Unit
0665	01544	DROP BOX INLET TYPE 11	1.00	EACH
0670	02607	FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	1,028.00	SQYD
0675	24814EC	PIPELINE INSPECTION	222.00	LF
0680	14003	W CAP EXISTING MAIN	3.00	EACH
0685	14009	W ENCASEMENT STEEL BORED RANGE 4	76.00	LF
0690	14019	W FIRE HYDRANT ASSEMBLY	2.00	EACH
0695	14040	W PIPE DUCTILE IRON 16 INCH	1,218.00	LF
0700	14095	W TIE-IN 08 INCH	3.00	EACH
0705	14106	W VALVE 08 INCH	4.00	EACH
0710	14152	W SERV COPPER SHORT SIDE 3/4 IN	4.00	EACH
0715	02569	DEMOBILIZATION	1.00	LS

GUARDRAIL DELIVERY VERIFICATION SHEET

Contract Id: _____ **Contractor: _____**

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

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

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

Printed Section Engineer's Representative_____ & Date_____

Signature Section Engineer's Representative_____& Date_____

Printed Contractor's Representative_____& Date_____

Signature Contractor's Representative_____& Date_____

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

Printed Bailey Bridge Yard Representative_____ & Date_____

Signature Bailey Bridge Yard Representative_____& Date_____

Printed Contractor's Representative_____& Date_____

Signature Contractor's Representative_____& Date_____

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

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

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the plans or proposal to previous editions of the *Standard Specifications for Road and Bridge Construction* and *Standard Drawings* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 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 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).

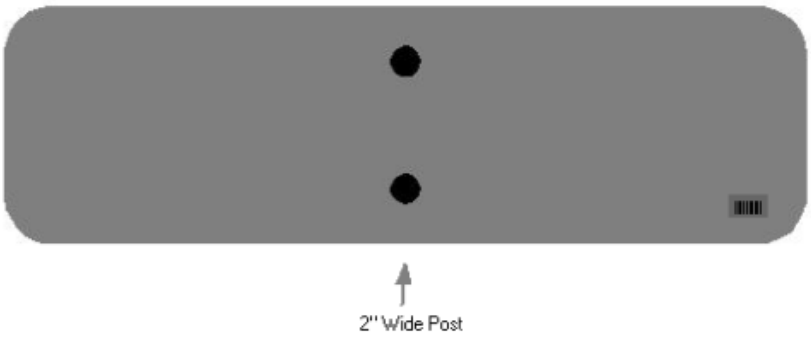
The installation of the permanent sign will be measured in accordance to Section 715.

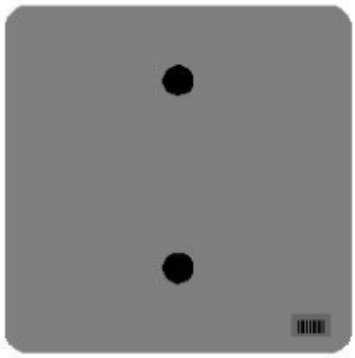
5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
24631EC	Barcode Sign Inventory	Each

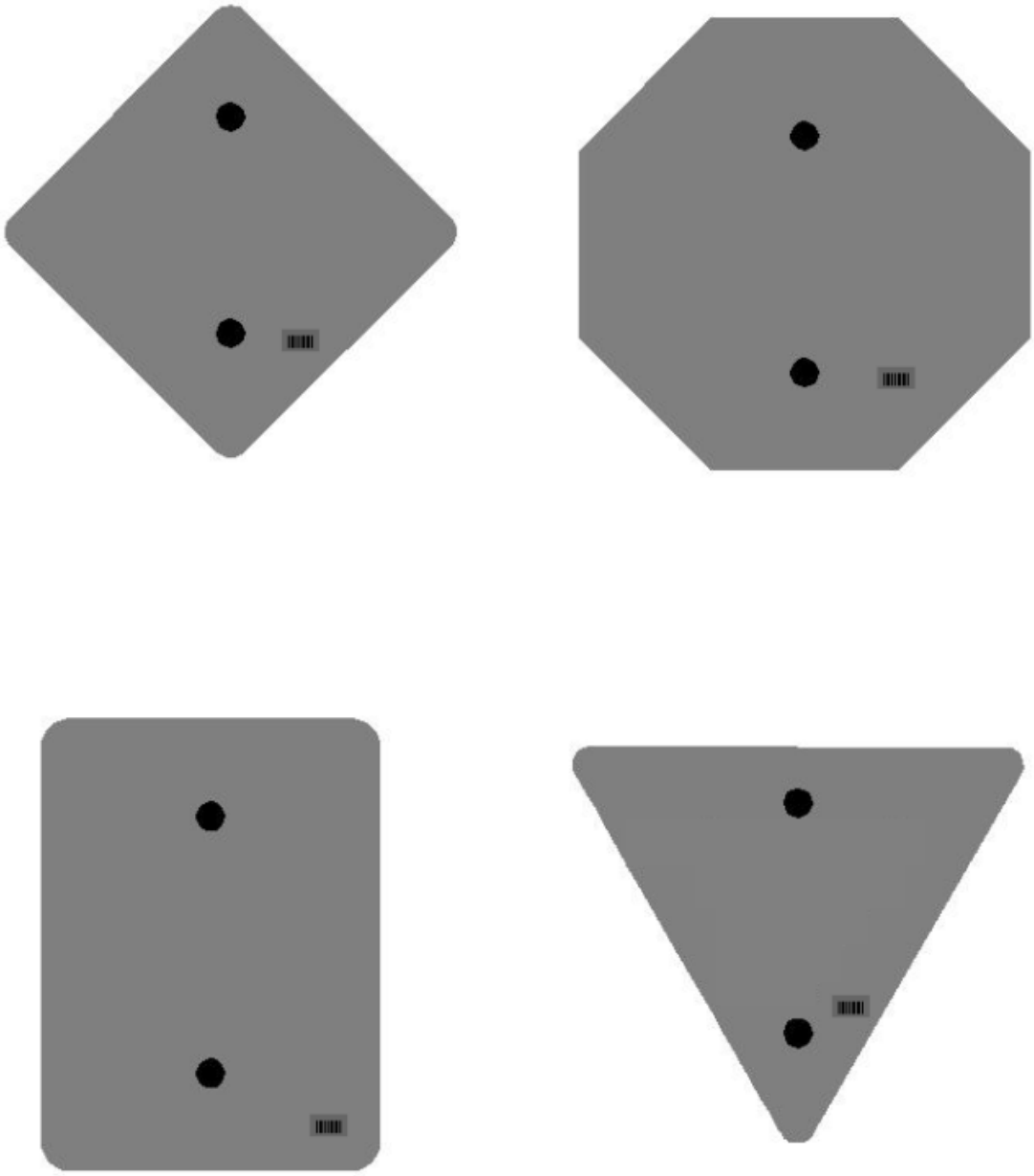
The Department will not make payment for this item until all barcodes are installed and sign inventory is complete on every permanent sign installed on the project. The Department will make payment for installation of the permanent sign in accordance to Section 715. The Department will consider payment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

One Sign Post

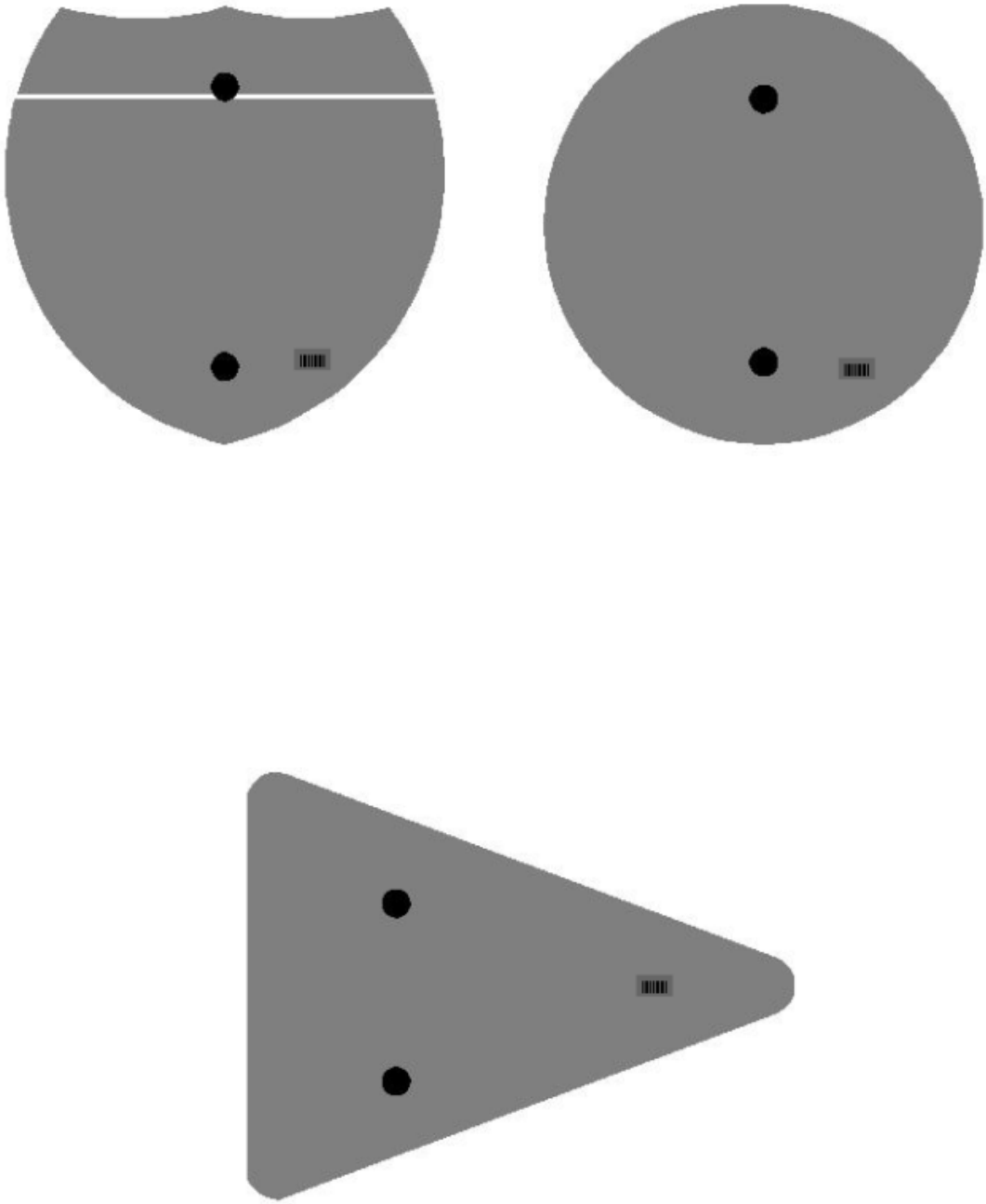




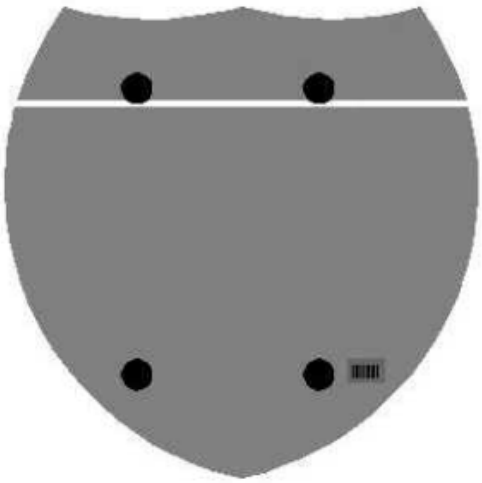
One Sign Post



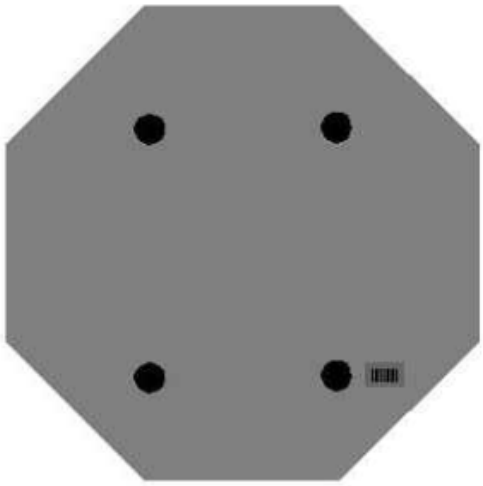
One Sign Post



Double Sign Post

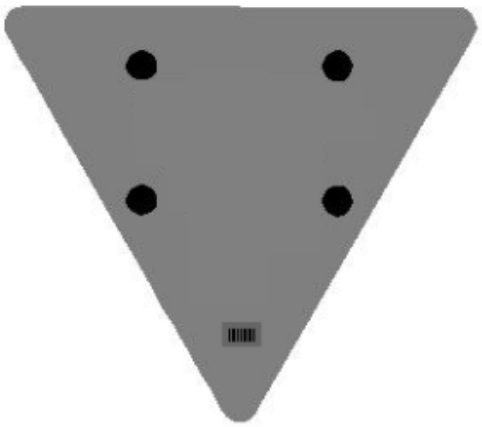


Interstate
Shield



48" Stop

2 Post Signs



11N

SPECIAL NOTE FOR LONGITUDINAL PAVEMENT JOINT ADHESIVE

1. DESCRIPTION. This specification covers the requirements and practices for applying an asphalt adhesive material to the longitudinal joint of the surface course of an asphalt pavement. Apply the adhesive to the face of longitudinal joint between driving lanes for the first lane paved. Then, place and compact the adjacent lane against the treated face to produce a strong, durable, waterproof longitudinal joint.

2. MATERIALS, EQUIPMENT, AND PERSONNEL.

2.1 Joint Adhesive. Provide material conforming to Subsection 2.1.1.

2.1.1 Provide an adhesive conforming to the following requirements:

Property	Specification	Test Procedure
Viscosity, 400 ° F (Pa·s)	4.0 – 10.0	ASTM D 4402
Cone Penetration, 77 ° F	60 – 100	ASTM D 5329
Flow, 140 ° F (mm)	5.0 max.	ASTM D 5329
Resilience, 77 ° F (%)	30 min.	ASTM D 5329
Ductility, 77 ° F (cm)	30.0 min.	ASTM D 113
Ductility, 39 ° F (cm)	30.0 min.	ASTM D 113
Tensile Adhesion, 77 ° F (%)	500 min.	ASTM D 5329, Type II
Softening Point, ° F	171 min.	AASHTO T 53
Asphalt Compatibility	Pass	ASTM D 5329

Ensure the temperature of the pavement joint adhesive is between 380 and 410 °F when the material is extruded in a 0.125-inch-thick band over the entire face of the longitudinal joint.

2.2. Equipment.

2.2.1 Melter Kettle. Provide an oil-jacketed, double-boiler, melter kettle equipped with any needed agitation and recirculating systems.

2.2.2 Applicator System. Provide a pressure-feed-wand applicator system with an applicator shoe attached.

2.3 Personnel. Ensure a technical representative from the manufacturer of the pavement joint adhesive is present during the initial construction activities and available upon the request of the Engineer.

3. CONSTRUCTION.

3.1 Surface Preparation. Prior to the application of the pavement joint adhesive, ensure the face of the longitudinal joint is thoroughly dry and free from dust or any other debris that would inhibit adhesion. Clean the joint face by the use of compressed air.

Ensure this preparation process occurs shortly before application to prevent the return of debris on the joint face.

3.2 Pavement Joint Adhesive Application. Ensure the ambient temperature is a minimum of 40 ^{o} F during the application of the pavement joint adhesive. Prior to applying the adhesive, demonstrate competence in applying the adhesive according to this note to the satisfaction of the Engineer. Heat the adhesive in the melter kettle to the specified temperature range. Pump the adhesive from the melter kettle through the wand onto the vertical face of the cold joint. Apply the adhesive in a continuous band over the entire face of the longitudinal joint. Do not use excessive material in either thickness or location. Ensure the edge of the extruded adhesive material is flush with the surface of the pavement. Then, place and compact the adjacent lane against the joint face. Remove any excessive material extruded from the joint after compaction (a small line of material may remain).

3.3 Pavement Joint Adhesive Certification. Furnish the joint adhesive's certification to the Engineer stating the material conforms to all requirements herein prior to use.

3.4 Sampling and Testing. The Department will require a random sample of pavement joint adhesive from each manufacturer's lot of material. Extrude two 5 lb. samples of the heated material and forward the sample to the Division of Materials for testing. Reynolds oven bags, turkey size, placed inside small cardboard boxes or cement cylinder molds have been found suitable. Ensure the product temperature is 400°F or below at the time of sampling.

4. MEASUREMENT. The Department will measure the quantity of Pavement Joint Adhesive in linear feet. The Department will not measure for payment any extra materials, labor, methods, equipment, or construction techniques used to satisfy the requirements of this note. The Department will not measure for payment any trial applications of Pavement Joint Adhesive, the cleaning of the joint face, or furnishing and placing the adhesive. The Department will consider all such items incidental to the Pavement Joint Adhesive.

5. PAYMENT. The Department will pay for the Pavement Joint Adhesive at the Contract unit bid price and apply an adjustment for each manufacturer's lot of material based on the degree of compliance as defined in the following schedule. When a sample fails on two or more tests, the Department may add the deductions, but the total deduction will not exceed 100 percent.

11N

Pavement Joint Adhesive Price Adjustment Schedule						
Test	Specification	100% Pay	90% Pay	80% Pay	50% Pay	0% Pay
Joint Adhesive Referenced in Subsection 2.1.1						
Viscosity, 400 ° F (Pa•s)			3.0-3.4	2.5-2.9	2.0-2.4	≤1.9
ASTM D 3236	4.0-10.0	3.5-10.5	10.6-11.0	11.1-11.5	11.6-12.0	≥ 12.1
Cone Penetration, 77 ° F			54-56	51-53	48-50	≤ 47
ASTM D 5329	60-100	57-103	104-106	107-109	110-112	≥ 113
Flow, 140 ° F (mm) ASTM D 5329	≤ 5.0	≤ 5.5	5.6-6.0	6.1-6.5	6.6-7.0	≥ 7.1
Resilience, 77 ° F (%) ASTM D 5329	≥ 30	≥ 28	26-27	24-25	22-23	≤ 21
Tensile Adhesion, 77 ° F (%) ASTM D 5329	≥ 500	≥ 490	480-489	470-479	460-469	≤ 459
Softening Point, ° F AASHTO T 53	≥ 171	≥ 169	166-168	163-165	160-162	≤ 159
Ductility, 77 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9
Ductility, 39 ° F (cm) ASTM D 113	≥ 30.0	≥ 29.0	28.0-28.9	27.0-27.9	26.0-26.9	≤ 25.9

Code	Pay Item	Pay Unit
20071EC	Joint Adhesive	Linear Foot

May 7, 2014

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

LABOR AND WAGE REQUIREMENTS
APPLICABLE TO OTHER THAN FEDERAL-AID SYSTEM PROJECTS

I. APPLICATION

1. These contract provisions shall apply to all work performed on the contract by the contractor with his own organization and with the assistance of workmen under his immediate superintendence and to all work performed on the contract by piecework, station work or by subcontract. The contractor's organization shall be construed to include only workmen employed and paid directly by the contractor and equipment owned or rented by him, with or without operators.

2. The contractor shall insert in each of his subcontracts all of the stipulations contained in these Required Provisions and such other stipulations as may be required.

3. A breach of any of the stipulations contained in these Required Provisions may be grounds for termination of the contract.

II. NONDISCRIMINATION OF EMPLOYEES

AN ACT OF THE KENTUCKY
GENERAL ASSEMBLY TO PREVENT
DISCRIMINATION IN EMPLOYMENT
KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (forty and above); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age forty (40) and over. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, except that such a notice or advertisement may indicate a preference, limitation, or specification based on religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, when religion, national origin, sex, or age forty (40) and over, or because the person is a qualified individual with a disability, is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age forty (40) and over, in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

Revised: January 25, 2017

EXECUTIVE BRANCH CODE OF ETHICS

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

> KRS 11A.040 (7) provides:
>
> No present or former public servant shall, within six (6) months following termination of his office or employment, accept employment, compensation, or other economic benefit from any person or business that contracts or does business with, or is regulated by, the state in matters in which he was directly involved during the last thirty-six (36) months of his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, or for which he received, prior to his state employment, a professional degree or license, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved during the last thirty-six (36) months of his tenure in state government. This subsection shall not prohibit the performance of ministerial functions, including but not limited to filing tax returns, filing applications for permits or licenses, or filing incorporation papers, nor shall it prohibit the former officer or public servant from receiving public funds disbursed through entitlement programs.
>
> KRS 11A.040 (9) states:
>
> A former public servant shall not represent a person or business before a state agency in a matter in which the former public servant was directly involved during the last thirty-six (36) months of his tenure, for a period of one (1) year after the latter of:
>
> a) The date of leaving office or termination of employment; or
> b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, 3 Fountain Place, Frankfort, Kentucky 40601; telephone (502) 564-7954.

Revised: January 27, 2017

Kentucky Equal Employment Opportunity Act of 1978

The requirements of the Kentucky Equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) shall apply to this Contract. The apparent low Bidder will be required to submit EEO forms to the Division of Construction Procurement, which will then forward to the Finance and Administration Cabinet for review and approval. No award will become effective until all forms are submitted and EEO/CC has certified compliance. The required EEO forms are as follows:

- EEO-1: Employer Information Report
- Affidavit of Intent to Comply
- Employee Data Sheet
- Subcontractor Report

These forms are available on the Finance and Administration's web page under ***Vendor Information, Standard Attachments and General Terms*** at the following address: **https://www.eProcurement.ky.gov**.

Bidders currently certified as being in compliance by the Finance and Administration Cabinet may submit a copy of their approval letter in lieu of the referenced EEO forms.

For questions or assistance please contact the Finance and Administration Cabinet by email at **finance.contractcompliance@ky.gov** or by phone at 502-564-2874.

EMPLOYEE RIGHTS
UNDER THE FAIR LABOR STANDARDS ACT

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

FEDERAL MINIMUM WAGE
$7.25 PER HOUR
BEGINNING JULY 24, 2009

OVERTIME PAY

At least 1½ times your regular rate of pay for all hours worked over 40 in a workweek.

CHILD LABOR

An employee must be at least **16** years old to work in most non-farm jobs and at least **18** to work in non-farm jobs declared hazardous by the Secretary of Labor.

Youths **14** and **15** years old may work outside school hours in various non-manufacturing, non-mining, non-hazardous jobs under the following conditions:

No more than
- **3** hours on a school day or **18** hours in a school week;
- **8** hours on a non-school day or **40** hours in a non-school week.

Also, work may not begin before **7 a.m.** or end after **7 p.m.**, except from June 1 through Labor Day, when evening hours are extended to **9 p.m.** Different rules apply in agricultural employment.

TIP CREDIT

Employers of "tipped employees" must pay a cash wage of at least $2.13 per hour if they claim a tip credit against their minimum wage obligation. If an employee's tips combined with the employer's cash wage of at least $2.13 per hour do not equal the minimum hourly wage, the employer must make up the difference. Certain other conditions must also be met.

ENFORCEMENT

The Department of Labor may recover back wages either administratively or through court action, for the employees that have been underpaid in violation of the law. Violations may result in civil or criminal action.

Employers may be assessed civil money penalties of up to $1,100 for each willful or repeated violation of the minimum wage or overtime pay provisions of the law and up to $11,000 for each employee who is the subject of a violation of the Act's child labor provisions. In addition, a civil money penalty of up to $50,000 may be assessed for each child labor violation that causes the death or serious injury of any minor employee, and such assessments may be doubled, up to $100,000, when the violations are determined to be willful or repeated. The law also prohibits discriminating against or discharging workers who file a complaint or participate in any proceeding under the Act.

ADDITIONAL INFORMATION

- Certain occupations and establishments are exempt from the minimum wage and/or overtime pay provisions.
- Special provisions apply to workers in American Samoa and the Commonwealth of the Northern Mariana Islands.
- Some state laws provide greater employee protections; employers must comply with both.
- The law requires employers to display this poster where employees can readily see it.
- Employees under 20 years of age may be paid $4.25 per hour during their first 90 consecutive calendar days of employment with an employer.
- Certain full-time students, student learners, apprentices, and workers with disabilities may be paid less than the minimum wage under special certificates issued by the Department of Labor.

For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

WHD U.S. Wage and Hour Division

WWW.WAGEHOUR.DOL.GOV

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

WHD Publication 1088 (Revised July 2009)

PART IV

INSURANCE

Refer to
Kentucky Standard Specifications for Road and Bridge Construction,
current edition

PART V

BID ITEMS

221027

PROPOSAL BID ITEMS

Report Date 4/29/22

Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00001		DGA BASE	783.00	TON		$	
0020	00003		CRUSHED STONE BASE	955.00	TON		$	
0030	00020		TRAFFIC BOUND BASE	200.00	TON		$	
0040	00100		ASPHALT SEAL AGGREGATE	83.00	TON		$	
0050	00103		ASPHALT SEAL COAT	10.00	TON		$	
0060	00190		LEVELING & WEDGING PG64-22	304.00	TON		$	
0070	00212		CL2 ASPH BASE 1.00D PG64-22	1,357.00	TON		$	
0080	00301		CL2 ASPH SURF 0.38D PG64-22	1,086.00	TON		$	
0090	20071EC		JOINT ADHESIVE	2,801.00	LF		$	
0100	24970EC		ASPHALT MATERIAL FOR TACK NON-TRACKING	8.90	TON		$	

Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0110	00078		CRUSHED AGGREGATE SIZE NO 2	300.00	TON		$	
0120	01314		PLUG PIPE	2.00	EACH		$	
0130	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	23.00	EACH		$	
0140	02014		BARRICADE-TYPE III	3.00	EACH		$	
0150	02159		TEMP DITCH	9,998.00	LF		$	
0160	02160		CLEAN TEMP DITCH	4,999.00	LF		$	
0170	02200		ROADWAY EXCAVATION	1,325.00	CUYD		$	
0180	02203		STRUCTURE EXCAV-UNCLASSIFIED	9.00	CUYD		$	
0190	02242		WATER	11.00	MGAL		$	
0200	02263		FENCE-WOVEN WIRE TYPE 2	200.00	LF		$	
0210	02265		REMOVE FENCE	200.00	LF		$	
0220	02351		GUARDRAIL-STEEL W BEAM-S FACE	287.50	LF		$	
0230	02355		GUARDRAIL-STEEL W BEAM-S FACE A	100.00	LF		$	
0240	02360		GUARDRAIL TERMINAL SECTION NO 1	2.00	EACH		$	
0250	02367		GUARDRAIL END TREATMENT TYPE 1	5.00	EACH		$	
0260	02381		REMOVE GUARDRAIL	990.00	LF		$	
0270	02429		RIGHT-OF-WAY MONUMENT TYPE 1	19.00	EACH		$	
0280	02483		CHANNEL LINING CLASS II	1,191.00	TON		$	
0290	02484		CHANNEL LINING CLASS III	16.00	TON		$	
0300	02545		CLEARING AND GRUBBING 2.0 ACRES	1.00	LS		$	
0310	02555		CONCRETE-CLASS B	1.50	CUYD		$	
0320	02562		TEMPORARY SIGNS	523.00	SQFT		$	
0330	02575		DITCHING AND SHOULDERING	5,200.00	LF		$	
0340	02585		EDGE KEY	249.00	LF		$	
0350	02602		FABRIC-GEOTEXTILE CLASS 1	781.00	SQYD		$	
0360	02610		RETAINING WALL-GABION	18.00	CUYD		$	
0370	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		$	
0380	02650		MAINTAIN & CONTROL TRAFFIC (CRITTENDEN US 60 ITEM 1-9023)	1.00	LS		$	
0390	02671		PORTABLE CHANGEABLE MESSAGE SIGN	2.00	EACH		$	

PROPOSAL BID ITEMS

221027

Report Date 4/29/22

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0400	02690		SAFELOADING	2.70	CUYD		$	
0410	02697		EDGELINE RUMBLE STRIPS	9,693.00	LF		$	
0420	02701		TEMP SILT FENCE	9,998.00	LF		$	
0430	02703		SILT TRAP TYPE A	8.00	EACH		$	
0440	02704		SILT TRAP TYPE B	8.00	EACH		$	
0450	02705		SILT TRAP TYPE C	8.00	EACH		$	
0460	02706		CLEAN SILT TRAP TYPE A	8.00	EACH		$	
0470	02707		CLEAN SILT TRAP TYPE B	8.00	EACH		$	
0480	02708		CLEAN SILT TRAP TYPE C	8.00	EACH		$	
0490	02726		STAKING	1.00	LS		$	
0500	02726		STAKING (CRITTENDEN US 60 ITEM 1-9023)	1.00	LS		$	
0510	05950		EROSION CONTROL BLANKET	3,160.00	SQYD		$	
0520	05952		TEMP MULCH	25,233.00	SQYD		$	
0530	05953		TEMP SEEDING AND PROTECTION	17,279.00	SQYD		$	
0540	05963		INITIAL FERTILIZER	1.30	TON		$	
0550	05964		MAINTENANCE FERTILIZER	.80	TON		$	
0560	05985		SEEDING AND PROTECTION	22,856.00	SQYD		$	
0570	05992		AGRICULTURAL LIMESTONE	15.80	TON		$	
0580	06406		SBM ALUM SHEET SIGNS .080 IN	106.00	SQFT		$	
0590	06411		STEEL POST TYPE 2	156.00	LF		$	
0600	06510		PAVE STRIPING-TEMP PAINT-4 IN	16,000.00	LF		$	
0610	06514		PAVE STRIPING-PERM PAINT-4 IN	5,159.00	LF		$	
0620	06542		PAVE STRIPING-THERMO-6 IN W	7,830.00	LF		$	
0630	06543		PAVE STRIPING-THERMO-6 IN Y	4,629.00	LF		$	
0640	06568		PAVE MARKING-THERMO STOP BAR-24IN	31.00	LF		$	
0650	06574		PAVE MARKING-THERMO CURV ARROW	10.00	EACH		$	
0660	06610		INLAID PAVEMENT MARKER-MW	10.00	EACH		$	
0670	06612		INLAID PAVEMENT MARKER-BY	26.00	EACH		$	
0680	08801		GUARDRAIL-STEEL W BEAM-S FACE BR	19.00	LF		$	
0690	20191ED		OBJECT MARKER TY 3	5.00	EACH		$	
0700	20458ES403		CENTERLINE RUMBLE STRIPS	3,915.00	LF		$	
0710	20748ED		SHOULDER MILLING/TRENCHING	1,742.00	SQYD		$	
0720	21289ED		LONGITUDINAL EDGE KEY	2,086.00	LF		$	
0730	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	710.00	LF		$	
0740	23608EC		YELLOW PAINT FOR MEDIAN SAFETY NOSE	21.00	SQFT		$	
0750	24631EC		BARCODE SIGN INVENTORY	27.00	EACH		$	

Section: 0003 - DRAINAGE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0760	00440		ENTRANCE PIPE-15 IN	162.00	LF		$	
0770	00441		ENTRANCE PIPE-18 IN	86.00	LF		$	
0780	00443		ENTRANCE PIPE-24 IN	34.00	LF		$	
0790	00462		CULVERT PIPE-18 IN	93.00	LF		$	
0800	00464		CULVERT PIPE-24 IN	117.00	LF		$	
0810	00470		CULVERT PIPE-48 IN	16.00	LF		$	
0820	00524		STORM SEWER PIPE-24 IN	95.00	LF		$	
0830	01204		PIPE CULVERT HEADWALL-18 IN	1.00	EACH		$	

PROPOSAL BID ITEMS

221027

Report Date 4/29/22

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0840	01208		PIPE CULVERT HEADWALL-24 IN	1.00	EACH		$	
0850	01310		REMOVE PIPE	208.00	LF		$	
0860	01434		SLOPED BOX OUTLET TYPE 1-24 IN	3.00	EACH		$	
0870	01544		DROP BOX INLET TYPE 11	1.00	EACH		$	
0880	01726		SAFETY BOX INLET-18 IN SDB-1	1.00	EACH		$	
0890	02607		FABRIC-GEOTEXTILE CLASS 2 FOR PIPE	1,028.00	SQYD	$2.00	$	$2,056.00
0900	02625		REMOVE HEADWALL	5.00	EACH		$	
0910	08002		STRUCTURE EXCAV-SOLID ROCK	16.00	CUYD		$	
0920	08003		FOUNDATION PREPARATION (RCBC STA. 426+65)	1.00	LS		$	
0930	08100		CONCRETE-CLASS A	.86	CUYD		$	
0940	08100		CONCRETE-CLASS A (RCBC STA. 426+65)	31.60	CUYD		$	
0950	08150		STEEL REINFORCEMENT (RCBC STA. 426+65)	3,777.00	LB		$	
0960	24814EC		PIPELINE INSPECTION	222.00	LF		$	
0970	26131ED		SLOPED AND MITERED HEADWALL-18 IN	1.00	EACH		$	
0980	26132ED		SLOPED AND MITERED HEADWALL-24 IN	1.00	EACH		$	

Section: 0004 - SIGNING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0990	06406		SBM ALUM SHEET SIGNS .080 IN	78.06	SQFT		$	
1000	06407		SBM ALUM SHEET SIGNS .125 IN	26.68	SQFT		$	
1010	06410		STEEL POST TYPE 1	185.00	LF		$	
1020	21134ND		REMOVE-STORE AND REINSTALL SIGN	5.00	EACH		$	
1030	21373ND		REMOVE SIGN	11.00	EACH		$	
1040	24631EC		BARCODE SIGN INVENTORY	24.00	EACH		$	

Section: 0005 - WATERLINE

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1050	14003		W CAP EXISTING MAIN	3.00	EACH		$	
1060	14009		W ENCASEMENT STEEL BORED RANGE 4	76.00	LF		$	
1070	14019		W FIRE HYDRANT ASSEMBLY	2.00	EACH		$	
1080	14040		W PIPE DUCTILE IRON 16 INCH	1,218.00	LF		$	
1090	14095		W TIE-IN 08 INCH	3.00	EACH		$	
1100	14106		W VALVE 08 INCH	4.00	EACH		$	
1110	14152		W SERV COPPER SHORT SIDE 3/4 IN	4.00	EACH		$	

Section: 0006 - DEMOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1120	02569		DEMOBILIZATION	1.00	LS		$	