CALL NO. 101

CONTRACT ID. 091045

CAMPBELL COUNTY

FED/STATE PROJECT NUMBER ARRA 0272(109)

DESCRIPTION PARIS-COVINGTON ROAD (US 27)

WORK TYPE GRADE & DRAIN AND PAVEMENT ALTERNATES

PRIMARY COMPLETION DATE 350 WORKING DAYS

LETTING DATE: June 26, 2009

Sealed Bids will be received in the Division of Construction Procurement and/or the Auditorium located on the 1st floor of the Transportation Cabinet Office Building until 10:00 AM EASTERN DAYLIGHT TIME June 26, 2009. Bids will be publicly opened and read at 10:00 AM EASTERN DAYLIGHT TIME.

ROAD AND BRIDGE PLANS

DBE CERTIFICATION REQUIRED - 7.50%

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

(Check guaranty submitted: Cashier's Check ☐ Certified Check ☐ Bid Bond ☐)

BID BONDS WHEN SUBMITTED WILL BE RETAINED WITH THE PROPOSAL

DBE General Plan Included ☐

BID ☐ PROPOSAL ISSUED TO: _____

SPECIMEN ☐ _____

Address City State Zip

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PART I

SCOPE OF WORK

CONTRACT ID - 091045 ADMINISTRATIVE DISTRICT - 06

PROJECT(S) IDENTIFICATION AND DESCRIPTION:

COUNTY - CAMPBELL PCN - DE019002709W1
ARRA 0272(109)
PARIS-COVINGTON ROAD (US 27) RECONSTRUCT US 27 FROM KY 154 TO CAMPBELL COUNTY PARK.
GRADE & DRAIN AND PAVEMENT ALTERNATES. SYP NO. 06-00046.20.
GEOGRAPHIC COORDINATES LATITUDE 38^53'00" LONGITUDE 84^25'00"

COMPLETION DATE(S):
350 WORKING DAYS
APPLIES TO ENTIRE CONTRACT

CONTRACT NOTES

PROPOSAL ADDENDA

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

BID SUBMITTAL

Bidder must use the Department's Expedite Bidding Program available on the Internet web site of the Department of Highways, Division of Construction Procurement. (www.transportation.ky.gov/contract)

The Bidder must download the bid file located on the web site to prepare a bid packet for submission to the Department. The bidder must include the completed bid packet printed from the Program along with the disk created by said program.

JOINT VENTURE BIDDING

Joint Venture bidding is permissible. However, both companies MUST purchase a bidding proposal. Either proposal may be submitted but must contain the company names and signatures of both parties where required. A joint bid bond of 5% may be submitted for both companies or each company may submit a separate bond of 5%.

UNDERGROUND FACILITY DAMAGE PROTECTION

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

01/01/2009

FEDERAL CONTRACT NOTES

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

102.02 Current Capacity Rating
102.08 Irregular Proposals
102.09 Proposal Guaranty
102.10 Delivery of Proposals
102.14 Disqualification of Bidders

CIVIL RIGHTS ACT OF 1964

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

NOTICE TO ALL BIDDERS

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

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

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

FHWA 1273

The requirements of Paragraph VI of FHWA 1273 does not apply to projects with a total cost of less than $1,000,000.00.

SECOND TIER SUBCONTRACTS

Second Tier subcontracts on federally assisted projects shall be permitted. However, in the case of DBE's, second tier subcontracts will only be permitted where the other

subcontractor is also a DBE. All second tier subcontracts shall have the consent of both the Contractor and the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

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

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

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

DBE GOAL

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

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

OBLIGATION OF CONTRACTORS

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

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

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

CERTIFICATION OF CONTRACT GOAL

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

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

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

DBE PARTICIPATION PLAN

All bidders are encouraged to submit their General DBE Participation Plan with their bid on the official form. Lowest responsive bidders whose bid packages include DBE Participation Plans may be awarded the contract at the next Awards Committee meeting provided that the DBE goal is met. The DBE Participation Plan shall include the following:

1. Name and address of DBE Subcontractor(s) and/or supplier(s) intended to be used in the proposed project;
2. Description of the work each is to perform including the work item , unit, quantity, unit price and total amount of the work to be performed by the individual DBE;
3. The dollar value of each proposed DBE subcontract and the percentage of total project contract value this represents. DBE participation may be counted as follows;
   a) If DBE suppliers and manufactures assume actual and contractual responsibility, the dollar value of materials to be furnished will be counted toward the goal as follows:
      - The entire expenditure paid to a DBE manufacturer;
      - 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment; and
      - the amount of fees or commissions charged by the DBE firms for a bona fide service, such as professional, technical, consultant, or managerial services and assistance in the procurement of essential personnel,

facilities, equipment, materials, supplies, delivery of materials and supplies or for furnishing bonds, or insurance, providing such fees or commissions are determined to be reasonable and customary.

b) The dollar value of services provided by DBEs such as quality control testing, equipment repair and maintenance, engineering, staking, etc.;
c) The dollar value of joint ventures. DBE credit for joint ventures will be limited to the dollar amount of the work actually performed by the DBE in the joint venture;

4. Written and signed documentation of the bidder's commitment to use a DBE contractor whose participation is being utilized to meet the DBE goal; and
5. Written and signed confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment.

The apparent low bidder who does not submit a General DBE Participation Plan with the bid shall submit it within 10 calendar days after receipt of notification that they are the apparent low bidder. The project will not be considered for award prior to submission and approval of the apparent low bidder's DBE Participation Plan.

Detailed DBE Participation Plan forms will be included in the Contractor Package presented to successful bidders following the awarding of the project. The Detailed DBE Participation Plan must be completed and returned to Contract Procurement in accordance with Cabinet policy. A copy of the blank estimate will be included with the Detailed DBE Participation Plan to list sequence items by PCN (Project Control Number).

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

CONSIDERATION OF GOOD FAITH EFFORTS REQUESTS

If the DBE participation submitted in the bid by the apparent lowest responsive bidder does not meet or exceed the DBE contract goal, the apparent lowest responsive bidder must submit a Good Faith Effort Package to satisfy the Cabinet that sufficient good faith efforts were made to meet the contract goals prior to submission of the bid. Efforts to increase the goal after bid submission will not be considered in justifying the good faith effort, unless the contractor can show that the proposed DBE was solicited prior to the letting date. DBEs utilized in achieving the DBE goal must be certified and prequalified for the work items at the time the bid is submitted. One complete set and nine (9) copies of this information must be received in the office of the Division of Contract Procurement no later than 12:00 noon of the tenth calendar day after receipt of notification that they are the apparent low bidder.

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

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

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

9. Whether the bidder specifically negotiated with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be subcontracted includes potential DBE participation;
10. Whether the bidder made any efforts and/or offered assistance to interested DBEs in obtaining the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal; and
11. Any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include DBE participation.

FAILURE TO MEET GOOD FAITH REQUIREMENT

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

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

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

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

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

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

- Disallow credit toward the DBE goal;
- Withholding progress payments;

- Withholding payment to the prime in an amount equal to the unmet portion of the contract goal; and/or
- Termination of the contract.

PROMPT PAYMENT

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

CONTRACTOR REPORTING

All contractors must keep detailed records and provide reports to the Cabinet on their progress in meeting the DBE requirement on any highway contract. These records may include, but shall not be limited to payroll, lease agreements, cancelled payroll checks, executed subcontracting agreements, etc. Prime contractors will be required to submit certified reports on monies paid to each DBE subcontractor or supplier utilized to meet a DBE goal.

Prime contractors will incorporate a requirement into DBE subcontracts, including supply contracts, that DBEs must provide to the Division of Construction, a copy of all checks received from the prime contractor within seven days of receipt of payment for work performed on Cabinet projects. Checks to DBE subcontractors must include the PCN number, estimate number, and the sequence and quantity.

DEFAULT OR DECERTIFICATION OF THE DBE

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

01/01/2009

Kentucky Transportation Cabinet
General DBE Participation Plan*

3/25/2002

Letting Date: _____ Project Code Number (PCN) _____ Project Number: _____

Designated DBE Goal % _____

Prime Contractor _____ DBE Company Name _____

Address _____

City, State, Zip _____

Federal Tax ID _____

Type of DBE Work: (all applicable)

_____ Supplier _____ Subcontractor _____ Manufacturer _____ Engineering _____ Other _____

Itemized worked to be performed by DBE Company:

Supplier 60% Y/N	Item Number	Description of Participation	Unit of Measure	Quantity to be Performed by DBE	DBE Unit Price **	Dollar Amount (based on DBE

**Note: 60 percent of expenditures to DBE suppliers that are not manufacturers provided the supplier is a regular dealer in the product involved. A regular dealer must be engaged in, as its principal business and in its own name, the sale of products to the public, maintain an inventory and own and operate distribution equipment

Total This DBE _____

Total Bid _____

% Credited toward Goal, this DBE _____

Prime Contractor's Signature: _____ Title: _____ Date: _____

DBE Participant Signature: _____ Title: _____ Date: _____

***This form must be completed for each DBE participant**

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TRAINEES

In Compliance with the "TRAINING SPECIAL PROVISION" included in Part III of the Proposal, the Contractor will be required to employ 2 trainee(s) (1 Class A or B Operator and 1 Articulating Truck Driver) for this contract.

PROJECT TRAFFIC COORDINATOR (PTC)

This project is a significant project pursuant to section 112.03.12.

ASPHALT MIXTURE

The rate of application for all asphalt mixtures shall be estimated at 110 lbs/sy per inch of depth, unless otherwise noted.

DGA BASE

The rate of application for DGA Base shall be estimated at 115 lbs/sy per inch of depth.

DGA BASE FOR SHOULDERS

The rate of application shall be estimated at 115 lbs/sy per inch of depth. Payment for necessary grading and/or shaping of existing shoulders prior to placing of Dense Graded Aggregate Base shall be included in the unit price bid per ton for Dense Graded Aggregate Base.

INCIDENTAL SURFACING

The quantities established in the proposal include estimated quantities required for resurfacing or surfacing mailbox turnouts, farm field entrances, residential and commercial entrances, and road and street approaches. These items are to be paved to the limits as shown on Standard Drawing RPM 110 or to the limits as directed by the Engineer. In the event signal detectors are present in the intersecting streets or roads, the paving of the crossroads shall be to the right of way limit or back of the signal detector, whichever is the farthest back of the mainline. These areas are to be surfaced or resurfaced as directed by the Engineer and no direct payment will be allowed for placing and compacting.

JPC RIDE QUALITY

JPC Pavement Smoothness requirements shall apply on this project in accordance with Section 501 of the current Standard Specifications.

ASPHALT PAVEMENT RIDE QUALITY

Pavement Rideability Requirements shall apply on this project in accordance with Section 410 of the current Standard Specifications.

FUEL AND ASPHALT PAY ADJUSTMENT

The following contract items: Asphalt Adjustment and Fuel Adjustment, are for possible future payments. Additional monies may need to be setup with an additional change order if existing contract amount is insufficient to pay all items on the contract. Unit price is $1.00. Quantity will be actual adjustment after work is completed.

OPTION A

The Contractor is advised that the compaction of asphalt mixtures furnished for driving lanes and ramps, at 25mm (1 inch) or greater, on this project will be accepted according to OPTION A in accordance with Section 402 and Section 403 of the current Standard Specification. Joint cores as described in subsection 402.03.02 are required for surface mixtures only. The compaction of all other asphalt mixtures will be accepted by OPTION B.

Note for English Bid Items with Metric Plans

Special Notes, Proposal & Plans were developed under Metric Plan methodology. Stationing, measurements and quantities depicted on plans, notes and proposal are in Metric units, quantities and measurements except Bid quantities.

The 2008 Kentucky Standard Specifications for Road & Bridge Construction and 2008 Standard Drawings use English Units and Measurements.

For Bidding and Payment purposes the quantities & units will be converted to English quantities & units. Summary of Bid Items in proposal are in ENGLISH units and quantities. Conversion factors from 2008 Kentucky Standard Specifications for Road & Bridge Construction were used.

All Bid Items are in ENGLISH Units and Quantities.

Final pay quantities will be in accordance to 2008 Kentucky Standard Specifications for Road & Bridge Construction and be in English units and quantities.

2008 Kentucky Standard Specifications for Road & Bridge Construction **Section 104.06 titled METRIC CONFLICTS addresses conflicts that may arise with Metric units.**

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January 29, 2008

4/15/09

US 27, Campbell Co.
Item Number: 6-46.2

SPECIAL NOTE
ALTERNATE PAVEMENT BID ADJUSTMENT

This project includes alternate bidding for asphalt or concrete pavement. There are specific items listed for each pavement type to be bid with the alternate selected by the Contractor. There is also a line item in the alternate categories for each alternate to adjust for the projected out-year life-cycle costs to the Cabinet. These line item adjustments are as follows:

Asphalt Pavement Adjustment =	$646,739
Concrete Pavement Adjustment =	$383,906

The amount reflective of the pavement type selected by each contractor will be added to their respective bid for comparison of the low bid. The adjustment ***shall be used only for determination of the lowest bidder*** *and* ***shall not be used to determine the final payment*** to the contractor when the project is completed.

Please note that these adjustments should not be used for the calculation of the maximum Mobilization amount and are not required to be included in the minimum Demobilization amount.

Proposal Guaranty

As a supplement to Section 102 of the 2008 Standard Specifications, it will not be necessary for the Proposal Guaranty to include an amount necessary to cover the amount of the bid adjustment.

SPECIAL NOTES FOR PROJECTS FUNDED BY THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

SPECIAL NOTE FOR DAVIS-BACON PREVAILING WAGE RATES FOR PROJECTS FUNDED BY THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

This Special Note will apply when indicated on the plans, in the proposal, or by addendum.

Davis-Bacon Prevailing Wage Rates (Section 1606) - Prevailing wage rate requirements apply to all Recovery Act funded construction projects regardless of location (including projects on local roads or rural minor collectors, and Transportation Enhancement projects outside the highway right-of-way). Contracting agencies must include the appropriate wage rate information in the contract and also include a contract provision that overrides the general applicability provisions in form FHWA-1273, Section IV and V.

SPECIAL NOTE FOR PROJECTS FUNDED BY THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 AS THEY RELATE TO THE GOVERNMENT ACCOUNTABILITY OFFICE AND THE OFFICE OF INSPECTOR GENERAL

This Special Note will apply when indicated on the plans, in the proposal, or by addendum.

Requirement for Section 902 of the Recovery Act relating to Government Accountability Office (GOA) as follows:

Required Contract Provision to Implement Recovery Act Section 902:

Section 902 of the American Recovery and Reinvestment Act (Recovery Act) of 2009 requires that each contract awarded using Recovery Act funds must include a provision that provides the U.S. Comptroller General and his representatives with the authority to:

"(1) to examine any records of the contractor or any of its subcontractors, or any State or local agency administering such contract, that directly pertain to, and involve transactions relating to, the contract or subcontract; and

(2) To interview any officer or employee of the contractor or any of its subcontractors, or of any State or local government agency administering the contract, regarding such transactions."

Accordingly, the Comptroller General and his representatives shall have the authority and rights as provided under Section 902 of the Recovery Act with respect to this contract, which is funded with funds made available under the Recovery Act. Section 902 further states that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of the Comptroller General.

Requirement for Section 1515(a) of the Recovery Act relating to Office of Inspector General (OIG) as follows:

Section 1515(a) of the Recovery Act provides authority for any representatives of the Inspector General to examine any records or interview any employee or officers working on this contract. The contractor is advised that representatives of the inspector general have the authority to examine any record and interview any employee or officer of the contractor, its subcontractors or other firms working on this contract. Section 1515(b) further provides that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of an inspector general.

SPECIAL NOTE FOR PERIODIC REPORTS REQUIRED BY THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

This Special Note will apply when indicated on the plans, in the proposal, or by addendum.

1.0 DESCRIPTION. This work consists of collecting and reporting data as required by the American Recovery and Reinvestment Act of 2009 (Recovery Act).

2.0 REPORTING. The Contractor shall complete the Monthly Employment Report form, FHWA-1589, for their employees and a separate form for each of their respective subcontractors as well. This form contains information about the number of employees, total hours for employees, total wages for employees, and other information as required by the Recovery Act. The Department will provide the necessary Excel file after the award of the contract. The initial submittal shall be before the Notice to Proceed. All remaining submittals shall be no later than the seventh Calendar Day of each month thereafter for the full life of the contract even if no work is performed during any month. See the following web link for filling out form FHWA-1589:
http://www.fhwa.dot.gov/economicrecovery/forms/arra_reporting_req_1_0.pdf

The Contractor shall also need their Data Universal Numbering System or DUNS number as described in the Recovery Act Reporting Requirements. See the following web link for obtaining a DUNS number:
http://www.whitehouse.gov/omb/grants/duns_num_guide.pdf

3.0 MEASUREMENT AND PAYMENT. The Department will not measure this work for payment and will consider all collection and reporting of data to be incidental to the project. Failure by the Contractor to report the required data as outlined in Section 2.0 shall result in the holding of the Contractor's estimate for payment.

Monthly Employment Report (Form: FHWA-1589)

This form is a guide for the States in providing employment information on each ARRA project. Monthly employment information on each ARRA project is used by States for meeting the reporting requirements of Sections 1201 and 1512. In order for States to fulfill their reporting obligations, the States must collect and analyze certain employment data for each ARRA funded contract. The data requirement in ARRA extends beyond the number of workers at the work site and, therefore, FHWA has produced a form for guidance to the States. This data to be reported is identified below and will be used by the States in developing Form 1587, which is to be submitted to FHWA. Since States may not currently collect this data, the States should develop a new specification for each ARRA-funded contract in order to obtain this information from contractors and consultants. In doing so, the States should use the provided model form and require the reporting of this data from the prime contractor or consultant. The prime contractor or consultant shall complete a report for each month from the date of the Notice to Proceed until completion of the contract or September, 2012 whichever occurs sooner. This report is only required for contracts that use ARRA funds. States should require contractors and consultants to provide the required information for their own workforce as well as the workforce of all subcontractors that were active on their ARRA funded project(s) for the reporting month. It will be up to each State to determine when they obtain the necessary data from their contractors or consultants, keeping in mind that the summary form is due from the State to the FHWA Division no later than the 20th day of each month for the preceding month's data.

It is the State DOT's responsibility to report the number of jobs on projects managed by funding recipients, such as other state agencies or local governments. The State DOT must make arrangements with each ARRA funding recipient to assure each recipient reports the required data in a timely manner.

The States shall require the following data be provided by each contractor, consultant and funding recipient working on an ARRA project. The primary contractor or consultant for each project shall be responsible for reporting their firm as well as all sub-contractors data.

Format: The State, contractors, or consultant may use the FHWA provided model form, but the use of the model form is optional and at the discretion of the State.

Due date: As determined by the State, until September 2012.

Due to: To be sent by each ARRA funded project prime contractor or consultant to the designated office in each State DOT or Federal Lands Division Office.

Coding Instructions

BOX 1. **Report Month:** The month and year covered by the report, as *mm/yyyy* (e.g. "May 2009" would be coded as "05/2009").

BOX 2. **Contracting agency:** The name of the contracting agency. Enter "State" for State DOT projects. For non-State projects, enter the name of the contracting

agency (other State agency, Federal agency, tribe, MPO, city, county, or other funding recipient).

BOX 3. **Federal-aid project number:** The State assigned federal-aid project number, consistent with the format reported in FMIS.

BOX 4. **State project number or identification number:** The project number or ID, as assigned by the State of its funding recipient, consistent with the format reported in FMIS.

BOX 5. **Project location:** State where project occurs. If the project performed for Federal Lands, provide the FLH Division or Federal Land Managing Agency (FLMA) region.

BOX 6. **Contractor name and address:** The name and address of the contracting or consulting firm shall include the name, street address, city, state, and zip code.

BOX 7. **Contractor DUNS number:** The unique nine-digit number issued by Dun & Bradstreet. Followed by the optional 4 digit DUNS Plus number. Reported as "*999999999.9999"*

BOX 8. **Employment data:** The prime contractor or consultant will report the direct, on-the-project jobs for their workforce and the workforce of their sub-contractors active during the reporting month. These jobs data include employees actively engaged in projects who work on the jobsite, in the project office, in the home office or telework from a home or other alternative office location. This also includes any engineering personnel, inspectors, sampling and testing technicians, and lab technicians performing work directly in support of the ARRA funded project. This does not include material suppliers such as steel, culverts, guardrail, and tool suppliers. States should include in their reports all direct labor associated with the ARRA project such as design, construction, and inspection. The States reports should include their own project labor, including permanent, temporary, and contract project staff. States are asked not to include estimated indirect labor, such as material testing, material production or estimated macro-economic impacts. FHWA will be estimating all indirect labor based on the information provided in this form along with other FHWA data. The form requests specifically:

a. **Subcontractor name:** The name of each subcontractor or sub-consultant that was active on the project for the reporting month.

b. **Employees:** The number of project employees on the contractor's or consultant's workforce that month, and the number of project employees for each of the active subcontractors for the reporting month. Do not include material suppliers. Total field at bottom will be automatically calculated and reported as a whole number.

c. **Hours:** The total hours on the specified project for all employees reported on the contractor's or consultant's project workforce that month, and the total hours for all project employees reported for each of the active subcontractors that month. Total field at bottom will be automatically calculated and reported as a whole number.

d. **Payroll:** The total dollar amount of wages paid by the contractor or consultant that month for employees on the specified project, and the total dollar amount of wages paid by each of the active subcontractors that month. Payroll only includes wages and does not included overhead or indirect costs. Total field at bottom will be automatically calculated and will be rounded to the nearest whole dollar and reported as a whole number.

BOX 9. **Prepared by:**

a. **Name:** Indicate the person responsible for preparation of the form. By completing the form the person certifies that they are knowledgeable of the hours worked and employment status for all the employees. Contractors, consultants, and their subs are responsible to maintain data to support the employment form and make it available to the State should they request supporting materials.

b. **Date:** The date that the contractor completed the employment form. Reported as"*mm/dd/yyyy*." (e.g. "May 1, 2009" would be coded as "05/01/2009").

MONTHLY EMPLOYMENT REPORT
AMERICAN RECOVERY AND REINVESTMENT ACT

1. Report Month: (mm/yyyy)	2. Contracting Agency	
3. Federal-Aid Project Number	4. State Project Number or ID Number	5. Project Location: State, County or Federal Region

6. CONTRACTOR NAME AND ADDRESS

Name:
Address:
City: State:
Zip:

7. Contractor/Subcontractor DUNS Number:

8. Employment Data

	EMPLOYEES	HOURS	PAYROLL
Prime Contractor Direct, On-Project Jobs (see guidance for definitions)			
Subcontractor Direct, On-Project Jobs			
Subcontractor Name			
Prime and Subcontractor Totals	0	0	0.00

9. PREPARED BY CEO or Payroll Official:	DATE:
Name: Title:	

Form FHWA-1589

SPECIAL NOTE FOR SIGNS ON PROJECTS BEING FUNDED BY THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

This Special Note will apply where indicated in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 Description. Furnish, install, and maintain Recovery Act signs as shown in the proposal or designated by the Engineer. Two Recovery Act signs will be required for each project. See the sign detail sheet for exact dimensions for the sign.

Speed Limit (MPH)	"A" Dimension	"B" Dimension
65 or Greater	120 inches	84 inches
55 or Less	84 inches	60 inches

2.0 Materials. Recovery Act signs shall be constructed and installed in accordance with signing details included with this note. Conform to Sections 830, 832 and 833.

3.0 Construction. Recovery Act signs should be placed where they can be easily identified with the corresponding projects and in a location that does not conflict with higher priority signs (temporary or permanent), traffic signals or any temporary traffic control device. In no case shall these signs be installed such that it obscures the view of other traffic control devices.

Recovery Act signs shall not be installed at the following locations: Near any traffic control device, roadway structure, exit and entrance ramps, intersections, highway-rail grade crossings, and areas of limited sight distance.

The signs installed on roadways with a speed limit of 65 mph or greater shall be installed using traffic notes for temporary signs on wood posts. All other signs should be installed using two Type II channel posts as shown in the attached detail. Sign bracing will be required as shown in the attached details.

4.0 Measurement. The Department will measure the quantity in square feet. The Department will not measure sign maintenance, posts, mounting, installation or any required bracing for payment and will consider them incidental to this item of work.

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

Code	Pay Item	Pay Unit
02562	Signs	Square Foot

3/23/2009

PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS

PROJECT FUNDING SOURCE
SIGN ASSEMBLY

3/23/2009

PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS

PROJECT FUNDING SOURCE SIGN

NOTE: SIGN SHALL NOT BE INSTALLED WITHOUT PROJECT FUNDING SOURCE PLAQUE (SEE SHEET 3).

Dimensions in inches

A	B	C	D	E	F	G	H	J	K	L	M	N	P
120	84	1.5	6	5 D	4.5	8 D*	3.75	6 D* (4.5 L.C.)	14.5	10	27.917	5	10.831
84	60	1	5	4 C	3.5	6 C*	3	4 D* (3 L.C.)	9.25	7	19.047	4	7.362

Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD
14.087	8.106	11.556	49.42	2.742	5.258	46.904	6.812	46.76	22.472	8	16.288	5	30
9.484	5.162	7.763	31.722	2.415	3.585	30.552	4.542	30.911	14.737	6	10.175	4	21

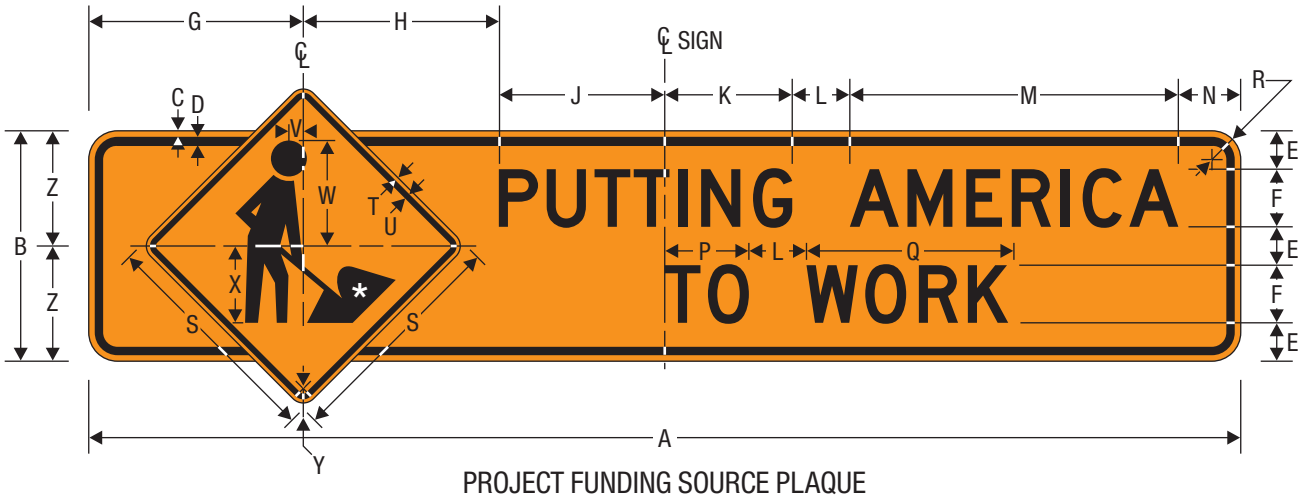
EE	FF	GG
11	4.5	3
7.5	2.25	2.25

* Increase character spacing 50%
** See Pictograph page 4
*** See Pictograph page 5

COLORS: LEGEND, BORDER — WHITE (RETROREFLECTIVE)
BACKGROUND — GREEN (RETROREFLECTIVE)

3/23/2009

PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS



PROJECT FUNDING SOURCE PLAQUE

NOTE: PLAQUE SHALL NOT BE INSTALLED WITHOUT SIGN (SEE SHEET 2).

* See *Standard Highway Signs* Page 6-59 for symbol design.

Dimensions in inches

A	B	C	D	E	F	G	H	J	K	L	M	N	P
120	24	0.625	0.875	4	6 D	22.349	20.370	17.281	13.28	6	34.22	6.5	8.765
84	18	0.375	0.625	3.5	4 D	16.607	15.686	9.707	10.667	4	22.813	5	5.843

Q	R	S	T	U	V	W	X	Y	Z
21.013	3	24	0.375	0.625	1.5	11	8	1.5	12
14.009	2.25	18	0.375	0.625	1	7	6	1.5	9

COLORS: LEGEND, BORDER – BLACK
BACKGROUND – ORANGE (RETROREFLECTIVE)

3/23/2009

PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS

RECOVERY
Vector-Based, Vinyl-Ready Pictograph

COLORS:	LEGEND, OUTLINE	– WHITE (RETROREFLECTIVE)
	BORDER	– BLUE (RETROREFLECTIVE)
	BACKGROUND (UPPER)	– BLUE (RETROREFLECTIVE)
	BACKGROUND (LOWER RIGHT)	– RED (RETROREFLECTIVE)
	BACKGROUND (LOWER LEFT)	– GREEN (RETROREFLECTIVE)

3/23/2009

PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS

USDOT TIGER
Vector-Based, Vinyl-Ready Pictograph

COLORS:
OUTLINE — WHITE (RETROREFLECTIVE)
USDOT LEGEND — BLACK
TIGER DIAGONALS — BLACK, ORANGE (RETROREFLECTIVE)

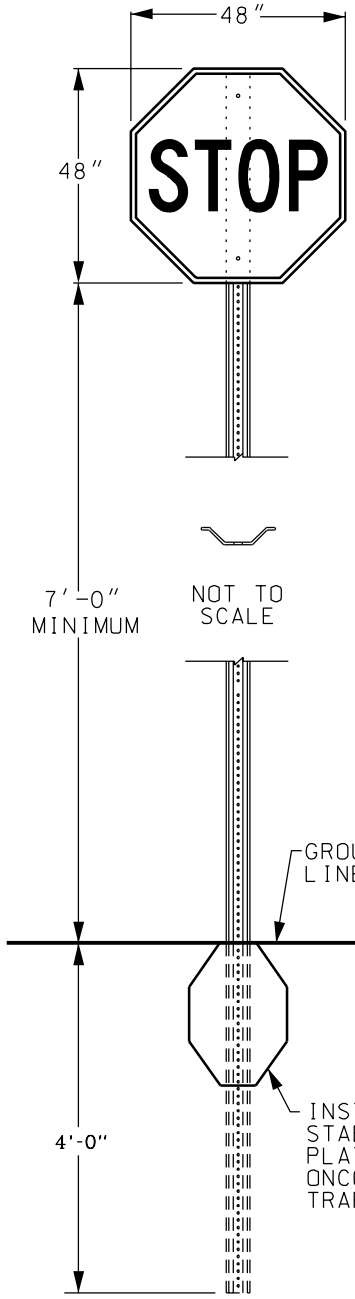
Traffic Notes For Temporary Signs

The Contractor shall use 6 inch x 8 inch (nominal) pressure treated southern pine wood posts to mount the large temporary signs. The posts that are exposed to traffic shall have two (2) holes, three (3”) inches in diameter drilled through each post in a vertical arrangement perpendicular to traffic. The first hole should be four inches (4”) from the ground and the second hole, eighteen inches (18”) from the ground.

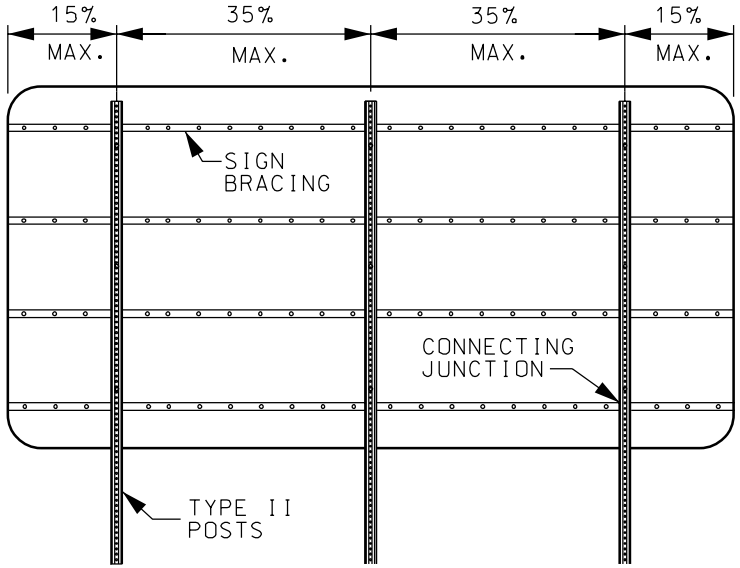
A seven-foot (7’) or more clear path should exist between the supporting posts. The bottom edge of the sign panel should have at least seven foot (7') clearance above the ground. Posts shall be embedded a minimum of 48 inches.

Bolt signs to the wood posts using three 5 inch galvanized lag bolts in each post, with galvanized washers on both sides. The top and bottom bolts shall be placed a minimum of 12 inches from the top and bottom edges respectively, with the third bolt centered on the sign.

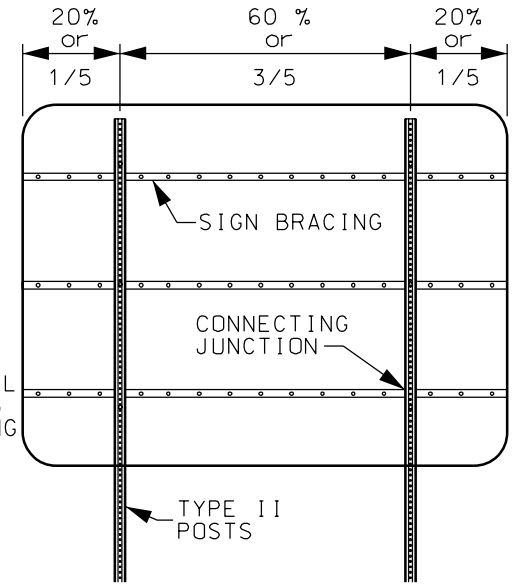
For additional details see the Federal Highway Administration memorandum HNG-14/SS-25 dated 6/4/91, HNG-14/SS-36 dated 9/3/93 and HNG-14/SS-27 dated 5/15/92.



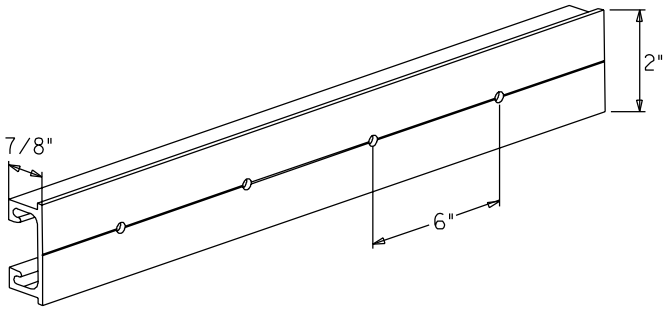
TYPE II
CHANNEL POST
WITH SOIL STABILIZER



3 POST – BRACING DIAGRAM



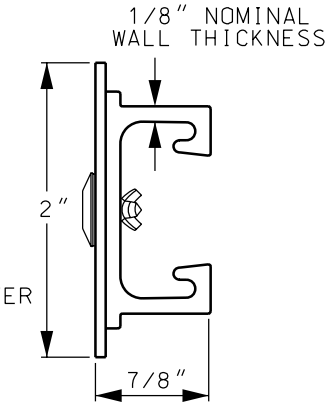
2 POST - BRACING DIAGRAM



SHEETING SIGN BRACING

NOTE:
ALUMINUM SIGN BRACING
2″ MOUNTING SURFACE
× 7/8″ DEPTH × 1/8″
NOMINAL WALL THICKNESS

6061-T6 ALUMINUM ALLOY,
PUNCHED WITH 3/16″ DIAMETER
HOLES ON 6″ CENTERS FOR
ATTACHMENT OF SIGN
SUBSTRATE USING RIVETS



SIGN BRACE

NOTES:
1. VERTICAL SPACING NOT TO EXCEED 36″ BETWEEN BRACES OR 12″ FROM TOP OR BOTTOMOF SIGN TO FIRST BRACE.

2. MAXIMUM AREA PER CONNECTING JUNCTION =16 SQ. FT.

3. LENGTH OF BRACE TO BE A MINIMUM OF TOTAL SIGN WIDTH LESS 4″, NOT TO EXTEND BEYOND RIGHT OR LEFT EDGE OF SIGN.

4. POSTS, BRACING, AND SOIL STABLISHER SHALL BE INCIDENTAL TO SIGNS.

SHEETING SIGN POST AND BRACING DETAIL

Right-of-Way Certification Form

□ **Federal Funded** X **Original**

X **State Funded** □ **Re-Certification**

This form must be completed and submitted to FHWA with the PS&E package for federal-aid funded Interstate, Appalachia, and Mega projects. This form shall also be submitted to FHWA for all federal-aid projects that fall under conditions No. 2 & 3 outlined elsewhere in this form. For all other federal-aid projects, this form shall be completed and retained in the KYTC project file.

Date: March 20, 2009
Project #: FD04 C019 5512601R
Item #: 6-0046.20

County: Campbell
Federal#: NA
Description of Project: US 27 Widening

Letting Date: May 22, 2009

Projects that require NO new or additional right-of-way acquisitions and/or relocations

□ The proposed transportation improvement will be built within the existing rights-of-way and there are no properties to be acquired, individuals and families ("relocatees") to be relocated, or improvements to be removed as part of this project.

Projects that require new or additional right-of-way acquisitions and/or relocations

X Per 23 CFR 635.309, the KYTC hereby certify that all relocates have been relocated decent, safe, and sanitary housing or that KYTC has made available to relocates adequate replacement housing in accordance with the provisions of the current FHWA directive(s) covering the administrative of the Highway Relocation Assistance Program **and** that at least one of the following three conditions has been met. **(Check those that apply)**

X 1. All necessary rights-of-way, including control of access rights when applicable, have been acquired including legal and physical possession. Trail 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 these improvements and enter all land. **Fair market value has been paid or deposited with the court.**

□ 2. Although all necessary rights-of –way have 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. Trial or appeal of some parcels may be pending in court and on other parcels full legal possession has not been obtained, but an interlocutory judgment has been granted, the occupants of all lands and improvements have vacated, and KYTC has physical possession and right to remove, salvage, or demolish these improvements. **Fair market value has been paid or deposited with the court for most parcels. Fair market value for all pending parcels will be paid or deposited with the court prior to start of construction. (See note.)**

Right – of – Way Certification Form

Project #: FD04 C019 5512601R
Item #: 6-0046.20

County: Campbell
Federal#: NA
Description of Project: US 27 Widening

Letting Date: May 22, 2009

Note: The KYTC shall re-submit a right-of-way re-certification form for this project prior to the start of construction **(Notice to proceed)**, verifying that fair market value for all parcels has been paid or deposited with the court.

☐ 3. The acquisition or right of company and use of **few** remaining parcels are not complete and/or some parcels still have occupants. However, all remaining occupants have had replacement housing made available to them in accordance with 49 CFR 24.204. The KYTC is hereby requesting authorization to advertise this project for bids and to proceed with physical construction even though the necessary rights-of-way will not be fully acquired, and/or some occupants will not be relocated, and/or the fair market value will not be paid or deposited with the court for some parcels at the start of construction. KYTC will fully meet requirements outline in 23 CFR 309(c) (3) and 49 CFR 102(j) and will expedite completion of all acquisitions, relocations, and full payments after construction starts. A full explanation and reason for this request, including identification of each such parcel and dates on which acquisitions, payments, and relocations will be completed, is attached to this certification form for FHWA consideration and approval. **(see note.)**

Note: The KYTC may request authorization on this basis only in unique and unusual circumstances. Proceeding to construction of projects on this basis shall be the exception and never become rule. In all FHWA-approved cases, the KYTC shall make extraordinary efforts to expedite completion of the acquisition, payment for all affected parcels, and the relocation of all relocates promptly 30 days after start of construction.

Approved: Dan White (Printed Name) 03/20/2009 (Approved Date) District ROW Supervisor

Approved: DAVID L. ORR (Printed Name) 3-23-09 (Approved Date) For Steve Damron, Director of ROW & Utilities or Designee

Approved: N/A (Printed Name) N/A (Approved Date) FHWA, Right-of-Way Officer

Right-of-Way Certification Form

Project #: FD04 C019 5512601R
Item #: 6-0046.20

County: Campbell
Federal#: NA
Description of Project: US 27 Widening

Letting Date: May 22, 2009

This project has ___107____ total number of parcels to be acquired, and __39____ total number of individual of families to be relocated, as well as __5____ total number of businesses to be relocated.

__97__ Parcels were acquired by a signed fee simple deed and fair market value has been paid (**Type 1**)
__10__ Parcels have been acquired through condemnation and IOJ granted by the court and fair market value has been deposited with the court (**Type 1 Certification**)
_____ Parcels have not been acquired at this time but can be re-certified as acquired prior to notice to proceed for construction. (Explain below for each parcel) (**Type 2 Certification**)
_____ Parcels have been acquired or have a "right of entry" but the fair market value has not been paid or has not been posted with the court, and they can not be re-certified prior to construction. (These parcels require and explanation below for each one as well as FHWA approval. (**Type 3 only**)
_____ Some displaces have not been relocated from all parcels: (explain below for each parcel) (**notes to plans may be required**)

Parcel #	Name/Station	Explanation for delayed acquisition, delayed, Relocation, or delayed payment of fair market value	Proposed date of Payment or of relocation

There are _-0-___ billboards and/or _-0-__ cemeteries involved on this project.
There are __-0-___ water or monitoring wells on parcels _____ and ____. All

SPECIAL NOTES FOR UTILITY CLEARANCE IMPACT ON CONSTRUCTION

Campbell County
FD04 019 55126
US-27 from Nagel Road to A. J. Jolly Park
Item No. 06-0046.20

The following companies have facilities to be relocated and/or adjusted on the subject project.

Cincinnati Bell……90% Completed
Owen Electric Cooperative……100% Completed
Duke Energy (Electric)……100% Completed
Insight Communications……...90% Completed
East Kentucky Power……80% Completed
Northern Kentucky Water District.....Relocation by road contractor
Pendleton County Water District.....Relocation by road contractor

Of the companies that have work remaining, they will complete their relocations by May 20, 2009.

There is no Railroad involvement on this project.

GENERAL NOTES AND NOTICES RELATIVE TO ALL WATER CONSTRUCTION AND EXISTING SANITARY SEWERS

The information provided below in these Special Notes For Utility Clearance Impact on Construction may not be exact nor complete. The information provided is for the contractor's use in planning the execution of the work. It shall be the road contractor's responsibility to verify the completeness and/or accuracy of all such information being furnished.

The road contractor MUST use flowable fill as the backfill media any place new water lines cross under existing or proposed roadway surfaces. It should also be noted that the cost of the flowable fill shall be incidental to the cost of the water or sewer line being installed.

All existing water services are to be maintained throughout road construction. Temporary water facilities to maintain service are to be provided and paid for by the road contractor as incidental to road construction. No additional compensation will be paid the contractor for temporary work and materials to maintain existing water services.

The contractor shall notify the utility owner(s) of all planned shutdowns of utility mains or utility service to customers at least three business days in advance. Advance notice will allow for customers to be notified by the utility owner. Any

SPECIAL NOTES FOR UTILITY CLEARANCE, IMPACT ON CONSTRUCTION (CONTINUED)

unannounced disruption of water services or mains that inconveniences any customer is to be avoided.

Any intentional or accidental disruption of service due to damage to water mains caused by any of the contractor's operations without three days advance notice to the utility owner shall be cause for the Cabinet to charge liquidated damages in the amount of five thousand dollars per day ($5,000/day) per occurrence against the contractor until such time as the utility main is restored.

Any intentional or accidental disruption of any individual water service caused by any of the contractor's operations without three days advance notice to the utility owner shall be cause for the Cabinet to charge liquidated damages in the amount of five hundred dollars per day ($500/day) per occurrence against the contractor until such time as service is restored.

In the case of a main disruption, liquidated damages shall be charged at the main disruption rate only. Liquidated damages shall not be charged in addition for service disruptions when a main disruption is involved.

Duke Energy (Electric), Owen Electric Cooperative, Cincinnati Bell Telephone, East Kentucky Power Cooperative and Insight Communications (CATV) overhead facility relocations should be complete when the contractor arrives on the project. It is estimated that the overhead utility relocation will be completed by May 20, 2009.

Sanitation District No. 1 has facilities at the north end of the project. These facilities were constructed during the previous phase of US-27 construction. These facilities are to remain in-place.

Northern Kentucky Water District and Pendleton County Water District facilities are to be relocated by the road contractor using plans inserted into the project plans and specifications inserted into the proposal.

The Utility Owners will provide inspection when work is being performed by the contractor on their respective facilities. It will be the road contractor's responsibility to notify the appropriate utility owner for inspection.

Kentucky Division of Water permits for water relocation construction were not available before bidding, but will be distributed on a later date.

The contractor shall safeload the entire length of all abandoned pipes 6 inches in diameter and larger that is to be left under proposed pavement and under any existing pavement that is to remain. The contractor shall safeload the entire length of all

abandoned pipes 15 inches and larger which will be located outside of proposed pavement but within project limits. A safeloading bid item has been included in the Northern Kentucky Water District plan and specification for use throughout the project. The safeloading criteria above shall be observed unless otherwise directed by the Resident Engineer or his representative.

Railroads are not involved in this project.

PROTECTION OF UTILITIES

THE LOCATION OF UTILITIES PROVIDED IN THE CONTRACT DOCUMENTS HAS BEEN FURNISHED BY THE FACILITY OWNERS AND/OR BY REVIEWING RECORD DRAWINGS. THE INFORMATION MAY NOT BE EXACT NOR COMPLETE. IT WILL BE THE ROAD CONTRACTORS RESPONSIBILITY TO LOCATE UTILITIES BEFORE EXCAVATING BY CALLING THE VARIOUS UTILITY OWNERS AND BY EXAMINATING ANY SUPPLIMENTAL INFORMATION PROVIDED BY THE CABINET AND/OR UTILITY OWNER. THE ROAD CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES BY HAND DIGGING TO EXPOSE UTILITIES BEFORE HE EXCAVATES IN THE AREA OF A UTILITY. THE COST FOR REPAIR AND ANY OTHER ASSOCIATED COSTS FOR ANY DAMAGE TO UTILITIES CAUSED BY THE ROAD CONTRACTORS OPERATIONS SHALL BE BORNE BY THE ROAD CONTRACTOR.

THE CONTRACTOR IS ADVISED TO CONTACT THE B.U.D. ONE-CALL SYSTEM; HOWEVER, THE CONTRACTOR SHOULD BE AWARE THAT THE OWNERS OF THE UNDERGROUND FACILITIES ARE NOT REQUIRED TO BE MEMBERS OF THE B.U.D. ONE-CALL SYSTEM. IT MAY BE NECESSARY FOR THE CONTRACTOR TO CONTACT THE COUNTY COURT CLERK TO DETERMINE WHAT UTILITY COMPANIES HAVE FACILITIES IN THE PROJECT AREA.

THE CONTRACTOR IS ALSO ADVISED TO REVIEW THE PROJECT IN THE FIELD AND BE AWARE OF OVERHEAD LINES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHOULD BE CAUTIOUS WHEN WORKING UNDER THESE LINES. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ANY ARRANGEMENTS HE FEELS PRUDENT TO AVOID CONTACT WITH THESE OVERHEAD LINES.

PENDLETON COUNTY WATER DISTRICT
Water Specifications

U. S. 27 WATER MAIN RELOCATION
FOR THE
PENDLETON COUNTY WATER DISTRICT
Tt Project 07021
KYTC FD52 019 5512601U, ITEM NO. 06-0046.20

MAY 2007

Prepared By:

TETRA TECH, INC.
800 Corporate Drive
Lexington, KY 40503
Phone: 859-223-8000
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http://www.tetratech.com

U. S. 27 WATER MAIN RELOCATION
FOR THE
PENDLETON COUNTY WATER DISTRICT
Tt Project 07021
KYTC FD52 019 5512601U, ITEM NO. 06-0046.20

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DIVISION 0

DIVISION 1
GENERAL REQUIREMENTS

DIVISION 2
SITE WORK

- END -

NOTES

1. SUBMITTALS AND CORRESPONDENCE
All submittals and correspondence relative to utility work being performed under the roadway contract shall be directed to the KYTC Department of Highways Resident Engineer. The Resident Engineer as appropriate shall forward any document requiring review by the Utility Owner or Owner Engineer.

The Contractor shall allow a minimum of 21 days for the Engineer's processing of all material or shop drawing submittals that require review and response. All material and shop drawing submittals shall be submitted with one additional copy than that specified in the following specifications. The added response time and the additional copy are to accommodate processing in the Resident Engineer's office.

2. DEFINITIONS
   1. Engineer
   Where the word "Engineer" appears in the specifications or plans, it shall be understood the "Engineer" is the Kentucky Transportation Cabinet, Department of Highways Resident Engineer, the Utitlity Owner, Owner Engineer or their designated representatives jointly. All decisions made during construction shall be agreeable to all parties. The Resident Engineer and Owner Engineer or their designated representatives shall work cooperatively to inspect and accomplish the work. It shall be understood that the Kentucky Transportation Cabinet, through it's Resident Engineer, has ultimate authority in all decisions.

   2. Owner
   Owner is the Pendleton County Water District (PCWD) by the Owner Engineer or other designated representative(s).

   3. Owner Engineer
   Owner Engineer is as identified on the plans.

   4. Resident Engineer
   Resident Engineer is the engineer or representative designated by KYTC to supervise construction, administer, and insure compliance with the contract in the field.

3. These Specifications pertain to the installation of the potable water facilities of the Pendleton County Water District, Falmouth, Kentucky. They should be viewed as supplemental to the most current edition of the Kentucky Transportation Cabinet / Department of Highways Standard Specifications for Road and Bridge Construction.

If and where conflicts between the specifications occur, the KYTC specifications will govern, unless the Cabinet's Resident Engineer determines otherwise.

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01015

WORK SEQUENCE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall submit to the Engineer for review and acceptance a complete schedule 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 water supply project. This schedule requirement in no way prevents the Contractor from completing the project in a shorter time frame than scheduled. The construction schedule shall be submitted and approved by the Engineer prior to the start of water line work. A revised construction schedule shall be submitted each time changes occur.

1.02 RELATED WORK

A. Maintain Water Service

1. Transmission main supplies a school and 600 other customers.

2. Pendleton County Water District (PCWD) does not have a supply tank or alternate source of water for this main.

B. Coordinate work with both water companies.

1.03 ADDITIONAL INFORMATION

The Contractor shall be advised that he shall make every effort to meet the completion date for the project as scheduled.

1.04 SEQUENCE

A. Contractor is encouraged to begin work at one end and complete the main without gaps.

B. Sections of new main may be put into service as the work progresses. Additional wet taps and/or main connections have not been included in the pay items.

C. Maintain the existing main and services until the new main and new services are available to the customers.

- END OF SECTION -

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, equipment, service, other necessary supplies and perform all work including all excavation and backfilling (without additional compensation, except where specifically set out in these specifications) at the unit or lump sum prices for the following items.

PART 2 - PRODUCTS

2.01 WATER MAIN

Payment for supplying and installing the water main will be made at the contract unit price per linear meter of the various sizes and materials required as shown on the plans, complete in place, which shall include compensation for all overhead, bonds, insurance, shop drawings, project record drawings, trenching (including rock excavation), earth or Class I material bedding, thrustblocking, tracer wire, metallic tape, earth backfill, grip rings, mechanical, push on or restrained joint fittings and pipe, crushed stone surface replacement, sidewalk replacement, disinfection, cleanup as the project proceeds, testing, testing with service taps in place, cost of water for all testing and disinfection, bonds, DOW storm water permits, compliance with Division of Water, Kentucky Transportation Cabinet, or other regulatory agency requirements, project pre-construction video and all appurtenances required. The quantity of water mains to be paid for shall be the length of the completed line as measured along its centerline without any deduction for lengths of fittings, valves, casings or other appurtenances.

2.02 GATE VALVES AND BOXES

Payment for furnishing and installing gate valves and valve boxes with covers in new water mains will be made at the contract unit price each, complete in place, which shall include compensation for furnishing, hauling, trenching (including rock excavation), bedding, laying, jointing, restrained joints when required, backfilling, concrete supports and concrete collars. Does not include valves for wet taps.

2.03 WET TAP

Payment will be made for each complete wet tap made under pressure including tapping sleeve, tapping valve, all materials and labor and all items necessary for a complete installation.

2.04 CONNECT NEW MAIN TO EXISTING MAIN

Payment will be made for each complete connection of new water main to existing water mains of all types. Disposal of AC pipe at connections is incidental to the project. Payment to include all materials, labor, clean-up, disposal of materials and other items necessary for a complete installation.

2.05 BORED AND JACKED STEEL CASING

Payment for steel casing crossing roadways, at locations shown on the plans shall include the respective encasement pipe bored under roadways and will be paid for at the contract unit price per linear meter of encasement pipe for the various sizes and types. This work shall include encasement pipe, complete in place with fittings, spacers, blocking, end seals and all items necessary for its construction and installation. Carrier pipe is paid separately under item 2.01.

2.06 OPEN CUT STEEL CASING PIPE

Payment will be made per linear meter of steel casing installed in open cut trench including surface replacement, fittings, spacers, end seals, and all items necessary for a complete installation. Carrier pipe is paid separately under Item 2.01.

2.07 BORE FOR WATER MAIN WITHOUT CASING

Payment for water mains crossing under a paved driveway, without casing, where directed by the Engineer, shall be paid for at the contract unit price per linear meter of driveway under which the bored water main centerline passes, including all items necessary for its construction and installation, complete in place. Water main is paid separately under item 2.01.

2.08 NEW BYPASS METER SETTING AT GATE VALVE

Payment will be made per each new complete installation as shown in the drawings for bypass meter service including 25 mm (1-inch) copper service line from main to meter, trenching, pressure reducing valve with strainer, meter box, lid, boring, tandem setter, corporation stop, saddles, 25 mm (1-inch) meter, and all items necessary for a complete installation.

2.09 NEW METER SETTING

Payment will be made per each new complete installation as shown in the drawings for same or opposite side service including copper service line from main to meter, trenching, pressure reducing valve with strainer, meter box, lid, boring, tandem setter, corporation stop, saddles, meter, radio read equipment, and all items necessary for a complete installation. Services include up to 3 meters (10 feet) of copper service line.

2.10 SERVICE LINES IN OPEN TRENCH, BORED OR PUSHED

Payment will be made per linear meter for service lines of the various sizes and materials required installed by open trenching which shall include all connections, trenching, bedding, backfill, labor and materials necessary for a complete installation.

2.11 BLOWOFF ASSEMBLY

Payment for a blowoff assembly of the various sizes and types will be made at the contract unit price each, complete in place, including all excavation, valve, valve box, saddles, fittings, backfilling, concrete collar materials, and labor necessary to complete the installation.

2.12 HYDRANT ASSEMBLY

Payment for hydrant assembly will be made at the unit price each, complete in place, which shall include hydrant, gate valve, valve box, collar, 3 meters (10 feet) of connecting anchoring pipe and anchored fittings, supporting pad, thrustblocking, drainage bed, and all other materials and labor necessary to complete the installation. Additional connector pipe is not included in this item and will be paid for separately under item 2.01.

2.13 AIR RELEASE ASSEMBLY

Payment for an air release valve assembly of the various sizes and types will be made at the contract unit price each, complete in place, including all excavation, valve, valve vault, saddles, fittings, backfilling, concrete collar, materials, and labor necessary to complete the installation.

2.14 CREEK CROSSING

Payment for water mains crossing major creeks or streams shall include casing pipe where required, excavation, concrete, gravel, backfill, and anchors, and will be paid for at the contract unit price per linear meter of creek crossing in concrete complete in place with fittings, blocking, and all items necessary for its construction.

2.15 WATER MAIN MARKERS

Payment is made per each marker complete in place as shown in the details.

2.16 RECONNECT EXISTING FIRE SERVICE MAIN

Payment will be made for each reconnection to an existing fire service main including coordination with fire service owner, fire officials, all labor and materials required.

2.17 PVC CASING

Payment will be made per linear meter of PVC casing pipe required when crossing sanitary sewers or similar facilities including all labor, materials, chocks, and other items necessary for a complete installation.

2.18 RELOCATE TELEMETRY AT MASTER METER

Payment will be lump sum to reconnect the telemetry and electrical system to the new master meter site including all labor, materials, existing telemetry cabinet, poles, new poles, new meter, new electric service and other items necessary for a working installation.

2.19 ASBESTOS PIPE REMOVAL

An asbestos pipe removal bid item has been established in the quantities of relocation for facilities owned by the Pendleton County Water District (PCWD). The quantity show is for bidding purposes only. The actual quantity is unknown. The Contractor shall not construe this amount as a true estimate of quantity to be removed. The true amount of removal will be measured for a payment at the time of removal.

Payment shall be made under this item **only when asbestos pipe is removed, handled, and disposed of in accordance with all governmental environmental regulations.** Even though this item is reflected only in the quantities for the PCWD this item is to be used for payment of asbestos pipe removal regardless of original ownership.

Payment under this item shall be made regardless of the size of the pipe being removed. Payment under this item shall be made only when removal of the pipe is required due to conflicts with the proposed construction. In those areas were there are no conflicts and the pipe will not be disturbed, the pipe shall be left in place.

No payment will be made under this item where asbestos pipe removal is required to make utility connections and tie-ins. Asbestos pipe removal for connections and tie-ins shall be considered incidental to the item of utility work being performed and disposed of in accordance with all governmental environmental regulations

Asbestos pipe removed shall be paid based on actual field measured quantities.

Includes all labor, equipment, and excavation, necessary to remove and dispose of asbestos pipe. Payment shall be made under this item only when asbestos pipe is removed,\handled, and disposed of in accordance with all governmental environmental regulations. Asbestos pipe removed shall be paid based on actual field measured quantities. (See Section IV-P) Paid LINEAR METER when complete.

PART 3 - EXECUTION

3.01 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 -

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 WORK INCLUDED

Shop drawings, 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 six (6) copies and shall be checked and reviewed by the Contractor before submission to the Engineer. The review of the Drawings by the Engineer shall not be construed as a complete check but only for conformance with the design concept of the Project and for compliance with information given in the Contract Documents. Review of such drawings 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 SPECIFIED ELSEWHERE

A. 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

A. 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, quality, 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.

B. 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

1. Shop drawings shall be prepared by a qualified detailer. Details shall be identified by reference to sheet and detail numbers shown on Contract Drawings. Where applicable, show fabrication, layout, setting and erection details.

2. 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. Shop drawings shall be folded to an approximate size of 8½" x 11" 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 which 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.

C. 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.

D. 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).

E. The Contractor shall review and check submittals, and shall indicate his review by initials and date.

F. 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 red mark. Any additional costs for modifications shall be borne by the Contractor.

G. 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.

H. 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.

I. Submittals for all electrically operated items (including instrumentation and controls) shall include complete wiring diagrams showing leads, runs, number of wires, wire size, color coding, all terminations and connections, and coordination with related equipment.

J. 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.

K. Fastener specifications of manufacturer shall be indicated on equipment shop drawings.

L. Where manufacturers' 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.

M. No material shall be fabricated or shipped unless the applicable drawings or submittals have been reviewed by the Engineer and returned to the Contractor.

N. 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.

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 of Contract 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 -

SECTION 01700

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Cleaning: Section 01710

B. Project Record Documents: Section 01720

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 (7) days after receipt of certification, together with Owner's Representative.

C. Should Engineer consider that work is substantially complete:

1. Contractor shall prepare, and submit to Engineer, a list of items to be completed or corrected, as determined by the inspection.

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. Owner occupancy of Project or Designated Portion of Project:

   a. Contractor shall:

      (1) Obtain certificate of occupancy.

      (2) Perform final cleaning in accordance with Section 01710.

   b. Owner will occupy Project, under provisions stated in Certificate of Substantial Completion.

4. Contractor shall 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 shall complete work, and send second written notice to Engineer, certifying that Project, or designated portion of Project is substantially complete.

3. Engineer will re-inspect 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 inspection 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-inspect work.

1.04 FINAL CLEAN UP

The Work will not be considered as completed until all final clean 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. Guarantees, 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.

- END OF SECTION -

SECTION 01710

CLEANING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. During its progress the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed on a daily basis and all damage repaired so that the public and property owners will be inconvenienced as little as possible.

B. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, by work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc., shall, upon completion of the work, be left in a clean and neat condition.

C. On or before the completion of the work, the Contractor shall, unless otherwise especially directed or permitted in writing, tear down and remove all temporary buildings and structures built by him; shall remove all temporary works, tools, and machinery or other construction equipment furnished by him; shall remove, acceptably disinfect, and cover all organic matter and material containing organics in, under, and around privies, houses, and other buildings used by him; shall remove all rubbish from any grounds which he has occupied; and shall leave the roads and all parts of the premises and adjacent property affected by his operations in a neat and satisfactory condition.

D. The Contractor shall thoroughly clean all materials and equipment installed by him and his subcontractors, and on completion of the work shall deliver it undamaged and in fresh and new appearing condition.

E. The Contractor shall restore or replace, when and as directed, any public or private property damaged by his work, equipment, or employees, to a condition equal or better than that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk, and landscaping work. Suitable materials, equipment, and methods shall be used for such restoration. The restoration of existing property or structures shall be done as promptly as practicable as work progresses and shall not be left until the end of the contract period.

1.02 DESCRIPTION

A. Related Requirements Specified Elsewhere:

1. Project Closeout: Section 01700
2. Cleaning for Specific Products or Work: Specification Section for that work.

B. On a continuous basis, maintain premises free from accumulations of waste, debris, and rubbish, caused by operations.

C. 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.

1.03 SAFETY REQUIREMENTS

A. Hazards Control

1. Store volatile wastes in covered metal 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 in compliance 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 fuel in open drainage ditches or 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 grounds and public properties are maintained free from accumulations of waste materials and rubbish.

B. Wet down dry materials and rubbish to minimize blowing dust.

C. At reasonable intervals 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 construction site.

F. 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 project area(s).

C. Broom clean paved surfaces; rake clean other surfaces of grounds.

D. Maintain cleaning until Project, or portion thereof, is accepted by Owner.

- END OF SECTION -

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall obtain from the Engineer, one (1) set of blueline prints of the Contract Drawings. These prints shall be kept and maintained in good condition at the project site and a qualified representative of the Contractor shall enter upon these prints, from day-to-day, the actual "as-built" record of the construction progress. Entries and notations shall be made in a neat and legible manner and these prints shall be delivered to the Engineer upon completion of the construction. APPROVAL FOR FINAL PAYMENT WILL BE CONTINGENT UPON COMPLIANCE WITH THIS PROVISION.

1.02 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

A. Section 01300 - Submittals

1.03 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.

1.04 MARKING DEVICES

Provide colored pencil or felt-tip marking pen for all marking.

1.05 RECORDING

A. Label each document "PROJECT RECORD" 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.

1.06 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 -

SECTION 01730

OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Compile product data and related information appropriate for Owner's maintenance and operation of equipment furnished under the contract. Prepare operating and maintenance data as specified.

B. Instruct Owner's personnel in the maintenance and operation of equipment and systems as outlined herein and/or in other Divisions.

C. In addition to maintenance and operations data, the manufacturer's printed recommended installation practice shall also be included. If not part of the operations and maintenance manual, separate written installation instructions shall be provided, serving to assist the Contractor in equipment installation.

D. Related Requirements Specified Elsewhere

1. Section 01300 - Submittals
2. Section 01700 - Project Closeout
3. Section 01720 - Project Record Documents
4. Section 01740 - Warranties and Bonds
5. Division 2

1.02 MAINTENANCE AND OPERATIONS MANUAL

A. Every piece of equipment furnished and installed shall be provided with complete maintenance and operations manuals. These shall be detailed in instructions to the Owner's personnel. They shall be attractively bound for the Owner's records.

B. The manuals shall be submitted to the Engineer for review as to adequacy and completeness. Provide three (3) copies each.

1.03 FORM OF SUBMITTALS

A. Prepare data in the form of an instructional manual for use by Owner's personnel.

B. Format

1. Size: 8½ x 11 in.
2. Paper: 20 pound minimum, white, for typed pages.
3. Text: Manufacturer's printed data, or neatly typewritten.
4. Drawings:
   a. Provide reinforced punched binder tab, bind with text.
   b. Fold large drawings to the size of the text pages where feasible.
   c. For all drawings included within manuals, furnish an electronic file.
   d. For flow or piping diagrams that cannot be detailed on the standard size drawings, a larger, appropriate size drawing may be submitted.

5. Provide fly-leaf for each separate product, or each piece of operating equipment.
   a. Provide typed description of product, and major component parts of equipment.
   b. Provide indexed tabs.
6. Cover: Identify each volume with types or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
   a. Title of Project.
   b. Identity of separate structure as applicable.
   c. Identity of general subject matter covered in the manual.

C. Binders

1. Commercial quality, durable and cleanable, 3-hole, 3-inch or 4-inch post type binders, with oil and moisture resistant hard covers.
2. When multiple binders are used, correlate the data into related consistent grouping.
3. Labeled on the front cover and side of each binder shall be the name of the Project, the Contract Number and Volume Number.

1.04 CONTENT OF MANUAL

A. Neatly typewritten table of contents for each volume, arranged in systematic order.

1. Contractor, name of responsible principal, address and telephone number.
2. A list of each product required to be included, indexed to the content of the volume.
3. List, with each product, the name, address and telephone number of:
   a. Subcontractor or installer.
   b. Maintenance contractor, as appropriate.
   c. Identify the area of responsibility of each.
   d. Local source of supply for parts and replacement.
4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data

1. Include only those sheets which are pertinent to the specific product. References to other sizes and types or models of similar equipment shall be deleted or lined out.
2. Annotate each sheet to:
   a. Clearly identify the specific product or part installed.
   b. Clearly identify the data applicable to the installation.
   c. Provide a parts list for all new equipment items, with catalog numbers and other data necessary for ordering replacement parts.
   d. Delete references to inapplicable information.
3. Clear and concise instructions for the operation, adjustment, lubrication, and other maintenance of the equipment including a lubrication chart.

C. Drawings

1. Supplement product data with drawings as necessary to clearly illustrate:

   a. Relations of component parts of equipment and systems.

   b. Control and flow diagrams.

2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.

3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for the particular installation:

1. Organize in a consistent format under separate headings for different procedures.

2. Provide a logical sequence of instructions for each procedure.

E. Copy of each warranty, bond and service contract issued: Provide information sheet for Owner's personnel.

1. Proper procedures in the event of failure.

2. Instances which might affect the validity of warranties or bonds.

F. These manuals shall be delivered to the Engineer at the time designated by the Engineer. The manuals must be approved by the Engineer before final payment on the equipment is made.

- END OF SECTION -

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 so specified.

D. Review submittals to verify compliance with Contract Documents.

E. Related requirements specified elsewhere:

1. Project Closeout: Section 01700
2. Warranties and Bonds required for specific products: As listed herein.
3. Provisions of Warranties and Bonds, Duration: Respective specification sections for particular products.
4. Operating and Maintenance Data: Section 01730

1.02 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.

1.03 FORM OF SUBMITTALS

A. Prepare in duplicate packets.

B. Format

1. Size 8½ " x 11", 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.

1.04 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during progress of construction: Submit documents within 10 days after inspection and acceptance.

B. Otherwise, make submittals within 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.

1.05 SUBMITTALS REQUIRED

Submit warranties, bonds, and service and maintenance contracts as specified in the respective sections of the Specifications.

- END OF SECTION -

DIVISION 2

SITE WORK

SECTION 02202

ROCK REMOVAL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Removal of discovered rock during excavation.

B. Use of explosives for rock removal.

C. Rock removal is part of and incidental to unclassified excavation. No separate payment shall be made for rock removal.

1.02 RELATED WORK

A. Section 02220 - Excavation

1.03 REFERENCES

A. NFPA 495 - Code for Manufacture, Transportation, Storage and Use of Explosive Materials.

B. Commonwealth of Kentucky Department of Mines and Minerals, Laws and Regulations Governing Explosives and Blasting.

1.04 QUALITY ASSURANCE

A. Seismic Survey Firm: Company specializing in seismic surveys with five years documented experience.

B. Explosives Firm: Company specializing in explosives for disintegration of subsurface rock with five years documented experience.

1.05 REGULATORY REQUIREMENTS

A. All blasting work done shall conform to the KYTC and Kentucky Department of Mines and Minerals code for explosive disintegration of rock.

B. The Contractor shall obtain permits from local authorities having jurisdiction before explosives are brought to site or drilling is started.

C. The Contractor shall conform to all State, Federal and City laws, ordinances and regulations in regard to transportation, use and handling of explosives.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Rock Definition: Solid mineral material that cannot be removed with a power shovel.

B. Explosives: Type recommended by explosives firm and required by authorities having jurisdiction.

C. Delay Devices: Type recommended by explosives firm and conforming to State regulations.

D. Blasting Mat Materials: Type recommended by explosives firm and conforming to State regulations.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify site conditions and note irregularities affecting work of this Section.

B. Beginning work of this Section means acceptance of existing condition.

3.02 ROCK REMOVAL

A. Excavate for and remove rock by a mechanical method.

B. Cut away rock at excavation bottom to form even surface.

C. In utility trenches, excavate to 6 inches below invert elevation of pipe and 24 inches wider than pipe diameter.

D. Rock shall be disposed of in an approved manner acceptable to the Engineer.

E. Correct unauthorized rock removal in accordance with requirements of Section 02610.

3.03 ROCK REMOVAL - EXPLOSIVES METHODS

A. If rock is uncovered requiring the explosives method for rock disintegration, notify the Engineer.

B. Advise owners of adjacent buildings or structures in writing prior to setting up seismographs. Describe blasting and seismic operations.

C. Peak particle velocity will be limited to 4.0 in/sec.

D. Provide seismographic monitoring during progress of all blasting operations, or as required by State regulations.

E. Disintegrate rock and remove from excavation in accordance with Article 3.02.

3.04 FIELD QUALITY CONTROL

Engineer or his representative shall approve the depth of final rock cut.

- END OF SECTION -

SECTION 02220

EXCAVATION

PART 1 - GENERAL

1.01 WORK INCLUDED

All excavation for the water project is unclassified excavation. No separate payment shall be made for rock excavation.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

3.01 EXCAVATION FOR TRENCHES

A. If the foundation is good firm earth and the machine excavation has been accomplished, the remainder of the material shall be excavated by hand and the earth pared or molded to give full support to the lower quadrant of the barrel of each pipe. Where bell and spigot pipe are involved, bell holes shall be excavated during this latter operation to prevent the bells from being supported on undisturbed earth. If for any reason the machine excavation in earth is carried below an elevation that will permit the type of bedding in undisturbed earth, then a layer of granular material shall be placed so that the lower quadrant of the pipe will be securely bedded in the granular fill as described in Section 02610, Part 3, Article 3.03.

B. If the foundation is rock and the excavation has been undercut as set out hereinbefore, a bed of No. 9 crushed stone aggregate, or tamped earth shall be placed to provide continuous support for the lower quadrant of the pipe.

C. Trenches shall be of sufficient width to provide free working space on each side of the pipe and to permit proper backfilling around the pipe, but unless specifically authorized by the Engineer, trenches shall in no case be excavated or permitted to become wider than 2'-6" plus the nominal diameters of the pipe at the level of or below the top of pipe. Trenches cut in roads and streets shall not exceed a maximum width of 3'-6" plus the nominal diameters of the pipe at the level of the road or street surface.

D. All excavated materials shall be placed a minimum of two (2) feet back from the edge of the trench.

E. 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 or a total of 1000 feet of open ditch. 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.

F. 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.

G. Where existing drainage ditches coincide with the proposed water main alignment, the Contractor shall re-establish the drainage ditch after the water main has been laid and properly backfilled. The drainage ditch shall be of equal size as the previously existing one and free of any restrictions which might impede flow.

3.02 SHORING, SHEETING AND BRACING OF EXCAVATION

A. Where unstable material is encountered or where the depth of excavation in earth exceeds five (5) feet, the sides of the trench or excavation shall be supported by substantial sheeting, bracing, and shoring, or the sides sloped to the angle of repose. Sloping the sides of the ditch to the angle will not be permitted in streets, roads, narrow rights-of-way or other constricted areas unless otherwise specified. The design and installation of all sheeting, sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained under obtaining conditions. Adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor; however, the Engineer may require the submission of shoring plans (accompanied by supporting computations) for approval prior to the Contractor undertaking any portion of the work. The standards of the Federal Occupational Safety and Health Act and the Kentucky Labor Cabinet shall be followed.

B. Foundations, adjacent to where the excavation is to be made below the depth of the existing foundation, shall be supported by shoring, bracing or underpinning as long as the excavation shall remain open, or thereafter if required to ensure the stability of the structure supported by the foundation, and the Contractor shall be held strictly responsible for any damage to said foundations.

C. Solid sheeting will be required for wet or unstable material. It shall consist of continuous vertical sheet piling of timber or steel with suitable wales and braces.

D. Care shall be taken to avoid excessive backfill loads on the completed pipelines and the trench width requirements at the level of the crown of the pipe and at the level of a road or street be strictly observed.

E. Trench sheeting shall not be removed until sufficient backfill has been placed to protect the pipe.

F. All sheeting, planking, timbering, bracing and bridging shall be placed, renewed and maintained as long as is necessary.

3.03 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 which 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.

3.04 DISPOSITION OF EXCAVATED MATERIAL

Material excavated for water main, valves, pump station or other structures shall be disposed of by the Contractor at his own expense. All excavated material not needed for backfilling purposes shall be disposed of by the Contractor in a manner satisfactory to the Engineer.

3.05 UNAUTHORIZED EXCAVATION

Whenever the excavation is carried beyond or below the required lines and grades, the Contractor, at his own expense, shall refill said excavated space with suitable material in a manner approved by the Engineer.

3.06 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 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.

3.07 WATER LINES LAID IN DITCH LINES

At the locations shown and indicated on the Contract Drawings, sections of the water lines shall be laid in the ditch-lines of various highways. The backfill material shall be earth except for those locations indicating that dense graded aggregate (D.G.A.) is to be placed. After placement of the D.G.A. full depth in the trench, the surface shall be covered with dry stone riprap with all stones being generally flat and each stone not less than one-third (1/3) square foot in area. Riprap is <u>not</u> considered a separate pay item.

3.08 FINAL CLEANUP AND RESTORATION

A. Unless specifically approved by the Owner or Engineer, cleanup of all disturbed areas shall be kept current with construction activities, and cleanup and restoration efforts are initiated by the Contractor no longer than a period of two (2) weeks after the trench excavation work has started. All excavated material not required for backfilling of the trench, and any large rocks, stones, or debris shall be removed from the site within reasonable time and shall not be an undue burden to the property owner(s) and/or adjacent properties. The Contractor may windrow or track-in the excavated material over the trench prior to final cleanup to allow for and to assist in the initial settlement of the trench. All disturbed areas must be seeded at least with a temporary seed mix if for some reason the area cannot be permanently seeded within the 2-week period.

B. <u>For the construction areas within existing highways, city streets, or vehicular traffic lanes</u>, and unless specifically approved by the Owner or Engineer in writing, not more than 300 feet of pipeline shall be laid and trench left open before cleanup and restoration efforts are initiated by the Contractor. All trench excavations shall be backfilled or steel plates covering the excavated trench at the end of each working day. No trench shall remain open for a period longer than 48 hours before backfilling of the excavated trench is begun. No excavated trench shall remain open over a weekend period. All excavated material not required for backfilling of the trench, as well as any large rocks, stones, or debris, shall be removed from the site within reasonable time and shall not be an undue burden to the property owner(s)

and/or adjacent properties. The Contractor at all times shall conduct the work in such manner as to cause as little interference as possible with private and public travel. The Contractor shall provide and maintain the construction area as may be required by the State of Kentucky, Department of Transportation, and the local Road Department.

C. The Contractor shall be responsible for the notification of all police, fire, and emergency departments should any highway, street, or alleyway need to be closed during the construction activity.

- END OF SECTION -

SECTION 02610

PIPE, FITTINGS AND INSTALLATION

PART 1 - GENERAL

1.01 SCOPE

A. Furnish all labor, materials, equipment and incidentals necessary to install and test pipe and fittings as shown on the Drawings and required by the Specifications.

B. Piping shall be located substantially as shown. The Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons.

C. Wherever the word pipe or piping is used it shall mean pipe and fittings unless otherwise noted. All ductile iron pipe (D.I.P.), fittings, glands and accessories shall be of the same manufacturer unless approved otherwise.

PART 2 - PRODUCTS

2.01 DUCTILE IRON PIPE (D.I.P.) AND FITTINGS

A. Ductile iron pipe (D.I.P.) shall conform to ANSI/AWWA C150/A21.50, ANSI/AWWA C151/A21.51 Standard. The pipe shall conform to thickness class 350 unless noted otherwise. All pipe, fittings and joints should be capable of accommodating pressure up to 350 psi. The ductile iron pipe shall be as manufactured by Clow Corporation, U.S. Pipe & Foundry Company or approved equal.

B. Ductile iron mechanical joint fittings shall have a body thickness and radii of curvature conforming to ANSI A21.10 and have joints in accordance with ANSI/AWWA C111.A21.11. Fittings and joints shall be supplied with all accessories.

C. All pipe and fittings shall be tar coated outside and shall receive a standard cement lining with bituminous seal coat on the inside in accordance with ASA Specification A21.40 (AWWA-C104).

D. Cement mortar lining and seal coating for pipe and fittings, where applicable, shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.

E. All ductile fittings shall be rated at 350 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grade 80-60-03 per ASTM Specification A339-55.

F. 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.

G. Push-on type joints shall be single rubber gasket, with cast gasket socket and recessed bell with a tapered annular opening and flared socket and shall conform to ANSI/AWWA C111/A21.11. Plain spigot ends shall be suitably beveled to permit easy entry into the bell, centering and compressing the gasket.

H. Ductile iron flanged joint pipe shall conform to ANSI/AWWA C115/A 21.15 Standard and have a Class of 350. The pipe shall have a rated working pressure of 350 psi with Class 125 flanges. Gaskets shall be ring gaskets with a thickness of 1/8-inch. Flange bolts shall conform to ANSI B16.1.

I. Flanged fittings shall meet all requirements of ANSI/AWWA C110/A21.10 and have Class 125 flanges. Fittings shall accommodate a working pressure up to 350 psi and be supplied with all accessories.

J. 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.

K. Restrained Joint Pipe

1. Restrained joints for 4-inch through 16-inch push-on joint pipe installation is required and indicated in the Project Plans or Specifications, restrained push-on joint pipe and fittings utilizing ductile iron components shall be provided.

2. Restrained joint pipe shall be ductile iron manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51. Push-on joints for such pipe shall be in accordance with ANSI/AWWA C111/A21.11. Pipe thickness shall be designed in accordance with ANSI/AWWA C150/A21.50 and shall be based on laying conditions and internal pressures as stated in the Project Plans and Specifications. Pipe shall be U.S. Pipe TR FLEX pipe or equal.

3. Restrained joint fittings shall be ductile iron in accordance with applicable requirements of ANSI/AWWA C110/A21.10 with the exception of the manufacturer's proprietary design dimensions. Push-on joints for such fittings shall be in accordance with ANSI/AWWA C111/A21.11. Fittings shall be U.S. Pipe TR FLEX fittings or equal.

4. Cement mortar lining and seal coating for pipe and fittings, where applicable, shall be in accordance with ANSI/AWWA C104/A21.4. Bituminous outside coating shall be in accordance with ANSI/AWWA C151/A21.51 for pipe and ANSI/AWWA C110/A21.10 for fittings.

5. Restrained push-on joints for pipe and fittings shall be designed for a water working pressure of 350 psi in sizes 4-inch through 24-inch and 250 psi for sizes 30-inch through 54-inch.

6. Restrained push-on joint pipe and fittings shall be capable of being deflected after assembly.

7. U.S. Pipe Field Lok 350 Gasket or approved equal is acceptable joint restraint in some cases.

8. Petroleum Resistant gaskets to be "Fluoroelastomer Fluorel Viton" or approved equal.

2.02 POLYVINYL CHLORIDE (PVC) PIPE (SDR 21 AND SDR 17)

A. Polyvinyl chloride (PVC) pipe for water mains shall be Class 200 (SDR 21) or Class 250 (SDR 17) PVC pressure rated pipe as shown on the Drawings or indicated in the proposal form with either twin gasket joints or integral bell joints with rubber O-ring seals.

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). 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. Couplings shall be furnished by the pipe manufacturer and shall accommodate the pipe for which they are used. 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. Couplings shall conform to ASTM D-3139; SDR-21, 200 psi.

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 that will not reduce the strength of the pipe or coupling or otherwise damage them. Pipe and coupling markings shall include the normal 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 five (5) feet for the pipe and shall be marked on each coupling.

2.03 POLYVINYL CHLORINE (PVC) PIPE - C.I. PIPE SIZE DR 14 AND DR 18

A. Pipe shall meet the requirements of AWWA C-900 Polyvinyl Chlorine (PVC) Pressure Pipe. All Class 200 pipe shall meet the requirements of DR 14 and all Class 150 pipe shall meet the requirements of DR 18. Joints shall be integral bell or twin gasket joints with rubber O-ring seals.

B. All pipe shall be suitable for use as a pressure conduit. Provisions must be made for expansion and contractions at each joint with an elastomeric ring. The bell shall consist of an integral wall section with a solid cross-section elastomeric ring which meets the requirements of ASTM D-1869 and F-477. The bell section shall be designed to be at least as strong as the pipe wall. Sizes and dimensions shall be as shown in this specification.

C. Gaskets and lubricants intended for use with PVC pipe and couplings shall be made from materials that are compatible with the plastic material and with each other when used together, will not support the growth of bacteria, and will not adversely affect the potable qualities of the water that is to be transported. Gaskets and lubricants shall be supplied by the pipe manufacturer.

D. Physical Requirements

1. Standard Laying Lengths - Standard laying lengths shall be 20 feet (plus or minus 1") for all sizes. The total footage of pipe of any class and size shall be furnished in standard lengths. Each length of pipe shall be tested to four times the class pressure of the pipe for minimum of five (5) seconds. The integral bell shall be tested with the pipe.

2. Pipe Stiffness - The pipe stiffness using F/y for PVC class water pipe shall be as follows:

Class	DR	F/y
200	14	815
150	18	364

3. Quick Burst Test - Randomly selected tested in accordance with ASTM D-1599 shall withstand without failure pressures listed below when applied in 60 - 70 seconds. Class 150 shall have a minimum burst pressure of 755 psi and Class 200 shall have a minimum burst pressure of 986 psi at 73° F for all sizes.

4. Drop Impact Test - Pipe shall withstand without failure at 73° F an impact of 120 ft/lbs created by a falling 12-pound missile with a 2-inch radius nose without visible evidence of shattering or splitting.

E. 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 that will not reduce the strength of the pipe or coupling or otherwise damage them. Pipe and coupling markings shall include the nominal size and OD base, material code designation, dimension ratio

number, AWWA Pressure Class, AWWA 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 five (5) feet for the pipe and shall be marked on each coupling.

2.04 PVCC JOINT AWWA C909 PIPE

A. PVCO pipe meeting the AWWA Specification C909 for pressure Class 200, may be used for water lines up to 12" in diameter.

B. PVCO pipe shall be installed, embedded and backfilled according to the Specifications. To facilitate future locating of PVCO water pipe, a 12 gauge solid copper wire shall be laid with pipe and in metal to metal contact with all fittings, valves, and service connections. Wire splices shall be made with a minimum of six tight twists of stripped (bare) wire. Where water lines are greater than six (6) feet in depth, wire shall be brought to the surface every one hundred (100) feet and placed in a standard water meter box or approved junction box.

C. All service line connections to PVCO pipe shall be made using a stainless steel service saddle and full port, teflon coated ball valve corporation stop. Service saddle shall be of the extra wide or double-band type and manufactured specifically for PVCO pipe. No direct tap to PVCO pipe shall be permitted.

D. Only bell and spigot with electrometric gasket joints shall be used. Solvent-cement joints or use of couplings shall not be allowed.

2.05 DUCTILE IRON MECHANICAL JOINT FITTINGS FOR PVC PIPE

A. General: Cast-iron mechanical joints shall conform to the latest revision of ANSI A21.11 for centrifugally cast-iron water pipe.

1. Three (3) inches to 12 inches. All Working Pressures: Fittings shall conform to ASA Specification A21.10 for 250 psi water working pressure plus water hammer.

2. Fittings 12 inches and Over, for 150 psi and Less WWP: Fittings for use on 150 psi WWP pipe shall be AWWA Class D Pattern.

3. Fittings 12 inches and Larger, for 200 psi and Above WWP: Fittings shall be ductile iron or gray iron rated at 250 psi water working pressure plus water hammer. Ductile iron fittings only will be used with ductile iron pipe with grip rings.

B. All ductile iron fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast-iron grad 80-60-03 per ASTM Specification A33955. All fittings for connection to PVC pipe-all classes, shall be ductile iron.

C. 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.

D. Lining and Coating: All mechanical joint fittings shall be cement lined and bituminous seal coated per Federal Specification WW-P-42lb and ASA Specification A421.40 (AWWA C104). Bituminous outside coating shall be in accordance with ANSI/AWWA C110/A21.10.

PART 3 - EXECUTION

3.01 LAYING DEPTHS FOR WATER MAINS

In general, water mains shall be laid with a minimum cover of 36 inches above the top of the main, and a maximum cover of 60 inches above the top of the main, unless otherwise noted on the Drawings, i.e. for minimum separation between water main and other utilities, connections to existing mains, valve locations, etc.

3.02 PIPE BEDDING

A. The foundation for pipes laid in trenches 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. Pipe bells shall not carry any of the load of the backfill.

B. The Contractor shall use the "Undercutting Method" of pipe bedding.

C. When the "Undercutting Method" is used in rock bottom trenches, Class I granular bedding (No. 9 crushed stone aggregate) or earth shall be of such depth that the bottom of the barrel of the pipe will be at least six (6) inches above the bottom of the trench as excavated. Pipe bedding required in this paragraph is NOT considered a separate pay item.

D. In wet, yielding and mucky locations where pipe is in danger of sinking below grade or floating out of line or grade, the pipe must be weighted or secured permanently in place by such means as will prove effective. In areas where a high water table exists, the Contractor is cautioned to exercise extreme care in the placement of the backfill material to prevent flotation of the pipe at any time.

E. 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. The depth of the foundations 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 can be placed. The amount of crushed stone aggregate required to bring the top of the foundation to the trench bottom prior to the removal of the unstable material will be considered a separate pay item following negotiation between the Contractor and Owner and constitute a change order item. No compensation will be made if the instability of the trench bottom is caused by the Contractor's neglect.

F. The Contractor shall use compacted earth material or Class I granular bedding (No. 8 crushed stone aggregate) when the pipe is to be placed in the rock bottom trenches or in trenches with excavated rock present. This type of bedding material shall be placed 12 inches above and six (6) inches below the pipe as shown on the Contract Drawings as "Class C Bedding Detail".

G. It should be noted that no pipe shall be laid on solid or blasted rock. No rock shall be allowed to rest against the pipe once it is placed in the trench.

H. Pipe bedding as required in Paragraphs C and D of this Article is NOT considered a separate pay item.

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 hereinbefore under "Pipe Bedding" and in no case shall the supporting of pipe on blocks be permitted.

B. Fittings and specials for the water main shall be provided and laid as and where directed by the Engineer or as shown on the Plans.

C. Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to ensure its being 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 fitting 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 tot he longitudinal axis of the pipe.

D. 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 topped for any reason, the exposed end of such pipe shall be closed with a plywood plug fitted into the pipe bell so as to exclude earth or other material and precautions shall be taken to prevent flotation of pipe by runoff into trench.

E. No backfilling (except for securing pipe in place) over pipe will be allowed until the Engineer has had an 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.

F. Anchorage of Bends, Tees, Plugs, and Valves

1. At all tees, plugs, caps, and bends of 11¼ 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. Valves shall be provided with similar protection. Thrust blocks and supports shall be as shown in the typical details, 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 the pipe and fitting joints will be accessible for repair. Thrust blocks shall bear on undisturbed earth or rock.

2. Bridles, harness or pipe ballasting shall meet with the approval of the Engineer. Steel rods and clamps shall be galvanized.

3. No extra pay shall be allowed for work on proper anchorage of pipe, fittings or other appurtenances; such items shall be included in the unit price bid for the supported item.

3.04 WATER MAINS PUSHED UNDER DRIVEWAYS

The opening under the driveway shall be of the smallest diameter possible to accommodate the water main to minimize settlement of the driveway. Should settlement occur, the Contractor shall repair the driveway at his own expense in a manner satisfactory to the Engineer and property owner.

3.05 JOINTING

Jointing shall be accomplished in accordance with the manufacturer's recommendation.

3.06 TYPES OF CRUSHED STONE MATERIAL

Two classes of crushed stone material are mentioned in the Detailed Specifications. The Type of material used in each class is as follows:

Class I	No. 8 Aggregate
Class II	Dense Graded Aggregate

3.07 BACKFILLING

A. Initial Backfill

1. This backfill is defined as that material which is placed over the water main from the spring line in an earth trench to a point six (6) inches above the top of the pipe or from the trench bottom in a rock trench to a point 12 inches above the top of the pipe. The initial backfill for Case I situations shall be earth material free of rocks, acceptable to the Engineer or Class I material (No. 8 crushed stone aggregate). The initial backfill for Case II, Case III and Case IV situations shall be compacted earth material or be Class I material (No.8 crushed stone aggregate).

2. In areas where large quantities of rock are excavated, and the excavated earth is insufficient, then the Contractor must either haul in earth or order crushed stone aggregate for backfilling over the top of the pipe. Neither earth nor the crushed stone aggregate used to fulfill the backfill requirements is considered a pay item.

B. Final Backfill: There are two cases where the method final backfilling varies.

1. Case 1: Under existing and proposed pavement the backfill will be flowable fill to surface and extending one meter beyond edge of pavement.

2. Case 2: Non-traffic areas to be backfilled with earth compacted to 95% optimum density.

C. 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.

D. Excavated materials from trenches and tunnels, in excess of quantity required for trench backfill, shall be disposed of by the Contractor. The Contractor may contact the Owner regarding the location of a suitable disposal site; however, if the Owner cannot recommend a site, it shall be the responsibility of the Contractor to obtain locations or permits for the disposal of the waste material. Unit prices for the various pipe sizes shall include the cost of disposing of excess excavated materials, as set forth herein, no additional compensation being allowed for hauling or overhaul.

3.08 CRUSHED STONE SURFACE REPLACEMENT

Granular material will be included in the unit price for "Water Mains".

3.09 CONCRETE ENCASEMENT-UTILITY CROSSING OR WATER/SANITARY SEWER CROSSING

A. At locations shown on the Contract Drawings, or as required by the Specifications, and Contract Drawings, concrete encasement shall be used when the clearance between the proposed water main and any existing utility pipe is 900 mm (one (1) foot) or less. Utility pipe includes underground gas, telephone and electrical conduit, storm sewers, sanitary sewers or any other underground utility pipe.

B. There are two cases of utility crossing encasement. Case I is applicable when the proposed water main is below the existing utility line. Case II is applicable when the proposed water main is laid above the utility line. In either case, the concrete shall extend to at least the spring line of each pipe involved.

C. When a water main crosses an existing sewer line, either above or below and less than 600 mm (2 feet) vertical or 3,000 mm (10 feet) horizontal separation, the water main shall be encased in PVC pipe and concrete as shown on the Standard Details, or as required by the Specifications and Contract Drawings.

D. Concrete shall be Class B 20 Mpa (3000 psi) and shall be mixed sufficiently wet to permit it to flow between the pipes and form a continuous bridge. In tamping the concrete, care shall be taken not to disturb the grade of line of either pipe or damage the joints.

E. Concrete placed outside the specified limits or without authorization from the Engineer will not be subject to payment.

3.10 CONCRETE FOR CREEK CROSSING

A. At locations shown on the Contract Drawings, or as required by the Specifications and Contract Drawings, concrete shall be used when the water main crosses a stream or creek which is in rock or as directed by the Engineer.

B. All creek crossings shall be constructed as per the detail shown on the Contract Drawings.

C. Concrete shall be Class A (3500 psi) and shall be mixed sufficiently wet to permit flow around the pipe and to form a continuous bed. In tamping the concrete, care shall be taken not to disturb the grade or line of the pipe or injure the joints. Concrete shall be protected from excess water.

D. Concrete placed outside the specified limits or without authorization from the Engineer will not be subject to payment. Concrete will be paid under the pay item for the respective type of creek crossing.

3.11 PLACEMENT OF TRACING WIRE

Detectable underground copper tracing wire shall be installed with all utility lines. Insulated copper tracer wire shall be placed in the trench beside the pipe. At each hydrant, valve, and end of new pipe installation, the tracer wire shall be daylighted and the ends connected together with split bolt connectors covered with waterproof tape or wrap. For long runs of pipe, the maximum unbroken length of the tracer wire shall be 2500 feet. Underground splicing shall be made using brass split bolt electrical connectors. The trace wire shall be #12 AWG THWN copper.

3.12 PLACEMENT OF IDENTIFICATION TAPE

A. The placement of detectable underground marking tape shall be installed over all utility lines. Care shall be taken to ensure 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 60l87.

B. The identification tape shall bear the printed identification of the utility line below it, such as "CAUTION - BURIED WATER LINE 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 two (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 ditch so as to be first out. The tape shall be buried 4 - 6 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 his agent or Engineer.

3.13 TESTING OF LINES

A. Upon completion of the construction of water mains but prior to FINAL INSPECTION, all water mains and appurtenances shall be tested for leaks as specified herein. The Owner shall be notified at least three (3) working days in advance of the scheduled test time and, at its own discretion, have an inspector present during the performance of the test.

B. Where practicable, pipelines shall be tested between line valves, temporary valves or temporary plugs in lengths of not more than 457 meters (1,500 feet) or between isolation valves. The Contractor may request, in writing, the testing of a section of line greater than 457 meters (1,500 feet) with the Engineer's approval. 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 457 meters (1,500 feet) or the first isolation valve. After the completion of the first test without failure, the Contractor, at his option and with the Engineer's approval, may discontinue testing until the system is complete. The Contractor shall provide a pressure gauge which shall be used for the continuous measurement and recording of test pressures and test times.

C. Water mains shall be tested at 1035 kPa (150 pounds per square inch) in compliance with AWWA C600. The Contractor shall furnish a recording pressure gauge which shall be used for the continuous measurement and recording of test pressures and test time.

1. Test pressure shall not be less than 1.25 times the working pressure at the highest point along the test section. Test pressure shall not exceed pipe or thrust-restraint design pressures.

2. Valves shall not be operated in either direction at differential pressure exceeding the rated valve working pressure. Use of a test pressure greater than the rated valve pressure can result in trapped test pressure greater than the rated valve pressure can result in trapped test pressure between the gates of a double-disc gate pendent of the valve. For test pressures, the test setup should include provision, independent of the valve, to reduce the line pressure to the rated valve pressure on completion of the test. The valve can then be opened enough to equalize the trapped pressure with the line pressure, or fully opened if desired.

3. Test pressure shall not exceed the rated pressure of the valves when the pressure boundary of the test section includes closed, resilient-seated gate valves or butterfly valves.

4. After the pipe has been laid, all newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least 1.25 times the working pressure at the point of testing. Each valved section of pipe shall be slowly filled with water, and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to the elevation of the test gauge, shall be applied by means of a pump connected to the pipe in a manner satisfactory to the Owner. Valves shall not be operated in either the opening or closing direction at differential pressures above the rated pressure. It is good practice to allow the system to stabilize at the test pressure before conducting the leakage test.

5. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves and hydrants. If permanent air vents are not located at all high points, the Contractor shall install corporation cocks at such points so that the air can be expelled as the line is filled with water. After all the air has been expelled, the corporation cocks shall be closed and the test pressure applied. At the conclusion of the pressure test, the corporation cocks shall be removed and plugged or left in place at the discretion of the Owner.

6. Any exposed pipe, fittings, valves, hydrants and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, hydrants or joints that are discovered following the pressure test shall be repaired or replaced with sound material, and the test shall be repeated until it is satisfactory to the Owner.

7. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe or any valved section thereof to maintain pressure within 5 psi (35 Mpa or 0.35 bar) of the specified test pressure after the pipe has been filled with water and the air has been expelled. Leakage shall not be measured by a drop in pressure in a test section over a period of time.

D. Loss of water pressure during the test shall not exceed 69 kPa (10 PSI) in a 24-hour time period or 14 kPa (2 PSI) in a 2-hour time period. Duration of test shall be not less than two (2) hours.

E. Where leaks are visible at exposed joints and/or evident on the surface where joints are covered, the joints shall be recaulked, repoured, bolts retightened or relaid, and leakage minimized, regardless of total pressure drop shown by the test.

F. The Contractor shall pay for all water used during filling, pressure testing, and disinfection of new water lines, at a cost of $5.00 per 1,000 gallons, until said lines are accepted by the Owner.

G. When hydrants are in the test section, the test shall be made against closed hydrant valves.

H. All service taps to be installed prior to testing.

3.14 LEAKAGE TEST

A. Only after the line has passed the hydrostatic test, shall the leakage test be used to determine if the line has passed. The leakage shall be defined as the quantity of water that must be supplied to the tested section to maintain pressure within 34.5 kPa (5 psi) of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled with water.

B. The allowable leakage shall not be greater than that determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133{,}200}$$

Where L is the allowable leakage in gallons per hour; S is the length of pipeline tested in feet; D is the nominal diameter of the pipe, in inches; and P is the average test pressure during the leakage test, in pound per square inch gauge.

C. In metric units,

$$L_m = \frac{SD(P)^{1/2}}{715{,}317}$$

Where L_m = Allowage leakage, in liters per hour
S = Length of pipe tested, in meters
D = Nominal diameter of the pipe, in millimeters
P = Average test pressure during the leakage test, in kPa

These formulas are based on an allowable leakage of 11.65 gpd/mi/in. (1.079 L/day/km/mm) of nominal diameter at a pressure of 150 psi (1034 kPa).

D. All visible leaks are to be repaired regardless of the amount of leakage.

E. If any test of laid pipe discloses leakage greater than that specified, the Contractor shall, at his own expense, locate and make approved repairs as necessary until the leakage is within the specified allowance.

3.15 DISINFECTION OF WATER LINES

A. New potable water lines shall not be placed into service, either temporarily or permanently, until they have been thoroughly disinfected in accordance with the following requirements and to the satisfaction of the OWNER.

B. After pressure testing, a solution of hypochlorite using HTH or equal shall be introduced into the section of the line being disinfected sufficient to ensure a chlorine dosage of at least 50 parts per million (PPM) in the water main. While the solution is being applied, the water should be allowed to escape at the ends of the line until tests indicate that a chlorine concentration of at least 50 PPM has been obtained throughout the pipe. Open and close all valves and cocks while chlorinating agent is in the piping system. The chlorinated water shall remain in the pipe for 24 hours. Disinfection shall be repeated until a minimum chlorine residual of 25 PPM is measured after 24 hours. Once a chlorine residual of 25 PPM is

obtained after 24 hours, the water main shall be thoroughly flushed until the residual chlorine content is not greater than 1.0 PPM.

C. Following disinfection of the line, bacteriological samples shall be collected and analyzed in accordance with the requirements of Kentucky Department of Natural Resources and Environmental Protection. When the samples have been tested and reported safe from contamination, the water line may be connected to the system. The Contractor shall provide to OWNER written documentation that the water sample passed the bacteriological test and is safe.

D. Bacteriological samples shall be taken in the following manner:

1. Two samples for the first one-half mile of water main and then one sample per mile thereafter.

2. Two samples when disconnecting or reconnecting a branch line or service line when two or more customers are affected.

E. All bacteriological sampling and testing shall be paid for by the Contractor and included in the unit price for the bid item "water main".

3.16 DECHLORINATING OF HEAVILY CHLORINATED WATER

A. Dechlorination of heavily chlorinated water shall be in accordance with AWWA C651 and shall be accomplished using sodium bisulfite, sodium thiosulfate, sodium sulfite, or calcium thiosulfate solution of a concentration sufficient to remove all chlorine to a level not to exceed 0.019 mg/L. The solution shall be applied by a metering pump directly into the chlorinated water flow stream by injection into a discharge line or into the free discharge from a hydrant. The treated water may then be conveyed to the nearest sanitary sewer, storm sewer, or local stream.

B. The feed rate (gpm) of solution shall be governed by the chlorine (ppm) concentration of the water to be dechlorinated and the rate (gpm) at which it can be discharged. Constant monitoring of the chlorine residual concentration shall be made using the colorimetric method to ensure the optimum solution feed rate.

1. Feed System

C. The dechlorinating agent shall be fed from prepared carboys utilizing a metering pump equipped with a suitable meter and valve to adjust/monitor the feed rate.

3.17 FINAL CLEANUP AND RESTORATION

Unless specifically approved by the Owner and Engineer, **cleanup of disturbed areas shall be kept current with construction** and restoration efforts by the contractor initiated no longer than seven (7) days after the trench excavation work has started. All excavated material not required for backfilling of the trench and any large rocks, stones or debris shall be removed from the site, and shall not be a burden to the property owner(s) and/or adjacent properties. The contractor may windrow or track-in the excavated material over the trench as long as the required compaction is achieved. All disturbed areas must be seeded at least with a temporary seed mix if for some reason the area cannot be permanently seeded within two (2) weeks.

3.18 CONNECTING TO THE WATER SYSTEM

Unless otherwise directed by the Owner, the Contractor shall connect the new water main to the existing water system. The Contractor shall notify the Owner when the connection is to be made so that representatives of the Owner may operate existing valves and witness the connection. A minimum notice of at least three (3) working days in advance of the connection shall be given to the Utility. The Contractor shall coordinate all connections and other work which require disruption of water service so as to minimize the amount of time the affected water lines are out of service.

- END OF SECTION -

SECTION 02620

ENCASEMENT PIPE

PART 1 - GENERAL

1.01 WORK INCLUDED

The Contractor shall furnish all labor, materials, tools and equipment necessary to complete the borings as shown on the Contract Drawings and as herein specified.

PART 2 - PRODUCTS

2.01 The pipe shall be steel, new material, with a minimum yield of 35,000 psi and a wall thickness as shown below. All joints in the encasement pipe shall be of continuous solid weld.

TABLE OF MINIMUM WALL THICKNESS FOR STEEL CASING PIPE

Minimum Thickness Inches	Normal Diameter Inches
0.250	4" thru 14"
0.250	14 and 16
0.250	18
0.281	20
0.312	22
0.344	24
0.375	26
0.406	28 and 30"
0.438	32
0.469	34 and 36
0.500	38, 40 and 42

2.02 The steel casing pipe for all highway crossings shall be as follows:

Carrier Pipe Size	Casing Pipe Size
3"	8"
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
14"	24"

2.03 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.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Where shown on the Drawings, the Contractor shall install encasement pipe by the boring method or open-cut method. Two methods of boring will be permitted. In the first, the encasement pipe is pushed or jacked into the hole as the auger cuts out the material. The second method consists of drilling the hole completely through the fill and pushing or jacking the encasement pipe into the hole after the auger has completed the bore. The pipe shall be installed in a manner that will not disrupt traffic.

B. In the open-cut method, the encasement pipe shall be placed in the trench first then the carrier pipe will be placed inside the encasement pipe. Backfilling shall be as required in Section 02610, Article 3.07 for the particular type of roadway the water main is crossing.

C. The carrier pipe will not be permitted to rest on bells or couplings. Equally spaced plastic chocks shall be securely fastened to the carrier pipe. The plastic chocks shall be of sufficient thickness to provide 2-inch clearance between the pipe bell or coupling and the encasement pipe. Place one (1) plastic chock two (2) feet from each side of pipe joint and at 6-foot O.C. maximum spacing. Minimum of four (4) per 20-foot pipe section. One (1) chock shall be placed approximately two (2) feet from each end of casing pipe.

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-inch thick and have a tear resistance of 125 lbs/in. The membrane shall be manufactured by Carlisle Tire & Rubber Co., Firestone Industrial Products Co., or approved equal.

3.03 DAMAGE

The cost of repairing damage which is caused by the boring operation to the highway or railroad above the bore shall be borne by the Contractor.

- END OF SECTION -

SECTION 02640

VALVES

PART 1 - GENERAL

1.01 SCOPE

The work to be accomplished under this section of the Specifications shall include purchasing, transporting and installing valves and appurtenances as described below and shown in detail on the Drawings.

PART 2 - PRODUCTS

2.01 GATE VALVES AND BOXES

A. All gate valves shall be of the resilient seat wedge type, iron body, non-rising stem, fully bronze mounted with O-ring seals. Valves shall be of standard manufacture and of the highest quality both as to materials and workmanship and shall conform to the latest revisions of AWWA Specification C-509. Valves shall have a rated working pressure of 250 psi unless otherwise noted on the Drawings.

B. Gate valves for buried service shall be furnished with mechanical joint end connections, unless otherwise shown on the plans or specified herein. The end connections shall be suitable to receive ductile iron or PVC pipe.

C. 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.

D. Buried service gate valves shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counterclockwise).

E. Buried service gate valves shall be installed in a vertical position with valve box as detailed on the plans. 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.

F. Valves shall be manufactured by Cla-Val, Mueller, Kennedy, or Engineer approved equal and shall have a UL/FM approved rating.

G. Valve boxes shall be cast iron, three-piece, screw type (as shown on the drawings) with drop-cover marked "Water". 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. A concrete pad shall be placed around the valve box cover as shown on the drawings.

2.02 AIR RELEASE VALVE (COMBINATION AIR AND VACUUM)

A. The air release valve shall have a screwed inlet diameter with a corporation ball valve stop and a minimum of 3/16-inch size orifice. The body and cover shall be constructed of cast iron while the float shall be stainless steel. All internal parts, such as lever pins, retaining rings, screws, etc., shall be of stainless steel construction. Valves shall be suitable for use in lines with an operating pressure up to 175 psi as shown on the plans. Valves shall be Model 200A manufactured by APCO Valve and Primer Corp., or Engineer approved equal.

B. For water mains 12 inches, the air/vacuum valve shall have a 2-inch screwed inlet connection with a 2-inch ball isolation valve connecting to the water main. The air release valve shall be connected to the air/vacuum valve with 1-inch brass fittings. The valve shall consist of a body, cover, baffle, float, and seat. The baffle shall be designed to protect the float from

direct contact of the rushing air and water to prevent the float from closing prematurely. The seat shall be fastened into the valve cover without distortion and shall be easily removed. The float shall be center guided into the seat. The body and cover shall be constructed of cast iron while the float shall be stainless steel. The protector hood shall be of steel construction. All internal parts, such as lever pins, retaining rings, screws, etc., shall be of stainless steel. Valves shall be suitable for use in lines with an operating pressure up to 175 psi as shown on the plans. Valves shall be Model 140C manufactured by APCO Valve and Primer Corporation, or Engineer approved equal.

C. The combination air and vacuum valve shall be connected to the water main by the use of a saddle. A brass vent line shall be installed in the valve box of the same size as the air/vacuum valve and turned down.

2.03 CUSTOMER SERVICE PRESSURE REDUCING VALVE

A. The individual customer service pressure reducing valve shall be hydraulically operated, spring loaded, diaphragm type control regulator. The valve shall be held open by the force of the compression spring above the diaphragm and shall maintain a constant delivery pressure downstream without shock or water hammer. Adjustments shall be made by an adjusting screw on top of the valve. Setting shall be as shown on the plans. The valve shall have a cast brass or bronze body and cover per ASTM B-62, stainless steel seat (Stainless Steel 303) and outlet adjustment ranges of 30 to 90 psi with a 300 psi inlet pressure.

B. The individual pressure reducing valve shall be equipped with a built-in by-pass to prevent a closed system on the customer's side of the meter service.

C. All valves shall be preceded by a strainer provided by the valve manufacturer and have a maximum working pressure of 300 psi.

D. The individual pressure reducing valve and strainer shall be as manufactured by Watts Regulator Co., Honeywell Braukmann, Cla-Val Co., or Engineer approved equal.

2.04 TAPPING VALVES AND SLEEVES

A. Tapping valves and sleeves shall be installed in the locations shown the Contract Drawings. The valves shall be a resilient seat wedge, iron body, non-rising stem, gate valve with a mechanical joint outlet and a flanged joint connection to the sleeves. They shall be provided with a valve box, counterclockwise opening and installed as described in detail on the plans.

B. Tapping Sleeves: Tapping sleeves of the sizes indicated for connection to existing main shall be the cast gray, ductile, or malleable-iron, split-sleeve type with flanged outlet, and with bolts, follower rings and gaskets on each end of the sleeve. Construction shall be suitable for a maximum working pressure of 250 psi. Bolts shall have hexagonal heads and nuts. Longitudinal gaskets and mechanical joints with gaskets shall be as recommended by the manufacturer of the sleeve. When using grooved mechanical tee, it shall consist of an upper housing with full locating collar for rigid positioning which engages a machine-cut hole in pipe, encasing an elastomeric gasket which conforms to the pipe outside diameter around the hole and a lower housing with positioning lugs, secured together during assembly by nuts and bolts as specified, pretorqued to 50 foot-pound.

C. Tapping valves and sleeves for ductile iron pipe and C.I. size PVC pipe shall be as manufactured by Mueller, Kennedy, or approved equal and the sizes as shown on the Drawings.

D. Tapping valves shall be suitable for a maximum working pressure of 250 psi with 125 lb. flanges.

PART 3 - EXECUTION

3.01 VALVES

Valves shall be installed in accordance with recommendations and instructions of the manufacturer in locations shown on the Drawings. There shall be 36 inches of cover over the water main at the valve for buried service valves.

- END OF SECTION -

SECTION 02645

HYDRANTS

PART 1 - GENERAL

1.01 SCOPE

Hydrants shall be installed in the locations shown on the Plans and manufactured and equipped as described below.

PART 2 - PRODUCTS

2.01 HYDRANTS

A. Hydrants shall be improved AWWA compression model with 5¼-inch hydrant valve, two (2) 2½-inch hose outlets, one (1) 4½-inch pumper nozzle, national standard threads, national standard pentagon operating nut opening counterclockwise. Hydrant shall be equipped with safety flanges designed to prevent barrel breakage when struck by a vehicle, flanged inlets and auxiliary gate valves. Hydrants connected to mains four (4) inches and larger shall have 6-inch inlets. Hydrants shall be Mueller Super Centurion 250-3 way hydrant as manufactured by Mueller Company.

B. Each hydrant shall be installed with an auxiliary gate valve and valve box; valve box cover shall be marked "WATER" as required.

C. Inlet cover depth shall be 36 inches and the minimum dimension from ground to center line of lowest opening shall be 18 inches and a maximum of 24 inches. Hydrants shall be provided with a drainage pit as indicated on Standard Detail Sheet.

D. All hydrants shall receive two (2) field coats of Koppers Company, Inc. Glamortex enamel (red).

E. The Owner shall be furnished with two (2) hydrant barrel wrenches, four (4) spanner wrenches and two (2) operating nut wrenches.

F. All hydrant piping shall be ductile iron anchoring pipe.

PART 3 - EXECUTION

3.01 INSTALLATION

Hydrants shall be installed in accordance with the manufacturer's directions and as detailed on the Contract Drawings.

- END OF SECTION -

SECTION 02650

CUSTOMER METER SERVICE AND SERVICE TUBING

PART 1 - GENERAL

1.01 SCOPE

The Contractor shall furnish all labor, tools, equipment, and materials necessary to complete the meter service connections as shown on the Contract Drawings and herein specified.

PART 2 - PRODUCTS

2.01 SERVICE CLAMPS

All service connections of all sizes shall be made through the use of service clamps or saddles. Service saddles shall have cast body with dual-lip resilient gasket, permanently hinged with stainless steel pin, and tapped with iron pipe threads. Saddles for all mains shall be brass or bronze saddles as manufactured by Clow Corporation, Ford Meter Box Company or approved equal.

2.02 CORPORATION STOPS

Corporation stops for use in service clamps shall be Ford for 3/4-inch, 1-inch, and 2-inch copper service piping. Corporation stops shall have iron pipe threads with pack joint connection outlets. Rigid stainless steel insert stiffeners shall be used inside whenever PE service tubing is required at their jointing with the corporation stops.

2.03 COPPER SERVICE TUBING

A. Buried, Exterior: Copper Pipe: Type K hard drawn copper per ASTM B-88. Fittings: Wrought copper or cast brass. Joints: Lead free, tin-silver solder.

B. Buried, Below Slab: Copper Pipe, 2-inch and Smaller: Type K soft drawn copper per ASTM B-88. Fittings and joints shall not be permitted below slab.

C. All solder joints shall be soldered with an approved, lead free tin-silver solder. Acid core solder shall not be used.

2.04 METER SETTINGS

A. Work Included: The Contractor shall furnish all labor, tools, equipment and materials for installing water services as shown on the plans as directed.

B. Materials

1. The water services will consist of a saddle and corporation stop and a prefabricated unit consisting of a meter box, meter setter, meter, cast-iron meter box cover and other associated materials (rod to hold the meter plumb, compression coupling on the inlet and outlet side connected with service tubing. Meter sizes covered are 5/8-inch x 3/4-inch, 1-inch and 2-inch. The inlet and outlet connections through the meter box shall be firmly anchored to the box. All connections from water main to pressure reducer shall be rated for a working pressure of 250 psi.

2. Saddles shall be of appropriate size of the pipe to be tapped and shall be equal to Mueller 13000 series for PVC pipe. All saddles for ductile iron pipe shall be equal to Smith Blair 313 series. The corporation stop shall be Mueller H15008-7 for 3/4-inch and 1-inch services and H-15008-2 for 2-inch services or approved equals. Water service tubing shall be copper as per AWWA specifications with a minimum

pressure rating of 250 psi. The meter box shall consist of a thick walled box constructed of PVC materials and a minimum of 24" x 24" for 3/4-inch and 1-inch services and 30" x 30" for 2" services and 3/4-inch services with tandem setters for pressure reducing valves. The meter setter shall be Mueller H1434012-677 for 3/4-inch and 1-inch services and H1423-2A-2-12 for 2-inch services or approved equal. Mueller tandem setter in pressure reducing valve settings. Brass nipples and couplings shall be utilized. Consistent with Water District's standardization policy because of repair parts inventory, all meters shall be Badger with no exposed to air working parts, hermetically sealed, bronze case, straight reading dial in U.S. gallons, working pressure of 150 psi. Serial numbers shall be stamped on both the lid and housing.

3. Pressure reducing valves shall be equipped with strainer.

4. The meters with "BADGER ORION" radio read equipment shall be Model 25 for 3/4-inch services, Model 70 for 1-inch services and Model 170 for 2" services. The entire unit is to be pre-assembled in a workmanlike manner with all components fitted snugly into the box and fastened to prevent movement. All joints shall be sealed with Teflon tape. The inlet and outlet is to be equipped with compression couplings.

5. All service meters and "BADGER ORION" radio read equipment shall be supplied and installed by the Contractor.

2.05 METER BOX LIDS

The lid shall be one-piece made of high strength polypropylene and have a minimum weight of 4 pounds and a separate cast iron frame, and with hand removable mount for an AMR sending unit. It shall have a minimum thickness of .800 inches. The lid shall be a Mid-States Plastics, Inc. MSIL1 and capable of receiving a vertical load in excess of 10,000 lbs. The meter box, cover and meter setting shall be constructed as shown on the drawings or as directed by the Owner or Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION OF METER SERVICES

All customer meter services shall be installed as shown on the Contract Drawings and shall be set near the property owner's property line and outside of the highway right-of-way. The Owner reserves the right to change the location of the meter services prior to installation for ease of daily operation of the system and reading the individual meters. Existing customer services must be connected on customer side of meter.

3.02 INSTALLATION OF SERVICE TUBING

A. All service tubing installed beneath bituminous or concrete roads shall be jacked under the roads. When State maintained roads are being jacked and rock is encountered, permission to open cut the road shall be obtained by the Contractor from the Department of Transportation's District Permit Engineer. If permission is refused, the Contractor shall attempt to jack at another location and shall continue to do so until a successful crossing is obtained.

B. Minimum cover for all service lines shall be 36 inches (at all locations) when within the proposed and existing highway right-of-way and construction easements. Additional cover may be required at proposed drainage ditch, storm sewer, or other noted locations.

3.03 BACKFILLING SERVICE TUBING

When service tubing is laid in an open cut across a paved road the backfill shall be flowable fill. Across entrances or gravel roads the backfill shall be flowable fill or earth compacted to 95% optimum density.

- END OF SECTION -

NORTHERN KENTUCKY WATER DISTRICT
Water Specifications

Section I
DESCRIPTION OF BID ITEMS

1. RELOCATE FIRE HYDRANT: Includes allowing for Northern Kentucky Water District's Inspector to inspect the existing fire hydrant prior to reuse, returning unusable fire hydrants to the Northern Kentucky Water District Warehouse and picking up a replacement hydrant for use if the existing fire hydrant is determined unfit for reuse. Includes all labor, equipment, excavation, materials and backfill to relocate existing fire hydrant to valve, pipe, and anchoring tee as indicated on plans and on standard drawings contained in the plans. The pipe, valve and anchoring tee shall be paid under separate bid items when required. The Contractor to supply and install all anchoring couplings, fire hydrant extensions, concrete blocking, restoration, granular drainage material, etc, needed to install the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. No additional payment will be made for rock excavation. Paid EACH (EA) when complete.

2. DUCTILE IRON PIPE (ALL SIZES) Includes the specified pipe, polyethylene wrap, labor, equipment, excavation, bedding, restoration, disinfection, testing, backfill, etc. required to install the specified pipe at the location 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. Paid LINEAR METER (LM).

3. TEES, BENDS, REDUCERS, AND INCREASERS (ALL SIZES) Includes the specified ductile iron or mechanical joint fitting, polyethylene wrap, labor, equipment, excavation, blocking, anchoring, disinfection, backfill, restoration, etc. to install the specified fitting at the locations shown on the plans in accordance with the specifications and standard drawing complete and ready for use. Paid EACH (EA) when complete.

4. VALVES (ALL SIZES) Includes the specified resilient seat gate valve for valve sizes of 300 mm (12") and smaller, and butterfly valves for larger valves, polyethylene wrap, labor, equipment, excavation, anchoring (if any), valve box and valve stem extensions, backfill, 600 mm x 600 mm x 100 mm (2'x2'x4") concrete pad, restoration, testing, disinfection, etc. required to install the specified valve at the location shown on the plans in accordance with the specifications and standard drawings complete and ready for use. Paid EACH (EA) when complete.

5. COPPER SERVICE (ALL SIZES) Includes the specified copper service, labor, equipment, excavation, backfill, testing, disinfection, and restoration to install the pipe 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 or for bedding required in rock excavation. Paid LINEAR METER (LM)

6. RECONNECT TO SERVICE Includes all labor and materials, including fittings and bends necessary to connect new service line to existing service line. Paid EACH (EA) when complete.

7. RELOCATE WATER METERS (ALL SIZES) Includes all labor, equipment, excavation, additional fittings, disinfection, testing, restoration, etc. to relocate the existing water meter (whatever size exists), meter yoke, meter box, casting, etc. from its old location to the location shown on the plans or as directed, in accordance with the specifications and standard drawings complete and ready for use. The required new service pipe will be paid under separate bid items. Paid EACH (EA) when complete.

8. RECONNECT TO MAIN Includes all labor and materials, including fittings and bends and valve necessary to connect service line to the water main. Where the reconnect is made to an existing main this item includes reusing the existing service tap or abandoning the existing service tap by shutting off the curbstop at the existing main and disconnecting the copper service which is being abandoned. Paid EACH (EA) when complete.

9. TIE-IN TO (ALSO, CONNECT TO) EXISTING MAIN (ALL SIZES) Includes all labor, equipment, excavation, fittings, sleeves, couplings, blocking, anchoring, restoration, disinfection, testing and backfill required to make the 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 and shall be measured thru tie-in fittings. Paid EACH (EA) when complete.

10. PLUG AND BLOCK (ALL SIZES) This item shall include the specified plug and any labor, equipment, excavation, concrete, backfill and restoration required to install the plug and blocking at the location shown on the plans or as directed in accordance with the specifications. Paid EACH (EA) when complete.

11. FIRE HYDRANT ASSEMBLY Includes all labor, equipment, excavation, materials and backfill to install fire hydrant. The Contractor will supply and install all anchor couplings, bends, fire hydrant extension, concrete blocking, restoration, granular drainage material, etc, needed to install the fire hydrant complete and ready for use as shown on the plans, and in accordance with the specifications and standard drawings. No additional payment will be made for rock excavation. Paid EACH (EA) when complete.

12. PROPOSED METER PIT Includes all labor, equipment, excavation, restoration, etc. to construction a new concrete water meter pit to the location shown on the plans or as directed, in accordance with the specifications and standard drawings of the Northern Kentucky Water District, complete and ready for use. The required new piping and valves will be paid under separate bid items. Paid EACH (EA) when complete.

13. PROPOSED METER PIT INTERNAL PIPING Includes all labor, equipment, piping, valves, fittings, sleeves, couplings, blocking, anchoring, disinfection, and testing required to construct the meter pit internal piping arrangement as shown on the plans, and in accordance with the specifications and standard drawings of the Northern Kentucky Water District, complete and ready for use. Paid EACH (EA) when complete.

14. COPPER SERVICE SPLIT Includes the specified copper service, labor, equipment, excavation, backfill, testing, disinfection, and restoration to split the copper service line into two services 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 or for bedding required in rock excavation. Paid EACH (EA) when complete.

15. RELOCATE BURIED VALVE ASSEMBLY Includes all labor, equipment, excavation, piping, additional fittings, couplings, meter box, disinfection, testing, restoration, etc. to relocate the existing buried valve assembly (buried detector check valve assembly for fire line), 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. Paid EACH (EA) when complete.

16. SAFELOADING Includes all labor, equipment, excavation, and materials to accomplish the safeloading of abandoned pipes in accordance with KYTC Standard Specifications for Road and Bridge Construction, Section 708. The contractor shall safeload the entire length of all abandoned waterline pipes 6 inches in diameter and larger that is to be left under proposed pavement and under any existing pavement that is to remain. The contractor shall safeload the entire length of all abandoned pipes 15 inches and larger which will be located outside of proposed pavement but within project limits. The safeloading criteria above shall be observed unless otherwise directed by the Resident Engineer or his representative. The resident engineer may designate other pipes for safeloading as necessary. Paid CUBIC METER (CM) when complete.

Section II
GENERAL INSTRUCTIONS AND SPECIAL NOTES

1. WATER SHUTDOWNS No customer of Northern Kentucky Water District shall be without water for a period longer than 4 hours unless approved by Northern Kentucky Water District. All customers to be without water shall be notified 24 hours in advance. No active water main shall be shut down without prior approval of Northern Kentucky Water District. Tie-ins on this project may have to be scheduled at night, on weekends or other off peak hours.

2. 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 affected utilities, whether shown on the plans or not, prior to excavation and 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.

3. STATIONS AND DISTANCES All stations and distances indicated in the plans or specifications are approximate, therefore, some minor adjustment may have to be made during construction to fit actual field conditions.

4. FIRE HYDRANT DISCONNECTION No fire hydrant shall be removed from service without prior approval of Northern Kentucky Water District, and the proper fire authority.

5. RESIDENT ENGINEER "Resident Engineer" as referred to in the specifications or in the plans shall mean the Kentucky Department of Highways Engineer in charge of the project and his inspectors.

6. WATER MAIN INSPECTION Northern Kentucky Water District and their inspectors, and the resident engineer and his inspectors shall be jointly responsible for inspection of water line facilities installation. Where the phrase "as directed" appears in these specifications without defining who is doing the directing, it shall be understood "as directed" means jointly directed by the Resident Engineer and Northern Kentucky Water District

7. PRIOR INSPECTION OF EXISTING METER SETTINGS The Contractor with the Northern Kentucky Water District's inspector shall make an inspection of all meter settings to adjusted or relocated prior to construction. Any meter setting not up to Northern Kentucky Water District standard shall be noted and parts furnished to the Contractor by the Northern Kentucky Water District for installation as needed. Any water meter setting, fire hydrant or any other water facilities that are to be relocated, adjusted, reused or remain and are damaged by the Contractor shall be repaired at the contractors expense. Any old water meter settings removed and not reused shall be turned over to the Northern Kentucky Water District.

8. SPECIAL BACKFILL NOTE No sand or granular material shall be used for backfill above 300 mm (12") over the top of the pipe or around structures. Only compacted soil or flowable fill shall be used unless approved or otherwise directed by the Resident Engineer.

9. GENERAL SAFETY For the security and safety of people in and adjacent to trenches or construction operations, the "Manual of Accident Prevention in Construction" published by the Associated General Contractors Association of America, the "Manual On Uniform Traffic Control Devices" published by the Federal Highway Administration, and the safety

regulations of the appropriate state and local agencies shall be followed when specifically applicable, or by similarity of operation or as necessary for adequate protection.

10. MATERIAL HANDLING Pipe, fittings, valves, hydrants, and accessories shall be loaded, unloaded, and handled by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against other pipe.

11. PROTECTION OF PAVEMENT Where main construction is located in or adjacent to pavements, all construction equipment shall have rubber tires. Crawler equipment will be permitted when there is no danger of damaging pavement.

12. NOISE, DUST AND ODOR CONTROL The Contractors construction activities shall b conducted so as to eliminate all unnecessary noise, dust, and odors. The use of oil or other materials, for dust control, which may cause tracking will not be permitted.

13. EXCAVATION AND CONSTRUCTION MATERIALS All excavated material and all construction materials in prosecution of the work shall be deposited so as not to endanger the work, create unnecessary annoyance to the public, or interfere with natural drainage courses. During the course of the work, all material piles shall be kept trimmed up and maintained in a neat, workmanlike manner. All material piles shall be kept a reasonable distance away from roadways so as not to cause a hazard and block the motorists view.

14. PROTECTION OF TREES, SHRUBS, AND OTHER ITEMS TO REMAIN Special care shall be taken by the Contractor to avoid unnecessary damage to trees or shrubs and their root systems or any other items shown to remain. Should the Contractor do unnecessary damage to any item shown to remain, the item shall be repaired or replaced at the contractors expense. Should unnecessary damage be caused to items to remain and is determined not repairable, the Contractor shall compensate the owner for the loss if any.

15. UNACCEPTABLE EXCAVATED TRENCH MATERIAL Any excavated trench material which is determined unacceptable for backfill shall be removed from the area and wasted at a location acquired by the Contractor and approved by the Resident Engineer. Acceptable backfill material shall be acquired by the Contractor at a location approved by the Resident Engineer. The disposition and handling of unacceptable material and the acquisition and handling of acceptable material shall be at the Contractors expense.

16. BLASTING ROCK No blasting of rock shall be performed without specific permission of the Resident Engineer. Blasts shall be properly covered and all utilities and structures in the area shall be properly protected. Warning shall be given to all persons in the area who could be affected by the blasting. Blasting shall be at the risk of the Contractor who shall be liable for all damages to persons or property caused by the blasting. All blasting shall be performed in accordance with all regulations of the Kentucky Department of Mines and Minerals and all other governing agencies having jurisdiction. The Kentucky Department of Mines and Minerals, area emergency response agencies, utility companies with utilities in the area shall be notified of the blasting sufficiently in advance.

17. ABANDONED VALVES The valve boxes shall be removed from all abandoned valves prior to final roadway paving. This shall be done to the satisfaction of the Engineer. Paving over a valve box without removing same will not be acceptable. No separate payment will be

made for removal of valve boxes but shall be considered incidental to water line construction.

18. SALVAGED AND STOCKPILED ITEMS The Contractor shall salvage all items in a workmanlike manner. Any item damaged by the Contractor thru negligence shall be replaced with new items at the contractors expense. All salvaged items to be stockpiled and picked up by NKWSD, shall be stored in a safe place until pickup. The Contractor is to notify NKWSD at 859-578-9898 when salvaged items are available for pickup.

16. CONSTRUCTION PROCEDURE The successful contractor to prepare construction procedure with respect to the installation of water utilities. The Sequence and Procedure of Water Utilities Construction shall be approved by the Northern Kentucky Water District's Engineering Department prior to the beginning of the water utilities relocations.

Section III
MATERIAL SPECIFICATIONS

1. CONCRETE All concrete shall be Class A in accordance with KYDOH Standard Specs. for Road and Bridge Construction current edition and shall be placed in accordance with same unless otherwise noted. The concrete shall be placed to the dimensions as required in the plans or specifications. Reinforcing steel shall be placed in the concrete as required in the plans or specifications.

2. CONCRETE REINFORCING STEEL All reinforcing steel shall be Grade 40. The size, location, placement, and quantity shall be as required in the plans or specifications.

3. WATER MAIN

   A. **DUCTILE IRON PIPE**. Ductile iron pipe shall meet the requirements of ANSI A21.51 (AWWA C151)

      1. Material. The chemical constituents shall meet the physical property recommendations of ASTM A536 to ensure that the iron is suitable for satisfactory drilling and cutting.

      2. Minimum Thickness. Unless otherwise shown on the plans, the minimum thickness of the barrel of the pipe shall be Class 52. All pipe shall be clearly marked as to class by the manufacturer.

      3. Coating and Lining. The pipe shall be coated outside with a bituminous coating in accordance with ANSI A 21.51 (AWWA C151) and lined inside with cement mortar and seal coated in accordance with ANSI A21.4 (AWWA- C104).

      4. Fittings & Glands. Fittings and glands shall be ductile iron as specified in Section 3A, "Ductile Iron Fittings".

      5. Polyethylene Encasement. Ductile Iron Pipe shall be encased with Polyethylene film conforming to ANSI A21.5 (AWWA C105)

   B. **PIPE JOINTS**

      1. Push on and Mechanical. - Push-on and mechanical joints including accessories shall conform to ANSI A21.11 (AWWA-C111). Bolts shall be high strength COR-10 tee head with hex nuts. The maximum deflection at push-on joints and/or mechanical joints shall be 5 degrees or as recommended by the Manufacturer.

      2. Flanged. - Flanged joints shall meet the requirements of ANSI A21.15 (AWWA C115) or ANSI B16.1

         a. Gaskets. All flanged joints shall be furnished with 1/16 inch thick full face red rubber.
         b. Bolts. Bolts shall have American Standard heavy unfinished hexagonal head and nut dimensions all a specified in ANSI B18.2. For bolts of 1-3/4 inches in diameter and larger, bolt studs with a nut on each end are recommended. Material for bolts and nuts shall conform to ASTM A307, Grade B.

3. Restrained. - If restrained joint system is required on the plans, all pipes, bends, valves, etc. shall be restrained. Restrained joints shall consist of a device to provide a flexible, tied joint. Acceptable devices would be a clamp type joint or bell-bolt flexible tied joint or approved equal. Method of restraining and laying schedule shall be approved by the Engineer prior to the start of the project. Manufacturer installation instructions shall be followed. Restrained joints shall be capable of withstanding a maximum joint pressure of 14 kg/sq.cm (200 psi.) unless otherwise noted.

   a. Bell and Spigot Bell and spigot joints shall conform to ANSI A21.6.

   b. Push-on. Restrained push-on joints shall conform to ANSI A21.11 (AWWA C111). When bolts and nuts are required, they shall be corrosion resistant high strength steel. **Mechanical joints with retainer gland and Lok-Set joints are not acceptable unless otherwise specified.**

4. FITTINGS

A. DUCTILE IRON FITTINGS. Ductile Iron Compact Fittings and accessories shall conform to AWWA C153 and Full Body Fittings - and accessories to AWWA C110. Bolts and nuts shall be high strength, corrosion resistant alloy, such as "Cor-Ten" or approved equal.

1. Working Pressures. All fittings and accessories shall be Ductile Iron, rated for a minimum of 14 kg/sq.cm (200 psi) working pressure or as specified herein. The fittings and accessories shall be new and unused. (NOTE: Certain areas of the District's service area require materials used, to be of a higher working pressure than 14 kg/sq.cm (200 psi.))

2. Coating and Lining. The fittings shall be coated outside with a bituminous coating in accordance with ANSI A21.10 (AWWA C110) and lined inside with cement mortar and seal coated in accordance with ANSI A21.4 (AWWA C104).

3. Fittings and Glands. All pipe fittings shall be mechanical joint fittings. Mechanical joints shall conform to AWWA C111.

4. Polyethylene Encasement. Ductile Iron Fittings shall be encased with polyethylene film conforming to ANSI A21.5 (AWWA C105)

B. JOINTS

1. Mechanical. Mechanical joints including accessories shall conform to ANSI A21.11 (AWWA C111). Glands shall be ductile iron. Bolts shall be high strength COR-10 tee head with hex nuts.

2. Flanged. Flanged joints shall meet the requirements of ANSI A21.15 (AWWA C115) OR ANSI B16.1 and be used with the express approval of the Engineer.

   a. Gaskets. All flanged joints shall be furnished with 1/16 inch thick full face red rubber.

b. Bolts. Bolts shall be stainless steel and have American Standard heavy unfinished hexagonal head and nut dimensions all a specified in ANSI B18.2. For bolts of 1-3/4 inches in diameter and larger, bolt studs with a nut on each end are recommended. Material for bolts and nuts shall conform to ASTM A307, Grade B.

3. Restrained. If restrained joints is shown on the plans, all pipe, bends, valves, etc. shall be restrained.

a. Bell and Spigot. Bell and spigot joints shall conform to ANSI A21.6.

5. POLYETHYLENE WRAP

All ductile iron pipe, fittings, valves, and fire hydrant leads shall be polyethylene wrapped, installed according to the current edition of AWWA C105. Ductile iron fittings, valves, and fire hydrant leads used in the installation of P.V.C. pipe shall be included.

A. Material. Polyethylene wrap shall be a minimum of a 8-mil polyethylene tube.

B. Installation. The contractor shall cut the roll in tubes 600 mm (2 feet) longer than a standard length of pipe. Each tube shall be slipped over the length of pipe, centering to allow a 300 mm (1') overlap on each adjacent pipe section. After the lap is made, slack in the tubing shall be taken up for a snug fit and the overlay shall be secured with polyethylene tape.

Pipe shall not be wrapped and stored on site for any period of time, but wrapped and immediately placed in the trench, fittings shall be wrapped prior to installing blocking or pads. (see Standard Drawing #104) Polyvinyl chloride pipe requires no wrap. Odd shaped appurtenances such as valves, tees, fittings, and other ferrous metal pipeline appurtenances shall be wrapped by using a flat sheet of polyethylene. Wrapping shall be done by placing the sheet under the appliances and bringing the edges together, folding twice, and taping down.

6. FIRE HYDRANTS

A. DESCRIPTION. The Contractor shall provide all labor, materials, tools, and equipment required to furnish and install in good workmanlike manner all fire hydrants complete and ready for service where shown on the plans or where directed by the Engineer and as specified herein.

B. FIRE HYDRANTS. Fire hydrants shall conform to AWWA C502. Hydrants shall conform to the standards of the Northern Kentucky Water District as SHOWN on the plans. All fire hydrants shall have auxiliary valves for isolating water flow to the hydrant. All fire hydrants and auxiliary valves shall be positively locked to the water main by restrained joints, hydrant adapters, or other approved method.

Hydrants shall be designed to 14 kg/sq.cm (200 psi) working pressure and shall be shop tested to 21 kg/sq.cm (300 psi) hydrostatic pressure with the main valve both open and closed. The barrel shall have a breakable safety section and/or base bolts just above the ground line. Hydrants shall have a main valve opening of 5 1/4 inches,

a 6 inch mechanical joint inlet to be suitable for setting in a trench 1,000 mm (3' 6") deep minimum, and shall be the traffic style hydrant so that the main valve remains closed when the barrel is broken off. Hydrants shall have a dry top and shall be self draining, when the main valve is closed. Self draining hydrants shall drain to dry wells provided exclusively for that purpose. Hydrant drains shall not be connected to storm or sanitary sewers. Hydrants located generally in the Covington System and other areas determined by the Engineer (flood zones) shall have all drain holes plugged prior to installation. Hydrants shall be rotatable in a minimum of eight (8) position in 360 degrees. All hydrants shall have two (2)- two and one half (2 1/2) inch hose nozzles and one (1) steamer or pumper connection threaded to conform to Northern Kentucky Water District Standards: steamer nozzle shall be National Standard Thread and 2 1/2" outlets shall be Northern Kentucky Water District Standard Thread (Old Cincinnati Thread). The operating nut and the nuts of the nozzle caps shall be square in shape, measuring one (1) inch from side to side. Hydrant body shall be painted yellow for areas designed for 10.5 kg/sq.cm (150 psi) working pressure and red for areas in excess of 10.5 kg/sq.cm (150 psi). Hydrants used in areas in excess of 10.5 kg/sq.cm (150 psi) working pressure shall be designed to operate at the higher pressures and shall have independent operating valves on each 2 1/2" outlet.

All hydrants shall be right hand open, clockwise, except in certain areas of Campbell Co. as specified in Standard Drawings and shall have a direction arrow of operation cast into the dome of the hydrant. Installation per Standard Drawing #109.

C. INSTALLATION. The installation of fire hydrants shall be in conformance with "Mains Installation" section, paragraph "Setting Hydrants".

D. Polyethylene Encasement Fire hydrant tee, anchoring pipe and part of the fire hydrant shoe shall be encased with Polyethylene film conforming to ANSI A21.5 (AWWA C105). .(See Standard Drawing #109)

7. VALVES

A. DESCRIPTION. The Contractor shall provide all labor, materials, tools, and equipment required to furnish and install in good workmanlike manner all valves and accessories complete and ready for service where shown on the plans or where directed by the Engineer and as specified herein.

B. GATE VALVES. Gate valves shall conform to AWWA C509 and shall be cast iron or ductile body, resilient wedge, non-rising stem with rubber "O" ring packing seals. All external dome and packing bolts shall be stainless steel. The valves shall open by turning counter-clockwise. All valves shall have openings through the body of the same circular area as that of the pipe to which they are attached. Valves shall have mechanical joint ends unless otherwise shown on the plans or directed by the District. All valves shall be designed for a working pressure of 250 pounds per square inch (PSI) unless otherwise noted on the plans or in the "Supplemental Specifications". An extension stem shall be furnished if required, to bring the operating nut within 3-1/2 feet of finished grade. Extension stems shall be securely fastened to the valve stem. The Contractor shall make all valves tight under their working pressures after they have been placed and before the main is placed in operation.

C. TAPPING SLEEVES AND VALVES. Tapping sleeves and valves shall be designed for

a working pressure of 250 psi. The tapping sleeve together with the tapping valve shall be tested at 250 psi for visible leakage and pressure drop before the main is tapped. Tapping sleeve and valve used in high pressure areas shall be tested at 350 psi.

1. Tapping Sleeves Tapping sleeves shall be two piece with mechanical joint type ends, and be so designed as to assure uniform gasket pressure and permit centering of the sleeve on the pipe.

2. Tapping Valves Tapping valves shall have a flange on one end for bolting to the tapping sleeve and a mechanical joint type end connection on the outlet with slotted standard flange or other adapters for connection to the tapping machine. All external dome , flange and packing bolts shall be stainless steel. The valves shall open by turning counterclockwise. Tapping valves shall conform to AWWA C509.

D. VALVE BOXES All valves shall be provided with valve boxes. Valve boxes shall be of standard, adjustable, heavy duty cast iron extension type, two piece, 5 1/4 inch shaft, screw type, and of such length as necessary to extend from valve to finished grade, Tyler #562-S, Tyler #564-S or approved equal. Valve box cover shall be stamped "Water". Tops shall be set at final established grade.

E. BUTTERFLY VALVES. Unless otherwise specified valves 16 inches and larger shall be butterfly valves rated at 250 psi working pressure and conform to the applicable portions of AWWA Standard C504, latest edition.

1. Body - The valves shall be AWWA Class 250B designed for tight shut-off against a differential pressure of 250 psi. Valve bodies shall be constructed of ductile iron. Two trunnions for shaft bearing shall be integral with the valve body. The valves and appurtenances shall be suitable for buried service.

2. Ends - Valves shall have mechanical joint ends and shall be furnished with high strength COR-10 tee head with hex nuts, ductile iron glands, and rubber gaskets for each mechanical joint end.

3. Discs - Valve discs of cast steel, fabricated steel, or cast bronze are not acceptable.

4. Seats - Seats bonded on the discs are not acceptable.

5. Shaft Seals - If stuffing boxes are utilized for shaft seals they shall be constructed of cast iron, ASTM A126. Gland assemblies shall be of cast bronze, ASTM B132. The packing gland shall be housed in a solid walled cast iron, ASTM A48, Class 40 one piece structure or equal.

6. Operators - The valve operating mechanism shall be for counterclockwise opening. There shall be no external moving parts on valve or operator except the operator input shaft. Input shaft is to be operated by a 2 inch square operating nut. Maximum required input force on the operator shaft to open and close the valve shall be 40 pounds. The total number of turns applied to the operating nut required to completely open the valve from a completely closed position shall not be less than twice the normal valve diameter. An extension stem shall be furnished to bring the operating nut within 3 1/2 feet of the finished grade. Extension stems shall be securely fastened to the valve stem.

E. VALVE BOXES All valves shall be provided with valve boxes. Valve boxes shall be of standard, adjustable, heavy duty cast iron extension type, two piece, 5 1/4 inch shaft, screw type, and of such length as necessary to extend from valve to finished grade, Tyler #562-S, Tyler #564-S or approved equal. Valve box cover shall be stamped "Water". Tops shall be set at final established grade.

F. AIR RELEASE AND VACUUM VALVES. Air release valves shall be constructed at high points in the water line as indicated on the plans. These valves shall permit the air in the pipeline to escape as the pipe line fills and allows the air to re-enter as the line empties. These valves shall be APCO Air Release Valves Model #200-A, 17.5 kg/sq.cm (250 psi) working pressure, 25 mm (1"), cast iron body and cover. 400 mm (16") and larger water mains shall be a 50 mm (2") air release valve and curb stop. Refer to Standard Drawing #106 for reference.

8. **STEEL CASING PIPE**
Casing pipe shall be steel pipe with a minimum yield strength of 2450 kg/sq.cm (35,000 psi) with a minimum wall thickness as listed below:

Nominal Diameter Casing Pipe	Normal Wall Thickness	Nominal Diameter Casing Pipe	Normal Wall Thickness
Under 350 mm (14")	0.251"	650 mm (26")	0.438"
350 & 400 mm(14"&16")	0.282"	700 & 750 mm(28"&30")	0.469"
450 mm (18")	0.313"	800 mm (32")	0.501"
500 mm (20")	0.344"	850 & 900 mm(34"&36")	0.532"
550 mm (22")	0.375"	950 – 1050mm(38,40&42")	0.563"
600 mm (24")	0.407"	1200 mm (48")	0.626"

The inside diameter of the casing pipe shall be at least 100 mm (4") greater than the outside diameter of the carrier pipe joints. Steel casing sections shall be connected by welding, conforming to AWWA C206.

Adequate pipe spacers shall be installed to ensure that the carrier pipe is adequately supported in the center of the casing pipe throughout it's length, particularly at the ends. There shall not be any metallic contact between the casing and carrier pipe. Casing shall be backfilled with pea gravel or sand after the carrier pipe is installed to prevent pipe movement. Casings shall have both ends sealed up in such a way as to prevent the entrance of foreign material. See Standard Drawing #104 for installation details.

9. **MATERIAL APPROVAL** Material certification and test samples shall be provided by the Contractor, at the contractors expense, as required by Northern Kentucky Water District and the Kentucky Department of Highways. No material shall be used until approved. All rejected material be removed from the project and approved material acquired by the Contractor at the Contractor's expense.

10. **PAVING MATERIALS FOR REPLACEMENT IN KIND** All materials for replacement in kind of streets, sidewalks, curbs, walls etc. shall meet the requirements of the applicable sections of KYDOH Standard Specifications For Road And Bridge Construction.

11. **FLOWABLE FILL** This material shall meet the requirements of SPECIAL NOTE 7X of the Kentucky Department of Highways' Standard Specifications for Road and Bridge Construction.

Section IV
CONSTRUCTION

A. GENERAL Installation of water mains and appurtenances shall conform to the latest edition of AWWA Standard C600 for D.I.P.

Water main pipe and fittings shall be laid on a good level foundation with no gaps or humps under the pipe or fittings. Excavation shall be done by hand at joints to prevent the pipe and fittings from being supported by the mechanical joint or slip joint bell. Pipe shall be laid with the bell ends facing in the direction of laying.

The interior of the pipe shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations. ALL OPEN ENDS ARE TO BE CLOSED WITH CAPS OR PLUGS AT ALL TIMES WHEN PIPE LAYING OPERATIONS ARE NOT IN OPERATION AND AT THE END OF THE DAY. All caps or plugs shall be properly installed and blocked in advance of filling, flushing, and testing mains. All securing and blocking shall be inspected by the Engineer prior to backfilling of ditch.

B. HANDLING. Pipe, fittings, valves, hydrants and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against other pipe. Pipe hooks that extend inside the ends of the pipe shall not be used for handling the pipe since they could damage the lining. Under no circumstances shall such materials be dropped. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign material at all times. When handling P.V.C. pipe care should be taken to avoid abrasion damage, gouging of the pipe, rocks, and any stressing of the bell joints or damage of the bevel ends.

C. TREE REMOVAL. Stumps of trees designated for removal 25 mm (12") in diameter and smaller shall be physically removed. Any stump larger than 25 mm (12") shall be ground down to 15 mm (6") below final grade level.

D. DEWATERING. Should water be encountered, the Contractor shall furnish and operate suitable pumping equipment of such capacity adequate to dewater the trench. The trench shall be sufficiently dewatered so that the laying and joining of the pipe is made in the dry. The Contractor shall convey all trench water to a natural drainage channel or storm sewer without causing any property damage.

E. CONSTRUCTION EQUIPMENT. Where mains are located in or adjacent to pavements, all backfilling and material handling equipment shall have rubber tires. Crawler equipment shall be permitted when there is no danger of damaging pavement.

F. TRENCH SUPPORT. Supporting open cuts for mains shall be the responsibility of the Contractor where trenching may cause unnecessary damage to street pavement, trees, structures, poles, utilities, or other private or public property. During the progress of the work, whenever and wherever it is necessary, the Contractor shall, at his expense, support the sides of the excavation by adequate and suitable sheeting, shoring, bracing, or other approved means. Such trench support material and equipment shall remain in place until backfilling operations have progressed to the point where the supports may be withdrawn without endangering property.

G. NOISE DUST AND ODOR CONTROL. The Contractor's construction activities shall be conducted so as to eliminate all unnecessary noise, dust and odors.

H. DISINFECTION AND LEAKAGE TESTING. See Section "Disinfection and Leakage Testing."

I. TRENCH EXCAVATION AND BOTTOM PREPARATION.

1. General. The Contractor shall perform all excavation of every description and of whatever substances encountered to the depths indicated on the drawings or as otherwise specified. During excavation material suitable for backfilling shall be piled in an orderly manner a sufficient distance form the banks of the trench to avoid overloading and to prevent slides or cave-ins. All excavated materials not required or suitable for backfill shall be removed and wasted at a site acquired by the Contractor and approved by the Engineer. Topsoil shall be stripped from the excavation area before excavation begins.

   Such grading shall be done as may be required to prevent surface water from flowing into trenches or other excavations, and any water accumulating therein shall be removed by pumping or other approved methods. The trench shall be sufficiently dewatered so that the laying and joining of pipe is made in the dry. The Contractor shall take whatever action necessary to insure that water pumped from the trench will not damage private property. If necessary the Contractor shall haul trench water to another suitable location for disposal.

   Such sheeting and shoring shall be furnished and installed by the Contractor, at his own expense, as may be necessary for the protection of the work, protection of other utilities, protection of structures, the safety of the personnel, and the safety of the public. All shoring shall be removed when the work is completed unless directed otherwise by the Engineer. The Contractor shall also furnish whatever barricades or fencing necessary to provide for the safety of pedestrians in excavation areas and for traffic control as discussed in other sections. All open trenches shall be adequately covered, barricaded and/or backfilled during non-working hours in order to adequately protect vehicular and pedestrian traffic.

   The Contractor shall excavate whatever material encountered. Trenches shall be excavated to the widths shown in the table headed "Trench Width" or as otherwise indicated in the plans, and the banks shall be as nearly vertical as practicable. The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each section of the pipe or conduit on undisturbed soil at every point along its entire length, except for bell holes and for the proper sealing of the pipe joints. Bell holes and depressions in order that the pipe rest upon the prepared bottom for as nearly its full length as practicable, shall be only of such length, depth, and width as required for properly making the particular type of joint. Additional depth shall be excavated in rock as described elsewhere herein.

   Except in cases where the elevations of the water lines are indicated on the plans, trenches for water line shall be of a depth that will provide a minimum cover over the top of the pipe of 900 mm (36 inches) from the indicated finished grade, and avoid interference of the water lines with other existing or proposed utilities. Where the note occurs, "Slope to Drain", the Contractor shall manage to keep a positive slope in that

direction in order that air may travel to the air vent. Where paved surfaces are to be disturbed by an open cut, the Contractor shall provide suitable machinery to cut the edges of the pavement in a smooth straight line.

2. Rock The word "rock" wherever used as the name of an excavated material, shall mean boulders and solid masonry larger than .3823 cubic meter (1/2 cubic yard) in volume, or solid ledge rock and masonry which, in the opinion of the Engineer, requires for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power operated hand tool. Any material which can be excavated using a hand pick and shovel, power operated excavator, power operated backhoe or power operated shovel shall not be defined as rock.

3. Blasting Rock. No blasting of rock shall be done within 12 m (40 feet) of pipes or structures without specific permission from the Engineer. Blasts shall be properly covered and the pipe or structure properly protected. Warnings shall be given to all persons in the immediate vicinity. Blasting shall be at the risk of the Contractor who shall be liable for all damages to persons or property. Necessary permits shall be secured and paid for by the Contractor.

4. Trench Width. Widths of trenches shall be held to a minimum to accommodate the pipe and appurtenances. The trench width shall be measured at the top of the pipe barrel and shall conform to the following limits:

Earth

a. Minimum - outside diameter of the pipe barrel plus 200 mm (8 inches), 100 mm (4 inches) each side of pipe.
Maximum - nominal pipe diameter plus 600 mm (24 inches).

Rock

Minimum – 600 mm (24") or less, nominal pipe size: outside diameter of pipe barrel plus 300 mm (12"), @ 150 mm (6") each side.
Minimum - Larger than 600 mm (24"), nominal pipe size: outside diameter of pipe barrel plus 350 mm (18"), @ 325 mm (9") each side.
Maximum - nominal pipe diameter plus 600 mm (24").

b. Butterfly Valves. Trench width shall be over excavated 600 mm (24") on the side that the operating mechanism is located on the butterfly valve when the surrounding area cannot be hand dug.

c. Structures. The minimum excavation limits for structures shall be as indicated. In rock, the excavation limits shall not exceed 300 mm (12 inches) from the outside wall and 150 mm (6 inches) below the footer.

5. Excessive Trench Width. If, for any reason the trench width exceeds the maximum trench width defined in paragraph "Trench Width", the Contractor, subject to approval of the Engineer, shall provide compacted stone bedding, additional strength pipe or concrete encasement, at the contractor expense.

6. Bottom Preparation The Contractor shall use excavation equipment that produces an even foundation. For the entire length of the trench, a compacted layer of sand or bankrun bedding material shall be installed below the pipe. Bell holes and depressions

for joints, valves, and fittings shall be dug after the trench bedding has been graded in order that the pipe rest upon the prepared bedding for as nearly its full length as practicable. Bell holes and depressions shall be only of such length, depth, and width as required for properly making the particular type of joint.

a. Earth. The trench shall be excavated to the depth required, so as to provide a uniform and continuous bearing and support for the pipe barrel. A minimum of a 80 mm (3") sand shall be installed on the solid and undisturbed ground. The finished trench bottom shall be accurately prepared by means of hand tools.

b. Rock. Where excavation is made in rock or boulder, the trench shall be excavated 6 inches below the pipe barrel for pipe 600 mm (24 inches) in diameter or less, and inches for pipe larger than 600 mm (24 inches) in diameter. All loose material shall be removed from the trench bottom. After preparation of the trench bottom, a pipe bed shall be prepared using sand and thoroughly compacted. The bedding material shall be spread the full width of the trench bottom.

7. Water Main Depth. Mains 300 mm (12") and less in size shall be not less than 900 mm (36") in depth and no more than 1,200 mm (48") in depth, unless otherwise specified. Mains larger than 300 mm (12") shall be installed as shown on the plans.

8. Excessive Trench Depth. If, for any reason, the trench depth exceeds the trench depth shown on the Plans, the Contractor is responsible for any and all additional cost incurred for the excessive depth.

9. Foundation. The mains are to be built on a good foundation. If, in the Engineer's opinion, the material forming the trench bottom is not suitable for a good foundation, a further depth shall be excavated and the same filled with suitable material. Unauthorized excavation below the trench bottom shall be filled with compacted crushed stone at the Contractor expense.

J. PIPE, VALVE AND HYDRANT INSTALLATION The provisions of AWWA C600 shall apply in addition to the following:

1. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the work except when permitted by the Engineer. Unless otherwise indicated in the plans or in Section I, Bid Item Explanations, the material shall be new and unused. The interior of the pipe shall be thoroughly cleaned of foreign matter before being lowered into the trench and shall be kept clean during laying operations by plugging or other approved methods. Pipe shall be laid with bell ends facing in the direction of laying, unless otherwise directed by the Engineer. After placing a length of pipe in the trench, the spigot end shall be centered in the bell of the pipe and forced home. All pipe shall be laid with ends abutting and true to line and grade. Deflection of pipe joints in excess of the manufacturer's recommendations will not be permitted. A watertight pipe plug or bulkhead shall be provided and used to prevent the entrance of foreign material whenever pipe laying operations are not in progress. Any pipe that has the grade or joint disturbed after laying shall be taken up and relayed. Any section of pipe found to be defective before of after laying shall be removed and replaced at the Contractor's expense.

2. Pipe Cutting. The cutting of pipe for installing valves, fittings, or hydrants shall be done in a neat and workmanlike manner without damage to the pipe or lining. The end shall be

smooth and at right angles to the axis of the pipe. Flame cutting of metal pipe by means of an oxyacetylene torch shall not be permitted. All pipe cutting shall be at the Contractor's expense.

3. Push-On Joints. The surfaces with which the rubber gaskets comes in contact shall be thoroughly cleaned just prior to assembly. The gasket shall then be inserted into the groove in the bell. Before starting joint assembly, a liberal coating of special lubricant shall be applied to the spigot end. (Special lubricant shall be suitable for use in potable water) With the spigot end centered in the bell, the spigot end is pushed home.

4. Mechanical Joints. Mechanical joints require that the spigot be centrally located in the bell. The surfaces with which the rubber gasket comes in contact shall be thoroughly cleaned just prior to assembly. The clean surfaces shall be brushed with a special lubricant just prior to slipping the gasket over the spigot end and into the bell. (Special lubricant shall be suitable for use in potable water) The lubricant shall also be brushed over the gasket prior to installation to remove the loose dirt and lubricate the gasket as it is forced into its retaining space. P.V.C. pipe spigot ends shall be field cut smooth and at right angles to the axis of the pipe for installation in mechanical joint fittings.
   1. Bolt Torque The normal range of bolt torque to be applied to standard cast iron bolts in a joint are:

Size	Range of Torque in foot-pounds
5/8"	40 - 60
3/4"	60 - 90
1"	70 - 100
1-1/4"	90 - 120

5. Restrained Joints

   a. Ball and Socket. Ball and Socket joints shall be assembled and installed according to the manufacturers recommendations. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener. After installation, all slack shall be taken out of the pipe joint.

   b. Push-On. Assemble and install the push-on joint according to the manufacturer's recommendations. Restrained joint-type pipe and fittings shall only be used as approval by the Engineer. Retaining glands, field lock gaskets, or retaining flanges shall not be considered as providing a restrained joint. The joint shall be thoroughly cleaned and lubricated. Check the retainer ring fastener. After installation, all slack shall be taken out of the pipe joint.

6. Setting Valves. Valves shall be set on a firm solid concrete block foundation so that no load will be transferred to the connecting pipe. Valves in water mains shall, where possible, be located on the street property lines extended, unless otherwise shown on the plans. A valve box shall be provided for every valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the operating nut of the valve. The box cover shall be set flush with the surface of the finished pavement unless otherwise shown. All valves boxes with the exception of isolating valves for fire hydrants that are located in non-paved areas shall have a minimum of 600 mm x 600 mm x 100 mm (2'x2'x4") concrete pad as shown in Standard Drawing No. 105.

7. Setting Hydrants. Hydrants shall be located as shown on the plans or as directed by the Engineer. The location shall provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians. All hydrants shall stand plumb with the pumper nozzle facing the curb. Hydrant shall be set to the established grade, with the traffic flange within 100 mm (4") above final grade in accordance to Standard Drawing No. 109. Each hydrant shall be controlled by an independent gate valve with valve box. All valves used for hydrant control shall be anchored to the branch tee.

8. Thrust Blocking. All bends over five (5) degrees, plugs, caps, and tees shall be securely blocked against movement with concrete thrust blocks placed against undisturbed earth in accordance with Standard Drawing No. 104. Thrust blocks shall be approved by the Engineer prior to backfilling. Water mains shall have concrete thrust block at all pipe intersections and changes of direction to resist forces acting on the pipeline. All concrete thrust blocks shall be poured in such a manner that the bolts can be replaced without disturbing the blocking.

   All caps or plugs used in mains to undergo hydrostatic test shall be properly installed and blocked in advance of testing mains. All caps or plug installations shall be approved by the Engineer's representative before the main is subjected to the pressure test.

   a. Concrete Blocking. Concrete blocking shall be K.D.O.T. Class A concrete as specified in Section "Concrete". Blocking shall be placed between undisturbed ground and the fitting to be anchored. The area of bearing on the fitting and on the ground in each instance shall be that shown herein. The blocking shall, unless otherwise shown, be so placed that the pipe and fitting joints will be accessible for repair.

   b. Tie Rods. If shown or specified, movement shall be prevented by attaching suitable metal rods, clamps or restrained fittings. Steel tie rods or clamps, where permitted, shall be of adequate strength to prevent movement. Steel tie rods or clamps shall be painted with three coats of an approved bituminous paint or coal tar enamel. A minimum of 3/4" welded eye bolts @ a 90 degree bend and 3/4" threaded rods may only be used with the approval of the Engineer for temporary restraint only. Duc-Lucs are prohibited for use.

   c. Restrained Fittings. Restrained fittings, where permitted, shall be subject to the approval of the Engineer.

K. TRENCH BACKFILL

All trench backfill shall be free from cinders, refuse, organic material, boulders, rocks or other material which in the opinion of the Engineer is unsuitable. No backfill shall be made with frozen material.

1. BACKFILL

   a. Trench Bottom Preparation. The pipe shall be bedded on sand to achieve full pipe barrel support. In any event not less than 80 mm (3") of sand bedding shall be used.

   b. Backfill to 300 mm (12") Over Pipe Barrel. All trench excavations shall be backfilled immediately after pipe is laid with the exception of thrust blocks. Compacted sand shall be used to backfill the trench from the bottom of the pipe barrel to the 300 mm

(12") over the pipe barrel. No flushing of backfill shall be permitted to achieve compaction. Clay bulkheads shall be installed as specified under Bulkheads Section.

c. Remaining Trench Backfill. From 300 mm (12") above the pipe barrel to the surface, excavated trench material or flowable fill may be used as backfill material. No material shall be used for backfill that contains frozen earth, vegetation or organic material, debris, rocks **(8")** or larger measured in any direction, or earth with an exceptionally high void content.

d. Compaction. All backfill shall be placed in uniform loose layers, not to exceed 300 mm (12") layers, and each layer shall be compacted to a density not less than 95 percent of the standard Proctor maximum dry density (ASTM D698). The backfill shall be compacted in such a manner and with appropriate equipment so that there is no pipe damage, pipe misalignment or damage to joints. No flushing of backfill shall be permitted to achieve compaction.

e. Bulkheads. When a granular bedding is provided in rock or when granular backfill is used, the Contractor shall place bulkheads of clay soil across the trench at 30.48 m (100') intervals to resist the movement of groundwater through the granular material. Such bulkheads shall be carefully compacted and shall extend approximately 900 mm (3 feet) in a direction parallel to the pipe and shall extend from the bottom of the trench to a point 100 mm (4") below final grade level.

f. Flowable Fill as Backfill As required by the Engineer, flowable fill shall be per Special Note 7X of the Ky. Department of Highways Standard Specifications for Road and Bridge Construction.

g. Surface Conditions. The trench surface shall be periodically attended to during the course of the contract. The trench surface shall be maintained in a safe condition and shall not interfere with natural drainage.

L. INSTALLATION OF PIPE BY BORING OR JACKING. At certain locations where designated on the plans, the Contractor will be required to install pipe under paved areas or other obstacles by boring a hole large enough to pull the pipe through without obstructing the designated area, or by jacking, whichever is the most feasible.

M. WATER METERS Water Meters shall be installed at locations shown on the plans. The meter shall be constructed as shown on Standard Drawings contained herein or in the plans.

N. CONNECTIONS (TIE-INS) TO EXISTING WATER LINES All connections to existing water lines shall be made at location shown on the plans. Care shall be taken in each case that none of the sterilizing water may enter the system during the sterilizing operation. Each connection shall be preceded with a one inch corporation stop and drain to allow bleeding of the water line of air and sterilizing water. This corporation stop shall be furnished and installed at the Contractor's expense. All sections of pipe and appurtenances to be used for tie-ins and not sterilized, shall be thoroughly cleaned by scrubbing with a chlorine solution prior to installation. All tie-ins of mains shall be done with transitional or straight solid sleeves. Mains shall be flushed of sterilizing water before tie-ins to existing mains are made.

O. INSTALLATION OF SERVICE LINES Service line shall be installed as shown on the plans or as directed. The Contractor shall excavate whatever material encountered. The service

lines shall be installed using boring and jacking or open cut (as specified on the plans) at the depth required to clear existing and proposed sewers, but in no case shall the line be installed with less than 900 mm (36") cover from final grade. The trench width shall be as excavated to a maximum of 600 mm (2'). The line shall be laid on firm soil. In rock, sufficient extra depth shall be excavated and refilled with acceptable compacted soil or bedding sand to provide a cushion for the elimination of the possibility of crushing or perforating the pipe. Connections shall be made using normal practices for water line installation and in accordance with the standards in the plans or contained herein. Backfill shall meet the same requirements as that described in PIPE TRENCH BACKFILL.

P. TEMPORARY SERVICE CONNECTIONS Contractor shall furnish, install, make connections, and maintain all temporary lines and other appurtenances necessary to run temporary service connections as needed to permit construction. All temporary service pipes crossing streets, commercial driveways, and/or wheelchair ramps must be buried to prevent a traffic/pedestrian hazard.

The pipe, hoses and other materials furnished by the Contractor for use as temporary service pipe, shall be clean, water-tight and fully adequate to withstand existing pressures and all other conditions of use.. Care shall be exercised throughout the installation of all temporary pipe and service fittings to avoid any possible contamination of any mains or house services or contamination of the temporary pipe proper. Contractor must disinfect all temporary line. All temporary lines must be flushed before being hooked to service line.

The Contractor shall be responsible for the regularly testing and recording the chlorine level of the temporary lines. If low levels are encountered, the Contractor shall be responsible for flushing the line to get levels into standard. The Contractor shall perform all connecting and disconnecting of temporary bypass to consumers' services and all back clearing of service lines.

The Contractor shall maintain the temporary water service line in safe and operative condition at all times. Any temporary bypass lines or services crossing a sidewalk or driveway shall be temporarily covered with a rubber ramp provided by the Contractor or bituminous cold patch, compacted by a roller or a mechanical compaction device, provided by the Contractor. Ramping method must be approved by the District prior to use. The Contractor shall be responsible for the maintenance of the temporary ramping method and any damage as a result there-of.

Q. **APPLICABLE SPECIFICATIONS & STANDARDS**

The following specifications and standards form a part of these Specification:

A. **American Water Works Association** (AWWA) Standards
B. **Northern Kentucky Water District** Standards Drawing & Specifications – current edition
C. "Manual of Accident Prevention in Construction" published by the **Associated General contractors of America**
D. **Kentucky Occupational Safety and Health Administration's** "Kentucky Occupational Safety and Health Standards for General Industry" current edition.
E. **American National Standards Institute** (ANSI)
F. **American Society for Testing & Materials** (ASTM)
G. **Kentucky Division of Water Quality**
H. **"Recommended Standards for Water Works"** current edition

Section V
DISINFECTION AND LEAKAGE TEST

A. SCOPE. This section covers the disinfection of the new water mains, fittings, temporary services and associated appurtenances. The Contractor shall provide all labor, materials, tools, equipment, and incidentals required to test the mains for watertightness and disinfect the mains as directed by the District and as specified herein. Gauges for the test shall be furnished by the Contractor.

B. TEST SECTION. After the main has been installed and backfilled all newly installed pipe or any valved section thereof shall be considered a test section.

C. WITNESS. All tests performed for each test section shall be witnessed and approved by the District before acceptance. In the event the Contractor performs any test without witness by the District, the Contractor will be required to test the section again in conformance with this specification at no cost to the District.

D. GENERAL. All disinfection work shall conform to the requirements of the latest revision of ANSI/AWWA C651 and the requirements of the Kentucky Division of Water. If any State requirements conflict with the provisions of this section, the State requirements shall govern.

Water required for flushing and disinfection work will be provided as stipulated in the temporary facilities.

When it is necessary to interrupt service to water customers, each customer affected shall be notified in advance of the proposed service interruption and its probable duration in accordance with the project requirements.

E. DISINFECTION PROCEDURE. During construction or after the installation of the pipe and fittings is complete, an approved disinfection method, according to governing standards, shall be used. The disinfection solution shall be allowed to stand in the main and associated appurtenances for a period of at least twenty-four (24) hours.

During disinfection, all valves, hydrants, and service line connections shall be operated to ensure that all appurtenances are disinfected. Valves shall be manipulated in such a manner that the strong disinfection solution in the main from flowing back into the supply line. Check valves shall be used if required.

All non-disinfected fittings used for tie-ins or repairs shall be cleaned and swabbed with a liquid sodium hypochlorite disinfecting solution prior to installation.

F. FINAL FLUSHING. Upon completion of chlorination but before sampling and bacteriological testing, Contractor shall remove all heavily chlorinated water from the main and temporary services by flushing with potable water at the maximum velocity which can be developed under the direction and control of the District.

The Contractor shall properly neutralize and dispose of the chlorinated water and flushing water in accordance with all applicable regulations. Contractor shall obtain all special waste disposal permits necessary.

G. DISPOSAL OF HEAVILY CHLORINATED WATER. Contractor shall apply a de-chlorinating agent to the water to be wasted to neutralize thoroughly the chlorine residual remaining in the water. (See the following table for neutralizing chemicals.) Federal, state, and local regulatory agencies should be contacted to determine special provisions for disposal of heavily chlorinated water.

Chlorine residual of water being disposed of shall be de-chlorinated by treating with one of the chemicals listed in the following table:

Pounds of Chemicals Required to De-chlorinate Various Residual Chlorine Concentrations in 100,000 Gallons of Water*

Residual Chlorine Concentration *mg/L*	Sulfur Dioxide (SO_2)	Sodium Bisulfate (NaHSO3)	Sodium Sulfite (Na_2SO_3)	Sodium Thiosulfate ($Na_2S_2O_3@5H_2O$)
1	0.8	1.2	1.4	1.2
2	1.7	2.5	2.9	2.4
10	8.3	12.5	14.6	12.0
50	41.7	62.6	73.0	60.0

* Except for residual chlorine concentration, all amounts are in pounds.

The Contractor shall provide all necessary materials, equipment and labor for applying the de-chlorinating chemical in a manner such that proper mixing and contact time of the chemical and the heavily chlorinated water is obtained for complete removal of chlorine being flushed. The Contractor shall periodically test the flush water to verify that the chlorine residual is zero.

H. CHLORINE RESIDUAL TESTS. Upon completion of final flushing, the District will perform chlorine residual tests to ensure the chlorine residual in the main and temporary services is not higher than that generally prevailing in the remainder of the water distribution system and is acceptable to the District.

I. BACTERIOLOGICAL TESTS. Sampling and testing of water in the main and temporary services will be performed by the District after final flushing. A standard plate count will be made by the District for each sample.

J. REDISINFECTION. Should the bacteriological tests indicate the presence of coliform organisms at any sampling point, the main and temporary services shall be re-flushed, re-sampled, and re-tested. If check samples show the presence of coliform organisms, the main and temporary services shall be re-chlorinated at no additional cost to the District until results acceptable to the District are obtained.

Re-disinfection shall be completed by the continuous feed or by the slug method. Unless otherwise permitted, the chlorination agent shall be injected into the main and temporary services at the supply end through a corporation cock installed in the top of the pipe. All materials, equipment and labor necessary for the re-disinfection shall be

supplied by Contractor at no additional cost to the District.

K. HYDROSTATIC TESTING. Hydrostatic Testing will be in accordance with AWWA C600. The water main being tested shall have all air expelled by additional flushing or installation of taps on high points in the line. The pressure of the water main shall be gradually increased to obtain a minimum pressure of 7.0 kg/sq.cm (100 psi) over the design pressure 17.5 kg/sq.cm (250 psi). at the lowest elevation point of the water main or as directed by the Engineer. The test will be for a two (2) hour duration and will not vary by more than .35 kg/sq.cm (5 psi). All tests performed for each test section shall be witnessed and approved by a representative of the Engineer, in the event any test is performed without a representative of the Engineer, the Contractor shall be required to test the section again. Leakage is defined as the amount of water used to maintain the test pressure.

Section VI
VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL

1. REFERENCE MATERIALS Traffic shall be maintained in accordance with the "Manual on Uniform Traffic Control" published by the Federal Highway Administration, current edition of Kentucky Department of Highways Standard Specifications for Road & Bridge Construction and current KYDOH Standard Drawings.

2. PEDESTRIAN TRAFFIC Should the Contractor be required to remove sidewalk or any other pavement used by pedestrians, the Contractor shall construct an approved, safe, alternate route with acceptable paving materials. Approval for alternate routes and temporary paving materials shall be acquired form the Engineer. The Contractor shall also construct temporary barricades and fences as required. No extra payment will be made for construction of temporary pedestrian walkways, fences or barricades required for water line construction, but shall be considered incidental to water line construction.

3. VEHICULAR TRAFFIC Vehicular traffic shall be maintained as required by the referenced materials listed above. The cost of all temporary paving materials for pavement restoration due to water line construction shall be considered incidental to the contract. The cost for all traffic control materials including signs, barricades, etc. shall be considered incidental to the contract. The Contractor shall be required to keep the construction area safe at all times and check that traffic control devices are in place. Should temporary paving materials used for water line construction fail to perform satisfactorily, the Contractor shall repair same at his own expense.

Section VII
TEMPORARY AND PERMANENT RESTORATION

1. TEMPORARY RESTORATION Any street, driveway, parking lot, sidewalk, stairs, walls, etc. disturbed by water line construction which is shown on roadway construction plans to be disturbed by roadway construction may be replaced with temporary materials. These temporary materials and their placement shall be approved by the Engineer prior to placement. The cost for temporary paving materials and their placement shall be considered incidental to the cost of water line construction.

2. PERMANENT RESTORATION Any street, driveway, parking lot, sidewalk, walls, shrubs, etc. disturbed by water line construction, which is shown on roadway construction plans to remain and not be disturbed by roadway construction, shall be replaced in kind. The concrete, asphalt, and stone removed shall be replaced with the same type material, the same thickness as that removed. All pavement shall be removed and replaced to 300 mm (1') beyond the limits of excavation as detailed on drawing contained herein. These permanent materials and their placement shall be approved by the Engineer prior to placement. The Contractor shall reconstruct same to the original lines and grades and in such a manner as to leave all such items in fully as good or better condition than that which existed prior to construction. All restoration work shall conform to the requirements of KDOH Standard Specifications for Road and Bridge Construction and to the drawing for pavement restoration contained herein. The cost for this permanent restoration shall be considered incidental to the cost of the water line construction.

3. SEEDING AND SODDING This work shall be performed under bid items pertaining to same for roadway construction and in accordance with KDOH Standard Specifications for Road and Bridge Construction

Section VIII
METHOD OF MEASUREMENT AND BASIS OF PAYMENT

A. METHOD OF MEASUREMENT

1. Ductile Iron Water Line, each type and size, shall be measured by the linear feet laid in the trench, along the center line of the pipe, thru valves and fittings, to point of contact with existing lines, excluding any portion in concrete encasement or used in water main offsets.

2. Service Pipe, all sizes, shall be measured by the linear feet laid in the trench, excluding meter settings, from water main or existing service line to existing service line.

3. Water Line Undercut, when directed by the Engineer shall be measured along the subgrade for length and width and from pipe subgrade or bottom of fill, if in a fill placed for roadway as a pat of this same contract, to bottom of undercut. Water line undercut shall be measured and paid by the cubic feet.

4. Method of Measurement For All Other Items, shall be by each or lump sum as specified for that particular item in "SECTION I, BID ITEM EXPLANATIONS" contained herein.

B. BASIS OF PAYMENT

1. Excavation, for water lines from the surface to water line subgrade or to 150 mm (6") below water line subgrade in rock, for structures, for service lines, or for any other water system item will not be a bid item but shall be considered incidental to the bid item to which it pertains. No additional payment will be made for rock excavation.

2. Water Line Undercut, when directed by the Engineer and/or ND, shall be paid by the cubic yard. The accepted quantities of water line undercut will be paid at the agreed unit price of $15.00 per cubic yard, which shall also include acquisition and placement of acceptable refill material. Should the Contractor be directed to perform water line undercut, the item "Water Line Undercut" at the agreed unit price of $15.00 per cubic yard shall be added to the contract by change order.

3. Water Main Fittings, shall be paid EACH, couplings in tie-ins and all fittings in offsets shall be considered incidental to those items.

4. Backfill, for all phases of water line construction shall not be paid separately but shall be considered incidental to water line construction.

5. Temporary Restoration, of streets, roadways, sidewalks, steps, walls, trees, shrubs, etc. shall be considered incidental to water line construction when damaged by water line construction. The cost for this temporary restoration shall be considered incidental to the cost of the water line construction.

6. Traffic Control and Maintenance of Traffic, for a water line construction shall not be paid separately but shall be considered incidental to water line construction.

7. Basis of Payment for all Other Items, shall be by linear meter, each, or lump sum as specified for that particular item.

N O T I C E

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
(INDIVIDUAL PERMIT AUTHORIZATION)

PROJECT: Campbell County, Item No. 06-0046.20
US-27 Major Widening

The Section 404 activities for this project have been permitted under the authority of the Department of the Army Individual Permit. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Individual Permit in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the Corps of Engineers. A copy of any request to the Corps of Engineers to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

AUG 0 3 2007

DEPARTMENT OF THE ARMY PERMIT

Permittee: **Kentucky Transportation Cabinet (KTC)**

Permit Number: LRL-2006-1337

Issuing Office: **U.S. Army Engineer District, Louisville**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: In association with the widening of US 27, KTC will place approximately 992,080 cubic yards of earthen material (resulting from hillside cuts and road grading) within four (4) preferred fill areas. These four preferred fill areas, referred to as Area 1, 2, 3 & 4, contain five (5) stream channels, referred to as S1, S2, S3, S4 & S5, and one (1) jurisdictional open water body, referred to as Pond 1. See Figures 1 &2 in the attached plans.

Project Location: The aforementioned four (4) preferred fill areas, which are located near US 27 in Campbell County, Kentucky.

Permit Conditions:

General Conditions:

1. The time limit for completing the authorized activity ends on **July 30, 2010**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification from this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

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

Special Conditions:

a. That a total of **$250,620.00** be paid to Northern Kentucky University's In-Lieu Fee Stream and Wetland Restoration Program prior to impacts to "waters of the United States." The $250,620.00 shall be paid in the following three (3) payment amounts:

- **$63,780.00 (Paid prior to impacts to the S1 ephemeral stream channel).**
- **$77,040.00 (Paid prior to impacts to the S1 & S2 ephemeral stream channels).**
- **$109,800.00 (Paid prior to impacts to the S4 & S5 ephemeral stream channels and the P1 pond).**

These payments shall be documented and the Louisville District shall be provided with a copy of the documentation within **thirty (30) days** of the payments.

b. The permittee shall comply with the conditions of the Section 401 Water Quality Certification (WQC), issued by the Kentucky Division of Water (KDOW) on December 18, 2006, copy attached.

c. The permittee shall install sediment traps (at least one at the downstream end of the intermittent stream channels prior to stream impacts) to trap disturbed sediments and reduce impacts downstream.

d. Erosion control fencing (either commercial fabric silt curtains or bound straw bales) must be installed to prevent disturbed sediments from impacting areas downstream. These fences should be installed in all areas of construction susceptible to erosion and be maintained throughout construction.

e. Re-vegetate cleared areas, with suitable ground cover-type grasses (such as wheat, rye, etc.) upon completion of construction.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(x) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give you favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

David M. Walden — 7/31/07

(PERMITTEE) *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

8/7/07

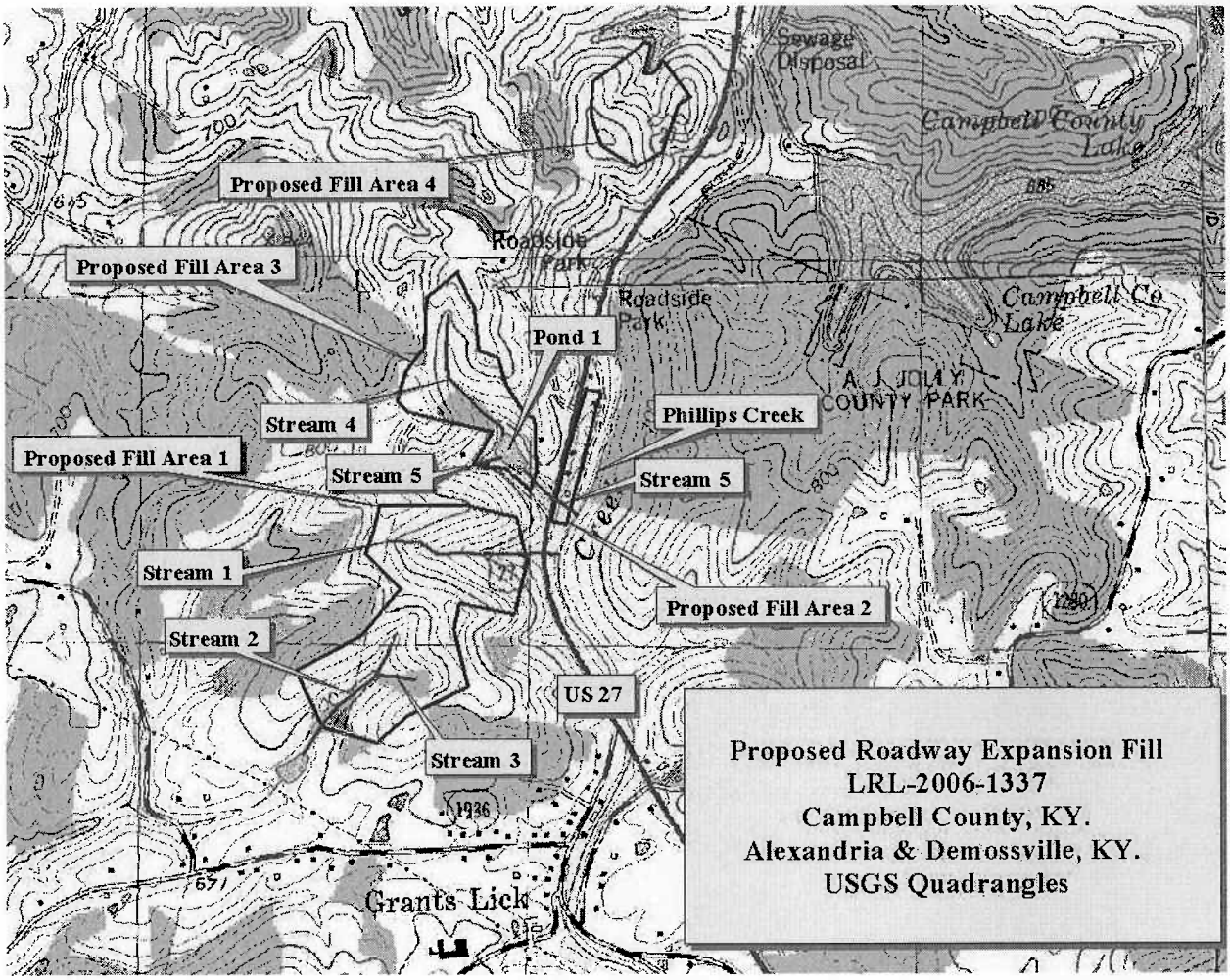
(COMMANDER AND DISTRICT ENGINEER) *(DATE)*

BY: *Michael D. Hasty*
Regulatory Project Manager
Regulatory Branch

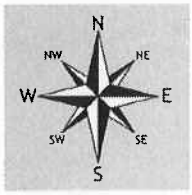
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

ID# LRL-2006-1337
Overburden Fill Areas Associated with US 27 Widening.
Figure 1



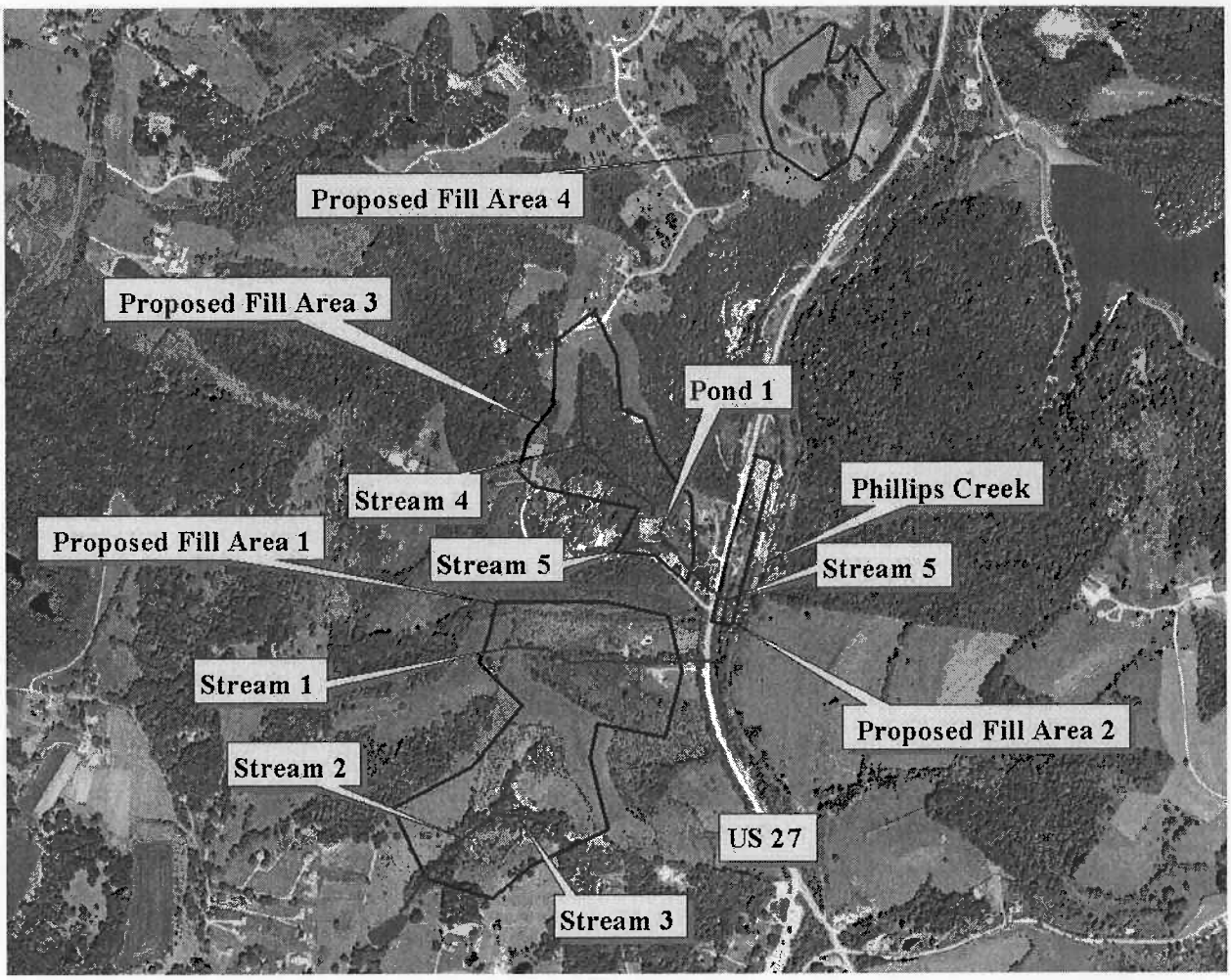
"Not To Scale"



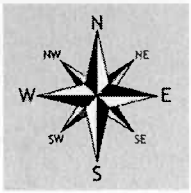
Proposed Project Location

Campbell County, Kentucky

ID# LRL-2006-1337
Overburden Fill Areas Associated with US 27 Widening.
Figure 2



"Not To Scale"



Project Location

Alexandria & Demossville, KY. USGS Quadrangles
Campbell County, Kentucky

ADDRESSES FOR COORDINATING AGENCIES

Mr. Ronald Mikulak
Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303

Mr. David W. Morgan
Environmental and Public Division of Water
Division of Water
14 Reilly Road
Frankfort, KY 40601

Ms. Jennifer M. Garland
Department for Environmental Protection
Division of Water
14 Reilly Road
Frankfort, KY 40601

Dr. Jonathan W. Gassett
Commissioner
Department of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, KY 40601

Mr. Billy P. Hartsell, PE
State Conservation Engineer
U.S. Department of Agriculture
Natural Resources Conservation Service
771 Corporate Drive, Suite 210
Lexington, KY 40503-5479

Mr. David L. Morgan
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Ms. Sara Sanders
DSMRE/Division of Permits
#2 Hudson Hollow, US 127 South
Frankfort, KY 40601

Mr. Lee Andrews, Field Supervisor
Frankfort Field Office
U.S. Fish and Wildlife Service
3761 Georgetown RoadFrankfort, KY 40601

US ARMY CORPS OF ENGINEERS
LOUISVILLE DISTRICT
REGULATORY BRANCH
P. O. BOX 59
LOUISVILLE, KY 40201-0059
(502) 315-6733

COMPLETION REPORT

COE ID No. _____ **Date.** _____

Permittee Name: _____
Corporate Name: _____
Address: _____
_____
_____
City **State** **Zip Code**
Telephone No. _____

Agent Name: _____
Corporate Name: _____
Address: _____
_____
_____
City **State** **Zip Code**
Telephone No. _____

Location Description: _____
_____
_____

County _____ **State** _____

Linear Feet of Stream Impact: _____ **Acres of Wetland Impact:** _____

Has all the work on this project been completed according to plans, specifications, and conditions of the permit? Yes_____ No_____

If not, explain: _____
_____
_____
_____
_____
_____
_____
_____

_____
Permittee Signature

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059
http://www.lrl.usace.army.mil/

December 2, 2008

Operations Division
Regulatory Branch (South)
ID No. LRL-2006-1337-mdh

Mr. John Purdy
Kentucky Transportation Cabinet (KTC)
Department of Highways, Division of Environmental Analysis
200 Mero Street
Frankfort, KY 40622

Dear Mr. Purdy:

This is in regard to your September 16, 2008, letter requesting a modification to Department of the Army (DA) Permit # LRL-2006-1337-mdh. This permit authorized the placement of excess, overburden fill material within 4,050 linear feet of five unnamed tributaries of Phillips Creek and 0.14 of an acre of one open water body. The excess spoil material is associated with the widening of US 27 in Campbell County, Kentucky. The road construction is authorized under DA permit # 200300766.

Specifically, your letter requested a time extension for the completion of the authorized construction activities. This requested modification is approved. The new time limit for completing the authorized activity ends on **December 10, 2011.**

All other conditions of the original permit remain in full force and effect.

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

If we can be of any further assistance, please contact us at the above address, ATTN: CELRL-OP-FS, or call me at 502-315-6676.

FOR THE DISTRICT ENGINEER:

Michael Hasty
Regulatory Project Manager
Regulatory Branch

Enclosure

ADDRESSES FOR COORDINATING AGENCIES

Mr. Ronald Mikulak
Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303

Ms. Sandra Gruzesky, Director
Environmental and Public Division of Water
Division of Water
14 Reilly Road
Frankfort, KY 40601

Mr. Alan Grant
Department for Environmental Protection
Division of Water
14 Reilly Road
Frankfort, KY 40601

Dr. Jonathan W. Gassett
Commissioner
Department of Fish and Wildlife Resources
#1 Game Farm Road
Frankfort, KY 40601

Mr. Billy P. Hartsell, PE
State Conservation Engineer
U.S. Department of Agriculture
Natural Resources Conservation Service
771 Corporate Drive, Suite 210
Lexington, KY 40503-5479

Mr. David L. Morgan
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Ms. Sara Sanders
DSMRE/Division of Permits
#2 Hudson Hollow, US 127 South
Frankfort, KY 40601

Mr. Lee Andrews, Field Supervisor
Frankfort Field Office
U.S. Fish and Wildlife Service
3761 Georgetown Road
Frankfort, KY 40601

SPECIAL NOTE FOR MITIGATION COST BID ITEM

This Special Note will apply to all Department projects involving earthwork. Section references herein are to the Department's 2004 Standard Specifications for Road and Bridge Construction.

1.0 Description: Pay all mitigation costs associated with completing work for this project as detailed in the contract documents. Furnish documentation from all applicable regulatory agencies that appropriate approvals have been obtained and all fees associated with completing the project have been paid prior to starting work.

2.0 Mitigation Cost Fee Amount: The final amount for the fees to be paid to the applicable regulatory agencies will be determined by the Contractor, in conjunction with applicable regulatory agency. As a part of this contract, the Department has provided a list of known regulatory agencies for which a fee for a permit or some other agreement has been established. The permits and other agreements listed have been obtained in the Department's name. This list is for information only. The contractor is responsible for determining which permits and agreements are necessary in order to construct the project in accordance with the contract documents. It is the intent of this approach to allow the contractor the freedom to utilize his own unique approach to a project to minimize potential environmental impacts resulting from construction activities and receive credit for this through the use of this bid item.

3.0 Projects With No Provisions Made For Excess Material and Borrow Sites Included in the Plans: The contractor is advised that it is their responsibility to gain U.S. Army Corp of Engineer's approval before utilizing a waste or borrow site that involves "Waters of the United States". "Waters of the United States" are defined as perennial or jurisdictional waters, and are typically dry except during rainfall, but have a defined drainage channel. Questions concerning any potential impacts to "Waters…" should be brought to the attention of the appropriate District Office for Corps of Engineers for determination, prior to disturbance. Any fees associated with obtaining approval from the U.S. Army Corps of Engineers or other appropriate regulatory agencies for waste and borrow sites are the responsibility of the contractor.

4.0 Projects With Provisions Made For Excess Material and Borrow Sites Included in the Plans: As a part of this project, the Department has obtained U.S. Army Corp of Engineer permits required to place excess material resulting from construction activities at locations identified in the contract documents. These sites may or may not be owned by the Department. These sites may or may not be of sufficient size to place all excess material resulting from construction activities or provide all borrow material necessary to construct the project. It is the contractor's responsibility to construct the project in accordance with the contract documents. The pre-permitting of these sites is intended as an aid to the contractor to assist in completing the project in a timely fashion. Please see the project proposal, plans, and standard specifications for any grading and construction requirements for each site. The Corp permits that have been obtained are in the Department's name. Unless otherwise noted in the contract documents, no use other than placement of excess material have been made a part of the permits obtained at these sites. Any variations in the intended use for the excess material sites, as outlined in the contract documents, would be classified as a "change in use" and is subject to Department review and approval. Upon preliminary approval by the Department for a "change in use" for an excess material site, the contractor may explore other uses for the site with the understanding that the Corp permit the Department has obtained for placement of excess material at this location will be transferred from the Department's to the Contractor's name. If the U.S. Army Corp of Engineer will not agree to transfer the permit from the Department's to the Contractor's name, any preliminary approvals given by the Department will be rescinded. By accepting transfer of the Corp permit for an excess material site to the Contractor's name, the Contractor agrees to accept all responsibility for complying with the current Corp permit as well as any modifications that may be required as a part of the "change in use". All provisions identified in this note for excess material sites are also applicable to borrow sites. No additional contract time will be allowed for this process.

5.0 Measurement: The Department will measure this quantity by the lump sum. Payment for all mitigation costs associated with completing work for this project as detailed in the contract documents will be included. Furnish documentation from all applicable regulatory agencies that appropriate approvals have been obtained and all fees associated with completing the project have been paid prior to starting work is incidental to this item.

6.0 Payment: The Department will pay for Mitigation Cost at the contract unit price as follows: The Department will pay 75% of the Bid Item on the first estimate. The final 25% will be paid when the Department receives all documentation necessary to verify the appropriate regulatory agencies have been paid and the permits or other agreements have been approved by said agencies.

Earthwork Mitigation Permit Summary
US-27 Major Widening
Design Item No. 06-0046.20
Campbell County, KY

This summary is a supplement to the "Special Note for Earthwork Mitigation". Please refer to the special note for additional information regarding contractual requirements for this bid item. A summary of the permits associated with this project are as follows:

Impact Item	Estimated Capacity	In-Lieu Fee
Area #1 (S1)	**320,000 m^3**	**$63,780.00**
Area #1 Remainder (S2 & S3)	**400,000 m^3**	**$77,040.00**
Area #2	**111,000 m^3**	**$0.00**
Area #3 (S4, S5 & P1)	**200,000 m^3**	**$109,800.00**
Area #4	**85,200 m^3**	**$0.00**
Area #5	**25,000 m^3**	**$0.00**
Area #6	**2,000 m^3**	**$0.00**
Area #7	**24,000 m^3**	**$0.00**
	Total	**$250,620.00**

As per the "Special Note for Earthwork Mitigation", the maximum allowable bid amount for the Earthwork Mitigation Bid item is $250,620.00. Any bid in excess of this amount for this item shall not be allowed. Any Bid Proposal received for which the Earthwork Mitigation Bid Item is in excess of this amount will be considered irregular and the Department shall reject the Bid Proposal in its entirety. The successful bidder is encouraged to work with both Kentucky Transportation Cabinet and the U.S. Army Corp to find ways to lessen the impacts of this project and thus reduce any in lieu fees required. Section 404 and 401 activities for this project have been permitted under the authority of the Department of the Army Individual Permit and KY Division of Water Individual Water Quality Certification. These two permits cover stream impacts associated with the roadway construction as well as the 7 preferred or optional waste area sites. **The contractor shall be required to pay the associated in-lieu fee to the Northern Kentucky Stream Corridor Restoration Fund for use of any of the 7 preferred or optional waste areas.**

N O T I C E

DIVISION OF WATER

WATER QUALITY CERTIFICATION

PROJECT: Campbell County, Item No. 06-0046.20
US-27 Major Widening

The Division of Water has approved the Section 401 activities for this project by issuance of a Water Quality Certification. In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Water Quality Certification in a conspicuous location at the project site for the duration of construction and comply with the general conditions as required.

To more readily expedite construction, the contractor may elect to alter the design or perform the work in a manner different from what was originally proposed and specified. Prior to commencing such alternative work, the contractor shall obtain **written** permission from the Division of Construction and the appropriate permit agency. A copy of any request to alter this proposal and subsequent responses shall be forwarded to the Division of Environmental Analysis, DA Permit Coordinator, for office records and for informational purposes.

ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

Teresa J. Hill
SECRETARY

December 18, 2006

Mr. David Waldner, Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, KY 40622

Re: Water Quality Certification # 2006-0208-1,
US 27 – Campbell County; Southern Section
USACE Public Notice No.: 200300766
AI No.: 81876, Activity ID: APE20060001,
Unnamed tributaries to Phillips and Plum Creeks
Campbell County, Kentucky

Dear Director Waldner:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 5, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference AI No. 81876. **The attached document is your official Water Quality Certification, please read it carefully**. If you should have any questions concerning the conditions of this water quality certification, please contact Barbara Scott of my staff by calling (502) 564-3410.

Sincerely,

Jennifer Garland

Jennifer Garland, Supervisor
Water Quality Certification Section
Division of Water

JG:BJS:tw
Attachment
cc: Lee Anne Devine, USACE: Louisville
Stephanie Fulton, USEPA: Atlanta
Lee Andrews, USFWS: Frankfort
Ronald Rigney, KYTC: Frankfort
BHE Environmental, Inc., 11733 Chesterdale Road, Cincinnati, Ohio 45246-4131
Lajuanda Haight-Maybriar, KDOW: Frankfort

CAMPBELL COUNTY
ARRA 0272(109)

KTC Water Quality Certification

KTC - US 27 Campbell Co
Facility Requirements
Permit Number:WQC #2006-0208-1
Activity ID No.: APE20060001

AAZZ1 (CWA Section 401 WQC) Item 6-46.20: US-27 South Section Widening :

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: - The loss of 812 linear feet of unnamed tributaries to Plum Creek due to piping (Sites 1-3) - The loss of 5,470 linear feet of unnamed tributaries to Phillips Creek due to piping (Sites 4-18) - The loss of 1,333 linear feet of an unnamed tributary to Phillips Creek due to relocation (Site 7+150 to 7+450) - The loss of 4,177 linear feet of unnamed tribuaries to Phillips Creek due to fill from excess material (Streams S1 to S5). [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the Water Quality Certification application dated September 19, 2006. [Clean Water Act]
T-3	The Kentucky Division of Water (KDOW) requires mitigation for 605 linear feet of stream impacts associated with Sites 5 and 6. Mitigation for these impacts shall be the payment of $60,500 in lieu fee to the Northern Kentucky University Stream Corridor Restoration Fund. This payment has already been made in association with WQC#2004-0035-1. No additional mitigation is required. [Clean Water Act]
T-4	The applicant is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]
T-5	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-6	If construction does not commence within two years of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-7	Other permits may be required from the Division of Water for this project. If this project takes place within the floodplain, a permit may be required from the Water Resources Branch. The contact person is Ali Daneshmand. If this project will disturb one acre or more of land, a KPDES general storm water permit will be required from the KPDES Branch. The contact person is Ronnie Thompson. Both can be reached at 502/564-3410. [Clean Water Act]

Contract ID: 091045
Page 135 of 252

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

Ernie Fletcher
Governor

Division of Water
14 Reilly Road
Frankfort, Kentucky 40601-1190
www.kentucky.gov

LaJuana S. Wilcher
Secretary

ATTENTION APPLICANT

If your project involves one or more of the following activities, you may need more than one permit from the Kentucky Division of Water.

***building in a floodplain *road culvert in a stream**
***streambank stabilization *stream cleanout**
***utility line crossing a stream**
***construction sites greater than 1 acre**

- **Construction sites greater than 1 acre will require the filing of a Notice of Intent to be covered under the KPDES General Stormwater Permit. This permit requires the creation of an erosion control plan.**
  Contact: Ronnie Thompson

- **Projects that involve filling in the floodplain will require a floodplain construction permit from the Water Resources Branch.**
  Contact: Ali Daneshmand

- **Projects that involve work IN a stream, such as bank stabilization, road culverts, utility line crossings, and stream alteration will require a floodplain permit and a Water Quality Certification from the Division of Water.**
  Contact: Jenni Garland

All three contacts listed above can be reached at 502/564-3410. A complete listing of environmental programs administered by the Kentucky Department for Environmental Protection is available from Pete Goodmann by calling 502/564-3410.

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.

3. In areas not riprapped or other wise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.

4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.

5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.

6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.

7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.

8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

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

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

October 27, 2008

David M. Waldner, Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, KY 40622

Re: Water Quality Certification #2006-0208-1R
US 27 - Campbell Co
RENEWAL
USACE Public Notice No.: 200300766
AI No.: 81876
Activity ID: APE20060001
Unnamed tributaries to Phillips and Plum Creek
Campbell County, Kentucky

Dear Mr. Waldner:

Pursuant to Section 401 of the Clean Water Act (CWA), the Commonwealth of Kentucky certifies it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 5, established pursuant to Sections 301, 302, 303, 304, 306, and 307 of the CWA, will not be violated by the above referenced project provided that the U.S. Army Corps of Engineers authorizes the activity under 33 CFR part 330, and the attached conditions are met.

All future correspondence on this project must reference **AI No. 81876**. **The attached document is your official Water Quality Certification; please read it carefully**. If you should have any questions concerning the conditions of this water quality certification, please contact Adam Jackson of my staff by calling (502) 564-3410.

Sincerely,

Alan Grant

Alan Grant, Supervisor
Water Quality Certification Section
Kentucky Division of Water

AG:AJ:aj
Attachment
cc: Lee Anne Devine, USACE: Louisville District
Lee Andrews, USFWS: Frankfort
John Purdy, KYTC
Lajuanda Haight-Maybriar, Licking River Basin Coordinator

CAMPBELL COUNTY
ARRA 0272(109)

KTC Water Quality Certification

KTC - US 27 Campbell Co
Facility Requirements
Permit Number: WQC 2006-0208-1R
Activity ID No.: APE20060001

AAZZ1 (CWA Section 401 WQC) Item 6-46.20: US-27 RENEWAL :

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: - The loss of 812 linear feet of unnamed tributaries to Plum Creek due to piping (Sites 1-3) - The loss of 5,470 linear feet of unnamed tributaries to Phillips Creek due to piping (Sites 4-18) - The loss of 1,333 linear feet of an unnamed tributary to Phillips Creek due to relocation (Site 7+150 to 7+450) - The loss of 4,177 linear feet of unnamed tribuaries to Phillips Creek due to fill from excess material (Streams S1 to S5). [Clean Water Act]
T-2	All work performed under this certification shall adhere to the design and specifications set forth in the Water Quality Certification application dated September 19, 2006. [Clean Water Act]
T-3	The Kentucky Division of Water (KDOW) requires mitigation for 605 linear feet of stream impacts associated with Sites 5 and 6. Mitigation for these impacts shall be the payment of $60,500 in lieu fee to the Northern Kentucky University Stream Corridor Restoration Fund. This payment has already been made in association with WQC#2004-0035-1. No additional mitigation is required. [Clean Water Act]
T-4	The applicant is responsible for preventing degradation of waters of the Commonwealth from soil erosion. An erosion and sedimentation control plan must be designed, implemented, and maintained in effective operating condition at all times during construction. [Clean Water Act]
T-5	The Division of Water reserves the right to modify or revoke this certification should it be determined that the activity is in noncompliance with any condition set forth in this certification. [Clean Water Act]
T-6	If construction does not commence within two years of the date of this letter, this certification will become void. A letter requesting a renewal should be submitted. [Clean Water Act]
T-7	Other permits may be required from the Division of Water for this project. If this project takes place within the floodplain, a permit may be required from the Water Resources Branch. The contact person is Ron Dutta. If this project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a KPDES stormwater permit shall be required from the KPDES Branch. The contact person is Allen Ingram. Both can be reached at 502/564-3410. [Clean Water Act]

Contract ID: 091045
Page 139 of 252

STEPHEN L. BESHEAR
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

ROBERT D. VANCE
SECRETARY

ATTENTION APPLICANT

If your project involves one or more of the following activities, you may need more than one permit from the Kentucky Division of Water.

***building in a floodplain *road culvert in a stream**
***streambank stabilization *stream cleanout**
***utility line crossing a stream**
***construction sites greater than 1 acre**

- **Construction sites greater than 1 acre will require the filing of a Notice of Intent to be covered under the KPDES General Stormwater Permit. This permit requires the creation of an erosion control plan.**
  Contact: Allen Ingram

- **Projects that involve filling in the floodplain will require a floodplain construction permit from the Water Resources Branch.**
  Contact: Ron Dutta

- **Projects that involve work IN a stream, such as bank stabilization, road culverts, utility line crossings, and stream alteration will require a floodplain permit and a Water Quality Certification from the Division of Water.**
  Contact: Alan Grant

All three contacts listed above can be reached at (502) 564-3410. A complete listing of environmental programs administered by the Kentucky Department for Environmental Protection is available from Pete Goodmann by calling (502) 564-3410.

GENERAL CONDITIONS FOR WATER QUALITY CERTIFICATION

1. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering the watercourse.

2. All dredged material shall be removed to an upland location and/or graded on adjacent areas (so long as such areas are not regulated wetlands), to obtain original streamside elevations, i.e. overbank flooding shall not be artificially obstructed.

3. In areas not riprapped or other wise stabilized, revegetation of stream banks and riparian zones shall occur concurrently with project progression. At a minimum, revegetation will approximate pre-disturbance conditions.

4. To the maximum extent practicable, all instream work under this certification shall be performed during low flow.

5. Heavy equipment, e.g. bulldozers, backhoes, draglines, etc., if required for this project, should not be used or operated within the stream channel. In those instances where such instream work is unavoidable, then it shall be performed in such a manner and duration as to minimize resuspension of sediments and disturbance to substrates and bank or riparian vegetation.

6. Any fill or riprap including refuse fill, shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If riprap is utilized, it is to be of such weight and size that bank stress or slump conditions will not be created because of its placement.

7. If there are water supply intakes located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when work will be done.

8. Removal of existing riparian vegetation should be restricted to the minimum necessary for project construction.

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

Kentucky Transportation Cabinet

Highway District 6

And

_____(2), Construction

Kentucky Pollutant Discharge Elimination System
Permit KYR10
Best Management Practices (BMP) plan

Groundwater protection plan

For Highway Construction Activities

For

US 27 in Campbell County

Project: PCN ## -
Item 06-46.20

KyTC BMP Plan for Project PCN ## -

Project information

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

1. Owner – Kentucky Transportation Cabinet, District 6

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 27 in Campbell County, KY between Racetrack Road and KY 154

6. Latitude/Longitude (project mid-point) dd/mm/ss, dd/mm/ss 38^52'08.26" north, 84^23'40.40" west

7. County (project mid-point) Campbell County

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

9. Projected completion date: (2)

A. Site description:

1. Nature of Construction Activity (from letting project description) Complete Reconstruction

2. Order of major soil disturbing activities (2) and (3)

3. Projected volume of material to be moved 1,430,000 Cubic Yards

4. Estimate of total project area (acres) 298 Acres

5. Estimate of area to be disturbed (acres) 298 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. 0.5

7. Data describing existing soil condition (2)

8. Data describing existing discharge water quality (if any) (2)

9. Receiving water name, Clarks 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 : N/A

C. Other Control Measures

1. No solid materials, including building materials, shall be discharged to waters of the commonwealth, except as authorized by a Section 404 permit.

2. Waste Materials

All waste materials that may leach pollutants (paint and paint containers, caulk tubes, oil/grease containers, liquids of any kind, soluble materials, etc.) will be collected and stored in appropriate covered waste containers. Waste containers shall be removed from the project site on a sufficiently frequent basis as to not allow wastes to become a source of pollution. All personnel will be instructed regarding the correct procedure for waste disposal. Wastes will be disposed in accordance with appropriate regulations. Notices stating these practices will be posted in the office.

3. Hazardous Waste

All hazardous waste materials will be managed and disposed of in the manner specified by local or state regulation. The contractor shall notify the Resident Engineer if there any hazardous wastes being generated at the project site and how these wastes are being managed. Site personnel will be instructed with regard to proper storage and handling of hazardous wastes when required. The Transportation Cabinet will file for generator, registration when appropriate, with the Division of Waste Management and advise the contractor regarding waste management requirements.

4. Spill Prevention

The following material management practices will be used to reduce the risk of spills or other exposure of materials and substances to the weather and/or runoff.

➢ **Good Housekeeping:**

The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough product required to do the job
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacturer
- Whenever possible, all of the product will be used up before disposing of the container
- Manufacturers' recommendations for proper use and disposal will be followed
- The site contractor will inspect daily to ensure proper use and disposal of materials onsite

➢ **Hazardous Products:**

These practices will be used to reduce the risks associated with any and all hazardous materials.

- Products will be kept in original containers unless they are not resealable
- Original labels and material safety data sheets (MSDS) will be reviewed and retained
- Contractor will follow procedures recommended by the manufacturer when handling hazardous materials
- If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed

The following product-specific practices will be followed onsite:

➢ **Petroleum Products:**

Vehicles and equipment that are fueled and maintained on site will be monitored for leaks, and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products onsite will be stored in tightly sealed containers, which are clearly labeled and will be protected from exposure to weather.

The contractor shall prepare an Oil Pollution Spill Prevention Control and Countermeasure plan when the project that involves the storage of petroleum products in 55 gallon or larger containers with a total combined storage capacity of 1,320 gallons. This is a requirement of 40 CFR 112.

This project (will / will not) (3) have over 1,320 gallons of petroleum products with a total capacity, sum of all containers 55 gallon capacity and larger.

- **Fertilizers:**

Fertilizers will be applied at rates prescribed by the contract, standard specifications or as directed by the resident engineer. Once applied, fertilizer will be covered with mulch or blankets or worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

- **Paints:**

All containers will be tightly sealed and stored indoors or under roof when not being used. Excess paint or paint wash water will not be discharged to the drainage or storm sewer system but will be properly disposed of according to manufacturers' instructions or state and local regulations.

- **Concrete Truck Washout:**

Concrete truck mixers and chutes will not be washed on pavement, near storm drain inlets, or within 75 feet of any ditch, stream, wetland, lake, or sinkhole. Where possible, excess concrete and wash water will be discharged to areas prepared for pouring new concrete, flat areas to be paved that are away from ditches or drainage system features, or other locations that will not drain off site. Where this approach is not possible, a shallow earthen wash basin will be excavated away from ditches to receive the wash water

- **Spill Control Practices**

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturers' recommended methods for spill cleanup will be clearly posted. All personnel will be made aware of procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area. Equipment and materials will include as appropriate, brooms, dust pans, mops, rags, gloves, oil absorbents, sand, sawdust, and plastic and metal trash containers.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contract with a hazardous substance.

- Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
- The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
- Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

D. Other State and Local Plans

This BMP plan shall include any requirements specified in sediment and erosion control plans, storm water management plans or permits that have been approved by other state or local officials. Upon submittal of the NOI, other requirements for surface water protection are incorporated by reference into and are enforceable under this permit (even if they are not specifically included in this BMP plan). This provision does not apply to master or comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials.

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.

F. Inspections

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

- All erosion prevention and sediment control measures will be inspected at least once each week and following any rain of one-half inch or more.
- Inspections will be conducted by individuals that have received KyTC Grade Level II training or other qualification as prescribed by the cabinet that includes instruction concerning sediment and erosion control.
- Inspection reports will be written, signed, dated, and kept on file.
- Areas at final grade will be seeded and mulched within 14 days.
- Areas that are not at final grade where construction has ceased for a period of 21 days or longer and soil stock piles shall receive temporary mulch no later than 14 days from the last construction activity in that area.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported.
- Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- Sediment basins will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 70 percent of the design capacity and at the end of the job.
- Diversion dikes and berms will be inspected and any breaches promptly repaired. Areas that are eroding or scouring will be repaired and re-seeded / mulched as needed.
- Temporary and permanent seeding and mulching will be inspected for bare spots, washouts, and healthy growth. Bare or eroded areas will be repaired as needed.
- All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

G. Non – Storm Water discharges

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

- Water from water line flushings.
- Water 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.

KyTC BMP Plan for Project PCN ## - ####

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

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

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

KyTC BMP Plan for Project PCN ## -

Contractor and Resident Engineer Plan certification

The contractor that is responsible for implementing this BMP plan is identified in the Project Information section of this plan.

The following certification applies to all parties that are signatory to this BMP plan:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Further, this plan complies with the requirements of 401 KAR 5:037. By this certification, the undersigned state that the individuals signing the plan have reviewed the terms of the plan and will implement its provisions as they pertain to ground water protection.

Resident Engineer and Contractor Certification:

(2) Resident Engineer signature

Signed _____title_____, _____
Typed or printed name[2] signature

(3) Signed _____title_____, _____
Typed or printed name[1] signature

1. Contractors Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

2. KyTC note: to be signed by the Chief District Engineer or a person designated to have the authority to sign reports by such a person (usually the resident engineer) in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601 Reference the Project Control Number (PCN) and KPDES number when one has been issued.

Sub-Contractor Certification

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

Subcontractor

Name:
Address:
Address:

Phone:

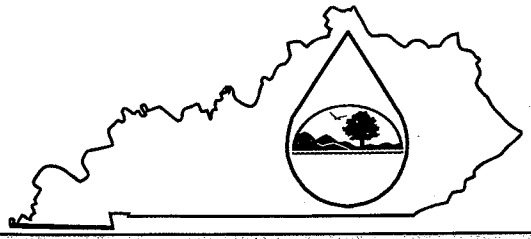
The part of BMP plan this subcontractor is responsible to implement is:

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

Signed _____title_____, _____
Typed or printed name[1] signature

1. Sub Contractor Note: to be signed by a person who is the owner, a responsible corporate officer, a general partner or the proprietor or a person designated to have the authority to sign reports by such a person in accordance with 401 KAR 5:060 Section 9. This delegation shall be in writing to: Manager, KPDES Branch, Division of Water, 14 Reilly Road, Frankfort Kentucky 40601. Reference the Project Control Number (PCN) and KPDES number when one has been issued.

KPDES FORM NOI-SW



Kentucky Pollutant Discharge Elimination System (KPDES)

Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity Under the KPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a KPDES permit issued for storm water discharges associated with industrial activity. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM (See Instructions on back)

I. Facility Operator Information

Name:	Kentucky Transportation Cabinet District 6	**Phone:**	-8593412700
Address:	421 Buttermilk Pike	**Status of Owner/Operator:**	Government Agency
City, State, Zip Code:	Covington, KY, 41071		

II. Facility/Site Location Information

Name:	KYTC ##-##, Item 06-046.20		
Address:	US 27		
City, State, Zip Code:	Alexandria, KY 41001		
County:	Campbell		
Site Latitude: (degrees/minutes/seconds)	38^52'08.26" N	**Site Longitude: (degrees/minutes/seconds)**	84^23'40.40" W

III. Site Activity Information

MS4 Operator Name:							
Receiving Water Body:	Phillips Creek						
Are there existing quantitative data?	**Yes** ☐ **If Yes, submit with this form.** **No** ☒						
SIC or Designated Activity Code Primary	**1611**	**2nd**		**3rd**		**4th**	
If this facility is a member of a Group Application, enter Group Application Number:							
If you have other existing KPDES Permits, enter Permit Numbers:							

IV. Additional Information Required FOR CONSTRUCTION ACTIVITIES ONLY

Project Start Date:		**Completion Date:**	
Estimated Area to be disturbed (in acres):	298		
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?	**Yes** ☒ **No** ☐		

V. 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, 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.

Printed or Typed Name:			
Signature:		**Date:**	

Revised June 1999

Kentucky Pollutant Discharge Elimination System (KPDES)
Instructions
Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity
To Be Covered Under The KPDES General Permit

WHO MUST FILE A NOTICE OF INTENT (NOI) FORM
Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the **Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410.**

WHERE TO FILE NOI FORM
NOIs must be sent to the following address:

Section Supervisor
Inventory & Data Management Section
KPDES Branch, Division of Water
Frankfort Office Park
14 Reilly Road
Frankfort, KY 40601

COMPLETING THE FORM
Type or print legibly in the appropriate areas only. If you have any questions regarding the completion of this form call the **Storm Water Contact, Industrial Section, at (502) 564-3410.**

SECTION I - FACILITY OPERATOR INFORMATION
Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal M = Public (other than federal or state)
S = State P = Private

SECTION II - FACILITY/SITE LOCATION INFORMATION
Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code.

SECTION III - SITE ACTIVITY INFORMATION
If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)

If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges. If data is available submit with this form.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other KPDES permits presently issued for the facility or site listed in Section II, list the permit numbers.

SECTION IV - ADDITIONAL INFORMATION REQUIRED FOR CONSTRUCTION ACTIVITIES ONLY
Construction activities must complete Section IV in addition of Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

SECTION V - CERTIFICATION
Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer,which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authroity to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, state, Federal, or other public facility: by either a principal executive officer or ranking elected official.

SYP8162
28 APR 2008

KENTUCKY TRANSPORTATION CABINET
COMMUNICATING ALL PROMISES (CAP)
ACTIVE

Item No. 6 - 46.2 **Project Mgr.** MIKE BEZOLD

County CAMPBELL **Route** US-27

CAP #	Date of Promise	Promise made to:	Location of Promise
1	09-JUL-07	Brad Eldridge	Highway Design

CAP Description

THE CONTRACTOR IS RESPONSIBLE, WITH HELP FROM KYTC, TO ACQUIRE A LAND DISTURBANCE PERMIT THROUGH SANITATION DISTRICT #1 BEFORE WORK CAN BEGIN.

2	16-APR-08	KYTC- DEA	Project Length

CAP Description

CAP ENTRY NUMBER 1 CONCERNING SANITATION DISTRICT #1 LAND DISTURBANCE PERMITS, DOES NOT APPLY TO THIS PROJECT.

PART II

SPECIFICATIONS AND STANDARD DRAWINGS

SPECIFICATIONS REFERENCE

Any reference in the plans or proposal to the *Standard Specifications for Road and Bridge Construction, Edition of 2004*, and *Standard Drawings, Edition of 2000* are superseded by *Standard Specifications for Road and Bridge Construction, Edition of 2008* and *Standard Drawings, Edition of 2003 with the 2008 Revision.*

Supplemental Specifications to The Standard Specifications for Road and Bridge Construction, 2008 Edition

(Effective with the May 22, 2009 Letting)

SUBSECTION; **REVISION:**	101.03 Definitions. Replace the definition for Specifications – *Special Provisions* with the following: Additions and revisions to the Standard and Supplemental Specifications covering conditions peculiar to and individual project.
SUBSECTION: **REVISION:**	102.07.01 General. Replace the first sentence with the following: Submit the Bid Proposal on forms furnished on the Department internet website (http://transportation.ky.gov/contract/), including the Bid Packet and disk created from the Expedite Bidding Program.
SUBSECTION: **REVISION:**	102.07.02 Computer Bidding. Replace the first paragraph with the following: Subsequent to ordering a Bid Proposal for a specific project, use the Department's Expedite Bidding Program on the internet website of the Department of Highways, Division of Construction Procurement (http://transportation.ky.gov/contract/). Download the bid file from the Department's website to prepare a Bid Proposal for submission to the Department. Include the completed Bid Packet produced by the Expedite Bidding Program in the Bid Proposal and submit it along with the disk created by said program. Replace the second paragraph with the following: In case of a dispute, the printed Bid Proposal and bid item sheets created by the Expedite Bidding Program take precedence over any bid submittal.
SUBSECTION: **REVISION:**	102.08 IRREGULAR BID PROPOSALS. Replace point four of the first paragraph with the following: 4) fails to submit a disk created from the Expedite Bidding Program. Replace point one of the second paragraph with the following: 1) when the Bid Proposal is on a form other than that furnished by the Department or printed from other than the Expedite Bidding Program, or when the form is altered or any part is detached; or
SUBSECTION: **REVISION:**	103.02 AWARD OF CONTRACT. Replace the first sentence of the third paragraph with the following: The Department will normally award the Contract within 10 working days after the date of receiving Bid Proposals unless the Department deems it best to hold the Bid Proposals of any or all bidders for a period not to exceed 60 calendar days for final disposition of award.

Supplemental Specifications to The Standard Specifications for Road and Bridge Construction, 2008 Edition

(Effective with the May 22, 2009 Letting)

SUBSECTION: **REVISION:**	105.12 FINAL INSPECTION AND ACCEPTANCE OF WORK. Insert the following paragraphs after the first paragraph: Notify the Engineer when all electrical items are complete. A notice of the electrical work completion shall be made in writing to the Contractor. Electrical items will be inspected when the electrical work is complete and are not subject to waiting until the project as a whole has been completed. The Engineer will notify the Division of Traffic Operations within 3 days that all electrical items are complete and ready for a final inspection. A final inspection will be completed within 90 days after the Engineer notifies the Division of Traffic Operations of the electrical work completion. Energize all electrical items prior to notifying the Engineer that all electrical items are complete. Electrical items must remain operational until the Division of Traffic Operations has inspected and accepted the electrical portion of the project. Payment for the electrical service is the responsibility of the Contractor from the time the electrical items are energized until the Division of Traffic Operations has accepted the work. Complete all corrective work within 90 calendar days of receiving the original electrical inspection report. Notify the Engineer when all corrective work is complete. The Engineer will notify the Division of Traffic Operations that the corrective work has been completed and the project is ready for a follow-up inspection. Upon re-inspection, if additional corrective work is required, complete within the same 90 calendar day allowance. The Department will not include time between completion of the corrective work and the follow up electrical inspection(s). The 90 calendar day allowance is cumulative regardless of the number of follow-up electrical inspections required. The Department will assume responsibility for the electrical service on a project once the Division of Traffic Operations gives final acceptance of the electrical items on the project. The Department will also assume routine maintenance of those items. Any damage done to accepted electrical work items by other Contractors shall be the responsibility of the Prime Contractor. The Department will not be responsible for repairing damage done by other contractors during the construction of the remaining project. Failure to complete the electrical corrective work within the 90 calendar day allowance will result in penalties assessed to the project. Penalties will be assessed at ½ the rate of liquidated damages established for the contract. Delete the fifth paragraph from the section.
SUBSECTION: **REVISION:**	105.13 CLAIM RESOLUTION PROCESS. Delete the last paragraph from the section.
SUBSECTION: **REVISION:**	106.10 FIELD WELDER CERTIFICATION REQUIREMENTS. Insert the following sentence before the first sentence of the first paragraph: All field welding must be performed by a certified welder unless otherwise noted.
SUBSECTION: **PART:** **REVISION:**	112.03.11 Temporary Pavement Markings. B) Placement and Removal of Temporary Striping. Replace the 2nd sentence of the fist paragraph with the following: On interstates and parkways, and other roadways approved by the State Highway Engineer, install pavement striping that is 6 inches in width.
SUBSECTION: **REVISION:**	112.03.12 Project Traffic Coordinator (PTC). Add the following at the end of the subsection: After October 1, 2008 the Department will require the PTC to have successfully completed the applicable qualification courses. Personnel that have not successfully completed the applicable courses by that date will not be considered qualified. Prior to October 1, 2008, conform to Subsection 108.06 A) and ensure the designated PTC has sufficient skill and experience to properly perform the task.

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SUBSECTION: **REVISION:**	206.03.02 Embankment Replace the last paragraph with the following: When rock roadbed is specified, construct the upper 2 feet of the embankment according to Subsection 204.03.09 A).
SUBSECTION: **REVISION:**	213.03.03 Inspection and Maintenance. Insert the following paragraph after the second paragraph: When the Contractor is required to obtain the KPDES permit, it is their responsibility to ensure compliance with the inspection and maintenance requirements of the permit. The Engineer will perform verification inspections a minimum of once per month and within 7 days of a ½ inch or greater rainfall event. The Engineer will document these inspections using Form TC 63-61 A. The Engineer will provide copies of the inspection only when improvements to the BMP's are required. Verification inspections performed by the Engineer do not relieve the Contractor of any responsibility for compliance with the KPDES permit. Initiate corrective action within 24 hours of any noted deficiency and complete the work within 5 days.
SUBSECTION: **PART:** **REVISION:**	213.03.05 Temporary Control Measures. F) Temporary Mulch. Replace the last sentence with the following: Place temporary mulch to an approximate 2-inch loose depth (2 tons per acre) and anchor it into the soil by mechanically crimping it into the soil surface or applying tackifier to provide a protective cover. Regardless of the anchoring method used, ensure the protective cover holds until disturbance is required or permanent controls are in installed.
SUBSECTION: **REVISION:**	303.05 PAYMENT. Replace the second paragraph of the section with the following: The Department will make payment for Drainage Blanket-Type II (ATDB) according to the Lot Pay Adjustment Schedule for Specialty Mixtures in Section 402.
SUBSECTION: **PART:** **REVISION:**	401.02.04 Special Requirements for Dryer Drum Plants. F) Production Quality Control. Replace the first sentence with the following: Stop mixing operations immediately if, at any time, a failure of the automatic electronic weighing system of the aggregate feed, asphalt binder feed, or water injection system control occurs.
SUBSECTION: **REVISION:**	401.02.04 Special Requirements for Dryer Drum Plants. Add the following: Part G) **Water Injection System.** Provided each system has prior approval as specified in Subsection 402.01.01, the Department will allow the use of water injection systems for purposes of foaming the asphalt binder and lowering the mixture temperature for production of Warm Mix Asphalt (WMA). Ensure the equipment for water injection meets the following requirements: 1) Injection equipment computer controls are automatically coupled to the plants controls (manual operation is not permitted); 2) Injection equipment has variable controls that introduce water ratios based on production rates of mixtures; 3) Injects water into the flow of asphalt binder prior to contacting the aggregate; 4) Provides alarms on the water injection system that operate when the flow of water is interrupted or deviates from the prescribed water rate.
SUBSECTION: **REVISION:**	401.03.01 Preparation of Mixtures. Replace the last sentence of the second paragraph with the following: Do not use asphalt binder while it is foaming in a storage tank.

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SUBSECTION: 401.03.01 Preparation of Mixtures.
REVISION: Replace the third paragraph and Mixing and Laying Temperature table with the following:

Maintain the temperature of the component materials and asphalt mixture within the ranges listed in the following table:

MIXING AND LAYING TEMPERATURES (°F)			
Material		Minimum	Maximum
Aggregates		240	330
Aggregates used with Recycled Asphalt Pavement (RAP)		240	—
Asphalt Binders	PG 64-22	230	330
	PG 76-22	285	350
Asphalt Mixtures at Plant (Measured in Truck)	PG 64-22 HMA	250	330
	PG 76-22 HMA	310	350
	PG 64-22 WMA	230	275
	PG 76-22 WMA	250	300
Asphalt Mixtures at Project (Measured in Truck When Discharging)	PG 64-22 HMA	230	330
	PG 76-22 HMA	300	350
	PG 64-22 WMA	210	275
	PG 76-22 WMA	240	300

SUBSECTION: 402.01 Description.
REVISION: Replace the paragraph with the following:

Provide the process control and acceptance testing of all classes and types of asphalt mixtures which may be furnished either as hot mix asphalt (HMA) or warm mix asphalt (WMA) produced with water injection systems.

SUBSECTION 402.01.01 Warm Mix Asphalt (WMA) Evaluation and Approval.
REVISION: Add the following subsection:

402.01.01 Warm Mix Asphalt (WMA) Evaluation and Approval.
The Department will evaluate trial production of WMA by use of a water injection system provided the system is installed according to the manufacturer's requirements and satisfies the requirements of Section 401. Evaluation will include production and placement of WMA to demonstrate adequate mixture quality including volumetric properties and density by Option A as specified in Subsection 402.03.02 D). Do not place WMA for evaluation on Department projects. Provided production and placement operations satisfy the applicable quality levels, the Department will approve WMA production on Department projects using the water injection system as installed on the specific asphalt mixing plant evaluated.

SUBSECTION: 402.05.02 Asphalt Mixtures and Mixtures With RAP.
REVISION: Replace Subsection Title as below:

402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.

SUBSECTION: 402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.
REVISION: Replace the paragraph with the following:

The Department will pay for the mixture at the Contract unit bid price and apply a Lot Pay Adjustment for each lot placed based on the degree of compliance with the specified tolerances. Using the appropriate Lot Pay Adjustment Schedule, the Department will assign a pay value for the applicable properties within each sublot and average the sublot pay values to determine the pay value for a given property for each lot. The Department will apply the Lot Pay Adjustment for each lot to a defined unit price of $50.00 per ton. The Department will calculate the Lot Pay Adjustment using all possible incentives and disincentives but will not allow the overall pay value for a lot to exceed 1.00.

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SUBSECTION: 402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.
PART: C) Conventional and RAP Mixtures Placed on Shoulders.
REVISION: Replace title with the following:

HMA, WMA, and RAP Mixtures Placed on Shoulders.

SUBSECTION: 402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.
PART: D) Conventional and RAP Mixtures Placed Monolithically as Asphalt Pavement Wedge.
REVISION: Replace the title with the following:

HMA, WMA, and RAP Mixtures Placed Monolithically as Asphalt Pavement Wedge.

SUBSECTION: 402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.
PART: Lot Pay Adjustment Schedule, Compaction Option A, Base and Binder Mixtures
TABLES: VMA
REVISION: Replace the VMA table with the following:

VMA	
Pay Value	Deviation From Minimum
1.00	≥ min. VMA
0.95	0.1-0.5 below min.
0.90	0.6-1.0 below min.
(1)	> 1.0 below min.

SUBSECTION: 402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.
PART: Lot Pay Adjustment Schedule, Compaction Option A, Surface Mixtures
TABLES: VMA
REVISION: Replace the VMA table with the following:

VMA	
Pay Value	Deviation From Minimum
1.00	≥ min. VMA
0.95	0.1-0.5 below min.
0.90	0.6-1.0 below min.
(1)	> 1.0 below min.

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SUBSECTION: 402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.
PART: Lot Pay Adjustment Schedule, Compaction Option B Mixtures
TABLE: VMA
REVISION: Replace the VMA table with the following:

VMA	
Pay Value	Deviation From Minimum
1.00	≥min. VMA
0.95	0.1-0.5 below min.
0.90	0.6-1.0 below min.
(2)	> 1.0 below min.

SUBSECTION: 403.03.03 Preparation of Mixture.
PART: C) Mix Design Criteria.
NUMBER: 1) Preliminary Mix Design.
REVISION: Replace the last two sentences of the paragraph and table with the following:

Complete the volumetric mix design at the appropriate number of gyrations as given in the table below for the number of 20-year ESAL's. The Department will define the relationship between ESAL classes, as given in the bid items for Superpave mixtures, and 20-year ESAL ranges as follows:

		Number of Gyrations		
Class	**ESAL's (millions)**	$N_{initial}$	N_{design}	N_{max}
2	< 3.0	6	50	75
3	3.0 to < 30.0	7	75	115
4	≥ 30.0	8	100	160

SUBSECTION: 403.03.09 Leveling and Wedging, and Scratch Course.
PART: A) Leveling and Wedging.
REVISION: Replace the first sentence of the first paragraph with the following:

Conform to the gradation requirements (control points) of AASHTO M 323 for base, binder, or surface as the Engineer directs.

SUBSECTION: 403.03.09 Leveling and Wedging, and Scratch Course.
PART: B) Scratch Course.
REVISION: Replace the second sentence of the first paragraph with the following:

Conform to the gradation requirements (control points) of AASHTO M 323 for base, binder, or surface as the Engineer directs.

SUBSECTION: 407.01 DESCRIPTION.
REVISION: Replace the first sentence of the paragraph with the following:

Construct a pavement wedge composed of a hot-mixed or warm-mixed asphalt mixture.

SUBSECTION: 409.01 DESCRIPTION.
REVISION: Replace the first sentence of the paragraph with the following:

Use reclaimed asphalt pavement (RAP) from Department projects or other approved sources in hot mix asphalt (HMA) or warm mix asphalt (WMA) provided mixture requirements are satisfied.

SUBSECTION: 410.01 DESCRIPTION.
REVISION: Delete the second sentence of the paragraph.

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SUBSECTION: 410.03.01 Corrective Work.
REVISION: Replace the last sentence of the paragraph with the following:

Provide a final surface comparable to the adjacent pavement that does not require corrective work in respect to texture, appearance, and skid resistance.

SUBSECTION: 410.03.02 Ride Quality.
PART: B) Requirements.
NUMBER: 1) Category A.
REVISION: Replace the last sentence of the first paragraph with the following:

At the Department's discretion, a pay deduction of $1200 per 0.1-lane-mile section may be applied in lieu of corrective work.

SUBSECTION: 410.03.02 Ride Quality.
PART: B) Requirements.
NUMBER: 2) Category B.
REVISION: Replace the second and third sentence of the first paragraph with the following:

When the IRI is greater than 90 for a 0.1-mile section, perform corrective work, or remove and replace the pavement to achieve the specified IRI. At the Department's discretion, a pay deduction of $750 per 0.1-lane-mile section may be applied in lieu of corrective work.

SUBSECTION: 410.05 PAYMENT.
REVISION: Add the following sentence to the end of the first paragraph:

The sum of the pay value adjustments for ride quality shall not exceed $0 for the project as a whole.

SUBSECTION: 413.05.02 CL3 SMA BASE 1.00D PG76-22.
REVISION: Insert the following sentence between the first and second sentence of the first paragraph:

The Department will calculate the Lot Pay Adjustment using all possible incentives and disincentives but will not allow the overall pay value for a lot to exceed 1.00.

SUBSECTION: 413.05.02 CL3 SMA BASE 1.00D PG 76-22.
TABLE: JOINT DENSITY TABLE
REVISION: Replace the joint density table with the following:

LANE DENSITY	
Pay Value	Test Result (%)
1.05	95.0-96.5
1.00	93.0-94.9
0.95	92.0-92.9 or 96.6-97.0
0.90	91.0-91.9 or 97.1-97.5
(1)	< 91.0 or > 97.5

SUBSECTION: 413.05.03 CL3 SMA SURF 0.50A PG76-22 and CL3 SMA SURF 0.38A PG76-22.
REVISION: Insert the following sentence between the first and second sentence of the first paragraph:

The Department will calculate the Lot Pay Adjustment using all possible incentives and disincentives but will not allow the overall pay value for a lot to exceed 1.00.

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SUBSECTION: 413.05.03 CL3 SMA SURF 0.50A PG76-22 and CL3 SMA SURF 0.38A PG76-22.
TABLE: JOINT DENSITY TABLE
REVISION: Replace the joint density table with the following:

DENSITY		
Pay Value	Lane Density Test Result (%)	Joint Density Test Result (%)
1.05	95.0-96.5	92.0-96.0
1.00	93.0-94.9	90.0-91.9
0.95	92.0-92.9 or 96.6-97.0	89.0-89.9 or 96.1-96.5
0.90	91.0-91.9 or 97.1-97.5	88.0-88.9 or 96.6-97.0
0.75	----	< 88.0 or > 97.0
(1)	< 91.0 or > 97.5	----

SUBSECTION: 501.05.02 Ride Quality.
REVISION: Add the following sentence to the end of the first paragraph:

The sum of the pay value adjustments for the ride quality shall not exceed $0 for the project as a whole.

SUBSECTION: 505.03.04 Detectable Warnings.
REVISION: Replace the first sentence with the following:

Install detectable warning pavers at all sidewalk ramps and on all commercial entrances according to the Standard Drawings.

SUBSECTION: 505.04.04 Detectable Warnings.
REVISION: Replace the paragraph with the following:

The Department will measure the quantity in square feet. All retrofit applications for maintenance projects will require the removal of existing sidewalks to meet the requirements of the standard drawings applicable to the project. The cost associated with the removal of the existing sidewalk will be incidental to the detectable warnings bid item or incidental to the bid item for the construction of the concrete sidewalk unless otherwise noted.

SUBSECTION: 505.05 PAYMENT.
REVISION: Add the following to the bid item table:

Code	Pay Item	Pay Unit
23158ES505	Detectable Warnings	Square Foot

SUBSECTION: 509.01 DESCRIPTION.
REVISION: Replace the second paragraph with the following:

The Department may allow the use of similar units that conform to the National Cooperative Highway Research Program (NCHRP) 350 Test Level 3 (TL-3) requirements and the typical features depicted by the Standard Drawings. Obtain the Engineers approval prior to use. Ensure the barrier wall shape, length, material, drain slot dimensions and locations typical features are met and the reported maximum deflection is 3 feet or less from the NCHRP 350 TL-3 for Test 3 – 11 (pickup truck impacting at 60 mph at a 25-degree angle.)

SUBSECTION: 601.03.02 Concrete Producer Responsibilities.
REVISION: Add the following to the first paragraph:

If a concrete plant becomes unqualified during a project and there are no other qualified plants in the region, the Department will provide qualified personnel to witness and ensure the producer follows the required specifications. The Department will assess the Contractor a $100 per hour charge for this service.

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SUBSECTION:	606.02.11 Coarse Aggregate.
REVISION:	Replace with the following: Conform to Section 805, size No. 8 or 9-M.
SUBSECTION:	609.04.06 Joint Sealing.
REVISION:	Replace Subsection 601.04 with the following: Subsection 606.04.08.
SUBSECTION:	609.05 Payment.
REVISION:	Replace the Pay Unit for Joint Sealing with the following: See Subsection 606.05.
SUBSECTION:	701.03.06 Initial Backfill.
REVISION:	Replace the first sentence of the last paragraph with the following: When the Contract specifies, perform quality control testing to verify compaction according to KM 64-512.
SUBSECTION:	701.03.08 Testing of Pipe.
REVISION:	Replace and rename the subsection with the following: **701.03.08 Inspection of Pipe.** The engineer will visually inspect all pipe. The Department will require camera/video inspection on a minimum of 50 percent of the linear feet of all installed pipe structures. Conduct camera/video inspection according to KM 64-114. The pipe to be installed under pavement will be selected first. If the total linear feet of pipe under pavement is less than 50 percent of the linear feet of all pipe installed, the Engineer will randomly select installations from the remaining pipe structures on the project to provide for the minimum inspection requirement. The pipe will be selected in complete runs (junction-junction or headwall-headwall) until the total linear feet of pipe to be inspected is at least 50 percent of the total linear feet of all installed pipe on the project. Unless the Engineer directs otherwise, schedule the inspections no sooner than 30 days after completing the installation and completion of earthwork to within 1 foot of the finished subgrade. When final surfacing conflicts with the 30-day minimum, conduct the inspections prior to placement of the final surface. The contractor must ensure that all pipe are free and clear of any debris so that a complete inspection is possible. Notify the Engineer immediately if distresses or locations of improper installation are discovered. When camera testing shows distresses or improper installation in the installed pipe, the Engineer may require additional sections to be tested. Provide the video and report to the Engineer when testing is complete in accordance with KM 64-114. Pipes that exhibit distress or signs of improper installation may necessitate repair or removal as the Engineer directs. These signs include, but are not limited to: deflection, cracking, joint separation, sagging or other interior damage. If corrugated metal or thermoplastic pipes exceed the deflection and installation thresholds indicated in the table below, provide the Department with an evaluation of each location conducted by a Professional Engineer addressing the severity of the deflection, structural integrity, environmental conditions, design service life, and an evaluation of the factor of safety using Section 12, “Buried Structures and Tunnel Liners,” of the AASHTO LRFD Bridge Design Specifications. Based on the evaluation, the Department may allow the pipe to remain in place at a reduced unit price as shown in the table below. Provide 5 business days for the Department to review the evaluation. When the pipe shows deflection of 10 percent or greater, remove and replace the pipe. When the camera/video or laser inspection results are called into question, the Department may require direct measurements or mandrel testing. The Cabinet may elect to conduct Quality Assurance verifications of any pipe inspections.

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SUBSECTION: 701.04.07 Testing.
REVISION: Replace and rename the subsection with the following:

701.04.07 Pipeline Video Inspection. The Department will measure the quantity in linear feet along the pipe invert of the structure inspected. When inspection above the specified 50 percent is performed due to a disagreement or suspicion of additional distresses and the Department is found in error, the Department will measure the quantity as Extra Work according to Subsection 104.03. However, if additional distresses or non-conformance is found, the Department will not measure the additional inspection for payment.

SUBSECTION: 701.05 PAYMENT.
REVISION: Add the following pay item to the list of pay items:

Code	Pay Item	Pay Unit
23131ER701	Pipeline Video Inspection	Linear Foot

SUBSECTION: 701.05 PAYMENT
TABLE: PIPE DEFLECTION DETERMINED BY CAMERA TESTING
REVISION: Replace this table with the following table and note:

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

[(1)] *Provide Structural Analysis as indicated above. Based on the structural analysis, pipe may be allowed to remain in place at the reduced unit price.*

SUBSECTION: 701.05 PAYMENT
TABLE: PIPE DEFLECTION DETERMINED BY MANDREL TESTING
REVISION: Delete this table.

SUBSECTION: 713.02.01 Paint.
REVISION: Replace with the following:

Conform to Section 842 and Section 846.

SUBSECTION: 713.03 CONSTRUCTION.
REVISION: Replace the first sentence of the second paragraph with the following:

On interstates and parkways, and other routes approved by the State Highway Engineer, install pavement striping that is 6 inches in width.

SUBSECTION: 713.03.03 Paint Application.
REVISION: Replace the second paragraph with the following table:

Material	Paint Application Rate	Glass Beads Application Rate
4 inch waterborne paint	Min. of 16.5 gallons/mile	Min. of 6 pounds/gallon
6 inch waterborne paint	Min. of 24.8 gallons/mile	Min. of 6 pounds/gallon
6 inch durable waterborne paint	Min. of 36 gallons/mile	Min. of 6 pounds/gallon

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SUBSECTION: **REVISION:**	713.03.04 Marking Removal. Replace the last sentence of the paragraph wit the following: Vacuum all marking material and removal debris concurrently with the marking removal operation.
SUBSECTION: **REVISION:**	713.05 PAYMENT. Insert the following codes and pay items below the Pavement Striping – Permanent Paint: Code — Pay Item — Pay Unit 23159EN — Durable Waterborne Marking – 6 IN W — Linear Foot 23160EN — Durable Waterborne Marking – 6 IN Y — Linear Foot
SUBSECTION: **REVISION:**	714.03 CONSTRUCTION. Insert the following paragraph at the end of the third paragraph: Use Type I Tape for markings on bridge decks, JPC pavement and JPC intersections. Thermoplastic should only be used for markings on asphalt pavement
SUBSECTION: **REVISION:**	714.03.07 Marking Removal. Replace the third sentence of the paragraph with the following: Vacuum all marking material and removal debris concurrently with the marking removal operation.
SUBSECTION: **REVISION:**	716.01 DESCRIPTION. Insert the following after the first sentence: Energize lighting as soon as it is fully functional and ready for inspection. Ensure that lighting remains operational until the Division of Traffic Operations has provided written acceptance of the electrical work.
SUBSECTION: **REVISION:**	716.02.01 Roadway Lighting Materials. Replace the third sentence of the paragraph with the following: Submit for material approval an electronic file of descriptive literature, drawings, and any requested design data.
SECTION: **REVISION:**	717 – THERMOPLASTIC INTERSECTION MARKINGS. Replace the section name with the following: INTERSECTION MARKINGS.
SUBSECTION: **REVISION:**	717.01 DESCRIPTION: Replace the paragraph with the following: Furnish and install thermoplastic or Type I tape intersection markings (Stop Bars, Crosswalks, Turn Arrows, etc.) Thermoplastic markings may be installed by either a machine applied, screed extrusion process or by applying preformed thermoplastic intersection marking material.
SUBSECTION: **REVISION:**	717.02 MATERIALS AND EQUIPMENT. Insert the following subsection: 717.02.06 Type I Tape. Conform to Section 836.
SUBSECTION: **REVISION:**	717.03.03 Application. Insert the following part to the subsection: B) Type I Tape Intersection Markings. Apply according to the manufacturer's recommendations. Cut all tape at pavement joints when applied to concrete surfaces.

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SUBSECTION: 717.03.05 Proving Period.
PART: A) Requirements.
REVISION: Insert the following to this section:

2) Type I Tape. During the proving period, ensure that the pavement marking material shows no signs of failure due to blistering, excessive cracking, bleeding, staining, discoloration, oil content of the pavement materials, drippings, chipping, spalling, poor adhesion to the pavement, loss of retroreflectivity, vehicular damage, and normal wear. Type I Tape is manufactured off site and warranted by the manufacturer to meet certain retroreflective requirements. As long as the material is adequately bonded to the surface and shows no signs of failure due to the other items listed in Subsection 714.03.06 A) 1), retroreflectivity readings will not be required. In the absence of readings, the Department will accept tape based on a nighttime visual observation.

SUBSECTION: 717.03.06 Marking Removal.
REVISION: Replace the third sentence of the paragraph with the following:

Vacuum all marking material and removal debris concurrently with the marking removal operation.

SUBSECTION: 717.05 PAYMENT.
REVISION: Insert the following bid item codes:

Code	Pay Unit	Pay Item
06563	Pave Marking – R/R X Bucks 16 IN	Linear Foot
20782NS714	Pave Marking Thermo – Bike	Each
23251ES717, 23264ES717	Pave Mark TY I Tape X-Walk, Size	Linear Foot
23252ES717, 23265ES717	Pave Mark TY I Tape Stop Bar, Size	Linear Foot
23253ES717	Pave Mark TY I Tape Cross Hatch	Square Foot
23254ES717	Pave Mark TY I Tape Dotted Lane Extension	Linear Foot
23255ES717	Pave Mark TY I Tape Arrow, Type	Each
23268ES717-23270ES717		
23256ES717	Pave Mark TY I Tape- ONLY	Each
23257ES717	Pave Mark TY I Tape- SCHOOL	Each
23266ES717	Pave Mark TY 1 Tape R/R X Bucks-16 IN	Linear Foot
23267ES717	Pave Mark TY 1 Tape-Bike	Each

SUBSECTION: 805.01 GENERAL.
REVISION: Replace the second paragraph with the following:

The Department's List of Approved Materials includes the Aggregate Source List, the list of Class A and Class B Polish-Resistant Aggregate Sources, and the Concrete Restriction List.

SUBSECTION: 805.04 CONCRETE.
REVISION: Replace the "AASHTO T 160" reference in first sentence of the third paragraph with "KM 64-629"

SUBSECTION: 805.15 GRADATION ACCEPTANCE OF NON-SPECIFICATION COARSE AGGREGATE.
TABLE: AGGREGATE SIZE USE
PART: Cement Concrete Structures and Incidental Construction
REVISION: Replace "9-M for Waterproofing Overlays" with "8 or 9-M for Waterproofing Overlays"

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SUBSECTION: 805.15 GRADATION ACCEPTANCE OF NON-SPECIFICATION COARSE AGGREGATE.
REVISION: Replace the "SIZES OF COARSE AGGREGATES" table in with the following:

SIZES OF COARSE AGGREGATES

	Sieve	AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS) PERCENTAGE BY WEIGHT															
Aggregate Size	Nominal [3] Maximum Aggregate Size	4 inch	3 1/2 inch	3 inch	2 1/2 inch	2 inch	1 1/2 inch	1 inch	3/4 inch	1/2 inch	3/8 inch	No. 4	No. 8	No. 16	No. 30	No. 100	No. 200
1	3 ½ inch	100	90-100		25-60		0-15		0-5								
2	2 ½ inch			100	90-100	35-70	0-15		0-5								
23	2 inch			100		40-90		0-15		0-5							
3	2 inch				100	90-100	35-70	0-15		0-5							
357	2 inch				100	95-100		35-70		10-30		0-5					
4	1 ½ inch					100	90-100	20-55	0-15		0-5						
467	1 ½ inch					100	95-100		35-70		10-30	0-5					
5	1 inch						100	90-100	20-55	0-10	0-5						
57	1 inch						100	95-100		25-60		0-10	0-5				
610	1 inch						100	85-100		40-75		15-40					
67	3/4 inch							100	90-100		20-55	0-10	0-5				
68	3/4 inch							100	90-100		30-65	5-25	0-10	0-5			
710	3/4 inch							100	80-100		30-75	0-30					
78	1/2 inch								100	90-100	40-75	5-25	0-10	0-5			
8	3/8 inch									100	85-100	10-30	0-10	0-5			
9-M	3/8 inch									100	75-100	0-25	0-5				
10[2]	No. 4										100	85-100				10-30	
11[2]	No. 4										100	40-90	10-40			0-5	
DENSE GRADED AGGREGATE [1]	3/4 inch							100	70-100		50-80	30-65			10-40		4-13
CRUSHED STONE BASE [1]	1 ½ inch				100		90-100		60-95		30-70	15-55			5-20		0-8

(1) *Gradation performed by wet sieve KM 64-620 or AASHTO T 11/T 27.*
(2) *Sizes shown for convenience and are not to be considered as coarse aggregates.*
(3) *Nominal Maximum Size is the largest sieve on the gradation table for an aggregate size on which any material may be retained.*

Note: The Department will allow blending of same source/same type aggregate when precise procedures are used such as cold feed, belt, or equivalent and combining of sizes or types of aggregate using the weigh hopper at concrete plants or controlled feed belts at the pugmill to obtain designated sizes.

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SUBSECTION: 805.16 SAMPLING AND TESTING.
REVISION: Replace the "AASHTO T 160" method with the "KM 64-629" method for the Concrete Beam Expansion Test.

Replace the "ASTM D 3042" method with the "KM 64-625" method for Insoluble Residue.

SUBSECTION: 810.04.01 Coating Requirements.
REVISION: Replace the "Subsection 806.07" references with "Subsection 806.06"

SUBSECTION: 810.06.01 Polyvinyl Chloride (PVC) Pipe.
PART: B) Culvert and Entrance Pipe.
REVISION: Replace the title with the following:

B) Culvert Pipe, Storm Sewer, and Entrance Pipe.

SUBSECTION: 837.03 APPROVAL.
REVISION: Replace the last sentence with the following:

The Department will sample and evaluate for approval each lot of thermoplastic material delivered for use per contract prior to installation of the thermoplastic material. Do not allow the installation of thermoplastic material until it has been approved by the Division of Materials. Allow the Department a minimum of 10 working days to evaluate and approve thermoplastic material.

SUBSECTION: 837.03.01 Composition.
REVISION: COMPOSITION Table:

Replace

Lead Chromate	0.0 max.	4.0 min.

with

Heavy Metals Content	Comply with 40 CFR 261

SECTION: DIVISION 800 MATERIAL DETAILS
REVISION: Add the following section in Division 800

SECTION 846 – DURABLE WATERBORNE PAINT

846.01 DESCRIPTION. This section covers quick-drying durable waterborne pavement striping paint for permanent applications. The paint shall be ready-mixed, one-component, 100% acrylic waterborne striping paint suitable for application on such traffic-bearing surfaces as Portland cement concrete, bituminous cement concrete, asphalt, tar, and previously painted areas of these surfaces.

846.02 Approval. Select materials that conform to the composition requirements below. Provide independent analysis data and certification for each formulation stating the total concentration of each heavy metal present, the test method used for each determination, and compliance to 40 CFR 261 for leachable heavy metals content. Submit initial samples for approval before beginning striping operations. The initial sample may be sent from the manufacture of the paint. The Department will randomly sample and evaluate the paint each week that the striping operations are in progress.

The non-volatile portion of the vehicle shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis. The acrylic resin used shall be a 100% cross-linking acrylic as evidenced by infrared peaks at wavelengths 1568, 1624, and 1672 cm-1 with intensities equal to those produced by an acrylic resin known to be 100% cross-linking.

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PAINT COMPOSITION		
Property and Test Method	Yellow	White
Daytime Color (CIELAB) Spectrophotometer using illuminant D65 at 45º illumination and 0º viewing with a 2º observer	L* 81.76 a* 19.79 b* 89.89 Maximum allowable variation 2.0ΔE*	L* 93.51 a* -1.01 b* 0.70 Maximum allowable variation 2.0ΔE*
Nighttime Color (CIELAB) Spectrophotometer using illuminant A at 45º illumination and 0º viewing with a 2º observer	L* 86.90 a* 24.80 b* 95.45 Maximum allowable variation 2.0ΔE*	L* 93.45 a* -0.79 b* 0.43 Maximum allowable variation 2.0ΔE*
Heavy Metals Content	Comply with 40 CFR 261	Comply with 40 CFR 261
Titanium Dioxide ASTM D 4764	NA	10% by weight of pigment min.
VOC ASTM D 2369 and D 4017	1.25 lb/gal max.	1.25 lb/gal max.
Contrast Ratio (at 15 mils wft)	0.97	0.99

846.02.01 Manufacturers Certification. Provide a certification of analysis for each lot of traffic paint produced stating conformance to the requirements of this section. Report the formulation identification, traffic paint trade name, color, date of manufacturer, total quantity of lot produced, actual quantity of traffic paint represented, sampling method utilized to obtain the samples, and data for each sample tested to represent each lot produced.

846.03 ACCEPTANCE PROCEDURES FOR NON-SPECIFICATION DURABLE WATERBORNE PAVEMENT STRIPING PAINT. When non-specification paint is inadvertently incorporated into the work the Department will accept the material with a reduction in pay. The percentage deduction is cumulative based on its compositional properties, but will not exceed 60 percent. The Department will calculate the payment reduction on the unit bid price for the routes where the non-specification paint was used.

DURABLE WATERBORNE PAVEMENT STRIPING PAINT REDUCTION SCHEDULE						
Non-conforming Property	Resin	Color	Contrast	TiO_2	VOC	Heavy Metals Content
Reduction Rate	60%	10%	10%	10%	60%	60%

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SPECIAL NOTE FOR PORTABLE CHANGEABLE MESSAGE SIGNS

This Special Note will apply when indicated on the plans or in the proposal.

1.0 DESCRIPTION. Furnish, install, operate, and maintain variable message signs at the locations shown on the plans or designated by the Engineer.

2.0 MATERIALS.

2.1 General. Use LED or flip disk/LED Variable Message Signs Class I, II, or III, as appropriate, from the Department's List of Approved Materials.

Unclassified signs may be submitted for approval by the Engineer. The Engineer may require a daytime and nighttime demonstration. The Engineer will make a final decision within 30 days after all required information is received.

2.2 Sign and Controls. All signs must:

1) Provide 3-line messages with each line being 8 characters long and at least 18 inches tall. Each character comprises 35 pixels.
2) Provide at least 40 preprogrammed messages available for use at any time. Provide for quick and easy change of the displayed message; editing of the message; and additions of new messages.
3) Provide a controller consisting of:
   a) Keyboard or keypad.
   b) Readout that mimics the actual sign display. (When LCD or LCD type readout is used, include backlighting and heating or otherwise arrange for viewing in cold temperatures.)
   c) Non-volatile memory or suitable memory with battery backup for storing pre-programmed messages.
   d) Logic circuitry to control the sequence of messages and flash rate.
4) Provide a serial interface that is capable of supporting complete remote control ability through land line and cellular telephone operation. Include communication software capable of immediately updating the message, providing complete sign status, and allowing message library queries and updates.
5) Allow a single person easily to raise the sign to a satisfactory height above the pavement during use, and lower the sign during travel.
6) Allow direct wiring for operation of the sign or arrow board from an external power source when desired.
7) Be Highway Orange on all exterior surfaces of the trailer, supports, and controller cabinet.
8) Provide operation in ambient temperatures from -30 to + 120 degrees Fahrenheit during snow, rain and other inclement weather.
9) Provide the driver board as part of a module. All modules are interchangeable, and have plug and socket arrangements for disconnection and reconnection. Printed circuit boards associated with driver boards have a conformable coating to protect against moisture.
10) Provide a sign case sealed against rain, snow, dust, insects, etc. The lens is UV stabilized clear plastic (polycarbonate, acrylic, or other approved material) angled to prevent glare.
11) Provide a flat black UV protected coating on the sign hardware, character PCB, and appropriate lens areas.

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12) Provide a photocell control to provide automatic dimming.
13) Allow an on-off flashing sequence at an adjustable rate.
14) Provide a sight to aim the message.
15) Provide a LED display color of approximately 590 nm amber.
16) Provide the following 3-line messages preprogrammed and available for use when the sign unit begins operation:

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

*Insert numerals as directed by the Engineer.
Add other messages during the project when required by the Engineer.

2.3 Requirements for Flip-Disc Type Signs. Flip-disc type signs will have the following additional requirements:

1) Disc faces are fluorescent yellow on one side, and flat black on the reverse.
2) Discs are at least 3.5 square inches with a minimum character size of 5 discs horizontally by 7 discs vertically.
3) Discs are designed to operate without lubrication for at least 200 million operations.
4) Line change speed of 600 milliseconds or less.
5) When power is lost, the sign automatically becomes blank or displays a preprogrammed default message.

2.4 Power.

1) Design solar panels to yield 10 percent or greater additional charge than sign consumption. Provide energy backup for 21 days without sunlight and an on-board system charger with the ability to recharge completely discharged batteries in 24 hours.
2) Diesel Power Source. Ensure the following is provided for:

    a) At least 24 spare bulbs available on the project for quick replacement of burned out bulbs.
    b) Black light at both top and bottom of each line to illuminate discs for visibility at night or under adverse weather conditions, for flip disk signs.
    c) Diesel generator and electric start assembly, including batteries and a fuel capacity adequate to provide at least 72 hours continuous operation without refueling.
    d) Fuel gage.
    e) Provide all other specific features, such as bulb size, protection from sun glare, and shock protection for electronics and bulbs, to the

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satisfaction of the Engineer.

3.0 CONSTRUCTION. Furnish and operate the variable message signs as designated on the plans or by the Engineer. Ensure the bottom of the message panel is a minimum of 7 feet above the roadway in urban areas and 5 feet above in rural areas when operating. Use Class I, II, or III signs on roads with a speed limit less than 55 mph. Use Class I or II signs on roads with speed limits 55 mph or greater. Unless the Contract specifies flip-disk signs, use Class I signs on interstates and parkways.

Maintain the sign in proper working order, including repair of any damage done by others, until completion of the project. When the sign becomes inoperative, immediately repair or replace the sign. Repetitive problems with the same unit will be cause for rejection and replacement.

Use only project related messages and messages directed by the Engineer, unnecessary messages lessen the impact of the sign. Ensure the message is displayed in either one or 2 phases with each phase having no more than 3 lines of text. When no message is needed, but it is necessary to know if the sign is operable, flash only a pixel or disk.

When the sign is not needed, move it outside the clear zone or where the Engineer directs.

4.0 MEASUREMENT. The final quantity of Variable Message Sign will be the actual number of individual signs acceptably furnished and operated during the project. The Department will not measure signs replaced due to damage or rejection.

5.0 PAYMENT. The Department will pay for the Variable Message Signs at the unit price each. The Department will not pay for signs replaced due to damage or rejection. Payment is full compensation for furnishing all materials, labor, equipment, and service necessary to, operate, move, repair, and maintain or replace the variable message signs. The Department will make payment for the completed and accepted quantities under the following:

Code	Pay Item	Pay Unit
02671	Portable Changeable Message Sign	Each

January 1, 2008

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SPECIAL NOTE FOR MATERIAL TRANSFER VEHICLE

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Provide and use a Material Transfer Vehicle (MTV) to place asphalt mixtures.

2.0 MATERIALS AND EQUIPMENT. In addition to the equipment specified in Subsection 403.02, provide a MTV with the following minimum characteristics:

1) A system to independently deliver asphalt mixtures from the hauling equipment to the paving equipment;
2) A high capacity truck unloading system, capable of 600 tons per hour, that will receive asphalt mixtures from the hauling equipment;
3) A minimum combined capacity, including the MTV storage bin and paver hopper, of 25 tons of asphalt mixture;
4) An auger system in the storage bin to continuously blend the asphalt mixture prior to discharge to the conveyor system; and
5) A discharge conveyor, with the ability to swivel, to deliver the mixture to the paving spreader while allowing the MTV to operate from an adjacent lane.

3.0 CONSTRUCTION. When constructing driving lanes, use a MTV to place asphalt mixtures. When the Engineer determines the use of the MTV is not practical for a portion of the project he may waive its requirement for that portion.

4.0 MEASUREMENT.

4.1 Asphalt Placement with MTV. The Department will not measure the MTV for payment and will consider its use incidental to the asphalt mixture.

4.2 Asphalt Mixture. The Department will measure the quantity according to Section 402.

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

Code	Pay Item	Pay Unit
-----	Asphalt Mixture, Type	Ton

March 12, 2008

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SPECIAL NOTE FOR
QC/QA SPECIFICATIONS FOR CLASS P CONCRETE

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. This Special Note specifies the process control and acceptance testing for Class P Concrete (JPC pavement, shoulders, base). JPCP 24/48/72 will not be included under this note. Perform work and furnish materials according to the Department's Standard Specifications with the following exceptions and additions. Perform both process control and acceptance testing. Minimum test frequencies are provided. The Department will only perform verification testing.

2.0 MATERIALS. Conform to Subsection 501.02 or 601.02.

3.0 PROCESS.

3.1 Quality Control Plan (QCP). Submit the QCP checklist to the Engineer for review and approval at least 15 calendar days prior to commencing concrete operations. The QCP is the responsibility of the Contractor and should be a joint effort between the Contractor and any subcontractors. Submit a revised QCP for review and approval if any changes are necessary.

3.2 Contractor Requirements.

1) Select a concrete production facility that conforms to the production requirements found in Subsection 601. If the facility fails to meet these requirements during production and is no longer qualified to supply concrete the Contractor is solely responsible for obtaining the services of another concrete production facility to continue placement of concrete on the project.
2) Provide concrete technicians that are certified as ACI Level I Concrete Field Testing Technicians.
3) Provide an AASHTO accredited or Kentucky Transportation Cabinet qualified laboratory facility.
4) Job Site Acceptance Requirements:

    a) Trip Tickets. Collect trip tickets for each load of concrete. Check each truck mixer for a current performance test sticker and the metal plate stating manufacturers recommended capacities and revolution speeds. Verify and/or record the following for each load of concrete delivered to the project:

    - Age of mix
    - Mixing revolutions recorded on the trip ticket
    - Discharge time
    - Addition of water
    - Additional mixing revolutions if water is added
    - Job site test data

    The Technician shall reject concrete failing to meet the requirements for any item.

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b) Technician Responsibilities. ACI Level I Concrete Technicians shall be on site to inspect all quantities of concrete delivered to the project. Inspection responsibilities include field tests for slump, air content, temperature, and casting of cylinders of the plastic concrete. All testing shall be performed according to the applicable Kentucky Methods. The Technician shall reject concrete failing to meet the requirements of any of these tests.

5) Testing:

a) Start Up Test Frequencies. Perform start-up slump, air content, and temperature tests each day of placement for Class P concrete. The minimum frequency is the first unit and any one of the next 4 Units

The First Unit is the first load delivered producing acceptable start up test results. For example; if the first load of the day produces failing test results, it is rejected. Repeat Start Up Tests for the second load delivered. If the second load produces passing test results it is accepted and considered the First Unit.

b) Acceptance Testing. Provide test equipment conforming to requirements of the appropriate test method. The Engineer may inspect and reject any equipment found defective.

- Sample and test the plastic concrete for air content, slump, and temperature at the point of placement. Once the First Unit has been established, the Department will include all randomly selected samples for payment in the pay factor calculations even if the unit is out of specification. If any randomly selected production unit is outside the specification limits for slump, temperature, or air content, return to the start-up testing frequency.
- Mold a minimum of one set of cylinders at the point of placement for each sublot (see part 3.2-5-c) for compressive strength testing. A “set” of cylinders is outlined in KM 64-305. Randomly sample and test when the Engineer directs. (See the following note)
- Obtain samples anytime visual inspection of the delivered concrete indicates questionable specification compliance.
- Perform compressive strength testing on certified or Department approved machines.
- Notify the Engineer at least 24 hours prior to the time of compressive strength testing so that the test may be witnessed. The Department will witness and document a minimum of 75 percent of the tests.
- Core any concrete meeting the criteria for investigation of in-place concrete based on low cylinder strengths (see part 3.2-6). When coring is required, furnish equipment and personnel necessary to obtain and test cores. Core diameter will be as required by the Department.

Note: Number cylinders for strength testing according to the following format unless otherwise approved by the Engineer:

Lot # - Sublot # - Class of Concrete

If a set of cylinders are made for early breaks, follow the class of concrete with an “X”. The verification cylinders made by the department will use a “V” after the class of concrete.

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c) Lot Size**.** Lots and sublots will be based on delivered quantities in lieu of design quantity. Lots are defined as 4,000 square yards. Lots are divided into 4 sub-lots of 1,000 square yards.

Use the following table in determining concrete quantities and their corresponding lots and sublots.

Square Yards	Total Sublots – Equally Divided
< 2,000	Accept based upon plastic concrete test results plus one set of cylinders if more than 15 cubic yards per calendar day*
2,000 ≤ 4,000	4
4,000 ≤ 5,000	5
5,000 ≤ 6,000	6
6,000 < 8,000	One standard lot, plus a second smaller lot with 4 sublots.

* PWL and incentive/disincentives are not applied but accepted at 100% pay based on achieving acceptable results.

NOTE: All early strength modified mixes will be combined, if quantities are available, to make a lot(s).

d) Documentation. Record all job site test results when obtained. Provide a summary of test results and trip tickets at least weekly to the Engineer. In the summary, include a record of all concrete rejected. As 28-day breaks are obtained, submit air and strength results along with corresponding random numbers and sublot/lot identification at the completion of each and every lot. Report all failing compressive strength tests to the Engineer as soon as possible, but no later than the end of the testing day.

e) In addition to acceptance testing, perform all sampling, testing (slump, air, temperature and strength) for the purpose of either load applications, or opening to traffic. These results are to be kept separate from random QC results and are not to be used for pay calculations.

f) Additional acceptance sampling testing by the Contractor is permitted but must be included in the QCP by reducing size of sublots within the lots (see part 3.2-5-c) to be included in pay calculations.

6) Investigation of In-Place Concrete. The Department will require a core evaluation of the in-place concrete when any of the following occur:

- An individual test result falls more than 500 psi below minimum required compressive strength
- Strength PWL for a lot is less than 75
- Air content PWL below 60 will require special evaluation by the Engineer based on core testing (hardened air content) to determine acceptance/rejection, and any corrective work needed.
- Any lot missing more than 25% of the required tests for strength or air will require coring and testing. The results will be evaluated according to part 3.4-2.

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The investigation will take place at the direction of the Engineer. Obtain cores within 7 calendar days of written notification.

3.3 Concrete Producer Requirements. Requirements include mix design, testing, documentation, plant approval, and truck approval in accordance with Section 601. Mix Designs. Submit mix designs to the Engineer using either Option A or Option B below.

1) Option A. Kentucky Mix Design. Submit mix designs according to Subsection 601.03.02 G at least 15 calendar days prior to commencing concrete operations. Design and proportion the concrete mixtures according to Subsection 601.03.03. Resubmit the mix designs when changes are made.
2) Option B. ACI-318 Mix Design. ACI 318, Chapters 4 and 5, is permitted for mix design only. Comply with ingredient material specifications and mineral admixture limitations according to the Department's Standard Specifications. Option B is not permitted for HPC or JPCP 25/48/72 mixes. Conform to the following if requirements are not modified elsewhere by plan note.

Max. Free Water By w/c Ratio (lbs/lbs)	Min. 28-Day Comp. Strength For acceptance (psi)	Air Content (%)
0.45	4,500	6± 2% *

* The air content shall be 7 ± 2% when coarse aggregate sizes #8, #78, or #9-M are used.

3.4 Department Responsibilities.

1) Concrete Mixture Verification Testing. The Engineer will conduct verification testing to verify acceptance procedures. Only ACI Level I qualified personnel will perform the verification testing. The Engineer will determine according to KM 64-113 when the Contractor is to perform random sampling and testing. The Engineer will notify the Contractor immediately prior to required random sampling and testing.

   The Engineer will test at a minimum frequency of one per every 8 acceptance tests made by the contractor. The Engineer reserves the right to increase the frequency of testing when deemed necessary. The Engineer will perform verification testing on independent samples from the same batch and location as the Contractor's tested sublot and promptly compare results. Additionally, the Engineer may select any portion of any sublot at any time to verify specifications limits. All verification cylinders will be the same size as the contractors acceptance cylinders.

   When the verification test results differ from the Contractor's test results by more than tolerances shown below, the discrepancy must be resolved and documented along with the verification results. The dispute resolution outlined in Section 113 will be utilized to verify the acceptability of the concrete.

   The Department will witness and document a minimum of 75 percent of the tests.

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Acceptance/Verification Tolerance*	
Test	**Tolerance**
Air Content	±0.75%
Compressive Strength	±15%
Temperature	±3 °F
Slump	±25% of maximum limit

*These tolerances only apply to verification samples

2) Core Evaluation for Class P Concrete. When investigation is required according to part 3.2-6 of this note, the Engineer will direct the Contractor in obtaining cores and take possession of the cores for testing. All expenses in obtaining and testing cores will be the responsibility of the contractor. The Engineer will evaluate cores as follows:

   a) If core strengths are equal to or greater than 90 percent of minimum required compressive strength, the core strengths will be substituted for the low/missing cylinder(s) to determine PWL. Lots affected will not be eligible for incentive adjustments but may achieve 100 percent maximum pay.
   b) If core strengths are below 90 percent of minimum required compressive strength, a design analysis will be required to determine if strength is adequate.

      1) If strength is determined to be adequate, the core strengths will be substituted for the low/missing cylinder(s) to determine PWL.
      2) If strength is determined not to be adequate, the lot or sublot containing the failing concrete shall be removed and replaced at the Contractor's expense. The Contractor may be given the option of obtaining additional cores to more accurately identify the extent of removal required.

   c) If the hardened air content is found to be acceptable, the air results will be substituted for the failing/missing air result to determine PWL. Lots affected will not be eligible for incentive adjustments but may receive 100 percent maximum pay.
   d) If the hardened air content is found to be unacceptable, the concrete is subject to removal.

4.0 MEASUREMENT.

4.1 Class P (JPC Pavement, Base, and Shoulders). The Department will measure JPC Pavement, Base, and Shoulder according to Subsections 501.04.01, 501.04.02, and 501.04.03 respectively.

The Department will not measure the strength and air content of the pavement concrete as a separate pay unit, but will analyze the strength and air content data as provided by Contractor to calculate pay factors for each separate lot of JPC Pavement, Base, and Shoulders.

4.2 Measurement of Dispute Items. Disputed items may require a third party resolution by a mutually agreeable laboratory. If the independent laboratory testing and investigation indicates that the Department's tests are correct, pay the cost of the

investigation. If the independent laboratory testing and investigation indicates that the Department's tests are not correct, the Department will pay the cost of the investigation.

When the dispute is resolved at any level, and the Department's verification tests are correct, the Department will base the Contractor's pay on the Department's verification test results rather than on the Contractor's acceptance test results. When the Department's verification tests are not correct, the Department will base the Contractor's pay on the Contractor's test results as the appropriate section or subsection specifies.

4.3 Measurement of Quality Control (QC). The Department will measure the quantity by the lump sum. The Department will not measure the QCP, any actions and personnel required to carry out the QCP, any testing, any testing equipment, or any other work necessary to perform the specified QC/QA procedures and will consider them incidental to this item of work.

5.0 PAYMENT. The Department will calculate pay factors for Class P Concrete only, and will apply them on a lot basis. The Department will apply Concrete QC/QA incentive/disincentive adjustment as a one-time Concrete Adjustment prior to final payment. When net bonuses exceed net penalties for concrete for the total project, the Department will pay the net difference. When net penalties, derived from Percent Within Limits (PWL) and incentive/disincentive calculations, exceed net bonuses for concrete for the total project, the Department will deduct the net difference. For concrete not requiring PWL and incentive/disincentive calculations, the Department will apply penalties according to the appropriate subsection or application. Additional pay adjustments may be applicable for concrete pavement thickness and ride quality in accordance with the Special Notes or Standard Specifications.

Code	Pay Item	Pay Unit
02069-02071, 02073, 02075, 02084, 02086, 02088	JPC Pavement Non-Reinforced, thickness	See Subsection 501.05
02072, 02077, 02078, 02081-02083, 02087, 02089	JPC Pavement Non-Reinforced Shoulder, thickness	See Subsection 501.05
02061, 02064, 02065	PCC Base, thickness	See Subsection 501.05
20181ES	QC for Class P Concrete	Lump Sum
----	Concrete Adjustment[(1)]	Each

(1) The Department will determine pay factors and adjust the price based on the strength and air content of the concrete.

January 1, 2008

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**Procedures for Percent Within Limits (PWL)
and Pay Factor Calculations**

The Contractor's QC testing data must be validated by the Department's verification tests. A percent within limit (PWL) analysis is used to determine how various specified limits are met by the Contractor. The procedure calls for determining the mean and standard deviation of acceptance data. Determine the following quality indices based upon the mean, standard deviation and upper/lower specification limits. The upper/lower limits for air content PWL calculations will be ± 2.0% of the target air content for Class-P Concrete. If there is no upper specification limit (e.g. compressive strength), the upper quality index will be considered 100% within limits.

Q_u = (Upper Specification Limit - Average) / Standard Deviation

Q_L = (Average - Lower Specification Limit) / Standard Deviation

Where:

Standard Deviation = $[\text{Sum}(\text{Individual Measurement} - \text{Average})^2 / (n-1)]^{1/2}$, and

n = Number of Measurements.

There will be 2 sets of Qu's and Ql's calculated for the air content. The first set will be calculated based on the range of ± 2.0% if the target air percentage, with the upper limit shown as:

Qu = {(Target Air % + 2.0) – Average Air %} / Standard Deviation of the air content

The second set will be calculated on a target of ± 1.0 % of the target air percentage, with the upper limit shown as:

Qu = {(Target Air % + 1.0) – Average Air %} / Standard Deviation of the air content

These values will be used to derive separate PWL's and then these PWL's will be used to obtain the combined air pay factor.

Use the values for the Q_u, and Q_L and enter in the PWL tables and determine PWL_u, and PWL_L, respectively. If the values for Q_u or Q_L are determined to be negative, follow the directions given on the PWL tables. Round-off the calculated numbers to 2 decimal places.

Determine the total PWL for each specified requirement using the following relationship.

$PWL = (PWL_u + PWL_L) - 100$

The PWL for each specified requirement per lot is then used to determine the lot's acceptance/rejection status and its appropriate pay factor.

The Combined Air Content Pay Factor will be calculated as:

$((25+(PWL_{@\pm2}*0.25))+(0.0125*PWL_{@\pm1}))/100$, and the Strength Pay Factor will be calculated as ((26.25+(0.25*PWL))/100

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Lot Pay Factor will be calculated as: (Air Pay Factor+Strength Pay Factor)

The lowest Pay Factor will be limited to 0.85 for Class-P Concrete.

Missing Data:

The first sublot missing test results per project will be permitted with no reduction in pay. The lot will be calculated based on the remaining test results if the sample size is three or more. The second sublot missing test results will require a 10% deduct for that lot. All additional sublots missing data will receive a 25% deduct applied to the lot for each sublot missing data.

Any lot missing more than 25% of the required tests for strength or air will require coring and testing. The results will be evaluated according to (3.4-2).

NOTE: All calculations are rounded to 2 decimal places except the Lot Pay Factor and the Project Pay Factor which are carried to 6 decimal places.

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Table A-1. Percent Within Limits (PWL) for Selected Sample Sizes (N). (Courtesy of FHWA-SA-96-026, 1996)

PERCENT WITHIN LIMITS ESTIMATION TABLE
VARIABILITY-UNKNOWN PROCEDURE
STANDARD DEVIATION METHOD
SAMPLE SIZE 3

	Second Decimal Places For Q									
Q	***0.00***	***0.01***	***0.02***	***0.03***	***0.04***	***0.05***	***0.06***	***0.07***	***0.08***	***0.09***
0.00	50.00	50.28	50.55	50.83	51.10	51.38	51.65	51.93	52.21	52.48
0.10	52.76	53.04	53.31	53.59	53.87	54.15	54.42	54.70	54.98	55.26
0.20	55.54	55.82	56.10	56.38	56.66	56.95	57.23	57.51	57.80	58.08
0.30	58.37	58.65	58.94	59.23	59.51	59.80	60.09	60.38	60.67	60.97
0.40	61.26	61.55	61.85	62.15	62.44	62.74	63.04	63.34	63.65	63.95
0.50	64.25	64.56	64.87	65.18	65.49	65.80	66.12	66.43	66.75	67.07
0.60	67.39	67.72	68.04	68.37	68.70	69.03	69.37	69.70	70.04	70.39
0.70	70.73	71.08	71.43	71.78	72.14	72.50	72.87	73.24	73.61	73.98
0.80	74.36	74.75	75.14	75.53	75.93	76.33	76.74	77.16	77.58	78.01
0.90	78.45	78.89	79.34	79.81	80.27	80.75	81.25	81.75	82.26	82.79
1.00	83.33	83.89	84.47	85.07	85.69	86.34	87.02	87.73	88.49	89.29
1.10	90.16	91.11	92.18	93.40	94.92	97.13	100.00	100.00	100.00	100.00

Numbers in the body of this table are estimates of percent within limits (PWL) corresponding to specific values of Q, the QUALITY INDEX. For Q values less than zero, subtract the table value from 100.

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Table A-2. Percent Within Limits (PWL) for Selected Sample Sizes (N)
(Courtesy of FHWA-SA-96-026, 1996)

PERCENT WITHIN LIMITS ESTIMATION TABLE
VARIABILITY-UNKNOWN PROCEDURE
STANDARD DEVIATION METHOD
SAMPLE SIZE 4

	Second Decimal Places For Q									
Q	***0.00***	***0.01***	***0.02***	***0.03***	***0.04***	***0.05***	***0.06***	***0.07***	***0.08***	***0.09***
0.00	50.00	50.33	50.67	51.00	51.33	51.67	52.00	52.33	52.67	53.00
0.10	53.33	53.67	54.00	54.33	54.67	55.00	55.33	55.67	56.00	56.33
0.20	56.67	57.00	57.33	57.67	58.00	58.33	58.67	59.00	59.33	59.67
0.30	60.00	60.33	60.67	61.00	61.33	61.67	62.00	62.33	62.67	63.00
0.40	63.33	63.67	64.00	64.33	64.67	65.00	65.33	65.67	66.00	66.33
0.50	66.67	67.00	67.33	67.67	68.00	68.33	68.67	69.00	69.33	69.67
0.60	70.00	70.33	70.67	71.00	71.33	71.67	72.00	72.33	72.67	73.00
0.70	73.33	73.67	74.00	74.33	74.67	75.00	75.33	75.67	76.00	76.33
0.80	76.67	77.00	77.33	77.67	78.00	78.33	78.67	79.00	79.33	79.67
0.90	80.00	80.33	80.67	81.00	81.33	81.67	82.00	82.33	82.67	83.00
1.00	83.33	83.67	84.00	84.33	84.67	85.00	85.33	85.67	86.00	86.33
1.10	86.67	87.00	87.33	87.67	88.00	88.33	88.67	89.00	89.33	89.67
1.20	90.00	90.33	90.67	91.00	91.33	91.67	92.00	92.33	92.67	93.00
1.30	93.33	93.67	94.00	94.33	94.67	95.00	95.33	95.67	96.00	96.33
1.40	96.67	97.00	97.33	97.67	98.00	98.33	98.67	99.00	99.33	99.67
1.50	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Numbers in the body of this table are estimates of percent within limits (PWL) corresponding to specific values of Q, the QUALITY INDEX. For Q values less than zero, subtract the table value from 100.

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Table A-3. Percent Within Limits (PWL) for Selected Sample Sizes (N). (Courtesy of FHWA-SA-96-026, 1996)

PERCENT WITHIN LIMITS ESTIMATION TABLE
VARIABILITY-UNKNOWN PROCEDURE
STANDARD DEVIATION METHOD
SAMPLE SIZE 5

	Second Decimal Places For Q									
Q	***0.00***	***0.01***	***0.02***	***0.03***	***0.04***	***0.05***	***0.06***	***0.07***	***0.08***	***0.09***
0.00	50.00	50.36	50.71	51.07	51.42	51.78	52.13	52.49	52.85	53.20
0.10	53.56	53.91	54.27	54.62	54.98	55.33	55.69	56.04	56.39	56.75
0.20	57.10	57.46	57.81	58.16	58.52	58.87	59.22	59.57	59.92	60.28
0.30	60.63	60.98	61.33	61.68	62.03	62.38	62.72	63.07	63.42	63.77
0.40	64.12	64.46	64.81	65.15	65.50	65.84	66.19	66.53	66.87	67.22
0.50	67.56	67.90	68.24	68.58	68.92	69.26	69.60	69.94	70.27	70.61
0.60	70.95	71.28	71.61	71.95	72.28	72.61	72.94	73.27	73.60	73.93
0.70	74.26	74.59	74.91	75.24	75.56	75.89	76.21	76.53	76.85	77.17
0.80	77.49	77.81	78.13	78.44	78.76	79.07	79.38	79.69	80.00	80.31
0.90	80.62	80.93	81.23	81.54	81.84	82.14	82.45	82.74	83.04	83.34
1.00	83.64	83.93	84.22	84.52	84.81	85.09	85.38	85.67	85.95	86.24
1.10	86.52	86.80	87.07	87.35	87.63	87.90	88.17	88.44	88.71	88.98
1.20	89.24	89.50	89.77	90.03	90.28	90.54	90.79	91.04	91.29	91.54
1.30	91.79	92.03	92.27	92.51	92.75	92.98	93.21	93.44	93.67	93.90
1.40	94.12	94.34	94.56	94.77	94.98	95.19	95.40	95.61	95.81	96.01
1.50	96.20	96.39	96.58	96.77	96.95	97.13	97.31	97.48	97.65	97.81
1.60	97.97	98.13	98.28	98.43	98.58	98.72	98.85	98.98	99.11	99.23
1.70	99.34	99.45	99.55	99.64	99.73	99.81	99.88	99.94	99.98	100.00

Numbers in the body of this table are estimates of percent within limits (PWL) corresponding to specific values of Q, the QUALITY INDEX. For Q values less than zero, subtract the table value from 100.

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Table A-4. Percent Within Limits (PWL) for Selected Sample Sizes (N)
(Courtesy of FHWA-SA-96-026, 1996)

PERCENT WITHIN LIMITS ESTIMATION TABLE
VARIABILITY-UNKNOWN PROCEDURE
STANDARD DEVIATION METHOD
SAMPLE SIZE 6

	Second Decimal Places For Q									
Q	***0.00***	***0.01***	***0.02***	***0.03***	***0.04***	***0.05***	***0.06***	***0.07***	***0.08***	***0.09***
0.00	50.00	50.37	50.73	51.10	51.47	51.84	52.20	52.57	52.94	53.30
0.10	53.67	54.04	54.40	54.77	55.14	55.50	55.87	56.23	56.60	56.96
0.20	57.32	57.69	58.05	58.41	58.78	59.14	59.50	59.86	60.22	60.58
0.30	60.94	61.30	61.66	62.02	62.38	62.73	63.09	63.45	63.80	64.16
0.40	64.51	64.86	65.21	65.57	65.92	66.27	66.62	66.96	67.31	67.66
0.50	68.00	68.35	68.69	69.04	69.38	69.72	70.06	70.40	70.74	71.07
0.60	71.41	71.75	72.08	72.41	72.74	73.08	73.40	73.73	74.06	74.39
0.70	74.71	75.04	75.36	75.68	76.00	76.32	76.63	76.95	77.26	77.58
0.80	77.89	78.20	78.51	78.82	79.12	79.43	79.73	80.03	80.33	80.63
0.90	80.93	81.22	81.51	81.81	82.10	82.39	82.67	82.96	83.24	83.52
1.00	83.90	84.08	84.36	84.63	84.91	85.18	85.45	85.71	85.98	86.24
1.10	86.50	86.76	87.02	87.28	87.53	87.78	88.03	88.28	88.53	88.77
1.20	89.01	89.25	89.49	89.72	89.96	90.19	90.42	90.64	90.87	91.09
1.30	91.31	91.52	91.74	91.95	92.16	92.37	92.58	92.78	92.98	93.18
1.40	93.37	93.57	93.76	93.95	94.13	94.32	94.50	94.67	94.85	95.02
1.50	95.19	95.36	95.53	95.69	95.85	96.00	96.16	96.31	96.46	96.60
1.60	96.75	96.89	97.03	97.16	97.29	97.42	97.55	97.67	97.79	97.91
1.70	98.02	98.13	98.24	98.34	98.45	98.55	98.64	98.73	98.82	98.91
1.80	98.99	99.07	99.15	99.22	99.29	99.36	99.43	99.49	99.54	99.60
1.90	99.65	99.70	99.74	99.78	99.82	99.85	99.88	99.91	99.93	99.95
2.00	99.97	99.98	99.99	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Numbers in the body of this table are estimates of percent within limits (PWL) corresponding to specific values of Q, the QUALITY INDEX. For Q values less than zero, subtract the table value from 100.

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Table A-5. Percent Within Limits (PWL) for Selected Sample Sizes (N)
(Courtesy of FHWA-SA-96-026, 1996)

PERCENT WITHIN LIMITS ESTIMATION TABLE
VARIABILITY-UNKNOWN PROCEDURE
STANDARD DEVIATION METHOD
SAMPLE SIZE 7

	Second Decimal Places For Q									
Q	***0.00***	***0.01***	***0.02***	***0.03***	***0.04***	***0.05***	***0.06***	***0.07***	***0.08***	***0.09***
0.00	50.00	50.37	50.75	51.12	51.50	51.87	52.24	52.62	52.99	53.37
0.10	53.74	54.11	54.49	54.86	55.23	55.60	55.97	56.35	56.72	57.09
0.20	57.46	57.83	58.20	58.56	58.93	59.30	59.67	60.03	60.40	60.77
0.30	61.13	61.50	61.86	62.22	62.58	62.94	63.31	63.67	64.02	64.38
0.40	64.74	65.10	65.45	65.81	66.16	66.51	66.87	67.22	67.57	67.92
0.50	68.26	68.61	68.96	69.30	69.64	69.99	70.33	70.67	71.01	71.34
0.60	71.68	72.02	72.35	72.68	73.01	73.34	73.67	74.00	74.32	74.65
0.70	74.97	75.29	75.61	75.93	76.25	76.56	76.88	77.19	77.50	77.81
0.80	78.12	78.42	78.73	79.03	79.33	79.63	79.93	80.22	80.52	80.81
0.90	81.10	81.39	81.67	81.96	82.24	82.52	82.80	83.08	83.35	83.63
1.00	83.90	84.17	84.44	84.70	84.97	85.23	85.49	85.74	86.00	86.25
1.10	86.51	86.75	87.00	87.25	87.49	87.73	87.97	88.21	88.44	88.67
1.20	88.90	89.13	89.35	89.58	89.80	90.02	90.23	90.45	90.66	90.87
1.30	91.07	91.28	91.48	91.68	91.88	92.08	92.27	92.46	92.65	92.83
1.40	93.02	93.20	93.38	93.55	93.73	93.90	94.07	94.23	94.40	94.56
1.50	94.72	94.87	95.03	95.18	95.33	95.48	95.62	95.76	95.90	96.04
1.60	96.17	96.31	96.43	96.56	96.69	96.81	96.93	97.05	97.16	97.27
1.70	97.38	97.49	97.59	97.70	97.80	97.89	97.99	98.08	98.17	98.26
1.80	98.35	98.43	98.51	98.59	98.66	98.74	98.81	98.88	98.94	99.01
1.90	99.07	99.13	99.19	99.24	99.30	99.35	99.40	99.44	99.49	99.53
2.00	99.57	99.61	99.64	99.68	99.71	99.74	99.77	99.79	99.82	99.84
2.10	99.86	99.88	99.90	99.92	99.93	99.94	99.95	99.96	99.97	99.98
2.20	99.99	99.99	99.99	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Numbers in the body of this table are estimates of percent within limits (PWL) corresponding to specific values of Q, the QUALITY INDEX. For Q values less than zero, subtract the table value from 100.

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Table A-6. Percent Within Limits (PWL) for Selected Sample Sizes (N)
(Courtesy of FHWA-SA-96-026, 1996)

PERCENT WITHIN LIMITS ESTIMATION TABLE
VARIABILITY-UNKNOWN PROCEDURE
STANDARD DEVIATION METHOD
SAMPLE SIZE 8

	Second Decimal Places For Q									
Q	***0.00***	***0.01***	***0.02***	***0.03***	***0.04***	***0.05***	***0.06***	***0.07***	***0.08***	***0.09***
0.00	50.00	50.38	50.76	51.14	51.51	51.89	52.27	52.65	53.03	53.41
0.10	53.78	54.16	54.54	54.92	55.29	55.67	56.04	56.42	56.79	57.17
0.20	57.54	57.92	58.29	58.66	59.03	59.41	59.78	60.15	60.52	60.89
0.30	61.25	61.62	61.99	62.35	62.72	63.08	63.45	63.81	64.17	64.53
0.40	64.89	65.25	65.61	65.96	66.32	66.67	67.03	67.38	67.73	68.08
0.50	68.43	68.78	69.13	69.47	69.82	70.16	70.50	70.84	71.18	71.52
0.60	71.85	72.19	72.52	72.85	73.18	73.51	73.84	74.17	74.49	74.81
0.70	75.14	75.46	75.77	76.09	76.41	76.72	77.03	77.34	77.65	77.96
0.80	78.26	78.56	78.86	79.16	79.46	79.76	80.05	80.34	80.63	80.92
0.90	81.21	81.49	81.77	82.05	82.33	82.61	82.88	83.15	83.43	83.69
1.00	83.96	84.22	84.49	84.75	85.00	85.26	85.51	85.76	86.01	86.26
1.10	86.51	86.75	86.99	87.23	87.46	87.70	87.93	88.16	88.39	88.61
1.20	88.83	89.06	89.27	89.49	89.70	89.91	90.12	90.33	90.53	90.74
1.30	90.94	91.13	91.33	91.52	91.71	91.90	92.09	92.27	92.45	92.63
1.40	92.81	92.98	93.15	93.32	93.49	93.65	93.81	93.97	94.13	94.29
1.50	94.44	94.59	94.74	94.88	95.03	95.17	95.31	95.44	95.58	95.71
1.60	95.84	95.97	96.09	96.21	96.33	96.45	96.57	96.68	96.79	96.90
1.70	97.01	97.11	97.21	97.31	97.41	97.51	97.60	97.69	97.78	97.87
1.80	97.96	98.04	98.12	98.20	98.28	98.35	98.42	98.49	98.56	98.63
1.90	98.69	98.76	98.82	98.88	98.93	98.99	99.04	99.09	99.14	99.19
2.00	99.24	99.28	99.33	99.37	99.41	99.45	99.48	99.52	99.55	99.58
2.10	99.61	99.64	99.67	99.70	99.72	99.74	99.77	99.79	99.81	99.83
2.20	99.84	99.86	99.87	99.89	99.90	99.91	99.92	99.93	99.94	99.95
2.30	99.96	99.96	99.97	99.98	99.98	99.98	99.99	99.99	99.99	100.00

Numbers in the body of this table are estimates of percent within limits (PWL) corresponding to specific values of Q, the QUALITY INDEX. For Q values less than zero, subtract the table value from 100.

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SPECIAL NOTE FOR EXCAVATION AND EMBANKMENT

This Special Note replaces Sections 204 and 206 of the Department's 2008 Standard Specifications for Road and Bridge Construction and will apply where indicated on the plans or in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Remove and dispose of all materials taken from within limits of the work contracted, meaning the calculated material lying between the original groundline and the excavation limits established or approved by the Engineer as shown on the final cross sections, and form embankments with materials from sources specified in the Plans or from other approved sources.

2.0 MATERIALS AND EQUIPMENT. Use water conforming to Section 803.

3.0 CONSTRUCTION.

3.1 Excavation. Excavate for cuts and roadbeds, embankment foundation benches, embankment subgrades, under-cutting subgrades in cut sections, shoulders, slopes, ditches, waterways, intersections, approaches, balance excavation, inlet and outlet ditches, and channel changes, all as specified in the Contract.

Remove and dispose of miscellaneous structures from within the limits of the typical section according to Section 203.

Protect and preserve all existing culverts, pipelines, conduits, subdrains, or parts there of that may continue to be used without any change. Repair or replace any culvert, pipeline, conduit, or subdrain damaged from operations or negligence during the life of the Contract.

During construction, ensure that the roadway is well drained at all times.

3.1.1 Classification. Without regard to the materials encountered, all roadway and drainage excavation is unclassified and the Department will consider it Roadway Excavation. Any reference to rock, earth, or any other material on the Plans or cross sections, whether in numbers, words, letters, or lines, is solely for the Department's information and is not an indication of classified excavation or the quantity of either rock, earth, or any other material involved. The bidder must draw his own conclusions as to the conditions to be encountered, including any shrinkage and swell of materials. The Department does not give any guarantee as to the accuracy of the data and will not consider any claim for additional compensation when the materials encountered are not in accord with the classification shown.

3.1.2 Slopes. Do not remove or loosen any material outside of the required slopes. Leave all rock cut slopes with a uniform surface, and remove all loose or overhanging rock. Do not gouge or dig holes in back slopes or in embankment slopes.

The Engineer may vary the slopes in cuts during construction, depending upon the material encountered in excavation to secure sufficient material for the formation of embankment and shoulders, to prevent landslides, to improve sight distance, or for any other reasons widening or variations are deemed to be to the best advantage of the work. When making a cut on any section of the roadway in any material that may slide, excavate to the slope lines as specified in the Plans or as the Engineer directs. Do not form vertical slopes during the

process of excavation of such cuts, except in stage construction when leaving material in cuts for future shoulder construction.

3.1.3 Serrated Slopes. When the Plans designate locations to construct serrated slopes and when soft rock or shale are encountered at the designated locations, excavate these materials by bulldozing or ripping, without drilling and blasting, in a manner that serrates the cut faces to a stepped pattern.

Round all soil overburden and talus material above the serrated slopes to blend with the original ground. Construct the top half step tread of a serrated slope just below the surface where the soil overburden contacts the soft rock or shale and continue the steps to the bottom of the cut slope, unless hard rock or hard shale formations are encountered which indicate that the lower limits of the rock disintegration zone have been reached. When hard rock or hard shale formations which must be blasted are encountered within the cuts being serrated, end the steps of the serrated slope by blending them into the hard rock or shale. Construct the step risers in the serrated slopes to the height specified in the Plans with the approximate width of the step treads being the height of the risers multiplied by the designated cut slope ratio. Make the midpoints of treads of the steps coincide approximately with the staked slope lines. Blend the first and last steps of a serrated slope into the staked slope line. Construct the first and last steps of a serrated slope to a width of approximately one-half the normal step tread width. Construct the step treads approximately level rather than parallel to the ditch line grades. When the steps extend throughout the length of a cut, round the ends of the steps and blend them into the adjacent ground.

The Engineer will not require thorough final dressing of the serrated slopes. However, remove large pieces of rock or other dangerous material which might fall from the steps and create safety hazards or maintenance problems. Seed and protect the serrated slopes according to the Plans and Section 212.

3.1.4 Presplitting. Presplit all rock and shale formations within the roadway excavation limits that are conducive to excavation by drilling and blasting at the designated slope lines. Perform the presplitting before blasting and excavating the interior portion of the specified cross section at any location.

Perform presplitting to obtain smooth faces in the rock and shale formations. Develop presplit faces that are free of all loose or crushed pieces and do not deviate more than 6 inches inwardly from the designated slope lines or offset drill holes, nor more than one foot outwardly, except where seams, broken formations, or earth pockets may cause unavoidable irregularities. The Engineer may stop the presplitting when he determines that materials have become unsuitable for presplitting. The Department will measure for payment material lying outside the typical section that must be removed due to seams, broken formations, or earth pockets, including any earth overburden removed with this material.

3.1.5 Ditches. Ditches include channel changes, inlet and outlet ditches, side ditches, surface ditches, wing ditches, and such other required ditches.

Construct side ditches draining from cuts toward embankments to avoid erosion damage to embankments by directing water coming from cuts away from fills.

Do not place material removed in cleaning or opening of ditches on cut

slopes.

Excavate special ditches and channel changes before constructing adjacent embankment areas.

Remove all debris from ditches before requesting formal acceptance.

3.1.6 Use of Excavated Materials. Use all suitable excavated material in the formation of embankments, subgrade, or shoulders; as backfill for structures; or for other purposes specified in the Contract.

Remove and dispose of all sod and soft or spongy material. Do not use such materials in the construction of the grade, except as provided in Part 3.2 of this note.

Take ownership and dispose of any coal excavated from the project within the typical section, or as directed. Do not use coal in embankments except in small quantities and then only when thoroughly mixed with other materials.

Do not waste excavated material without permission. When approved, waste excess material adjacent to the embankment or incorporate it in the normal embankment construction within the right-of-way limits. Do not perform irregular or partial widening of embankments. Do not waste excess material between cut slopes and the right-of-way limits, except for the purpose of filling depressions, gullies, and other cavities; and, when so wasted, shape the material to conform with the adjacent ground.

A) Channel Lining, Class IV. Prepare broken stone from formations consisting primarily of limestone, or if specified in the Plans, durable sandstone or durable shale (SDI equal to or greater than 95 according to KM 64-513) that are encountered in roadway excavation or obtained from borrow excavation.

Provide stone so that at least 80 percent, by volume, of individual stones range in size from 1/4 to 1 1/2 cubic foot. Use smaller sized stones for filling voids in the upper surface and dressing to the proper slope. The Engineer will accept the size and gradation of the material based on visual inspection. The Engineer may allow material not conforming to the specified size and gradation when it is acceptable for the intended use.

Shape ditches and channels as specified to receive the channel lining. Unless solid rock is encountered, begin the channel lining in a trench 2 feet below the natural ground or 2 feet below the channel flowline when the flowline is not lined. Where encountering solid rock, end the slope protection at the solid rock line.

Construct Channel Lining, Class IV to the minimum thickness specified in the Plans. Place the stone in a manner to produce a surface not varying more than 6 inches from a true plane.

B) Spreading Stockpiled Topsoil. If the Contract includes Spreading Stockpiled Topsoil as a bid item, or when otherwise specified in the Contract, salvage topsoil from within the limits of the slope lines and store it in stockpiles. Before removing the topsoil, clear the areas of all weeds, brush, stumps, stones, and other debris. Remove the topsoil only from areas and to depths specified in the Plans or as the Engineer directs. Avoid mixing subsoil or other unsuitable material with the topsoil. Place sod removed from embankment areas according to Subsection 206.03 in the topsoil stockpiles. Place the stockpiles along the project at approved locations. Neatly dress each stockpile, when completed. Perform

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temporary or permanent seeding on the stockpiles.

When Spreading Stockpiled Topsoil is a bid item, the Department will allow the topsoil to be spread directly on the areas designated to receive the topsoil, without stockpiling, provided that seeding and protection operations are ready to begin.

3.1.7 Roadbed. In addition to the limits of the roadbed as defined in Subsection 101.03, extend the roadway excavation to the ditch lines in cuts. Conduct roadway excavation operations to make available a sufficient quantity of selected materials to complete the roadbed.

Remove all rock between ditch lines to a depth below the required grade as specified in the Plans or as staked. Leave the final surface of the rock to provide complete drainage. Construct the refill over this surface with select material having no stone or spalls larger than 4 inches. Place all refill in lifts not exceeding one foot in depth, loose measurement, and compact according to Part 3.2 of this note. The Engineer will make no allowance for excavation and refill material to a greater depth below the required grade than as specified in the Plans or as staked.

When encountering unsuitable material at subgrade elevation, remove the material to the depths specified in the Plans or as directed. Dry and use material that is unstable due to excessive moisture but otherwise suitable. Waste the material or use the material as refill or in embankments as the Engineer directs. Refill with suitable material.

A) Rock Roadbed. Conduct roadway blasting and excavation operations to make available a sufficient quantity of rock to complete the roadbed.

Prepare rock from formations consisting primarily of limestone, durable sandstone, or durable shale (SDI equal to or greater than 95 according to KM 64-513) that are encountered in the roadway excavation or that are obtained from borrow excavation. Do not use rock fragments exceeding one foot.

Excavate all cuts to a minimum of 2 feet below the final subgrade elevation and refill with the broken stone in 2 lifts, each approximately one foot thick. Leave the excavated surface to provide complete drainage. If excavation is deeper than 2 feet below subgrade, construct the top 2 feet in 2 lifts, each approximately one foot thick and the remaining in lifts not exceeding one foot using rock conforming to this section.

Construct rock roadbed from ditch line to ditch line in cuts, from shoulder to shoulder in fills, and throughout the entire project including mainline, ramps, and approach roads.

Perform all handling, stockpiling, or hauling manipulations, including overhauling, necessary to provide for the proper distribution of the broken stone.

In all instances, dump, spread, and smooth each one-foot lift, and compact each lift by vibratory rollers weighing at least 5 tons to minimize voids and bridging.

B) Chemically Stabilized Roadbed. Construct according to Section 208.

3.2 Embankment.

3.2.1 Embankment Foundations. Remove sod from all embankment areas to a

depth of approximately 3 inches. The Engineer will not require the removal of sod when constructing embankments over marshy areas.

Remove unsuitable material, including frozen material, encountered in embankment areas before placing any embankment material thereon.

When the height of the embankment, at subgrade elevation, is to be greater than 3 feet above existing concrete pavement, either break the pavement until no fragments have a dimension greater than 3 feet or remove the pavement. When the height of the embankment, at subgrade elevation, is to be 3 feet or less above existing concrete pavement, remove the pavement.

When placing embankment above existing asphalt pavement, break up to destroy all cleavage planes or remove as the Engineer directs.

Cut benches with horizontal and vertical faces into the original ground of embankment foundations as required. When practical, benches should be into rock. Compact the horizontal face. Provide subsurface drainage as specified in the Plans or as the Engineer directs.

When the Contract designates original material as unsuitable for the embankment foundation, the Department will designate areas of Special Excavation and/or treatment and will give instructions about the removal and disposal of unsuitable foundation material in the Plans.

When a bid item of special excavation has not been included in the Contract and the original ground is specified in the Plans as suitable to serve as the embankment foundation but the Engineer subsequently determines the material is unsuitable to remain in its original position, excavate and dispose of the unsuitable foundation material as directed. Incorporate the excavated material into embankments when manipulations such as spreading thin layers or drying the material make it acceptable for use as embankment-in-place. When excavated material cannot be used in embankments, waste the material.

3.2.2 Placing and Compacting. Use only acceptable materials from sources permitted in the Contract. Do not place frozen material, stumps, logs, roots, sod, or other perishable materials in any embankment. Do not place any stone or masonry fragment greater than 4 inches in any dimension within one foot of the finished subgrade elevation, unless rock roadbed is specified.

The Department may allow concrete rubble, without protruding reinforcement, to be placed in embankment provided that no fragment is larger than one foot in any dimension or is placed within 2 feet of the subgrade.

When crossing marshy or otherwise unstable areas, the Department may allow the first lift to exceed one-foot loose depth. Use rock or granular material in the first lift, when available, and construct by placing material behind the leading edge of the layer and blading into place to avoid unnecessary disturbance to the original ground.

Drain, clean out, and fill ponds lying within the staked construction limits.

Construct the upper one foot of the embankment with selected material placed in lifts not exceeding one foot loose thickness.

When rock roadbed is specified, construct the upper 2 feet of the embankment according to Part 3.1.7 of this note.

A) Embankments of Earth, Friable Sandstone, Weathered Rock, Waste Crushed Aggregate, Bank Gravel, Creek Gravel, or Similar Materials. Construct in lifts not exceeding one foot in thickness, loose depth, to the full width of the cross section, and compact the material.

Shape the upper surface of the embankment to provide complete drainage of surface water at all times. Do not form ruts.

B) Embankments Principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone. Construct in lifts not exceeding 3 feet. Ensure that the maximum dimensions of boulders or large rocks placed in the embankment do not exceed 3 feet vertically and 4.5 feet horizontally. Place rocks having any dimension greater than 2 feet at least 2 feet below subgrade elevation. Do not dump rock into final position. Distribute the rock to minimize voids, pockets, and bridging. The Engineer will not require rolling in the construction of rock embankment. Do not construct the rock embankment to an elevation higher than one foot below subgrade elevation.

C) Embankment of Rock/Shale/Soil Combination. Construct in lifts not exceeding one foot in thickness; however, when the thickness of the rock exceeds one foot, the Department may allow the thickness of the embankment lifts to increase, as necessary, due to the nature of the material, up to 2 feet. Apply a sufficient amount of water to induce slaking when mixtures contain 50 percent or more non-durable shale. Do not dump the mixture into final position. Distribute the mixture in a manner that minimizes voids, pockets, and bridging.

D) Embankments Principally of Non-Durable Shale (SDI less than 95 according to KM 64-513). Remove or break down rock fragments or limestone slabs having thickness greater than 4 inches or having any dimension greater than 1 1/2 feet before incorporating them into the lift. Construct in loose lifts not exceeding 8 inches in thickness. Apply water to accelerate slaking. Uniformly incorporate the water throughout the lift using a multiple gang disk with a minimum disk diameter of 2 feet or other suitable equipment the Engineer approves. Compact with 30-ton static tamping foot rollers in conjunction with vibratory tamping foot rollers that produce a minimum compactive effort of 27 tons and direct hauling equipment over the full width of the lift to aid in compaction. When questions arise regarding the durability of shale, use KM 64-514 to estimate the durability of the material in the field.

Compact the embankment foundations and embankment to a density of at least 95 percent of maximum density as determined according to KM 64-511. The Engineer will check density according to KM 64-412.

During compaction, maintain the moisture content of embankment or subgrade material within ± 2 percent of the optimum moisture content as determined according to KM 64-511.

Compact each lift as required before depositing material for the next lift. Provide equipment that will satisfy the density requirements at all times. Run the hauling equipment, as much as possible, along the full width of the cross section.

3.2.3 Embankment Adjacent to Structures. Construct according to Subsection 603.03.04 for backfill.

3.3 Construction Tolerances. Make every reasonable effort to construct the project uniformly within the following allowable tolerances and in a manner that will minimize the field measurements and computations required to determine if the work is satisfactory.

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The Department will allow the following tolerances before making payment for any decreases in the quantity or before requiring the rework of the constructed item:

1) Do not deviate the distance from centerline to the ditch lines in cuts and the shoulder lines in fills more than one foot from the dimension specified in the Plans. Ensure that the total width of the roadbed is not deficient by more than one foot at any location.
2) Ensure that the sloped surfaces between the ditch lines or shoulder lines and the original ground are not inside the specified slope limits more than 6 inches or outside the specified slope limits more than one foot, both measured horizontally.
3) Excavate cut benches to within one foot above or below the bench elevation specified in the Plans or established by the Engineer.
4) The Department will not make payment for any earthwork performed outside the limits specified by the neat lines of the cross sections on the Plans or by the Engineer. Do not remove or place any extra material more than one foot outside of these limits without permission, except as provided in Parts 3.1.4 and 3.2 of this note.
5) On grade and drain projects where surfacing is not included, complete the subgrade to within ± 0.1 foot of the designated grade at the time of final acceptance, except that when rock roadbed is specified, complete it to within ± 0.2 foot.
6) Ensure that all subgrades being prepared for base or surface courses, except traffic bound courses, are within ± 1/2 inch of the specified crown section, except that when rock roadbed is specified, complete it to within ± 0.2 foot. Uniformly construct these subgrades so the subsequent base and surface courses can be constructed within their specified tolerances.

3.4 Landslides. When directed, remove and dispose of all landslides. The Department will measure landslides in place, by the cross section method, before removal of material. Obtain the Engineer's approval for use of slide material.

3.5 Disposal of Wasted Material. Obtain approved sites for wasting material off the right-of-way. Place material to avoid an unsightly appearance. Place all waste to avoid the obstruction of drainage. Seed and protect the wasted material and all temporary haul roads.

Submit for approval drawings of proposed waste areas, showing the configuration of the original ground and the anticipated configuration of the area upon completion of the waste operation; any preparatory work such as benching; provisions for surface and subsurface drainage of the area after wasting is completed; and any other necessary information. The Department will pay for the geotechnical investigation and analysis of the proposed waste area when one is requested by the Engineer. Ensure all work is performed by a pre-qualified geotechnical consultant and according to the Department's Geotechnical Manual.

Furnish cross sections and hydraulic computations for waste area sites situated in the flood plain of any stream. For these computations, define this flood plain as that area required to pass the 100 year flood. Indicate with the computations the effect that the waste site will have on both the design flood and the 100 year flood.

Furnish copies of a written agreement with the property owner, approval of the owner(s) of utilities of any nature existing within the proposed waste area, and approvals from all applicable regulatory agencies including the Natural Resources and Environmental Protection Cabinet, US Forest Service, US Army Corp of Engineers, US

Fish and Wildlife, Kentucky Division of Water, and Planning and Zoning Commissions.

When encountering unanticipated waste material resulting from landslides or approved slope changes, waste it within the right-of-way at sites designated by the Engineer, or dispose of it off the right-of-way at sites acquired or approved by the Department.

4.0 MEASUREMENT.

4.1 Payment for Design Quantities. Unless the Contract provides for payment based on field measurements of material excavated, the Department will not measure Excavation or Embankment quantities but will make final payment at the Contract unit price for the design quantity specified within the neat lines of the cross sections on the Plans, increased or decreased by authorized adjustments.

The Department will not consider any quantity specified in the Plans for contingencies to be part of the design quantity. The Department will include only the portion of the contingency quantity actually used, as determined by the Engineer's measurements.

4.2 Authorized Adjustments. The Department will only make adjustments to the design quantities of Excavation or Embankment authorized by the Engineer for the following reasons:

1) Changes in the quantity of work due to benching, undercutting, changing slopes or grades, removing slides, and any other required procedures.
2) Decreases in the quantity because of acceptable work not conforming to established tolerances.
3) Corrections of major errors on the Plans. Major errors are defined as individual mistakes of 5 percent or more in the quantity of earthwork between 2 consecutive cross sections, for omissions, duplications, or other errors in the survey or on the Plans, but not for minor discrepancies in the plotting of cross sections, in the planimetering of cross sections, and in the resulting computation of the volume of earthwork. When errors in the lines or grades specified in the Plans cause major errors in earthwork quantities, the Department will correct the earthwork quantities throughout the entire span of the errors. The Department will not adjust earthwork quantities when errors in the lines or grades do not cause major errors in the earthwork quantities.
4) Arithmetical mistakes.

4.3 Serrated Slopes. The Department will not measure this work for payment and will consider it incidental to either Excavation or Embankment, as applicable.

The Department will not measure for payment any breakage of the soft rock or other material outside the staked slope line.

4.4 Presplitting. The Department will not measure this work for payment and will consider it incidental to Excavation. However, if the Engineer directs in writing slope changes, then the Department will pay for the second presplitting operation as Extra Work.

The Department will not measure for payment any extra material excavated because of the drill holes being offset outside the designated slope lines.

The Department will not measure for payment any material including any earth overburden necessary to be removed due to the Contractor's faulty blasting practices.

4.5 Rock Roadbed. The Department will measure the quantity in cubic yards as Embankment. The Department will not measure any special work necessary to perform rock roadbed construction for payment and will consider it incidental to the Embankment bid item.

The Department will measure the removal of unsuitable material as Excavation. The Department will measure any additional material necessary for refill as Embankment, at its origin. The Department will not measure for payment rock refill exceeding 2 feet. When the material is removed from the roadbed and wasted without the Engineer's permission, the Department will not measure for payment any required refill material.

4.6 Landslides. The Department will measure the removal quantity in cubic yards as Excavation and will make equal measurement as Embankment when placed outside the plan's neat lines or wasted. When placed within the neat lines, the Department will consider the equal measurement of Embankment incidental to the Embankment design quantity. When the material is placed outside the plan's neat lines or wasted without the Engineer's permission, the Department will not consider the equal measurement of Embankment for payment.

The Department will not measure for payment the removal and disposal of landslides resulting from faulty operations.

Whenever a landslide extends beyond the right-of-way in wooded areas, and the Engineer directs trees and stumps be removed, the Department will measure for payment clearing of the additional area under Clearing and Grubbing or Removing Trees and Stumps, as provided in the original Contract.

4.7 Ditches. When Ditching or Ditching and Shouldering are listed as a bid item, the Department will measure this according to Subsection 209.04. When Ditching or Ditching and Shouldering are not listed as a bid item, the Department will not measure this work for payment and will consider it incidental to either Excavation or Embankment, as applicable.

4.8 Excavation. The Department will measure the quantity in cubic yards based on design quantities with authorized adjustments. The Department will base the measurement of the Excavation quantities at locations where serrated slopes are constructed on the areas and volumes defined by the staked slope lines. The Department will not measure for payment any excavated material used for any purpose other than that the Plans specify or the Engineer approves.

When the Contract provides for payment based on field measurements of the material excavated, the Department will measure the excavation in its original position by taking cross sections before the work starts and after it is entirely completed. The Department will compute the volume by the average end-area method. The Department will include in its measurement all unavoidable slides and authorized excavation of any material below the subgrade.

Where material has been excavated beyond the slope line and wasted, without being authorized, the Department will measure the wasted material and deduct it from the excavated quantities.

In determining the amount of waste material to be deducted as the result of excavation beyond the slope lines set by the Engineer, and wasted, the Department will consider only that portion outside of one foot additional width of embankment on each side, widened uniformly. The Department will measure the volume and deduct it from the excavation quantities without regard to swell or shrinkage factors.

4.9 Benches. The Department will measure excavation of benches as Excavation

and will make equal payment as Embankment.

4.10 Embankment. The Department will measure the quantity in cubic yards as the design quantity shown within the neat lines of the cross sections on the Plans, increased or decreased by authorized adjustments according to Part 4.2 of this note.

The Department will consider removing sod 3 inches or less in depth; removing and/or scarifying of existing pavements in embankment areas; and the addition of water to aid compaction incidental to Embankment.

When undercutting embankment foundations, regardless of whether the excavated material is used as embankment or is wasted, the Department will measure the removal of unsuitable materials as Excavation or Special Excavation.

When the Engineer directs that the excavated material be wasted, then the Department will measure the material used to replace the wasted material as the same quantity as the excavated volume, and will pay for the material as Embankment. When the excavated material is used in embankment, the Department will make no separate payment for the material necessary to replace the excavated material.

The Department will not measure borrow excavation used to construct the embankment for payment and will consider it incidental to the construction of Embankment.

4.11 Special Excavation. The Department will measure the quantity in cubic yards as the design quantity shown within the neat lines of the cross sections on the Plans, increased or decreased by authorized adjustments as specified in Parts 4.1 and 4.2 of this note.

The Department will not measure overhaul of material and will consider it incidental to Special Excavation.

4.12 Waste. The Department will consider acquiring a waste site, disposing of waste, and providing erosion control for the site and haul roads incidental to Excavation and Embankment.

If the waste material is due to authorized adjustments, the Department will measure the quantity of unanticipated waste resulting from the authorized adjustments in place before excavation; make provisions for a waste site; and measure erosion control work for payment according to Subsection 212.04. The Department will include the quantity of approved unanticipated waste under Embankment.

4.13 Overhaul. The Department will measure the quantity only for excavation and embankment added due to authorized adjustments. For all other excavation quantities, the Department will not measure this work for payment and will consider it incidental to either Excavation or Embankment, as applicable.

The Department will measure the quantity by the Cubic Yard Station. A Cubic Yard Station is the product of the volume of material hauled in cubic yards and the distance that the material is hauled, in excess of the 2,000 feet of free haul, in stations of 100 feet, as determined by the Mass Diagram Method or by analytical methods.

4.14 Channel Lining, Class IV. The Department will measure the quantity in cubic yards.

4.15 Water. The Department will not measure for payment water used to provide sufficient moisture for compaction.

5.0 PAYMENT. The Department will make payment for the completed and accepted

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quantities under the following:

Code	Pay Item	Pay Unit
21554EN10Z	Excavation	Cubic Yard
----	Overhaul	CubicYard Station
02488	Channel Lining, Class IV	Cubic Yard
05998	Spreading Stockpiled Topsoil	Cubic Yard
21553EN10Z	Embankment	Cubic Yard
02204	Special Excavation	Cubic Yard

The Department will pay for Overhaul at 2 percent of the Contract unit price for both Excavation and Embankment for each Cubic Yard Station.

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

January 1, 2008

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SPECIAL NOTE FOR BORING JACKING STEEL PIPE WITHOUT CARRIER PIPE

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Bore and jack steel pipe. Use this note when no carrier pipe will be encased.

2.0 MATERIALS.

2.1 Pipe. Provide plain end steel pipe with a specific minimum yield strength, SMYS, of at least 35,000 psi and tensile strength of 60,000 psi per API-5L grade B material. The steel pipe supplied shall be manufactured by the seamless, electric-weld, submerged-arc weld or gas metal-arc well process as specified in API –5L. Certification of 35,000 psi SMYS shall be furnished by the supplier through the Contractor to the Engineer to retain 3 copies.

MINIMUM WALL THICKNESS FOR STEEL PIPE	
Nominal Diameter (Inches)	Wall Thickness (Inches)
18 or less	0.375
24	0.500
30	0.500
36	0.500
42	0.625

2.2 Grout. Conform to Subsection 601.03.03.

2.3 High Grade Bentonite. Conform to the following:

API 13A Section 4		
Requirement	Specification	Result
Viscometer Dial Reading at 600 rpm	30, minimum	40
Yield Point/Plastic Viscosity Ratio	3, maximum	3.00 maximum
Filtrate Volume	15 cm3, maximum	14.50 maximum
Residue greater than 75 micrometers	4.0 wt percent maximum	1.0-1.5 %
Moisture	10.0 wt percent maximum	9.0-9.5%

3.0 CONSTRUCTION. Perform the following:

1. Locate a suitable pit and obtain the Engineer's approval
2. Excavate the pit or trenches for the BORE AND JACK operation and for placing the end joints of pipe, when required. Securely sheet and brace the pits or trenches to prevent caving, where necessary.

3. When installing pipe under railroads, highways, streets, or other facilities by Bore and Jack, perform construction without interfering with the facility operation or weakening the roadbed or structure.
4. Place excavated material near the top of the working pit and dispose of it as required. Use water or other fluids with the boring operation to lubricate the cuttings. Do not perform jetting.
5. In unconsolidated soil formations, use a gel-forming collodial drilling fluid with at least 10 percent of high grade bentonite to consolidate excavated material, seal the walls of the hole, and lubricate subsequent removal of material and immediate pipe installation.
6. Ensure that the diameter of the excavation conforms to the outside diameter of the pipe as closely as possible.
7. Pressure grout voids that develop during the installation operation and that the Engineer determines are detrimental to the Work.
8. To force the pipe through the roadbed into the bored space, use a jack with a head constructed to apply uniform pressure around the ring of the pipe, which shall be square cut.
9. Set the pipe to be jacked on guides, braced together to properly support the pipe section and to direct it to the proper line and grade.
10. When the installation is made by concurrent boring and jacking, solidly weld all joints. Ensure the weld is strong enough to withstand the forces exerted from the boring and jacking operations as well as the vertical loading imposed on the pipe after installation and that it provides a smooth, non-obstructing joint in the interior of the pipe.
11. When the pipe is installed in open trench, bed and backfill according to Section 701.
12. The line and grade from the pipe's final position, as shown on plans, may vary no more than 2 percent in lateral alignment and one percent in vertical grade. Ensure that the final grade of the flow line is in the direction indicated on the Plans.
13. Use a cutting edge around the head end. Extend it a short distance beyond the pipe end with inside angles or lugs to keep the cutting edge from slipping back into the pipe.
14. Once the pipe installation begins, proceed with the operation without interruption to prevent the pipe from becoming firmly set in the embankment.
15. Remove and replace pipe damaged in jacking operations.
16. After completing the installation, backfill the excavated pits and trenches with flowable fill according to Section 601.03.03 B) 5 a) if the pit is in median area where it will have pavement over it.

4.0 MEASUREMENT. The Department will measure the completed length of Bore and Jacked pipe through the flowline from end to end in linear feet. The Department will not measure pressure grouting voids or removal and replacement of pipe damaged in jacking operations for payment and will consider it incidental to Bore and Jack. When abandoning a bore hole due to mechanical malfunction, improper alignment, or other problems due to construction operations, the Department will not measure the backfill and relocation for payment and will consider it incidental to this item of work. When abandoning a bore hole due to an unforeseen physical obstruction or situation, the Department will measure the work according to a negotiated supplemental agreement.

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

11E

Code	Pay Item	Pay Unit
----	Bore and Jack, Size Pipe	Linear Foot

The Department will consider payment as full compensation for all materials, earthwork, shoring, pipe and work required under this section.

January 1, 2008

SPECIAL PROVISION FOR EMBANKMENT AT BRIDGE END BENT STRUCTURES

This Special Provision will apply when indicated on the plans or in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Construct a soil, granular, or rock embankment with granular or cohesive pile core and place structure granular backfill, as the Plans require. Construct the embankment according to the requirements of this Special Provision, the Plans, Standard Drawing RGX 100 and 105, and the 2008 Standard Specifications.

2.0 MATERIALS.

2.1 Granular Embankment. Conform to Subsection 805.10. When Granular Embankment materials are erodible or unstable according to Subsection 805.03.04, use the Special Construction Methods found in 3.2 of the Special Provision.

2.2 Rock Embankment. Provide durable rock from roadway excavation that consists principally of Unweathered Limestone, Durable Shale (SDI equal to or greater than 95 according to KM 64-513), or Durable Sandstone.

2.3 Granular Pile Core. Select a gradation of durable rock to facilitate pile driving that conforms to Subsection 805.11. If granular pile core material hinders pile driving operations, take appropriate means necessary to reach the required pile tip elevation, at no expense to the Department.

2.4 Cohesive Pile Core. Conform to Section 206 of the Standard Specifications and use soil with at least 50 percent passing a No. 4 sieve having a minimum Plasticity Index (PI) of 10. In addition, keep the cohesive pile core free of boulders, larger than 6 inches in any dimension, or any other obstructions, which would interfere with drilling operations. If cohesive pile core material interferes with drilling operations, take appropriate means necessary to maintain excavation stability, at no expense to the Department.

2.5 Structure Granular Backfill. Conform to Subsection 805.11

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

3.0 CONSTRUCTION.

3.1 General. Construct roadway embankments at end bents according to Section 206 and in accordance with the Special Provision, the Plans, and Standard Drawings for the full embankment section. In some instances, granular or rock embankment will be required for embankment construction for stability purposes, but this special provision does not prevent the use of soil when appropriate. Refer to the plans for specific details regarding material requirements for embankment construction.

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

When granular or rock embankment is required for embankment construction, conform to the general requirements of Subsection 206.03.02 B). In addition, place the material in no greater than 2-foot lifts and compact with a vibrating smooth wheel roller capable of producing a minimum centrifugal force of 15 tons. Apply these requirements to the full width of the embankment for a distance of half the embankment height or 50 feet, whichever is greater, as shown on Standard Drawing RGX-105.

When using granular pile core, install 8-inch perforated underdrain pipe at or near the elevation of the original ground in the approximate locations depicted on the standard drawing, and as the Engineer directs, to ensure positive drainage of the embankment. Wrap the perforated pipe with a fabric of a type recommended by the pipe manufacturer.

After constructing the embankment, excavate for the end bent cap, drive piling or install shafts, place the mortar bed, construct the end bent, and complete the embankment to finish grade according to the construction sequence shown on the Plans or Standard Drawings and as specified hereinafter.

After piles are driven or shafts installed (see design drawings), slope the bottom of the excavation towards the ends of the trench as noted on the plans for drainage. Using a separate pour, place concrete mortar, or any class concrete, to provide a base for forming and placing the cap. Place side forms for the end bent after the mortar has set sufficiently to support workmen and forms without being disturbed.

Install 4-inch perforated pipe in accordance with the plans and Standard Drawings. In the event slope protection extends above the elevation of the perforated pipe, extend the pipe through the slope protection.

After placing the end bent cap and removing adjacent forms, fill the excavation with structure granular backfill material to the level of the berm prior to placing beams for the bridge. For soil embankments, place Type IV geotextile fabric between embankment material and structure granular backfill. After completing the end bent backwall, or after completing the span end wall, place the structure granular backfill to subgrade elevation. If the original excavation is enlarged, fill the entire volume with compacted structure granular backfill at no expense to the Department. Do not place backfill before removing adjacent form work. Place structure granular backfill material in trench ditches at the ends of the excavation. Place Geotextile Fabric, Type IV over the surface of structure granular backfill prior to placing aggregate base course.

Tamp the backfill with hand tampers, pneumatic tampers, or other means the Engineer approves. Thoroughly compact the backfill under the overhanging portions of the structure to ensure that the backfill is in intimate contact with the sides of the structure.

Do not apply seeding, sodding, or other vegetation to the exposed granular embankment.

3.2 Special Construction Methods. Erodible or unstable materials may erode even when protected by riprap or channel lining; use the special construction method described below when using these materials.

Use fine aggregates or friable sandstone granular embankment at “dry land” structures only. Do not use them at stream crossings or locations subject to flood waters.

For erodible or unstable materials having 50 percent or more passing the No. 4 sieve, protect with geotextile fabric. Extend the fabric from the original ground to the top of slope over the entire area of the embankment slopes on each side of, and in front of, the end bent. Cover the fabric with at least 12 inches of non-erodible material.

For erodible or unstable materials having less than 50 percent passing a No. 4 sieve, cover with at least 12 inches of non-erodible material.

Where erodible or unstable granular embankment will be protected by riprap or channel lining, place geotextile fabric between the embankment and the specified slope protection.

4.0 MEASUREMENT.

4.1 Granular Embankment. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment any Granular Embankment that is not called for in the plans.

The Department will not measure for payment any special construction caused by using erodible or unstable materials and will consider it incidental to the Granular Embankment regardless of whether the erodible or unstable material was specified or permitted.

4.2 Rock Embankment. The Department will not measure for payment any rock embankment and will consider it incidental to roadway excavation or embankment in place, as applicable. (embankments requiring rock with none present within project excavation limits will be constructed using granular embankment)

4.3 Granular Pile Core. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure for payment furnishing and placing 8-inch perforated underdrain pipe and will consider it incidental to the Granular pile core. The Department will not measure for payment any granular pile core that is necessary because the contractor elects to use granular or rock embankment when it is not specified in the plans.

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

4.5 Structure Granular Backfill. The Department will measure the quantity in cubic yards using the plan quantity, increased or decreased by authorized adjustments as specified in Section 204. The Department will not measure any additional material required for backfill outside the limits shown on the Plans and Standard Drawings for payment and will consider it incidental to the work.

When following construction sequence "A", as shown on the Standard Drawings, the Department will not measure structure excavation at the end bent for payment and will consider it incidental to Structure Granular Backfill.

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

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

4.7 End Bent. The Department will measure the quantities according to the Contract. The Department will not measure furnishing and placing the 2-inch mortar or concrete bed for payment and will consider it incidental to the end bent construction.

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

Code	Pay Item	Pay Unit
02223	Granular Embankment	Cubic Yards
20209EP69	Granular Pile Core	Cubic Yards
20210EP69	Cohesive Pile Core	Cubic Yards

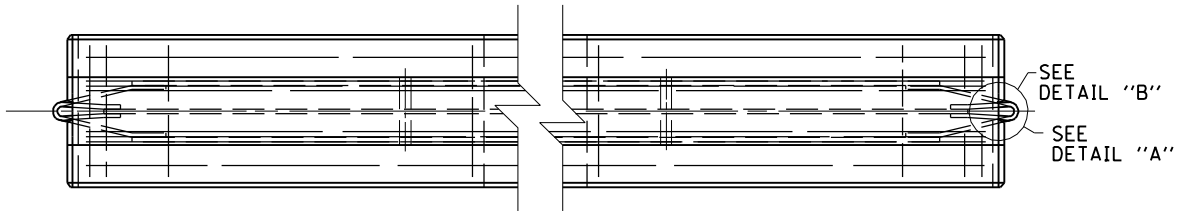
69

02231	Structure Granular Backfill	Cubic Yards
02596, 02599	Geotextile Fabric, Type	See Section 214

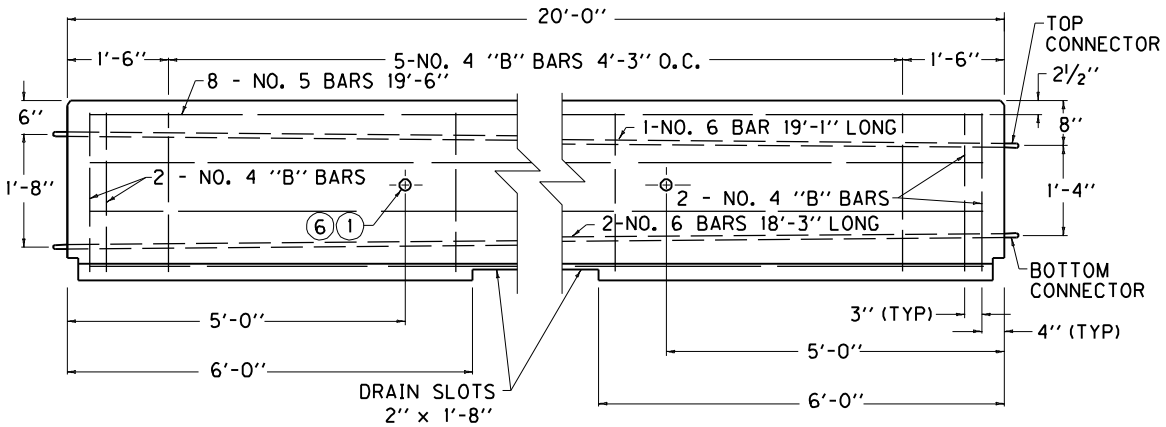
The Department will consider payment as full compensation for all work required in this provision.

April 24, 2008

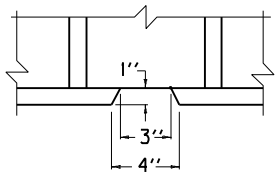
COUNTY OF	ITEM NO.	SHEET NO.



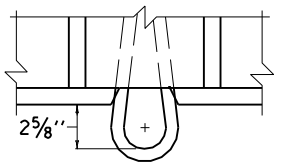
PLAN VIEW



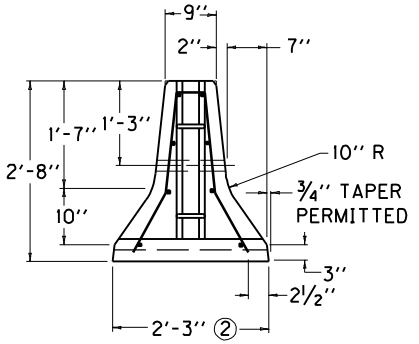
ELEVATION VIEW



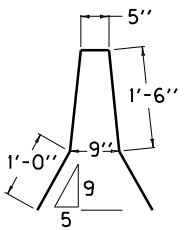
DETAIL "A"



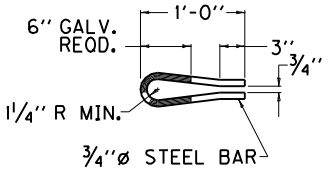
DETAIL "B"



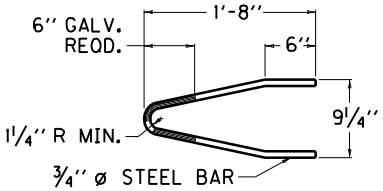
RIGHT ELEVATION VIEW



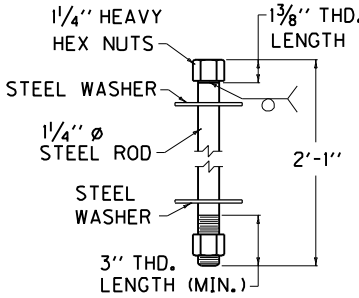
DETAIL OF "B" BAR



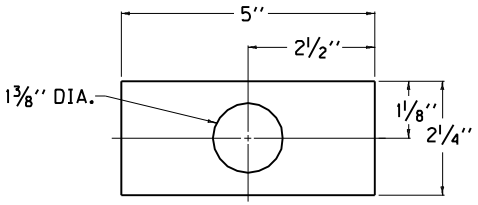
TOP CONNECTOR
(HOT DIP GALVANIZE AFTER FORMING)



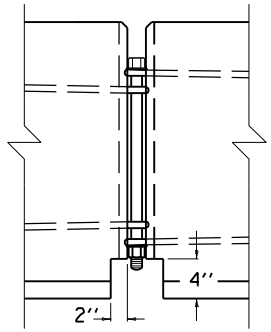
BOTTOM CONNECTOR
(HOT DIP GALVANIZE AFTER FORMING)



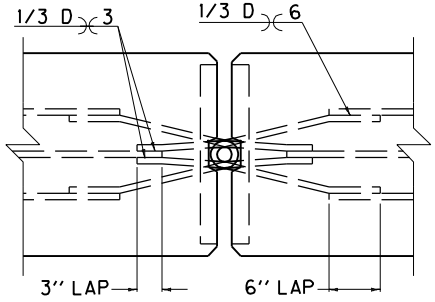
CONNECTOR PIN



½" THICK STEEL WASHER



ELEVATION OF CONNECTON DETAIL



PLAN OF CONNECTION DETAIL

~ NOTES ~

BID ITEM AND UNIT TO BID:
CONC. BARRIER WALL TYPE 9T - LIN. FT.

① 2" DIA. LIFTING HOLE - 2 REQUIRED EACH SECTION. FORMED WITH 2" P.V.C. PIPE OR EQUAL.

② TAPER NOT INCLUDED IN BASE WIDTH.

3. SHOP DRAWINGS SHALL BE APPROVED PRIOR TO MANUFACTURE.

④ BASED ON 150 LBS./CU. FT.

5. PLACE ALL STEEL REINFORCEMENT A CLEAR DISTANCE OF 2" MIN. FROM OUTSIDE FACE OF WALL, EXCEPT WHERE SHOWN OTHERWISE.

⑥ LIFTING BARS SHALL BE REQUIRED TO PREVENT SPALLING OF CONCRETE AROUND HOLES.

7. PREVIOUS WALL MANUFACTURED ACCORDING TO STANDARD DRAWING RBM-115-07 MAY STILL BE USED. ANY NEW BARRIER WALL TYPE 9T MANUFACTURED SHALL COMPLY TO THIS STANDARD DRAWING.

8. A PERMISSABLE ALTERNATE FOR THE PIN AND LOOP CONNECTOR IS JJ HOOK MANUFACTURED BY EASI-SET INDUSTRIES OUT OF MIDLAND, VA. SEE MANUFACTURER'S SHOP DRAWINGS FOR DETAILS ON JJ HOOK CONNECTOR AND RECOMMENDED REINFORCEMENT. THE BARRIER WALL'S SHAPE, LENGTH, DRAIN SLOT DIMENSIONS AND LOCATIONS SHALL MATCH THIS DRAWINGS CURRENT DIMENSIONS. ① ⑥

APPROXIMATE QUANTITIES

20'		
REINF.	CONC.	WEIGHT ④
LBS.	CU. YD./FT.	TONS
195	0.12	5.0

FOR TEMPORARY USE ONLY

KENTUCKY DEPARTMENT OF HIGHWAYS

CONCRETE BARRIER WALL TYPE 9T (TEMPORARY)

APPROVED _____ TRAFFIC DIVISION OF DESIGN — DATE 04-15-08

004

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. These contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

Section I, paragraph 2;
Section IV, paragraphs 1, 2, 3, 4, and 7;
Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630 and 41 CFR 60) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, preapprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so.

3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minority group employees.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minority groups in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group applicants will be discussed with employees.

5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly takecorrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with his obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of his avenues of appeal.

6. **Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of minority group and women employees and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. Actions by the contractor either directly or through a contractor's association acting as agent will include the procedures set forth below:

a. The contractor will use best efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the SHA and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of minority and women referrals within thetime limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin,

age or disability; making full efforts to obtain qualified and/or qualifiable minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the SHA.

8. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of $10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. **General:**

a. All mechanics and laborers employed or working upon the site of the work will be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account [except such payroll deductions as are permitted by regulations (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics

shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in paragraphs 4 and 5 of this Section IV.

b. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein, provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. **Classification:**

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. Said Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. **Payment of Fringe Benefits:**

a. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

4. **Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:**

a. Apprentices:

(1) Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any employee listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate listed in the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor or subcontractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level ofprogress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable

classification. If the Administrator for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under a approved definition, shall be paid not less than the applicable wage rate on the wagedetermination for the classification of work actually performed.

5. **Apprentices and Trainees (Programs of the U.S. DOT):**

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

6. **Withholding:**

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements which is held by the same prime contractor, as much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the SHA contracting officer may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

7. **Overtime Requirements:**

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. **Violation:**

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of $10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. **Withholding for Unpaid Wages and Liquidated Damages:**

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any

liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding $2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. **Compliance with Copeland Regulations (29 CFR 3):**

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. **Payrolls and Payroll Records:**

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof the types described in Section 1(b)(2)(B) of the Davis Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis Bacon Act, the contractor and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

d. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his/her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR 3;

(3) that each laborer or mechanic has been paid not less that the applicable wage rate and fringe benefits or cash equivalent for the classification of worked performed, as specified in the applicable wage determination incorporated into the contract.

e. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than $1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the State. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635).

a. "Its own organization" shall be construed to include only workers employed and paid directly by the prime contractor and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the prime contractor.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph 1 of Section VII is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the SHA contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the SHA contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provideall safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the SHA contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, the following notice shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended andsupplemented;

Shall be fined not more that $10,000 or imprisoned not more than 5 years or both."

X. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

(Applicable to all Federal-aid construction contracts and to all related subcontracts of $100,000 or more.)

By submission of this bid or the execution of this contract, or subcontract, as appropriate, the bidder, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

XI. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

1. **Instructions for Certification - Primary Covered Transactions:**

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowinglyrendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective primary participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph f of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

2. **Instructions for Certification - Lower Tier Covered Transactions:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions of $25,000 or more - 49 CFR 29)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Covered Transactions:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(Applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 - 49 CFR 20)

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

EMPLOYMENT REQUIREMENTS
RELATING TO
NONDISCRIMINATION OF EMPLOYEES
(APPLICABLE TO FEDERAL-AID SYSTEM CONTRACTS)

AN ACT OF THE KENTUCKY GENERAL ASSEMBLY TO PREVENT DISCRIMINATION IN EMPLOYMENT

KRS CHAPTER 344
EFFECTIVE JUNE 16, 1972

The contract on this project, in accordance with KRS Chapter 344, provides that during the performance of this contract, the contractor agrees as follows:

1. The contractor shall not fail or refuse to hire, or shall not discharge any individual, or otherwise discriminate against an individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy); or limit, segregate, or classify his employees in any way which would deprive or tend to deprive an individual of employment opportunities or otherwise adversely affect his status as an employee, because of such individual's race, color, religion, national origin, sex, disability or age (between forty and seventy). The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The contractor shall not print or publish or cause to be printed or published a notice or advertisement relating to employment by such an employer or membership in or any classification or referral for employment by the employment agency, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, national origin, sex, disability or age (between forty and seventy), except that such notice or advertisement may indicate a preference, limitation, or specification based on religion, or national origin when religion, or national origin is a bona fide occupational qualification for employment.

3. If the contractor is in control of apprenticeship or other training or retraining, including on-the-job training programs, he shall not discriminate against an individual because of his race, color, religion, national origin, sex, disability or age (between forty and seventy), in admission to, or employment in any program established to provide apprenticeship or other training.

4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance.

REVISED: 12-3-92

EXECUTIVE BRANCH CODE OF ETHICS

In the 1992 regular legislative session, the General Assembly passed and Governor Brereton Jones signed Senate Bill 63 (codified as KRS 11A), the Executive Branch Code of Ethics, which states, in part:

> KRS 11A.040 (6) provides:
>
> No present or former public servant shall, within six (6) months of following termination of his office or employment, accept employment, compensation or other economic benefit from any person or business that contracts or does business with the state in matters in which he was directly involved during his tenure. This provision shall not prohibit an individual from returning to the same business, firm, occupation, or profession in which he was involved prior to taking office or beginning his term of employment, provided that, for a period of six (6) months, he personally refrains from working on any matter in which he was directly involved in state government. This subsection shall not prohibit the performance of ministerial functions, including, but not limited to, filing tax returns, filing applications for permits or licenses, or filing incorporation papers.
>
> KRS 11A.040 (8) states:
>
> A former public servant shall not represent a person in a matter before a state agency in which the former public servant was directly involved, for a period of one (1) year after the latter of:
> a) The date of leaving office or termination of employment; or
> b) The date the term of office expires to which the public servant was elected.

This law is intended to promote public confidence in the integrity of state government and to declare as public policy the idea that state employees should view their work as a public trust and not as a way to obtain private benefits.

If you have worked for the executive branch of state government within the past six months, you may be subject to the law's prohibitions. The law's applicability may be different if you hold elected office or are contemplating representation of another before a state agency.

Also, if you are affiliated with a firm which does business with the state and which employs former state executive-branch employees, you should be aware that the law may apply to them.

In case of doubt, the law permits you to request an advisory opinion from the Executive Branch Ethics Commission, Room 136, Capitol Building, 700 Capitol Avenue, Frankfort, Kentucky 40601; telephone (502) 564-7954.

KENTUCKY TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled ``Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainees to be trained under these special provisions and in this contract is shown in “Special Notes Applicable to Project” in the bid proposal.

In the event that a contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction the contractor shall submit to the Kentucky Transportation Cabinet, Department of Highways for its approval, an acceptable training program on forms provided by the Cabinet indicating the number of trainees to be trained in each selected classification. Failure to provide the Cabinet with the proper documentation evidencing an acceptable training program prior to commencing construction shall cause the Cabinet to suspend the operations of the contractor with (if applicable) working days being charged as usual against the contract time or (if applicable), no additional contract time being granted for the suspension period. The Cabinet will not be liable for the payment of any work performed during the suspension period due to the failure of the contractor to provide an acceptable training program. Said suspension period shall be terminated when an acceptable training program is received by the Cabinet. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case. The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Kentucky Transportation Cabinet, Department of Highways and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed for each hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training. The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

1-1-93

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

	HIGHWAY BASIC HOURLY RATES	FRINGE BENEFIT PAYMENTS COMBINED

CRAFTS:

Boone, Campbell, Kenton and Pendleton Counties:

Bricklayers.	26.11	9.49
Carpenters and Piledrivermen	27.05	9.69
Divers	40.58	9.69
Millwrights	21.90	7.92
Cement Masons/ Concrete Finisher	25.75	8.60
Electricians	26.11	12.72
Sound & Communication: Technician	20.45	6.95
Ironworkers:		
Reinforcing: Up to and including 30- mile radius of Hamilton County, Ohio Courthouse	25.65	16.00
Beyond 30- mile radius of Hamilton County, Ohio Courthouse	25.90	16.00
Structural	26.17	16.72
Fence Erector	23.55	16.72
Painters: (Heavy and Highway Bridges-Guardrails-Lightpoles-Striping):		
Bridge/Equipment Tender and/or Containment Builder	20.49	6.83
Brush and Roller	23.10	6.83
Elevated Tanks; Steeplejack Work; Bridge & Lead Abatement	24.10	6.83
Sandblasting and Water Blasting	23.85	6.83
Spray	23.60	6.83
Plumbers	28.39	14.30

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

LABORERS:
Pendleton County:

GROUP 1 - Aging and Curing of Concrete, Asbestos Abatement Worker, Asphalt Plant, Asphalt, Batch Truck Dump, Carpenter Tender, Cement Mason Tender, Cleaning Of Machines, Concrete, Demolition, Dredging, Drill Tender, Environmental -- Nuclear, Radiation, Toxic and Hazardous Waste - Level D, Flagperson, Grade Checker, Hand Digging and Hand Back Filling, Highway Marker Placer, Landscaping, Mesh Handler and Placer, Puddler, Railroad, Rip-Rap and Grouter, Right-Of-Way, Sign, Guardrail and Fence Installer, Signal Person, Sound Barrier Installer, Storm and Sanitary Sewer, Swamper, Truck Spotter and Dumper and Wrecking of Concrete Forms, General Cleanup.

BASE RATE..... 19.86
FRINGE BENEFITS..... 9.55

GROUP 2 - Batter Board Man (Sanitary and Storm Sewer), Brickmason Tender, Mortar Mixer Operator, Scaffold Builder, Burner and Welder, Bushammer, Chain Saw Operator, Concrete Saw Operator, Deckhand Scow Man, Dry Cement Handler, Environmental - Nuclear, Radiation, Toxic and Hazardous Waste - Level C, Forklift Operator For Masonary, Form Setter, Green Concrete Cutting, Hand Operated Grouter and Grinder Machine Operator, Jackhammer, Pavement Breaker, Paving Joint Machine, Pipelayer, Plastic Pipe Fusion, Power Driven Georgia Buggy and Wheel Barrow, Power Post Hole Digger, Precast Manhole Setter, Walk-Behind Tamper, Walk-Behind Trencher, Sand Blaster, Concrete Chipper, Surface Grinder, Vibrator Operator and Wagon Driller.

BASE RATE..... 20.11
FRINGE BENEFITS..... 9.55

GROUP 3 - Asphalt Luteman and Raker, Gunnite Nozzleman, Gunnite Operator and Mixer, Grout Pump Operator, Side Rail Setter, Rail Paved Ditch, Screw Operator, Tunnel (free air) and Water Blaster.

BASE RATE..... 20.16
FRINGE BENEFITS..... 9.55

GROUP 4 - Caisson Worker (free air), Cement Finisher, Environmental - Nuclear, Radiation, Toxic and Hazardous Waste - Levels A and B, Miner and Driller (free air), Tunnel Blaster and Tunnel Mucker (free air), Directional & Horizontal Boring, Air Track Driller (all types), Powderman & Blaster, Troxler & Concrete Tester if Laborer is utilized.

BASE RATE..... 20.76
FRINGE BENEFITS..... 9.55

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

LABORERS: (continued)
Boone, Campbell and Kenton Counties:

Group 1
Asphalt Laborer, Carpenter Tender, Concrete Curing Applicator, Dump Man (Batch Truck), Guardrail And Fence Installer, Joint Setter, Laborer (Construction), Landscape Laborer, Highway Lighting Worker, Signalization Worker, Mesh Handlers And Placer, Right-Of-Way Laborer, Riprap Laborer And Grouter, Scaffold Erector, Seal Coating, Surface Treatment Or Road Mix Laborer, Sign Installer, Slurry Seal, Utility Man, Bridgeman, Handyman, Waterproofing Laborer, Flagperson, Hazardous Waste (Level D), Diver Tender, Zone Person & Traffic Control.

BASE RATE..... 25.27
FRINGE BENEFITS..... 7.50

GROUP 2
Skidsteer, Asphalt Raker, Concrete Puddler, Kettle Man (Pipeline), Machine Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Power Buggy or Power Wheelbarrow, Sheeting & Shoring Man, Surface Grinder Man, Plastic Fusing Machine Operator, Pug Mill Operator, & Vacuum Devices (wet or dry), Rodding Machine Operator, Diver, Screw Man or Paver, Screed Person, Water Blast, Hand Held Wand, Pumps 4" and under (gas, air or electric), Hazardous Waste (Level C), Air Track and Wagon Drill, Bottom Person, Cofferdam (below 25 ft. deep), Concrete Saw Person, cutting with Burning Torch, Form Setter, Hand Spiker (Railroad), Pipelayer, Tunnel Laborer (without air) & Caisson, Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning), Sandblaster Nozzleperson and Hazardous Waste (Level B).

BASE RATE..... 25.44
FRINGE BENEFITS..... 7.50

GROUP 3
Blaster, Mucker, Powder Person, Top Lander, Wrencher (Mechanical Joints and Utility Pipeline), Yarner, Hazardous Waste (Level A), Concrete Specialist, Concrete Crew in Tunnels (with air pressurized $1.00 premium), Curb Setter & Cutter, Grade Checker, Utility Pipeline Tapper, Waterline, and Caulker.

BASE RATE..... 25.77
FRINGE BENEFITS..... 7.50

GROUP 4
Miner, Tunnel Laborer (with air-pressurized add $1.00 to Base Rate) and Gunnite Nozzle Person.

BASE RATE..... 26.22
FRINGE BENEFITS..... 7.50

Signal person will receive the rate equal to the rate paid the labor classification for which he or she is signaling.

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

Truck Drivers

BASE RATE..... 15.85
FRINGE BENEFITS..... 4.60

Euclid Wagon, End Dump, Low-Boy, Heavy Duty Equipment, Tractor-Trailer Combination & Drag.

BASE RATE..... 16.29
FRINGE BENEFITS..... 4.60

OPERATING ENGINEERS:

Air Compressor on Steel Erection; Barrier Moving Machine; Boiler Operator on Compressor or Generator when mounted on a Rig; Cableway; Combination Concrete Mixer & Tower; Concrete Plant (over 4 yd. Capacity); Concrete Pump; Crane (All Types, Including Boom Truck, Cherry Picker); Crane-Compact, Track or Rubber over 4,000 lbs. Capacity; Cranes-Self Erecting, Stationary, Track or Truck (All Configurations); Derrick; Dragline; Dredge (Dipper, Clam or Suction); Elevating Grader or Euclid Loader; Floating Equipment (All Types); Gradall; Helicopter Crew (Operator-Hoist or Winch); Hoe (all types); Hoisting Engine on Shaft or Tunnel Work; Horizontal Directional Drill (over 500,000 ft. lbs. thurst); Hydraulic Gantry (Lifting System); Industrial-Type Tractor; Jet Engine Dryer (D8 or D9) Diesel Tractor; Locomotive (Standard Gauge); Maintenance Operator Class A; Mixer, Paving (Single or Double Drum); Mucking Machine; Multiple Scraper; Piledriving Machine (All Types); Power Shovel; Prentice Loader; Quad 9 (Double Pusher); Rail Tamper (with auto lifting & aligning device); Refrigerating Machine (Freezer Operation); Rotary Drill, on Caisson work; Rough Terrain Fork Lift with Winch/Hoist; Side-Boom; Slip-Form Paver; Tower Derrick; Tree Shredder; Trench Machine (Over 24" wide); Truck Mounted Concrete Pump; Tug Boat; Tunnel Machine and/or Mining Machine; & Wheel Excavator

BASE RATE..... 29.49
FRINGE BENEFITS 11.16

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

OPERATING ENGINEERS: (continued)

Asphalt Paver; Automatic Subgrader Machine, Self-Propelled (CMI Type); Bobcat Type and/or Skid Steer Loader with Hoe Attachment Greater than 7,000 lbs.; Boring Machine More than 48"; Bulldozer; Endloader; Hydro Milling Machine; Kolman-type Loader (production type-Dirt); Lead Greaseman; Lighting & Traffic Signal Installation Equipment (includes all groups or classifications); Material Transfer Equipment (Shuttle Buggy) Asphalt; Pettibone-Rail Equipment; Power Grader; Power Scraper; Push Cat; Rotomill (all), Grinders & Planers of All types; Trench Mahcine (24" wide & under); & Vermeer type Concrete Saw

BASE RATE..... 29.37
FRINGE BENEFITS..... 11.16

A-Frame; Air Compressor on Tunnel Work (low pressure); Asphalt Plant Engineer; Bobcat-type and/or Skid Steer Loader with or without Attachments; Highway Drills (all types); Locomotive (narrow gauge); Material Hoist/Elevator; Mixer, Concrete (more than one bag capacity); Mixer, one bag capacity (Side Loader); Power Boiler (Over 15 lbs. Pressure) Pump Operator installing & operating Well Points; Pump (4" & over discharge); Roller, Asphalt; Rotovator (lime soil stabilizer); Switch & Tie Tampers (without lifting & aligning device); Utility Operator (Small equipment); & Welding Machines.

BASE RATE..... 28.33
FRINGE BENEFITS..... 11.16

Backfiller; Ballast Re-locator; Bars, Joint & Mesh Installing Machine; Batch Plant; Boring Machine Operator (48" or less); Bull Floats; Burlap & Curing Machine; Concrete Plant (capacity 4 yd. & under); Concrete Saw (Multiple); Conveyor (Highway); Crusher; Deckhand; Farm-type Tractor with attachments (highway) except Masonry); Finishing Machine; Fireperson, Floating Equipment (all types); Fork Lift (highway); Form Trencher; Hydro Hammer; Hydro Seeder; Pavement Breaker; Plant Mixer; Post Driver; Post Hole Digger (Power Auger); Power Brush Burner; Power Form Handling Equipment; Road Widening Trencher; Roller (Brick, Grade & Macadam); Self-Propelled Power Spreader; Self-Propelled Power Subgrader; Steam Fireperson; Tractor (Pulling Sheepfoot, Roller or Grader); & Vibratory Compactor with Integral Power.

BASE RATE..... 27.15
FRINGE BENEFITS..... 11.16

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

OPERATING ENGINEERS: (continued)
Compressor (Portable, Sewer, Heavy & Highway); Drum Fireperson (Asphalt); Generator; Masonry fork Lift; Inboard-Outboard Motor Boat Launch; Masonry Fork Lift; Oil Heater (asphalt plant); Oiler; Power Driven Heater; Power Sweeper & Scrubber; Pump (under 4" discharge); Signalperson; Tire Repairperson; & VAC/ALLS.

BASE RATE 21.69
FRINGE BENEFITS..... 11.16

Master Mechanic and Boom from
150 to 180.

BASE RATE..... 29.74
FRINGE BENEFITS..... 11.16

Boom from 180 and over.

BASE RATE..... 29.99
FRINGE BENEFITS..... 11.16

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

These rates are listed pursuant to Kentucky Determination No. CR-06-IV HWY dated July 10, 2007 and/or Federal Decision No. KY20080028 dated February 8, 2008, modification #0 dated February 8, 2008, modification #1 dated March 7, 2008, modification #2 dated May 2, 2008, modification #3 dated June 6, 2008, modification #4 dated July 4, 2008, modification #5 dated August 15, 2008, modification #6 dated September 5, 2008, modification #7 dated October, 3, 2008, modification #8 dated November 7, 2008, modification #9 dated December 5, 2008, modification #10 dated January 2, 2009, modification #11 dated February 6, 2009, modification #12 dated May 1, 2009 and modification #13 dated June 5, 2009.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices.

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate. Wage violations or questions should be directed to the designated Engineer or the undersigned.

Steve Waddle, Director
Division of Construction Procurement
Frankfort, Kentucky 40622

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION IN EACH TRADE	GOALS FOR FEMALE PARTICIPATION IN EACH TRADE
11.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609

4. As used in this Notice, and in the contract resulting from this solicitation, the **"covered area"** is Campbell County.

PART IV

INSURANCE

INSURANCE

The Contractor shall carry the following insurance in addition to the insurance required by law:

1. Contractor's Public Liability Insurance not less than $100,000.00 for damages arising out of bodily injuries to or death to one person. Not less than $300,000.00 for damages arising out of bodily injuries to or death to two or more persons.

2. Contractor's Property Damages Liability Insurance. Not less than $100,000.00 for all damages arising out of injury or destruction of property in any one accident. Not less than $300,000.00 for all damages during the policy period.

3. Contractor's Protective Public Liability and Property Damage Insurance. The contractor shall furnish evidence with respect to operations performed for him by subcontractors that he carries in his own behalf for the above stipulated amounts.

4. The insurance required above must be evidenced by a Certificate of Insurance and this Certificate of Insurance must contain one of the following statements:

   a. "policy contains no deductible clauses."

   b. "policy contains _____ (amount) deductible property damage clause but company will pay claim and collect the deductible from the insured."

5. WORKMEN'S COMPENSATION INSURANCE. The contractor shall furnish evidence of coverage of all his employees or give evidence of self-insurance by submitting a copy of a certificate issued by the Workmen's Compensation Board.

PART V

BID ITEMS

CONTRACT ID: 091045 PAGE: 1
COUNTY: CAMPBELL LETTING: 06/26/09
PROPOSAL: ARRA 0272(109) CALL NO: 101

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
	SECTION 0001	ROADWAY			
0010	00021	DRAINAGE BLANKET-EMBANKMENT	275.000 CUYD		
0020	00078	CRUSHED AGGREGATE SIZE NO 2	102.000 TON		
0030	00440	ENTRANCE PIPE-15 IN	889.900 LF		
0040	00441	ENTRANCE PIPE-18 IN	538.900 LF		
0050	00443	ENTRANCE PIPE-24 IN	54.800 LF		
0060	00462	CULVERT PIPE-18 IN	383.100 LF		
0070	00464	CULVERT PIPE-24 IN	417.200 LF		
0080	00468	CULVERT PIPE-36 IN	932.800 LF		
0090	00469	CULVERT PIPE-42 IN	260.100 LF		
0100	00470	CULVERT PIPE-48 IN	1,050.600 LF		
0110	00472	CULVERT PIPE-60 IN	260.100 LF		
0120	00474	CULVERT PIPE-72 IN	697.000 LF		
0130	00476	CULVERT PIPE-84 IN	79.400 LF		
0140	00477	CULVERT PIPE-90 IN	70.500 LF		
0150	00479	CULVERT PIPE-102 IN	262.700 LF		
0160	00520	STORM SEWER PIPE-12 IN	105.600 LF		
0170	00521	STORM SEWER PIPE-15 IN	1,427.800 LF		
0180	00522	STORM SEWER PIPE-18 IN	2,077.900 LF		
0190	00524	STORM SEWER PIPE-24 IN	1,647.900 LF		
0200	00526	STORM SEWER PIPE-30 IN	809.200 LF		

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CONTRACT ID: 091045 PAGE: 2
COUNTY: CAMPBELL LETTING: 06/26/09
PROPOSAL: ARRA 0272(109) CALL NO: 101

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
0210	00528	STORM SEWER PIPE-36 IN	344.100 LF		
0220	00530	STORM SEWER PIPE-48 IN	107.300 LF		
0230	01000	PERFORATED PIPE-4 IN	62,422.000 LF		
0240	01001	PERFORATED PIPE-6 IN	492.000 LF		
0250	01010	NON-PERFORATED PIPE-4 IN	4,057.000 LF		
0260	01011	NON-PERFORATED PIPE-6 IN	56.000 LF		
0270	01015	INSPECT & CERTIFY EDGE DRAIN SYSTEM	(1.00) LS		
0280	01020	PERF PIPE HEADWALL TY 1-4 IN	6.000 EACH		
0290	01024	PERF PIPE HEADWALL TY 2-4 IN	2.000 EACH		
0300	01028	PERF PIPE HEADWALL TY 3-4 IN	40.000 EACH		
0310	01032	PERF PIPE HEADWALL TY 4-4 IN	44.000 EACH		
0320	01033	PERF PIPE HEADWALL TY 4-6 IN	1.000 EACH		
0330	01310	REMOVE PIPE	1,251.000 LF		
0340	01314	PLUG PIPE	5.000 EACH		
0350	01434	SLOPED BOX OUTLET TYPE 1-24 IN	1.000 EACH		
0360	01450	S & F BOX INLET-OUTLET-18 IN	1.000 EACH		
0370	01451	S & F BOX INLET-OUTLET-24 IN	1.000 EACH		
0380	01490	DROP BOX INLET TYPE 1	13.000 EACH		
0390	01493	DROP BOX INLET TYPE 2	4.000 EACH		
0400	01496	DROP BOX INLET TYPE 3	8.000 EACH		
0410	01499	DROP BOX INLET TYPE 4	2.000 EACH		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0420	01505	DROP BOX INLET TYPE 5B	20.000	EACH		
0430	01538	DROP BOX INLET TYPE 7	1.000	EACH		
0440	01559	DROP BOX INLET TYPE 13G	11.000	EACH		
0450	01568	DROP BOX INLET TYPE 13S	9.000	EACH		
0460	01580	DROP BOX INLET TYPE 15	1.000	EACH		
0470	01643	JUNCTION BOX-24 IN	1.000	EACH		
0480	01645	JUNCTION BOX-36 IN	1.000	EACH		
0490	01651	JUNCTION BOX-MOD	2.000	EACH		
0500	01655	REMOVE JUNCTION BOX	1.000	EACH		
0510	01691	FLUME INLET TYPE 2	1.000	EACH		
0520	01716	REMOVE DITCH BOX INLET	1.000	EACH		
0530	01756	MANHOLE TYPE A	1.000	EACH		
0540	01761	MANHOLE TYPE B	1.000	EACH		
0550	01767	MANHOLE TYPE C	2.000	EACH		
0560	01768	MANHOLE TYPE C MOD	6.000	EACH		
0570	01786	FILL AND CAP MANHOLE	1.000	EACH		
0580	01787	REMOVE MANHOLE	1.000	EACH		
0590	01789	RECONSTRUCT MANHOLE	11.000	EACH		
0600	01810	STANDARD CURB AND GUTTER	2,675.500	LF		
0610	01830	STANDARD INTEGRAL CURB	55.400	LF		
0620	01875	STANDARD HEADER CURB	1,480.600	LF		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0630	01917	STANDARD BARRIER MEDIAN TYPE 2	142.700	SQYD		
0640	01946	MOUNTABLE MEDIAN TYPE 2A	94.600	SQYD		
0650	01982	DELINEATOR FOR GUARDRAIL-WHITE	90.000	EACH		
0660	01984	DELINEATOR FOR BARRIER-WHITE	50.000	EACH		
0670	02003	RELOCATE TEMP CONC BARRIER	276.000	LF		
0680	02014	BARRICADE-TYPE III	153.000	EACH		
0690	02060	PCC PAVEMENT DIAMOND GRINDING	8,465.000	SQYD		
0700	02091	REMOVE PAVEMENT	16,855.900	SQYD		
0710	02159	TEMP DITCH	19,621.000	LF		
0720	02223	GRANULAR EMBANKMENT	954.000	CUYD		
0730	02237	DITCHING	148.000	LF		
0740	02242	WATER	5,280.000	MGAL		
0750	02262	FENCE-WOVEN WIRE TYPE 1	19,300.000	LF		
0760	02265	REMOVE FENCE	12,195.000	LF		
0770	02351	GUARDRAIL-STEEL W BEAM-S FACE	5,186.170	LF		
0780	02360	GUARDRAIL TERMINAL SECTION NO 1	2.000	EACH		
0790	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	2.000	EACH		
0800	02367	GUARDRAIL END TREATMENT TYPE 1	6.000	EACH		
0810	02369	GUARDRAIL END TREATMENT TYPE 2A	10.000	EACH		
0820	02371	GUARDRAIL END TREATMENT TYPE 7	1.000	EACH		
0830	02381	REMOVE GUARDRAIL	9,355.000	LF		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
0840	02383	REMOVE & RESET GUARDRAIL	102.000 LF		
0850	02391	GUARDRAIL END TREATMENT TYPE 4A	1.000 EACH		
0860	02403	REMOVE CONCRETE MASONRY	104.000 CUYD		
0870	02404	SEPTIC TANK TREATMENT	21.000 EACH		
0880	02429	RIGHT-OF-WAY MONUMENT TYPE 1	218.000 EACH		
0890	02432	WITNESS POST	6.000 EACH		
0900	02482	CHANNEL LINING CLASS IA	3,724.000 TON		
0910	02483	CHANNEL LINING CLASS II	13,431.000 TON		
0920	02484	CHANNEL LINING CLASS III	21,855.000 TON		
0930	02545	CLEARING AND GRUBBING 139 ACRES	(1.00) LS		
0940	02562	SIGNS	3,797.860 SQFT		
0950	02585	EDGE KEY	1,633.000 LF		
0960	02599	FABRIC-GEOTEXTILE TYPE IV	8,109.000 SQYD		
0970	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	4,981.000 SQYD	2.00	9,962.00
0980	02625	REMOVE HEADWALL	25.000 EACH		
0990	02650	MAINTAIN & CONTROL TRAFFIC	(1.00) LS		
1000	02651	DIVERSIONS (BY-PASS DETOURS) STA. 3+711.54	(1.00) LS		
1010	02651	DIVERSIONS (BY-PASS DETOURS) STA. 6+976.13	(1.00) LS		
1020	02655	CROSSOVER STA. 15+940	(1.00) LS		
1030	02655	CROSSOVER STA. 8+060	(1.00) LS		
1040	02676	MOBILIZATION FOR MILL & TEXT	(1.00) LS		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
1050	02677	ASPHALT PAVE MILLING & TEXTURING	194.000	TON		
1060	02690	SAFELOADING	8.000	CUYD		
1070	02701	TEMP SILT FENCE	38,704.000	LF		
1080	02703	SILT TRAP TYPE A	402.000	EACH		
1090	02704	SILT TRAP TYPE B	402.000	EACH		
1100	02705	SILT TRAP TYPE C	80.000	EACH		
1110	02706	CLEAN SILT TRAP TYPE A	1,206.000	EACH		
1120	02707	CLEAN SILT TRAP TYPE B	1,206.000	EACH		
1130	02708	CLEAN SILT TRAP TYPE C	240.000	EACH		
1140	02709	CLEAN TEMP SILT FENCE	38,704.000	LF		
1150	02711	SEDIMENTATION BASIN	6,989.000	CUYD		
1160	02712	CLEAN SEDIMENTATION BASIN	2,727.000	CUYD		
1170	02721	REMOVE CONCRETE SIDEWALK	255.000	SQYD		
1180	02726	STAKING	(1.00)	LS		
1190	02731	REMOVE STRUCTURE STA. 15+565	(1.00)	LS		
1200	02731	REMOVE STRUCTURE STA. 16+214	(1.00)	LS		
1210	02731	REMOVE STRUCTURE STA. 3+879	(1.00)	LS		
1220	02731	REMOVE STRUCTURE STA. 3+942	(1.00)	LS		
1230	02775	ARROW PANEL	2.000	EACH		
1240	02894	CRASH CUSHION TYPE VI-T	3.000	EACH		
1250	03171	CONCRETE BARRIER WALL TYPE 9T	1,909.000	LF		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
1260	03385	PVC PIPE-6 IN	10.000	LF		
1270	04950	REMOVE SIGNAL EQUIPMENT	1.000	EACH		
1280	05950	EROSION CONTROL BLANKET	259,388.000	SQYD		
1290	05952	TEMP MULCH	961,235.000	SQYD		
1300	05953	TEMP SEEDING AND PROTECTION	710,771.000	SQYD		
1310	05966	TOPDRESSING FERTILIZER	36.770	TON		
1320	05985	SEEDING AND PROTECTION	654,391.000	SQYD		
1330	05989	SPECIAL SEEDING CROWN VETCH	212,404.000	SQYD		
1340	06510	PAVE STRIPING-TEMP PAINT-4 IN	130,511.000	LF		
1350	06514	PAVE STRIPING-PERM PAINT-4 IN	133,758.000	LF		
1360	06516	PAVE STRIPING-PERM PAINT-8 IN	9,942.000	LF		
1370	06530	PAVE STRIPING REMOVAL-4 IN	131,233.000	LF		
1380	06550	PAVE STRIPING-TEMP REM TAPE-W	12,972.000	LF		
1390	06551	PAVE STRIPING-TEMP REM TAPE-Y	19,172.000	LF		
1400	06568	PAVE MARKING-THERMO STOP BAR-24IN	702.000	LF		
1410	06569	PAVE MARKING-THERMO CROSS-HATCH	6,846.000	SQFT		
1420	06573	PAVE MARKING-THERMO STR ARROW	1.000	EACH		
1430	06574	PAVE MARKING-THERMO CURV ARROW	86.000	EACH		
1440	06575	PAVE MARKING-THERMO COMB ARROW	8.000	EACH		
1450	06576	PAVE MARKING-THERMO ONLY	40.000	EACH		
1460	06588	PAVEMENT MARKER TY IVA-BY TEMP	114.000	EACH		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
1470	06589	PAVEMENT MARKER TYPE V-MW	281.000 EACH		
1480	06591	PAVEMENT MARKER TYPE V-BY	322.000 EACH		
1490	06592	PAVEMENT MARKER TYPE V-B W/R	415.000 EACH		
1500	08019	CYCLOPEAN STONE RIP RAP	350.000 TON		
1510	08100	CONCRETE-CLASS A	215.430 CUYD		
1520	08150	STEEL REINFORCEMENT	13,894.000 LB		
1530	08151	STEEL REINFORCEMENT-EPOXY COATED	1,806.000 LB		
1540	20314ED	MILLED RUMBLE STRIPS	61,739.400 LF		
1550	21477ND	EARTHWORK MITIGATION	(1.00) LS		
1560	21661ES706	BORE AND JACK PIPE	210.000 LF		
1570	23005EN	PE WATER TUBING-2 IN	289.000 LF		
1580	23007EN	CONC MEDIAN BARRIER TY 9T	118.000 LF		
1590	23008EN	TUNNEL-90 IN	100.700 LF		
1600	23009EN	TUNNEL-126 IN	131.200 LF		
1610	23010EN	PAVE MARK TEMP PAINT STOP BAR-24 IN	495.940 LF		
1620	23131ER701	PIPELINE VIDEO INSPECTION	5,468.000 LF		
1630	23335EC	CONCRETE MEDIAN BARRIER TY 9B2	46.200 LF		
1640 AA1	00001	DGA BASE	88,261.000 TON		
1650 AA1	00013	LIME STABILIZED ROADBED	163,252.700 SQYD		
1660 AA1	00014	LIME	3,014.000 TON		
1670 AA1	00018	DRAINAGE BLANKET-TYPE II-ASPH	28,738.000 TON		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
1680 AA1	00100	ASPHALT SEAL AGGREGATE	305.300	TON		
1690 AA1	00205	CL3 ASPH BASE 1.50D PG64-22	8,795.000	TON		
1700 AA1	00212	CL2 ASPH BASE 1.00D PG64-22	35,661.000	TON		
1710 AA1	00214	CL3 ASPH BASE 1.00D PG64-22	18,112.000	TON		
1720 AA1	00221	CL2 ASPH BASE 0.75D PG64-22	514.000	TON		
1730 AA1	00291	EMULSIFIED ASPHALT RS-2	36.700	TON		
1740 AA1	00301	CL2 ASPH SURF 0.38D PG64-22	6,951.000	TON		
1750 AA1	00358	ASPHALT CURING SEAL FOR DRAINAGE BLANKET	128.700	TON		
1760 AA1	00358	ASPHALT CURING SEAL FOR LIME STABILIZED ROADBED	165.400	TON		
1770 AA1	00388	CL3 ASPH SURF 0.38B PG64-22	7,427.000	TON		
1780 AA1	02071	JPC PAVEMENT-11 IN	263.800	SQYD		
1790 AA1	02072	JPC PAVEMENT-11 IN SHLD	63.000	SQYD		
1800 AA1	02075	JPC PAVEMENT-6 IN	1,578.400	SQYD		
1810 AA1	02084	JPC PAVEMENT-8 IN	576.500	SQYD		
1820 AA1	02101	CEM CONC ENT PAVEMENT-8 IN	270.300	SQYD		
1830 AA1	02702	SAND FOR BLOTTER	408.000	TON		
1840 AA1	10203ND	PAVEMENT ADJUSTMENT ASPHALT	(1.00)	LS	646,739.00	646,739.00
1850 AA1	21553EN	EMBANKMENT	787,142.600	CUYD		
1860 AA1	21554EN	EXCAVATION	1,433,110.200	CUYD		
1870 AA2	00001	DGA BASE	87,429.000	TON		
1880 AA2	00013	LIME STABILIZED ROADBED	161,765.700	SQYD		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
1890 AA2	00014	LIME	3,004.900	TON		
1900 AA2	00022	JPC PAVEMENT DRAINAGE BLANKET	26,808.000	TON		
1910 AA2	00100	ASPHALT SEAL AGGREGATE	305.300	TON		
1920 AA2	00205	CL3 ASPH BASE 1.50D PG64-22	10,710.000	TON		
1930 AA2	00212	CL2 ASPH BASE 1.00D PG64-22	90,191.000	TON		
1940 AA2	00221	CL2 ASPH BASE 0.75D PG64-22	514.200	TON		
1950 AA2	00291	EMULSIFIED ASPHALT RS-2	36.700	TON		
1960 AA2	00301	CL2 ASPH SURF 0.38D PG64-22	3,945.600	TON		
1970 AA2	00358	ASPHALT CURING SEAL FOR DRAINAGE BLANKET	119.100	TON		
1980 AA2	00358	ASPHALT CURING SEAL FOR LIME STABILIZED ROADBED	164.000	TON		
1990 AA2	00388	CL3 ASPH SURF 0.38B PG64-22	1,198.000	TON		
2000 AA2	02071	JPC PAVEMENT-11 IN	96,976.200	SQYD		
2010 AA2	02072	JPC PAVEMENT-11 IN SHLD	44,657.800	SQYD		
2020 AA2	02075	JPC PAVEMENT-6 IN	1,565.700	SQYD		
2030 AA2	02084	JPC PAVEMENT-8 IN	576.500	SQYD		
2040 AA2	02101	CEM CONC ENT PAVEMENT-8 IN	277.100	SQYD		
2050 AA2	02702	SAND FOR BLOTTER	404.700	TON		
2060 AA2	10203ND	PAVEMENT ADJUSTMENT CONCRETE	(1.00)	LS	383,906.00	383,906.00
	SECTION 0002	BRIDGE				
2070	02231	STRUCTURE GRANULAR BACKFILL	266.000	CUYD		
2080	02998	MASONRY COATING	927.000	SQYD		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
2090	08001	STRUCTURE EXCAVATION-COMMON	1,137.700 CUYD		
2100	08002	STRUCTURE EXCAV-SOLID ROCK	369.200 CUYD		
2110	08003	FOUNDATION PREPARATION	(1.00) LS		
2120	08019	CYCLOPEAN STONE RIP RAP	1,293.000 TON		
2130	08033	TEST PILES	21.300 LF		
2140	08046	PILES-STEEL HP12X53	440.200 LF		
2150	08094	PILE POINTS-12 IN	26.000 EACH		
2160	08100	CONCRETE-CLASS A	1,969.400 CUYD		
2170	08104	CONCRETE-CLASS AA	531.200 CUYD		
2180	08150	STEEL REINFORCEMENT	249,500.200 LB		
2190	08151	STEEL REINFORCEMENT-EPOXY COATED	87,075.500 LB		
2200	08469	EXPANSION DAM-1.5 IN NEOPRENE	290.900 LF		
2210	08634	PRECAST PC I BEAM TYPE 4	1,511.800 LF		
	SECTION 0003	WATERLINE PENDLETON CO.			
2220	01069	STEEL ENCASEMENT PIPE-12 IN BORED	82.000 LF		
2230	01069	STEEL ENCASEMENT PIPE-12 IN OPEN CUT	182.000 LF		
2240	01073	STEEL ENCASEMENT PIPE-16 IN BORED	391.000 LF		
2250	01073	STEEL ENCASEMENT PIPE-16 IN OPEN CUT	527.400 LF		
2260	01076	STEEL ENCASEMENT PIPE-20 IN BORED	41.000 LF		
2270	01076	STEEL ENCASEMENT PIPE-20 IN OPEN CUT	262.400 LF		
2280	01093	DUCTILE IRON PIPE-6 IN	554.100 LF		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
2290	01095	DUCTILE IRON PIPE-8 IN	3,483.400	LF		
2300	01099	DUCTILE IRON PIPE-12 IN	7,813.400	LF		
2310	01315	BLOW-OFF ASSEMBLY 3 IN	1.000	EACH		
2320	01315	BLOW-OFF ASSEMBLY 4 IN	7.000	EACH		
2330	02606	FIRE HYDRANT	10.000	EACH		
2340	02690	SAFELOADING	7.000	CUYD		
2350	03360	COPPER PIPE-3/4 IN	440.000	LF		
2360	03360	COPPER PIPE-3/4 IN BORED	134.500	LF		
2370	03360	COPPER PIPE-3/4 IN OPEN CUT	679.000	LF		
2380	03361	COPPER PIPE-1 IN	613.000	LF		
2390	03361	COPPER PIPE-1 IN BORED	49.200	LF		
2400	03361	COPPER PIPE-1 IN OPEN CUT	344.400	LF		
2410	03363	COPPER PIPE-2 IN	36.000	LF		
2420	03363	COPPER PIPE-2 IN OPEN CUT	82.000	LF		
2430	03383	PVC PIPE-4 IN	1,223.000	LF		
2440	03385	PVC PIPE-6 IN	886.000	LF		
2450	03387	PVC PIPE-8 IN	2,627.000	LF		
2460	03391	PVC PIPE-12 IN	9,099.000	LF		
2470	03431	RELOCATE WATER METER	10.000	EACH		
2480	03433	RELOCATE FIRE HYDRANT	2.000	EACH		
2490	03435	METER PIT	(1.00)	LS		

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PROPOSAL: ARRA 0272(109) CALL NO: 101

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
2500	03437	RECONNECT SERVICE ALL SIZES	10.000	EACH		
2510	03438	RECONNECT TO MAIN ALL SIZES	9.000	EACH		
2520	03479	TIE-IN ALL SIZES	14.000	EACH		
2530	03524	GATE VALVE-4 IN	2.000	EACH		
2540	03526	GATE VALVE-6 IN	32.000	EACH		
2550	03528	GATE VALVE-8 IN	24.000	EACH		
2560	03532	GATE VALVE-12 IN	27.000	EACH		
2570	20551NC	TEE AND BLOCK 8 I N X 8 IN X 6 IN	4.000	EACH		
2580	20552NC	TEE AND BLOCK 8 IN X 8 IN X 8 IN	1.000	EACH		
2590	20554NC	BEND AND BLOCK-6 IN	7.000	EACH		
2600	20555NC	BEND AND BLOCK-8 IN	14.000	EACH		
2610	20788ND	BEND AND BLOCK-12 IN	12.000	EACH		
2620	20794ND	REDUCER 8 IN X 6 IN	2.000	EACH		
2630	20864ND	FIRE HYDRANT ASSEMBLY	8.000	EACH		
2640	20869ND	COPPER SERVICE SPLIT	1.000	EACH		
2650	21032ND	CONNECT TO 150MM MAIN	3.000	EACH		
2660	21033ND	CONNECT TO 200MM MAIN	1.000	EACH		
2670	21034ND	CONNECT TO 300MM MAIN	4.000	EACH		
2680	21035ND	PLUG AND BLOCK 200MM	1.000	EACH		
2690	22004ND	RECONNECT HYDRANT	2.000	EACH		
2700	22082NN	AIR RELEASE VALVE ASSEMBLY	5.000	EACH		

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LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
2710	22083NN	WATER ITEM POST MARKER	46.000	EACH		
2720	22084NN	WATER MAIN PIPE MARKER	39.000	EACH		
2730	22633NN	PLUG AND BLOCK-150MM	8.000	EACH		
2740	22634NN	PROPOSED METER PIT INTERIOR PIPING	1.000	EACH		
2750	22636NN	RELOCATE BURIED VALVE ASSEMBLY	1.000	EACH		
2760	22637NN	WET TAP AND VALVE-300MM	1.000	EACH		
2770	22638NN	WET TAP AND VALVE-75MM	1.000	EACH		
2780	22640NN	BYPASS METER W/PRV AT GATE VALVE	4.000	EACH		
2790	22641NN	RADIO READ SERVICE W/PRV-19MM	40.000	EACH		
2800	22642NN	RADIO READ SERVICE W/PRV-25MM	1.000	EACH		
2810	22643NN	RADIO READ SERVICE W/PRV-50MM	2.000	EACH		
2820	22644NN	COMBINATION AIR RELEASE VALVE ASSEMBLY	5.000	EACH		
2830	22648NN	RELOCATE TELEMETRY AT MASTER METER	(1.00)	LS		
2840	22762ND	TEE AND BLOCK-12X12X8 IN	4.000	EACH		
2850	22815NN	TEE AND BLOCK-12 X 12 X 6 IN	16.000	EACH		
2860	23012EN	BORE HARD PAVED DRIVEWAY ALL SIZES	52.500	LF		
2870	23014EN	CONC/STEEL ENCASED CREEK CROSSING	112.500	LF		
2880	23015EN	CONCRETE ENCASED CREEK CROSSING	16.400	LF		
2890	23016EN	PVC CASING FOR SANITARY SEWER CROSSING	65.600	LF		
2900	23017EN	REM AND DISPOSE OF ASBESTOS CEMENT PIPE	4,920.000	LF		
2910	23018EN	TEMP PVC WATER MAIN-3 IN	820.000	LF		

SECTION 0004 TRAINEES

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PROPOSAL: ARRA 0272(109) CALL NO: 101

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
2920	02742	TRAINEE PAYMENT REIMBURSEMENT 1 CLASS A OR B OPERATOR TRAINEE	1,600.000 HOUR		
2930	02742	TRAINEE PAYMENT REIMBURSEMENT 1 ARTICULATING TRUCK DRIVER TRAINE	1,000.000 HOUR		
	SECTION 0005	DEMOBILIZATION & MOBILIZATION			
2940	02568	MOBILIZATION (NO MORE THAN 5%)	LUMP		
2950	02569	DEMOBILIZATION (AT LEAST 1.5%)	LUMP		
		TOTAL BID			