



CALL NO. 108

CONTRACT ID. 091314

ROCKCASTLE COUNTY

FED/STATE PROJECT NUMBER ARRA 150-1 (097)

DESCRIPTION CRAB ORCHARD-MT. VERNON ROAD (US 150)

WORK TYPE GRADE & DRAIN AND PAVEMENT ALTERNATES

PRIMARY COMPLETION DATE 360 WORKING DAYS

LETTING DATE: November 20, 2009

Sealed Bids will be received in the Division of Construction Procurement and/or the 1st floor of the Transportation Cabinet Office Building until 10:00 AM EASTERN STANDARD TIME November 20, 2009. Bids will be publicly opened and read at 10:00 AM EASTERN STANDARD TIME.

ROAD AND BRIDGE PLANS

DBE CERTIFICATION REQUIRED - 4%

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

TABLE OF CONTENTS

PART I	SCOPE OF WORK
	<ul style="list-style-type: none">• PROJECT(S), COMPLETION DATE(S), & LIQUIDATED DAMAGES• CONTRACT NOTES• FEDERAL CONTRACT NOTES• TRAINEES• ASPHALT MIXTURE• OPTION A• SPECIAL NOTE(S) APPLICABLE TO PROJECT• WASTE AND BORROWED SITES• AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009• RIGHT OF WAY NOTES• UTILITY CLEARANCE• UTILITY SPECIFICATIONS• WATER QUALITY CERTIFICATION• KPDES STORM WATER PERMIT, BMP AND NOI• COMMUNICATING ALL PROMISES• PERMIT(S)
PART II	SPECIFICATIONS AND STANDARD DRAWINGS
	<ul style="list-style-type: none">• SPECIFICATIONS REFERENCE• SUPPLEMENTAL SPECIFICATIONS• [SN-9Y] MATERIAL TRANSFER VEHICLE• [SN-10T] ACCEPTANCE OF JPC PAVEMENT THICKNESS• [SP-69] EMBANKMENT AT BRIDGE END BENT STRUCTURES
PART III	EMPLOYMENT, WAGE AND RECORD REQUIREMENTS
	<ul style="list-style-type: none">• FEDERAL-AID CONSTRUCTION CONTRACTS - FHWA 1273• NONDISCRIMINATION OF EMPLOYEES• EXECUTIVE BRANCH CODE OF ETHICS• TRAINING SPECIAL PROVISIONS• PROJECT WAGE RATES• NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EEO
PART IV	INSURANCE
PART V	BID ITEMS

PART I
SCOPE OF WORK

CONTRACT ID - 091314

ADMINISTRATIVE DISTRICT - 08

PROJECT(S) IDENTIFICATION AND DESCRIPTION:

COUNTY - ROCKCASTLE

PCN - DE10201500914

ARRA 150-1 (097)

CRAB ORCHARD-MT. VERNON ROAD (US 150) RECONSTRUCT US 150 FROM BROADHEAD TO KY 461 AT MT.
VERNON, A DISTANCE OF 6.32 MILES. GRADE & DRAIN AND PAVEMENT ALTERNATES. SYP NO.
08-00163.10.

GEOGRAPHIC COORDINATES LATITUDE 37^25'33" LONGITUDE 84^27'13"

COMPLETION DATE(S):

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

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

FAILURE TO MEET GOOD FAITH REQUIREMENT

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

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

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

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

SANCTIONS FOR FAILURE TO MEET DBE REQUIREMENTS OF THE PROJECT

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

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

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

PROMPT PAYMENT

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

CONTRACTOR REPORTING

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

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

The Prime Contractor should supply the payment information at the time the DBE is compensated for their work. Form to use is located at:

<http://transportation.ky.gov/construction/forms/DBEcheck.xls>

Photocopied payments and completed form to be submitted to:

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

DEFAULT OR DECERTIFICATION OF THE DBE

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

06/29/2009

KYTC
DBE Payments

updated 2/28/08

Prime Contractor		Cont-ID	
DBE Contractor		CHECK #	
PAYMENT DATE		Amount of Payment	
Use the section below to show multiple payments using the same check			
Cont-ID	Amount	Cont-ID	Amount

Comments:

attach copy of check here

Mail to:
Office of Civil Rights and Small Business Development
200 Mero Street
6th Floor West TCOB
Frankfort, KY 40622

to be Submitted within 7 days of receipt of payment from KYTC

TRAINEES

In Compliance with the "TRAINING SPECIAL PROVISION" included in Part III of the Proposal, the Contractor will be required to employ 1 trainee(s) (Carpenter) for this contract.

ASPHALT MIXTURE

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

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.

10/12/09

**US 150, Rockcastle Co.
Item Number: 8-163.10**

**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 = **\$614,935**

Concrete Pavement Adjustment = **\$321,353**

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 NOTE FOR MECHANICALLY STABILIZED EARTH (MSE) WALLS

1. DESCRIPTION

1.01 This work includes design, fabrication of precast facing panels and other appurtenances and construction of Mechanically Stabilized Earth (MSE) walls in accordance with the Contract documents.

2. REFERENCES

2.01 All references to the Standard Specifications are to the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, current edition with current Supplemental Specifications. All references to AASHTO are to the current edition of the AASHTO LRFD Bridge Design Specifications, 4th ed, including current interims.

2.02 The requirements in the Standard Specifications or AASHTO shall be used for information not provided herein. Where there are conflicts between the Standard Specifications and AASHTO, the Standard Specifications shall govern.

3. WALL TYPES

3.01 Mechanically Stabilized Earth (MSE) Walls; only walls preauthorized by the Specifications Branch of the Division of Construction are permitted.

Approved Wall Systems:

- Reinforced Earth (Reinforced Earth and Retained Earth)
- VSL Retained Earth
- Hilfiker RSE
- Strengthened Earth Walls
- Keystone KeySystem I
- Tricon Retained Soil Wall System
- ISOGRID Retaining Wall System

Any wall system used must use inextensible reinforcement.

3.02 The wall type selected by the contractor shall be used throughout. Short Cast-In-Place sections may be provided at the ends of the MSE Wall.

3.03 Acceptance of the contractor's design calculations and construction plans does not constitute endorsement nor approval of the work submitted. The acceptance is an acknowledgment of the work performed and authorization for the contractor to proceed with the project.

4. CALCULATIONS AND PLANS

4.01 Design calculations and construction plans clearly showing conformance with the Standard Specifications, AASHTO, and contract plans shall be submitted to the Department for review. Wall designs and construction plans shall be dated, sealed, and signed by a registered professional engineer licensed to practice in Kentucky. The Division of Structural Design requires four sets of the design calculations and five sets of the construction plans for each submission and resubmission. Reduced-size prints (11"x17") are acceptable and preferred for review purposes. The Contractor shall allow 30 working days for the Department to review each submission. The thirty-day period begins when the design calculations and construction plans are received in the Division of Structural Design. Additional time required by the Department to review resubmissions shall not be cause for increasing the number of contract working days. The additional work required by the contractor to provide resubmissions shall be at no cost to the Department.

4.02 The format for the construction plans shall be in accordance with the Division of Structural Design's Guidance Manual. The first sheet shall be a title sheet. All final wall tracings, with drawing number, shall be submitted on 3 mil, or thicker, 22" X 36" mylar film. The final mylar tracings of the accepted construction plans submitted to the Division of Structural Design shall be dated, sealed, and signed on Sheet 1 by the engineer performing the work.

4.03 Shop drawings shall not be developed until after the Department has reviewed and accepted the construction plans. The wall design engineer providing the design for the wall shall submit reviewed and approved shop drawings for the wall. The Division of Structural Design requires nine copies of the approved shop drawings for distribution. Each sheet of two copies of the shop drawings shall be dated, sealed and signed by the wall design engineer providing the design for the wall. The wall design engineer shall approve the shop drawings and provide the Department with a statement of assurance that the shop drawings are accurate and that they satisfy the project requirements.

4.04 All submissions shall be through the Contractor to the Project Resident Engineer. The Project Resident Engineer shall forward the plans, calculations, and shop drawings to the Division of Structural Design. Contact the Division of Structural Design before beginning any work on the wall designs and construction plans.

5. DESIGN

5.01 The wall design shall be in accordance with AASHTO. Exceptions to these requirements are listed in this note or shown elsewhere in the contract plans.

5.02 Earth reinforcement elements in MSE Walls shall be designed to have a corrosion resistance/durability to ensure a minimum design life of 100 years.

5.03 Construction and traffic live loads above the wall shall be considered for design as equivalent to an additional two feet of earth surcharge.

5.04 The MSE Wall volume limits and reinforcement lengths shown on the contract plans are the minimums required by AASHTO and/or the minimums required to satisfy external stability. The MSE Wall supplier's design may require increased reinforcement lengths and MSE volume to satisfy their design. The material required for the MSE Wall volume shall extend one foot, minimum, beyond the ends of the MSE reinforcement.

6. GEOTECHNICAL DESIGN PARAMETERS

6.01 Use the Geotechnical Design Parameters shown in the project Geotechnical Notes for MSE Walls in the road and/or bridge plans as applicable.

6.02 Lateral earth pressure coefficients or equivalent fluid pressures may be determined by Coloumb or Rankine theories.

6.03 In no case shall the geotechnical strength parameters used for design exceed the values allowed by the AASHTO Specifications.

7. GENERAL

7.01 Comply with all dimensions shown on the contract plans and accommodate all other project features as shown on the contract plans. Construct the panel wall so that the resulting front face of the wall is vertical and in conformance with the plan layout. Survey control is the front face of the wall at its intersection with the leveling pad.

7.02 Section 107.05 of the Standard Specifications shall apply to the use of patented devices, materials, wall systems, and processes. Concrete for precast elements (facing panels, copings, etc.) shall attain a minimum 28-day compressive strength of 4000 psi unless otherwise specified by the wall supplier. The concrete shall be air entrained containing 5.5 +/- 1.5 percent entrained air at the time the concrete is placed in the forms. A proposed mix design shall be submitted.

7.03 All embedded items and lifting devices shall be set in place in the precast elements prior to concrete placement. Conform to the dimensions and tolerances shown on the approved contract or shop plans or as approved by the Engineer.

7.04 Acceptability of completed precast elements will be determined on the basis of the entrained air in the concrete mix, compression tests, and visual inspection by the Engineer. The Contractor or his supplier shall

furnish facilities and a Certified Concrete Technician. The Certified Concrete Technician shall perform all necessary sampling and testing in an expeditious and satisfactory manner.

7.05 Forms for the precast facing elements shall be constructed of steel in a manner that will assure the production of uniform elements. Forms shall remain in place until such time that they can be removed without damage to the finish elements.

7.06 Precast facing panels shall be cast front face down. Each unit will be cast without interruption. Consolidation shall be with a vibrator supplemented by such hand tamping as may be necessary to force the concrete into the corners of the forms and to prevent formation of honeycombed concrete or cleavage planes. Clear form oil of the same manufacture shall be used throughout the casting operation.

7.07 The rear panel face shall be a face floated surface finish and screeded to eliminate open pockets of aggregate and surface distortions in excess of one quarter inch.

7.08 All materials used in the manufacture of the precast elements, including cement, aggregates, water, admixtures, concrete mixes, steel reinforcement, and structural steel with galvanizing will be sampled and tested according to the Department's standard procedures for those items. Fabrication shall not begin until these materials have been approved. At least 1000 psi compressive strength shall be attained before precast face panels may be handled. Other precast elements, such as copings, shall not be handled until they attain the compressive strength required by the wall supplier.

7.09 Clearly scribe, or paint with waterproof paint, the date of manufacture, lot number and piece-mark on the rear face of each precast facing panel. Precast elements shall be handled, stored, and shipped in such a manner as to eliminate the danger of chipping, cracking, fracturing, and/or excessive bending.

7.10 The supplier shall examine all precast elements before shipment. All excessive voids, honeycombed areas, and other surface defects on both sides of precast elements shall be properly patched as required to conform to the balance of the work with respect to appearance, strength, and durability. Precast elements shall not be shipped before attaining the required final concrete strength.

7.11 Fabrication of precast elements is subject to random inspection by the Department, an approved independent laboratory, or the precast fabricator as approved by the Engineer. The Engineer will normally witness tests performed by the precast fabricator. Results of all tests performed by the precast fabricator shall be furnished to the Engineer.

7.12 Precast elements damaged during handling, transporting, storage, erection, or backfilling or any element that cannot be satisfactorily placed in the wall shall be repaired or rejected and replaced as directed by the Engineer. Precast elements shall be installed in accordance with the approved construction plans. Facing panels shall be placed in successive horizontal lifts according to the sequence shown on the approved construction plans. The facing elements shall be maintained in such position while MSE volume placed behind the facing elements so that the finished wall is vertical.

7.13 Placement of the MSE Wall volume and earth reinforcement shall closely follow the erection of each lift of panels. See the Geotechnical Notes for additional restrictions for placement of the MSE volume. The maximum lift thickness shall not exceed ten inches. Level and compact the backfill before placing and attaching the MSE reinforcement to the facing elements. The lowest layer of MSE reinforcement shall be installed a minimum of twelve inches below the finish grade in front of the wall. Heavy equipment shall not come within three feet of the back face of MSE facing elements. Compaction within three feet of the back face of MSE facing elements shall be achieved by no less than three passes of a lightweight mechanical tamper, roller, or vibratory system.

7.14 Fabric Geotextile Type IV shall be used as a separator between the MSE Volume and the embankment materials or in-situ soil above, behind, or on the sides of the MSE Volume. The contractor shall have the option, at no additional cost to the Department, of constructing that portion of the embankment above the MSE Volume with the same material as used in the MSE Volume and eliminating the Fabric Geotextile Type IV above the

MSE Volume. Fabric Geotextile Type IV shall be incidental to the unit price bid per square foot of Retaining Wall.

7.15 Tie strip earth reinforcement shall be shop fabricated of hot rolled steel conforming to the minimum requirements of ASTM A570, Grade 36 or Grade 50, or equivalent.

7.16 Steel mesh earth reinforcement shall meet the requirements of ASTM A82 for cold drawn wire. The wires shall be welded into the finished mesh according to ASTM A185. Wire size and mesh configuration shall be as shown on the shop plans.

7.17 Ribbed earth reinforcement shall be hot rolled from bars to the required shape and dimensions. Physical and mechanical properties shall conform to AASHTO M223, Grade 65.

7.18 Ladder reinforcing strips shall be fabricated from cold drawn steel wire conforming to ASTM A82. The wires shall be welded into the finished mesh according to ASTM A185.

7.19 All earth reinforcement shall be cut to length and tolerances shown on the construction plans or approved shop drawings. Anchors and connection pins shall conform to ASTM A82. Welding shall be according to ASTM A185.

7.20 Clevis connectors, loops, and connector bars used with steel mesh reinforcement shall be fabricated from cold drawn steel conforming to ASTM A82. Welding shall be in accordance to ASTM A185.

7.21 Fasteners used with ribbed or ladder reinforcing strips shall consist of hexagonal cap screw bolts and nuts conforming to AASHTO M-164 or equivalent.

7.22 U shaped reinforcing connectors used with ribbed or ladder reinforcing strips as yokes to connect the strips to modular blocks shall be shop fabricated from cold drawn steel wire conforming to ASTM A82.

7.23 Pins used to align face panels during construction shall be 5/8 inch diameter, mild steel, round, smooth bars. All steel components shall be hot dip galvanized after fabrication to conform to the minimum requirements of AASHTO M111. Included are tie strip reinforcement, ribbed earth reinforcement, ladder earth reinforcement anchors, connection pins, steel mesh, clevis connectors, loops, connector bars, fasteners, U shaped connectors, and alignment pins. Holes for bolts shall be punched in the locations shown before galvanizing.

7.24 Bearing pads and joint filler for MSE Walls shall be as recommended by the wall supplier. Vertical slip joints shall be provided at 100-foot intervals +/- three feet unless otherwise shown on the plans. Slip joints between wall sections shall be covered by a geotextile fabric. The fabric shall be a non-woven needle punch polyester or woven monofilament polypropylene as recommended by the wall supplier. All joints between MSE Wall panels shall be covered on the back side with Type I geotextile fabric. The minimum width and lap is:

Vertical Joints 18"

Horizontal Joints 12"

All Laps 4"

The adhesive used to hold geotextile fabric at the rear of the MSE Wall units shall be as recommended by the wall supplier.

7.25 Wall elements including coping and face panels exposed in the final structure shall have a surface finish as specified in Section 601.03.18 of the Standard Specifications.

7.26 Supplier's Representative:

- A representative of the wall system supplier is required to be on site a minimum of two full days within the first week of MSE reinforced backfill construction to provide training and assistance to the contractor's personnel and project inspectors.

- A one-day minimum follow-up visit by the supplier's representative will be required within two weeks of the initial visit, or as approved by the Engineer, in order to monitor progress.
- After each on-site visit, the Contractor is required to submit a letter to the Resident Engineer written by the manufacturer's representative documenting the observations of each visit with documentation that the licensed professional engineer responsible for the design has reviewed the letter.

7.27 Reinforced Backfill:

Use reinforced backfill consisting of quarry-run limestone conforming to Section 805.12 of the Standard Specifications.

8. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

8.01 Roadway quantities are calculated and paid from front face of wall with no deductions for the quantity of material required for walls. No deductions are made for the material in the reinforced volume of MSE Walls. Roadway Excavation beneath the wall shall be measured and paid according to Section 204 of the Standard Specifications. When required, the quantity of Granular Embankment for foundation replacement beneath the MSE Wall shall be measured and paid according to Section 206 of the Standard Specifications. The final quantities for these two items shall be based on field measurements.

8.02 The quantity of MSE Wall will be the gross area in square feet, not including footings or leveling pads for precast walls, lying in the vertical plane of the outside front face of the structure as shown on the plans or as directed by in writing. No field measurement will be made. The final quantity will be the design plan quantity increased or decreased by authorized changes.

8.03 The ground line elevations and depth of foundation replacement shown are interpolated from the available geotechnical information. The top of the leveling pad or footing shall be a minimum of two feet below the finish grade in front of the wall or as directed by the Engineer. When required, the plan depth of foundation replacement shall be measured from the bottom of wall as constructed. When the actual foundation replacement required by the Engineer is different from that shown on the contract plans, an adjustment in wall area and excavation quantities shall be made.

Changing the limits or quantities of the retaining wall or structure excavation, except as directed by the Engineer shall not be cause for changing the plan pay quantities. Lowering the bottom of wall elevations to accommodate the wall design or configuration of pre-fabricated concrete units shall not be cause for changing the plan pay quantities.

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

The MSE volume that extends twelve inches, minimum, beyond the ends of the reinforced volume for MSE Walls shall be incidental to the unit price bid per square foot of Retaining Wall.

All materials, equipment, and labor necessary to provide and install the geotextile fabric shall be incidental to the unit price bid per square foot of Retaining Wall.

All work associated with providing the design, details and construction for the coping shall be incidental to the unit price bid per square foot of Retaining Wall.

All materials, equipment, and labor necessary to provide the specified surface finish for the wall system shall be incidental to the unit price bid per square foot of Retaining Wall.

Sheeting, shoring, temporary walls or other earth retention systems necessary to stabilize the excavation for the wall during construction shall be the responsibility of the Contractor. All designs, labor, materials, etc. required to complete this work shall be incidental to the unit price bid per square foot of Retaining Wall.

PAY ITEM
Retaining Wall

UNIT
Square Foot

Granular Embankment
Roadway Excavation

Cubic Yard
Cubic Yard

SPECIAL PROVISION FOR WASTE AND BORROW SITES

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 intermittent streams, ponds or wetlands. Ephemeral streams are also considered 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 the Corps of Engineers for a determination, prior to disturbance. Any fees associated with obtaining approval from the U.S. Army Corp of Engineer or other appropriate regulatory agencies for waste and borrow sites is the responsibility of the contractor.

01/01/2009

**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.

April 3, 2009

**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.

April 3, 2009

**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. . 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.

The Contractor shall also need their Data Universal Numbering System or DUNS number as described in the Recovery Act Reporting Requirements. Provide DUNS number before the Notice to Proceed

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.

October 15, 2009

Kentucky Monthly Employment Report (Form: FHWA-1589)

The prime contractor for each project shall be responsible for reporting their firm as well as all subcontractors' data.

Format: The Department (e.g. KYTC) will provide the form FHWA-1589 in MS Excel format, with project information included in the header section (e.g. Boxes 2 through 5), after the award of the contract information

Due Date: 7th of each month until September 2015. Include data for work through last full work week of previous month.

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: Provided by KYTC or Local Agency.

BOX 3. Federal-aid project number: Provided by KYTC.

BOX 4. State project number or identification number: Provided by KYTC

BOX 5. Project location: Provided by KYTC

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 "99999999.9999" Contractor provided before Notice to Proceed.

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 subcontractor's 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 Recovery Act 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 Recovery Act 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 include 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").

Boxes 2-6 filled out by agency before Notice to Proceed

KYTC 05-08-09

**MONTHLY EMPLOYMENT REPORT
AMERICAN RECOVERY AND REINVESTMENT ACT**

1. Report Month: (mm/yyyy)		2. Contracting Agency State - Kentucky Transportation Cabinet ContID	
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:	

**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:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
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*(45LC)	14.5	10	27.917	5	10.831
84	60	1	5	4 C	3.5	6 C*	3	4 D*(3LC)	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

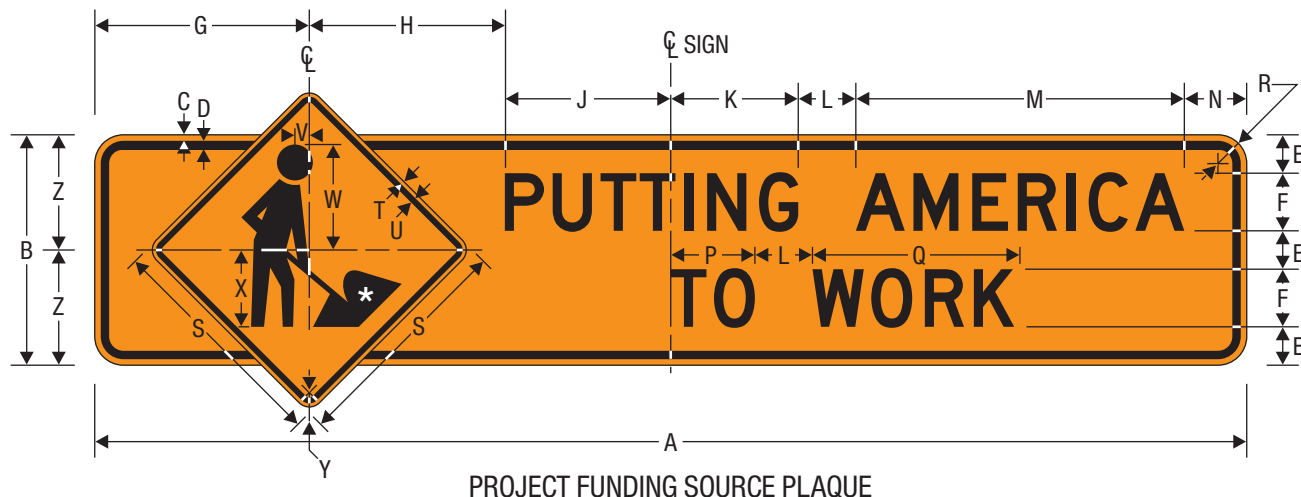
EE	FF	GG
11	4.5	3
7.5	2.25	2.25

- * 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



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)

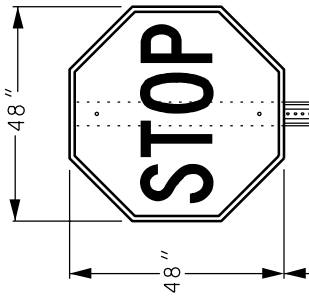
Traffic Notes For Temporary Signs

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.

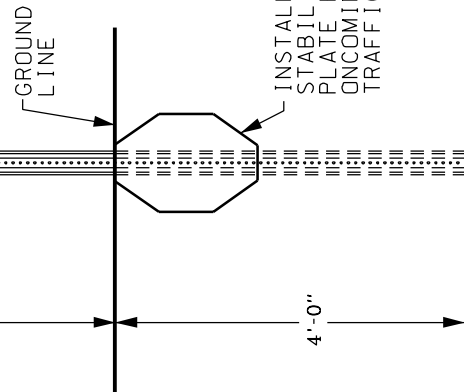
Bolt signs to the wood posts using three 5 inch galvanized lag bolts in each post, with galvanized washers on both sides. The top and bottom bolts shall be placed a minimum of 12 inches from the top and bottom edges respectively, with the third bolt centered on the sign.

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.

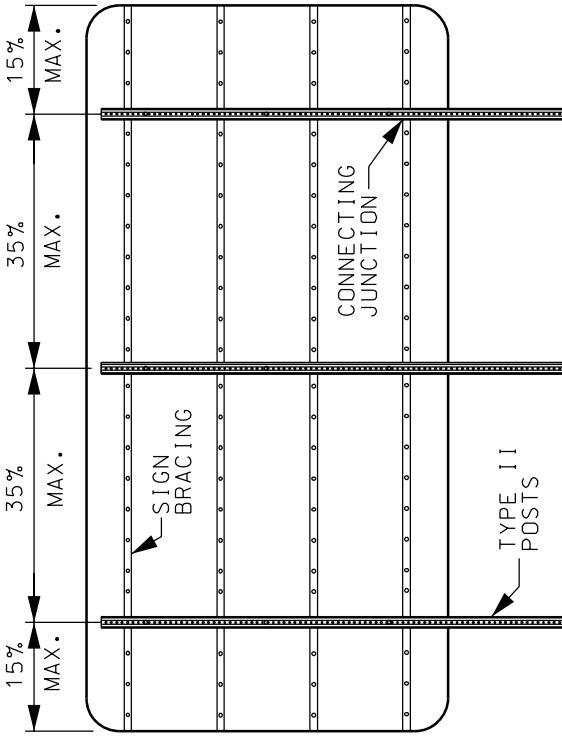


7'-0" MINIMUM

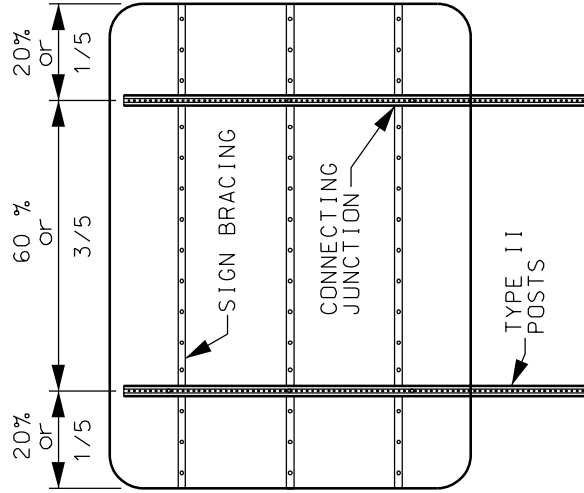
NOT TO SCALE



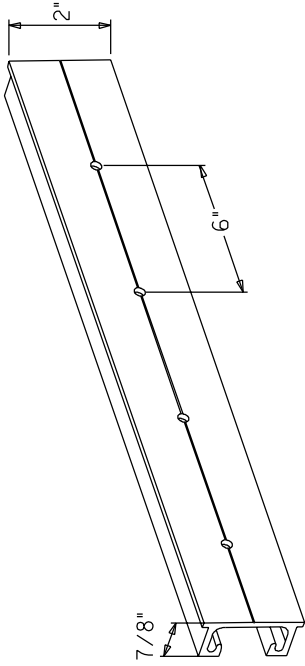
TYPE II
CHANNEL POST
WITH SOIL STABILIZER



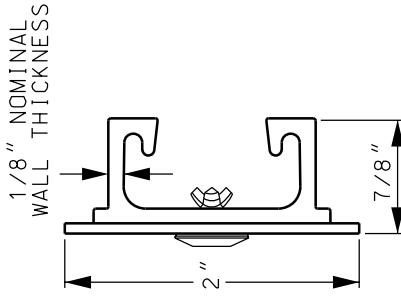
3 POST - BRACING DIAGRAM



2 POST - BRACING DIAGRAM



SHEETING SIGN BRACING



SIGN BRACE

NOTE:
ALUMINUM SIGN BRACING
2" MOUNTING SURFACE
X 7/8" DEPTH X 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

- NOTES:**
1. VERTICAL SPACING NOT TO EXCEED 36" BETWEEN BRACES OR 12" FROM TOP OR BOTTOM OF 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 STABILISHER SHALL BE INCIDENTAL TO SIGNS.

SHEETING SIGN
POST AND BRACING DETAIL



TRANSPORTATION CABINET

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

Steven L. Beshear
Governor

Michael W. Hancock, P.E.
Acting Secretary

MEMORANDUM

TO: Jeff Jasper, Director
Division of Highway Design

FROM: Ralph Divine, Acting Director
Division of Right of Way and Utilities

DATE: October 27, 2009

SUBJECT: Rockcastle County; Item No. 08-163.10
FD04 C102 6903702R; ARRA 150-1(97)
Stanford- Mt. Vernon Road (U.S. 150)
Right of Way Certification

TOTAL NUMBER OF PARCELS ON PROJECT = 110

NUMBER OF PARCELS THAT HAVE BEEN ACQUIRED BY:

Deed: = 106
Condemnation: = 04
ROE Agreement/Consent & Release = 04

There are **45** relocates on subject project.

Parcels Relocated = 45

The following parcels have **now been** acquired Parcel (226).

Parcel 226 An Agreed IOJ was signed October 26, 2009 by property owners Attorney.

All improvements have been removed on subject project

No water or monitoring wells located within the limits of this project.

Approved: *Ralph Divine*
Ralph Divine
Acting Director of Right of Way & Utilities

10/27/09
Date

Approved: *John B. Adams*
FHWA

10/28/09
Date



NewWave Communications

Mr. Darrell Nave, Construction Supervisor
NewWave Communications
Construction Office
5026 S. HWY. 27
Somerset, KY. 42501
(606) 678-9215 Ext. 4004

MediaCom Southeast, LLC

Mr. Albert Gaboriault
Mediacom Southeast LLC
90 North Main
Benton, KY. 42025
(270) 527-9939 Ext. 2223

Wilcop Cable TV

Mr. Johnny Wilcop
Wilcop Cable TV
P.O. Box 558, 101 Pine Avenue
Brodhead, KY. 40409
(606) 758-8320

Rockcastle County Schools

Mr. Trent Clark - DTC
Rockcastle County Schools
254 Richmond St.
Mt. Vernon, KY. 40456
(606)256-2125

Western Rockcastle Water

Ms. Paula DeBorde, Manager
Western Rockcastle Water Association
Main Office
P.O. Box 627, 371 New Broadhead Rd.
Mount Vernon, KY. 40456
(606) 256-8283
Engineer
Mr. Deron Byrne
Monarch Engineering, Inc.
556 Carlton Drive
Lawrenceburg, KY. 40342
(502) 839-1310

City of Mt. Vernon

Ms. Clarice R. Kirby, Mayor
Mt. Vernon City Hall
P.O. Box 1465, 125 Richmond Street
Mt. Vernon, KY. 40456
(606) 256-3438

Engineer
Mr. Luther Galloway, PE
AGE Engineering Services, Inc.
P.O. Box 204, 165 Foster St.
Stanford, KY. 40484
(606) 365-8362

City of Brodhead

Mr. Walter Cash, Mayor
Brodhead Water
P.O. Box 556, 7 West Main Street
Brodhead, KY. 40409
(606) 758-8635

Engineer
Mr. Mike Jacobs
GRW Engineers, Inc.
801 Corporate Drive
Lexington, KY. 40503-2748
(859) 223-3999

The Contractor should note that this may not be a complete list of the utility owners involved. The Contractor is advised to contact the BUD one-call system; however, the Contractor should be aware that not all owners may be a member of the BUD one-call system. Kentucky Underground Protection 1-800-752-6007

“CALL BEFORE YOU DIG”

COORDINATION WITH UTILITY FACILITY OWNERS

The Contractor will be responsible for contacting all utility facility owners on the subject project to have existing facilities located in the field. The Contractor will coordinate his activities with the utility facility owners to minimize and, where possible, avoid conflicts with utility facilities.

Where conflicts with utility facilities are unavoidable the Contractor will coordinate any necessary relocation work with the facility owner.

PROTECTION OF UTILITY FACILITIES

The location of utility facilities shown on the plans may not be exact or complete. It will be the Contractor's responsibility to locate the utility facilities before excavation by calling the utility facility owner and/or the BUD one-call system. The Contractor shall determine the exact location and elevation of underground utility facilities by hand digging to expose utilities before beginning excavation in the area of underground utility facilities. The cost for repair and any other associated costs for any damage to utility facilities caused by the Contractor's operation will be borne by the Contractor.

There are no Railroad facilities associated with this project.

The following utility companies have facilities to be relocated and/or adjusted on subject project. It should be assumed that these areas will not be available to the Contractor prior to the estimated completion dates.

East Kentucky Power Cooperative is 100% complete with their electric transmission relocation work. The Road Contractor will be responsible for contacting East Kentucky Power Cooperative and coordinating their construction.

Jackson Energy is 10% complete with their electric relocation work. The Road Contractor will be responsible for contacting Jackson Energy and coordinating their construction. They have begun with staking their proposed pole locations and contractor is anticipating starting setting poles on October 19, 2009. They estimate approximately 90 calendar days to complete their relocation work, clearing the project by January 17, 2010.

Kentucky Utilities Company is 10% complete with their electric relocation work. The Road Contractor will be responsible for contacting Kentucky Utilities Company and coordinating their construction. They have begun with staking their proposed pole locations and contractor is anticipating starting setting poles on October 26, 2009. They estimate approximately 60 calendar days to complete their relocation work, clearing the project by December 25, 2009.

Windstream Communications is 0% complete with their telecommunication line relocation work. The Road Contractor will be responsible for contacting Windstream Communications and coordinating their construction. Their facilities follow Jackson Energy and Kentucky Utilities pole routes. They anticipate beginning their relocation after Kentucky Utilities completes their relocation. If they are able to start on December 25, 2009 they anticipate being complete by February 23, 2010.

NewWave Communications is 0% complete with their cable television line relocation work. The Road Contractor will be responsible for contacting NewWave Communications and coordinating their construction. Their facilities follow Jackson Energy and Kentucky Utilities pole routes. They anticipate beginning their relocation after Kentucky Utilities completes their relocation and working concurrently with the phone company. If they are able to start on December 25, 2009 they anticipate being complete by March 23, 2010.

MediaCom Southeast, LLC is 100% complete with their cable television line relocation work. The Road Contractor will be responsible for contacting MediaCom Southeast and coordinating their construction. Their facilities are minimal at the start of the project.

Wilcop Cable is 0% complete with their cable television line relocation work. The Road Contractor will be responsible for contacting Wilcop Cable and coordinating their construction. Their facilities follow Jackson Energy and Kentucky Utilities pole routes. They anticipate beginning their relocation after Kentucky Utilities completes their relocation and working concurrently with the phone company. If they are able to start on December 25, 2009 they anticipate being complete by February 3, 2010.

Rockcastle County Schools is 0% complete with their fiber line relocation work. The Road Contractor will be responsible for contacting Rockcastle County Schools and coordinating their construction. Their facilities follow Jackson Energy and Kentucky Utilities pole routes. They anticipate beginning their relocation after Kentucky Utilities completes their relocation and working concurrently with the phone and cable companies. If they are able to start on December 25, 2009 they anticipate being complete by January 14, 2010.

Western Rockcastle Water Association is 0% complete with their water line relocation work. The Road Contractor will be responsible for contacting Western Rockcastle Water Association and coordinating their construction. They will need approximately 90 days to complete their relocation work. They anticipate beginning with their relocation on October 19, 2009 and being clear of the project by January 17, 2010.

City of Mt. Vernon is 0% complete with their water line relocation work. The Road Contractor will be responsible for contacting the City of Mt. Vernon and coordinating their construction. They will need approximately 80 days to complete their relocation work. They anticipate beginning with their relocation on December 1, 2009 and being clear of the project by February 10, 2010.

City of Brodhead is 0% complete with their water line relocation work. Their relocation work is to be included in the Road Contract.

All existing utilities are to remain in service until their proposed utility relocations are complete. It is recommended the Road Contractor contact the utility companies in order to coordinate utility relocation and roadway construction.

Contract Documents and Technical Specifications

**U.S. 150
Water & Sewer
Utility Relocation**

City of Brodhead, KY

GRW Project No. 3412

December 2006

Table of Contents

00410 - Bid 1 - 2

DIVISION 1 GENERAL REQUIREMENTS

Section 01110 - Summary of Work..... 1 - 1

Section 01125 – Special Provisions 1 - 1

Section 01271 - Basis of Measurement & Payment – Water & Sewer..... 1 - 7

Section 01310 - Project Coordination 1 - 2

Section 01320 - Progress Schedules..... 1 - 3

Section 01340 - Shop Drawings, Product Data and Samples 1 - 6

Section 01631 - Products and Substitutions 1 - 6

Section 01731 - Cutting and Patching..... 1 - 4

Section 01740 - Cleaning 1 - 2

Section 01770 - Project Closeout 1 - 3

Section 01780 - Operations and Maintenance Manuals 1 - 5

Section 01782 - Warranties and Bonds 1 - 3

Section 01785 - Project Record Documents..... 1 - 2

DIVISION 2 SITE WORK

Section 02240 - Dewatering..... 1 - 1

Section 02260 - Excavation Support and Protection 1 - 3

Section 02300 - Earthwork..... 1 - 7

Section 02371 - Erosion and Sedimentation Control – KY NPDES Requirements 1 - 9

Section 02400 - Boring and Jacking..... 1 - 4

Section 02510 - Water Distribution Piping 1-12

Section 02515 - Valves 1 - 2

Section 02517 - Hydrants 1 - 5

Section 02530 - Gravity Sewer Piping 1 -11

Section 02531 - Sewage Force Mains 1 -10

Section 02532 - Sanitary Sewer Manholes, Frames, and Covers 1 - 7

Section 02920 - Lawns and Grasses..... 1 - 4

Bid Schedule						
Item No.	DOT Bid Item No.	Bid Items	Quantity	Unit	Unit Bid Price	Total Price
1.		8-inch PVC Water Main	1,825	LF	\$	\$
2.		6-inch PVC Water Main	6,278	LF	\$	\$
3.		4-inch PVC Water Main	570	LF	\$	\$
4.		2-inch PVC Water Main	710	LF	\$	\$
5.		0.75-inch Service Line	535	LF	\$	\$
6.		Ductile Iron Fittings	6	Tons	\$	\$
7.		6-inch Gate Valve & Box	2	EA	\$	\$
8.		Fire Hydrant Assembly	6	EA	\$	\$
9.		Flush Hydrant Assembly	1	EA	\$	\$
10.		Connect to Ex. 8" Water Main with a 8"x8"x8" Tapping Sleeve & Valve	2	EA	\$	\$
11.		Connect to Ex. 6" water main with a 6"x6"x6" Tapping Sleeve & Valve	6	EA	\$	\$
12.		Connect to Ex. 4" water main with a 4"x4"x4" Tapping Sleeve & Valve	3	EA	\$	\$
13.		Water Main Creek Crossing	85	LF	\$	\$
14.		Gravity Sewer Creek Crossing	15	LF	\$	\$
15.		6-inch PVC Water Main Bored & Jacked in a 12-Inch Encasement – KY 1229	60	LF	\$	\$
16.		6-inch PVC Water Main Bored & Jacked in a 12-Inch Encasement – US 150	40	LF	\$	\$
17.		6-inch PVC Water Main Bored & Jacked in a 12-Inch Encasement – KY 3245	30	LF	\$	\$
18.		6-inch PVC Water Main Bored & Jacked in a 12-Inch Encasement – US 150	40	LF	\$	\$
19.		2-inch PVC Water Main Bored & Jacked in a 8-Inch Encasement – KY 150	60	LF	\$	\$
20.		8-inch PVC Water Main Open Cut in a 16-inch Encasement	290	LF	\$	\$
21.		6-inch PVC Water Main Open Cut in a 12-inch Encasement	970	LF	\$	\$
22.		4-inch PVC Water Main Open Cut in a 10-inch Encasement	165	LF	\$	\$
23.		2-inch PVC Water Main Open Cut in a 8-inch Encasement	530	LF	\$	\$

Item No.	DOT Bid Item No.	Bid Items	Quantity	Unit	Unit Bid Price	Total Price
24.		0.75-inch Service Line Push Bored in a 2-inch Encasement	50	LF	\$	\$
25.		Cut & Cap Exist. 8-inch Water Main	2	EA	\$	\$
26.		Cut & Cap Exist. 6-inch Water Main	6	EA	\$	\$
27.		Cut & Cap Exist. 4-inch Water Main	2	EA	\$	\$
28.		Cut & Cap Exist. 3-inch Water Main	1	EA	\$	\$
29.		Cut & Cap Exist. 2-inch Water Main	3	EA	\$	\$
30.		Reconnect Exist. Flush Hydrant	1	EA	\$	\$
31.		Remove Exist. Fire Hydrant Assembly	3	EA	\$	\$
32.		Remove Exist. Water Meter	27	EA	\$	\$
33.		Provide New Water Meter, Service Line, & Reconnect To Exist. Yard Line	11	EA	\$	\$
34.		Reconnect Service to Exist. Water Meter	3	EA	\$	\$
35.		8-inch PVC Gravity Sewer	875	LF	\$	\$
36.		3-inch PVC Force Main	510	LF	\$	\$
37.		Connect 3-inch Force Main to Ex. 3-inch Force Main – Dry Tap	2	EA	\$	\$
38.		4'-0" Dia. Standard Manhole	5	EA	\$	\$
39.		Manhole Barrel Extension	7	EA	\$	\$
40.		Manhole Drop Connection	1	EA	\$	\$
41.		Construct to Exist. Manhole	1	EA	\$	\$
42.		3-inch PVC Force Main Bored & Jacked in a 10-inch Encasement – US 150	50	LF	\$	\$
43.		3-inch PVC Force Main Open Cut In a 10-inch Encasement	320	LF	\$	\$
44.		Cut & Cap Exist. Gravity Sewer Line/Grout Inside Manhole	1	EA	\$	\$
45.		Reconnect Exist. Sewer Services	4	EA	\$	\$
46.		Remove Exist. Manhole	3	EA	\$	\$
47.		Special Granular Fill	20	Tons	\$	\$
48.		Pavement Replacement	1050	LF	\$	\$
49.		Unpaved Shoulder and Gravel Driveway Replacement	1150	LF	\$	\$
TOTAL PRICE						\$

DIVISION 1
GENERAL REQUIREMENTS

SECTION 01110 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 SCOPE OF WORK PERFORMED UNDER THIS CONTRACT

U.S. 150 Water and Sewer Utility Relocation consisting of 10,315 LF of water main; 230 LF of bored and jacked water main; 2,000 LF of open cut encased water main; 875 LF of gravity sewer; 510 LF of force main; 50 LF of bored and jacked force main; 320 LF of open cut encased force main; manholes; hydrants; valves; together with all related work as specified and shown on the Drawings.

1.02 ENUMERATION OF DRAWINGS & SPECIFICATIONS

Following are the Drawings and Specifications for the Contract Documents. Brodhead utility to be relocated.

<u>Drawings</u>	<u>Brodhead Sheet Number</u>
COVER SHEET	
PLAN-MAINLINE STA. 470+00-STA. 485+00	R15
PLAN-MAINLINE STA. 485+00-STA. 500+00	R17
PLAN-MAINLINE STA. 500+00-STA. 515+00	R19
PLAN-MAINLINE STA. 515+00-STA. 530+00	R21
PLAN-MAINLINE STA. 530+00-STA. 545+00	R23
PLAN-APPROACH LT. 457+50 (WATER MAIN)	R53
PLAN-APPROACH LT. 457+50 (GRAVITY SEWER)	R53S
PLAN-APPROACH RT. 457+50	R55
PLAN-APPROACH LT. 490+00	R57
PLAN-APPROACH LT. 549+00	R65
CROSS SECTION-STA. 456+50, STA. 481+50	X1
CROSS SECTION-STA. 488+74, STA. 500+93	X2
CROSS SECTION-STA.512+20, STA. 513+48	X3
CROSS SECTION-STA. 533+29, STA. 57+01	X4
CROSS SECTION-STA. 45+86, STA. 38+70	X5
CROSS SECTION-KY 1229 APPROACH STA. 51+50	X6
SEWER PROFILE	S1
WATER DISTRIBUTION STANDARD DETAILS	WD-1
MANHOLE DETAILS	SD-1
SANITARY SEWER DETAILS	SD-2
EROSION CONTROL DETAILS	EC-1
QUANTITIES SUMMARY – BID SCHEDULE	Q-1

Specifications

See Table of Contents

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01125 – SPECIAL PROVISIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor shall coordinate the project schedule such that the Water and Sanitary Sewer utility relocation portion of this project is completed prior to beginning any Highway work.
- B. The Contractor shall perform the utility relocation (Water and Sanitary Sewer) work in a **continuous 120 calendar day** time frame. If the Contractor fails to complete the work in the given time frame, **he will be responsible for the Residents Inspector's time and expenses.**

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01271 - BASIS OF MEASUREMENT AND PAYMENT – WATER & SEWER

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The Contractor shall furnish all necessary labor, machinery, tools, apparatus, equipment, materials, service and other necessary supplies and perform all Work shown on the Drawings and/or described in the Specifications and Contract Documents at the unit prices as indicated by the Bidder in the Bid.
- B. The Bidder declares that he has examined the site of the Work and informed himself fully in regard to all conditions pertaining to the place where the Work is to be done; that he has examined the Plans, Specification and Contract Documents for the Work, and has read all special provisions furnished prior to the opening of bids; and that he has further satisfied himself relative to the Work to be performed. The Bidder further declares that he understands that unit quantities shown in the Proposal are approximately only, are subject to increase or decrease, and that, should the quantities of any of the items be decreased, the Bidder will make no claim for the anticipated profits. In addition, the Owner also reserves the right to adjust quantities, either by addition or deletion and as-BID unit price shall remain in effect for these quantity adjustments.
- C. All excavation required of the work shall be done as part of the total price for the complete project. All excavation shall be unclassified.

1.02 PAY ITEMS

- A. The items listed hereinafter refer to and are the same items listed in the PROPOSAL hereinbefore and constitute all of the pay items in this Contract. Any other items of Work listed in the Specifications or shown on the Drawings shall be considered incidental to the above items.

1.03 WATER MAIN AND SERVICE LINES

- A. Payment for furnishing and installing the water mains and service lines will be made at the contract unit price per linear foot, complete in place, which price shall include compensation for furnishing, hauling, excavation (including rock), blasting (if required), bedding, laying, jointing, tracer wire, extra depth (as necessary), installing concrete anchors and cradles as necessary, testing, backfilling, surface restoration (excluding pavement replacement), disinfection and cleanup. The quantity of water line to be paid for shall be the length of the complete water main measured along the centerline without any deduction for lengths of fittings, valves or other appurtenances.

1.04 DUCTILE IRON FITTINGS

- A. Payment for furnishing and placing ductile iron fittings will be made at the contract unit price per ton, complete in place. This item shall also include the required concrete kickers and thrust blocking for the fittings.

1.05 GATE VALVES AND BOXES

- A. Payment for furnishing and installing gate valves, and boxes will be made at the contract unit price each, complete in place, which price shall include compensation for furnishing, hauling, excavation, installation, blocking and backfilling.

1.06 FIRE HYDRANT AND VALVE

- A. Payment for furnishing and installing 6" pipe hydrant lead (excluding wet tap and/or ductile iron water main tee), 6" hydrant lead gate valve and box, and the fire hydrant, including thrust blocks, crushed stone drain, and anchorage will be made at the contract unit price each, complete in place. Type of hydrant lead pipe shall be as noted on the Drawings. Tapping an existing main (where noted on the Drawings) is a separate pay item.

1.07 BLOW-OFF (FLUSH) HYDRANTS

- A. Payment for furnishing and installing blow-off (Flush) hydrants will be made at the contract unit price each, complete in place, which price shall include compensation for furnishing, hauling, excavation (including rock), flush hydrant, auxiliary gate valve, concrete for kickers, thrust blocks and anchors, crushed stone drain, and anchorage, backfilling and concrete curbing around valve box at ground surface. Size of flush hydrant and lead pipe shall be as noted on the Drawings.

1.08 CONNECTION TO EXISTING WATER MAINS (Wet Tap)

- A. Payment for connection to existing water mains will be made at the contract unit price each, complete in place, which price shall include compensation for furnishing and installing the tapping sleeve and valve, hauling, excavating (including rock), labor, backfilling, and all other installation requirements for connection to existing mains. Valve boxes and valve markers, where applicable, shall be furnished and installed with each tapping valve.

1.09 CREEK CROSSING

- A. Payment for creek crossings will be made at the contract unit price per linear foot, complete in place. Included in the cost of this pay item is the additional expenses associated with installing the creek crossing, which include compaction of native fill along the trench width, dense grade aggregate above and below the sewer main, as well as rip-rap from toe of slope to top of bank (both sides of creek) along the trench width. Creek crossing shall be measured along the centerline of the trench from top of bank to top of bank where indicated on plans. The carrier pipe, trenching, and the installation of the carrier pipe are not considered a part of this pay item.

1.10 STEEL COVER PIPE BORE AND JACKED

- A. The steel cover pipe required to be bored and/or jacked in place will be measured from end to end of the completed cover pipe in place, and will be paid for per bore at the Contract Unit Price per linear foot, complete in place, which price shall include the cover

pipe, the carrier pipe laid therein, material and work for blocking and sealing the ends of the casing pipe, casing spacers to support and brace the carrier pipe and all other items necessary for its construction as shown on the Drawings and/or described in the Specifications.

1.11 STEEL COVER PIPE INSTALLED IN OPEN CUT TRENCH

- A. The steel cover pipe required to be installed in an open cut will be measured from end to end of the completed cover pipe in place, and will be paid for at the Contract Unit Price per linear foot, complete in place, which price will include furnishing, hauling, excavation (including rock), bedding, installation, jointing (both casing and carrier pipe), the cover pipe, the carrier pipe laid therein, material and work for blocking and sealing the ends of the casing pipe, casing spacers to supporting and bracing the carrier price, testing, crushed stone backfill(Method "D is section 02510), surface restoration (except pavement replacement), and all other items necessary for its construction as shown on the Drawings and/or described in the Specifications.

1.12 PAVED STREETS/COUNTY ROADS - PUSH OR DRILL BORE

- A. Payment for push or drill bore of various sizes in place will be measure from end to end of the completed pipe in place, and will be paid for at the contract price per linear foot complete in place, which price shall include items necessary for its construction as shown on the Drawings and/or described in the Specifications.

1.13 CUT & CAP EXISTING WATER MAIN

- A. Payment for cutting and capping existing mains of all sizes and types shown on the Drawings will be made at the contract unit price each, complete in place, which price shall include compensation for furnishing and installing all pipe, fittings, hauling, excavation, thrust restraint fitting, cutting, placement of ductile iron cap, backfilling, and all other work and material required for capping the existing mains as specified and/or shown on the Drawings.
- B. Pavement replacement is a separate pay item and is not included in the scope of this pay item.

1.14 RECONNECTION OF EXISTING FLUSH HYDRANT

- A. Payment for reconnections of existing flush hydrant of the various sizes and configurations will be made at the contract unit price each, complete in place, which price shall include compensation for excavation (including rock), tapping the water main (new or existing), new service piping to connect to existing flush hydrant, couplings, fittings, etc. required to make connection, backfill, surface restoration (except pavement replacement), and all materials and labor necessary to complete the work.

1.15 REMOVE EXISTING FIRE HYDRANT ASSEMBLY

- A. Payment for removal of existing fire hydrant assemblies will be made at the contract unit price, per each assembly removed, which price will include compensation for excavation, removal, disposal, hauling, and backfill. Price shall include removal of hydrant and piping to mainline tee and providing permanent cap and thrust block for same.

1.16 REMOVAL OF EXISTING WATER METER AND BOX

- A. Payment for removal of existing water meters and boxes shall be made at the contract unit price each, complete, and shall include all labor, materials and equipment necessary for excavation, removing the existing water meter and properly abandoning (capping) the existing water service line. Also, shall include backfilling, surface restoration (except pavement replacement) and all other work and materials to remove the existing water meter.

1.17 PROVIDE NEW WATER METER, SERVICE LINE & RECONNECT EXISTING YARD LINE

- A. Payment for new customer meter and service connections of the various sizes and configurations will be made at the contract unit price each, complete in place, which shall include compensation for tapping the water main and furnishing and installing service connector or corporation stop, furnishing and setting meter box, the meter and cover, and all coupling, fittings, etc. to reconnect to the existing yard line. This pay item also includes up to 10' L.F. of service piping necessary to make the connection from the new main line to the meter box and from the meter to the existing yard line, surface restoration, together with all related appurtenances specified and/or shown on the Drawings necessary to provide customer connections.

1.18 RECONNECTION OF EXISTING WATER SERVICE LINE TO NEW AND EXISTING WATER MAIN

- A. Payment for reconnections of existing water service line of the various sizes and configurations will be made at the contract unit price each, complete in place, which price shall include compensation for excavation (including rock), tapping the water main (new or existing), 10 L.F. of new service piping to connect to existing service piping, couplings, fittings, etc. required to make connection, backfill, surface restoration (except pavement replacement), materials and labor necessary to complete the work.

1.19 GRAVITY SEWERS

- A. Payment for gravity sewer lines of the different types and sizes will be made at the Contract unit price per linear foot in place, which price will include compensation for furnishing pipe, all trenching (including rock excavation), bedding, laying, jointing, testing, backfilling, surface restoration (except pavement replacement) connections to new manholes, and all plugs as required. The quantity of sewer to be paid for shall be the length of pipe measured along the centerline of the completed pipeline without deducting the length of branches, fittings and manhole inverts.

Connections of existing sewers to new sewers will be additional and not included under the scope of this pay item.

- B. Pay depth measurements shall be taken from the contract profile drawings. If a change in alignment or depth is approved in the field, pay depths may then be measured in the field.
- C. The Contractor shall note that all excavation is unclassified. No separate payment will be made for rock excavation.

1.20 FORCE MAIN - PIPE AND FITTINGS

- A. Payment for force main will be made at the Contract unit price per linear foot in place, which price will include compensation for furnishing pipe, fittings, all trenching (including rock excavation), thrust blocks, bedding, laying, jointing, testing, backfilling, surface restoration (except pavement replacement).
- B. The quantity of sewer to be paid for shall be the length of pipe measured along the centerline of the completed pipeline without deducting the length of branches, fittings and etc. All fittings, saddles, taps, thrust blocks, etc. shall be included under the scope of this pay item.

1.21 CONNECTION TO EXISTING MAINS (Dry Tap)

- A. Payment for connection to existing mains will be made at the contract unit price each, complete in place, which price shall include compensation for cutting and capping existing mains, removing existing caps or fittings, closing valves to isolate connection, furnishing and installing new main to the existing main, hauling, excavating (including rock), labor backfilling, and all other installation requirements for connection to existing mains.

1.22 MANHOLES

- A. Payment for shallow, standard, or special manholes, as described, will be made at the Contract unit price each, complete in place, which price will include the manhole, complete with footing, precast concrete riser sections and cone (or flat slab top), cast iron frame and cover, inverts, steps, stub outs, excavation (including rock), backfilling, surface restoration (except pavement replacement), and testing.

1.23 MANHOLE BARREL EXTENSION

- A. For manholes greater than six (6) feet in depth, the additional manhole barrel measured as defined in the Detailed Specifications will be paid for at the Contract unit price per vertical linear foot of additional depth, which price will include the precast concrete barrel sections, water proof seals, excavation (including rock) and backfilling. No separate payment will be made for additional steps that are required. Depth of manhole shall be measured vertically from the top of cast iron frame to the downstream invert.

1.24 MANHOLE DROP CONNECTION

- A. Payment for manhole drop connection will be made at the contract unit price each, for each size drop constructed, which price shall include the additional excavation (including rock), bedding, concrete, furnishing all pipe, fittings, saddles, gaskets, compression couplings and stainless steel straps, backfill and surface restoration (except pavement replacement) to complete the drop connection to the manhole.

1.25 GRAVITY SEWER CONNECTION TO EXISTING MANHOLE

- A. Payment for the installation of gravity sewer to an existing manhole shall be made at the contract unit price each in-place. This cost will include all labor, material, and equipment to install the gravity sewer through the wall of the existing manhole, patch the manhole wall, remove the apron and invert and construct a new apron and invert in accordance with these plans and detailed specifications. All concrete, pipe, plugs, sealant, etc. shall be considered a part of this pay item.

1.26 CUTTING AND CAPPING EXISTING SEWER MAINS AT MANHOLES

- A. Payment for cutting and capping the sewer main (all sizes) shall be made at the contract unit price each and shall include all labor and materials required to cut and cap the sewer in accordance with these plans and specifications, which shall include excavation (including rock), cutting and capping the existing sewer main, backfill, surface restoration. This work shall also include the cost to grout/seal the inside wall of the manhole wall on the main being abandoned.

1.27 RECONNECTION OF EXISTING SEWER SERVICE LINE TO NEW GRAVITY SEWER

- A. Payment for reconnections of existing sewer line of the various sizes and configurations will be made at the contract unit price each, complete in place, which price shall include compensation for all labor, materials, excavation (including rock), installing the wye fitting and service piping to connect to existing service piping, couplings, fittings, etc. required to make connection, plugging abandoned service line, backfill, surface restoration (except pavement replacement), materials and all labor necessary to complete the work.

1.28 REMOVAL OF MANHOLES

- A. Payment for the removal of manholes will be made at the contract unit price each, which price will include excavation, removal, hauling, disposal and backfilling (crushed stone fill where required) and surface restoration (except pavement replacement). Price shall also include plugging of the existing sewer lines entering and exiting the manhole.

1.29 SPECIAL GRANULAR FILL

- A. Whenever payment shall be deemed due under the provisions of the Detailed Specifications, said material will be paid for at the contract unit price per ton, furnished

and placed as specified. The Contractor shall furnish the Engineer with duplicate weight slips for all such material delivered to the project.

1.30 PAVEMENT REPLACEMENT FOR HIGHWAYS, STREETS, AND DRIVEWAYS

- A. Paving replacement for bituminous concrete or Portland cement highway, street, and driveway will be paid for at the Contract unit price per linear foot of trench paved, which price will include compensation for furnishing and placing crushed stone trench backfill in accordance with Method "C", furnishing and placing base course for paving, placing the concrete sub-slab (for State Highways or where required by the Contract Documents), and furnishing and laying bituminous concrete surface.

1.31 UNPAVED SHOULDERS AND GRAVEL DRIVEWAY REPLACEMENT

- A. Payment for replacing unpaved highways, roads, gravel driveways, and shoulders will be made at the contract unit price per linear foot, complete in place, which price shall include compensation for Method "C" backfill from the top of the pipe bedding to six (6) inches below the grade line and then the 6" dense graded aggregate course to the top of the trench.

1.32 PORTLAND CEMENT CONCRETE DRIVEWAY REPLACEMENT

- A. Payment for replacement of Portland cement concrete driveways shall be made at the contract unit price per linear foot, complete in place, which price shall include compensation for Method "C" backfill, furnishing and placing base course for paving, furnishing and placing wire mesh reinforced concrete paving.

1.33 PAY ITEMS

- A. The items listed hereinbefore refer to and are the same items listed in the PROPOSAL, and constitute all of the pay items in this Contract. Any other items of work listed in the Specifications or shown on the Drawings shall be considered incidental to the above items.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01310 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

Minimum administrative and supervisory requirements necessary for coordination of work on the project include but are not necessarily limited to the following:

- A. Coordination and meetings.
- B. Limitations for use of site.
- C. Coordination of crafts, trades and subcontractors.
- D. General installation provisions.
- E. Cleaning and protection.
- F. Conservation and salvage.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.

1.03 COORDINATION AND MEETINGS

- A. Monthly general project coordination meetings will be held at regularly scheduled times convenient for all parties involved. These meetings are in addition to specific meetings held for other purposes, such as regular project meetings and special pre-installation meetings. Representation at each meeting by every party currently involved in coordination or planning for the work of the entire project is requested. Meetings shall be conducted in a manner which will resolve coordination problems. Results of the meeting shall be recorded and copies distributed to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.04 LIMITATIONS ON USE OF THE SITE

- A. Limitations on site usage as well as specific requirements that impact site utilization are indicated on the drawings and by other contract documents. In addition to these limitations and requirements, allocation of available space shall be administered equitably among entities needing both access and space so as to produce the best overall efficiency in performance of the total work of the project. Schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site.

1.05 COORDINATION OF CRAFTS, TRADES AND SUBCONTRACTORS

- A. The Contractor shall coordinate the work of all the crafts, trades and subcontractors engaged on the work, and he shall have final responsibility as regards the schedule, workmanship and completeness of each and all parts of the work.
- B. All crafts, trades and subcontractors shall be made to cooperate with each other and with others as they may be involved in the installation of work which adjoins, incorporates, precedes or follows the work of another. It shall be the Contractor's responsibility to point out areas of cooperation prior to the execution of subcontractor agreements and the assignment of the parts of the work. Each craft, trade and subcontractor shall be made responsible to the Owner, for furnishing embedded items and giving directions, for doing all cutting and fitting and making all provisions for accommodating the work, and for protecting, patching, repairing and cleaning as required to satisfactorily perform the work.
- C. The Contractor shall be responsible for all cutting, digging and other action of his subcontractors and workmen. Where such action impairs the safety or function of any structure or component of the project, the Contractor shall make such repairs, alterations and additions as will, in the opinion of the Engineer, bring said structure or component back to its original design condition at no additional cost to the Owner.
- D. Each subcontractor is expected to be familiar with the General Requirements and all sections of the detailed Specifications for all other trades and to study all Drawings applicable to his work including Architectural and Structural Drawings, to the end that complete coordination between trades will be effected. Consult with the Engineer if conflicts exist on the Drawings.
- E. Special attention shall be given to points where ducts or piping must cross other ducts or piping, where lighting fixtures must be recessed in ceilings and where ducts, piping and conduits must fit into walls and columns. It shall be the responsibility of such subcontractor to leave the necessary room for other trades.
- F. No extra compensation will be allowed to cover the cost of removing piping, conduit, ducts, etc., or equipment found encroaching on space required by others.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01320 - PROGRESS SCHEDULES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Scheduling Responsibilities:

1. In order to provide a definitive basis for determining job progress, a construction schedule of a type approved by the Owner will be used to monitor the project.
2. The Contractor shall be responsible for preparing the schedule and updating on a monthly basis. It shall at all times remain the Contractor's responsibility to schedule and direct his forces in a manner that will allow for the completion of the work within the contractual period.

B. Construction Hours:

1. No work shall be done between 6:00 p.m. and 7:00 a.m. nor on Saturdays, Sundays or legal holidays without the prior written permission of the Owner. However, emergency work may be done without prior written permission.
2. If the Contractor, for his convenience and at his own expense, should desire to carry on his work at night or outside the regular hours, he shall submit a written request to the Engineer and shall allow nine (9) days for satisfactory arrangements to be made for inspecting the work in progress. If permission is granted, the Contractor shall light the different parts of the project as required to comply with all applicable federal, state, and local regulations. The Contractor shall also revise his schedule as appropriate at the next monthly schedule update meeting to reflect the changes in working hours.

C. Progress of the Work:

1. The work shall be started within ten (10) days following the Notice to Proceed and shall be executed with such progress as may be required to prevent delay to other Contractors or to the general completion of the project. The work shall be executed at such times and in or on such parts of the project, and with such forces, material and equipment, to assure completion of the work in the time established by the Contract.
2. The Contractor agrees that whenever it becomes apparent from the current monthly schedule update that delays have resulted and, hence, that the Contract completion date will not be met or when so directed by the Owner, he will take some or all of the following actions at no additional cost to the Owner:
 - a. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of work.
 - b. Increase the number of working hours per shift, shifts per working day or days per week, the amount of construction equipment, or any combination of the foregoing to substantially eliminate the backlog of work.

- c. Reschedule activities to achieve maximum practical concurrency of accomplishment of activities, and comply with the revised schedule.
- d. The Contractor shall submit to the Owner or the Owner's representative for review a written statement of the steps he intends to take to remove or arrest the delay to the critical path in the accepted schedule. If the Contractor should fail to submit a written statement of the steps he intends to take or should fail to take such steps as required by the Contract, the Owner may direct the level of effort in manpower (trades), equipment, and work schedule (overtime, weekend and holiday work, etc.), to be employed by the Contractor in order to remove or arrest the delay to the critical path in the accepted schedule, and Contractor shall promptly provide such level of effort at no additional cost to the Owner.

1.02 CONSTRUCTION SCHEDULE

- A. Within ten (10) calendar days of the Notice to Proceed, the Contractor shall submit to the Engineer five (5) copies of his proposed schedule. The schedule will be the subject of a schedule review meeting with the Contractor, the Engineer and the Owner or the Owner's representative within one (1) week of its submission. The Contractor will revise and resubmit the schedule until it is acceptable and accepted by the Owner or the Owner's representative.

1.03 SUBMITTAL SCHEDULE

- A. In addition to the above scheduling requirements, the Contractor will be required to submit a complete and detailed listing of anticipated submittals during the course of the Contract. The Contractor will coordinate his submittals with those of his Subcontractors and Suppliers and will identify each submittal by Contract drawing number and specification number. The anticipated submission date for each submittal must be indicated along with the date on which its return is anticipated. For planning purposes, the Engineer will usually return shop drawings thirty (30) days after receipt. However, longer durations for review will not be considered a basis for a claim.
- B. The Submittal Schedule must be submitted within twenty (20) working days of the Notice to Proceed and will be the subject of a special meeting with the Engineer and the Owner or the Owner's representative within one (1) week of the schedule's submission. At that meeting, the Submittal Schedule will be reviewed for comprehensiveness and feasibility. The Engineer will adjust the projected return dates based on the need for more or less time for each submittal's review. The Submittal Schedule will then be accepted or revised as required.

1.04 SCHEDULE UPDATES

- A. Monthly Meetings:

A monthly Schedule Update Meeting will be held in conjunction with the applicable progress meeting at the construction site to review and update the Schedule. The Schedule Update Meetings will be chaired by the Owner or the Owner's representative and attended by the Contractor and the Engineer. Actual progress of the previous month will be recorded and future activities will be reviewed. The duration of activities and their logical connections may be revised as needed. Decisions made at these meetings

and agreed to by all parties are binding with the exception that no contractual completion dates will be modified without formal written requests and acceptance as specified herein.

B. Revisions to Schedule:

The Schedule shall be formally revised if any of the following conditions are encountered:

1. When a delay in completion of any work item or sequence of work items results in an indicated extension of the project completion.
2. When delays in submittals or deliveries or work stoppages are encountered which make replanning or rescheduling of the work necessary.
3. When the schedule does not represent the actual prosecution and progress of the project.

1.05 CONTRACT COMPLETION TIME

A. Causes for Extensions:

The Contract completion time will be adjusted only for causes specified in this Contract. In the event the Contractor requests an extension of any Contract completion date, he shall furnish such justification and supporting evidence as the Owner or the Owner's representative may deem necessary for a determination as to whether the Contractor is entitled to an extension of time under the provisions of this Contract. The Owner, with the assistance of the Engineer, will, after receipt of such justification and supporting evidence, make findings of fact and will advise the Contractor in writing thereof.

B. Requests for Time Extension:

Each request for change in any Contract completion date shall be initially submitted to the Owner within the time frame stated in the General Conditions. All information known to the Contractor at that time concerning the nature and extent of the delay shall be transmitted to the Owner at that time. Within the time frame stated in the General Conditions but before the date of final payment under this Contract, all information as required above concerning the delay must be submitted to the Owner. No time extension will be granted for requests which are not submitted within the foregoing time limits.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. General: This section specifies procedural requirements for non- administrative submittals including shop drawings, product data, samples (when samples are specifically requested) and other miscellaneous work-related submittals. Shop drawings, product data, samples and other work-related submittals are required to amplify, expand and coordinate the information contained in the Contract Documents.
- B. Refer to other Division-1 sections and other Contract Documents for Specifications on administrative, non-work-related submittals. Such submittals include, but are not limited to the following items:
 - 1. Permits.
 - 2. Payment applications.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. Inspection and test reports.
 - 6. Schedule of values.
 - 7. Progress reports.
 - 8. Listing of subcontractors.
 - 9. Operating and Maintenance Manuals
- C. 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 submittals by the Engineer shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory. Review of such submittals 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 DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to work of this section.
- B. Section 01780 - Operating and Maintenance Manuals.

1.03 DEFINITIONS

A. Shop drawings are technical drawings and data that have been specially prepared for this project, including but not limited to the following items:

1. Fabrication and installation drawings.
2. Setting diagrams.
3. Shopwork manufacturing instructions.
4. Templates.
5. Patterns.
6. Coordination drawings (for use on-site).
7. Schedules.
8. Design mix formulas.
9. Contractor's engineering calculations.

Standard information prepared without specific reference to a project is not considered to be shop drawings.

B. Product data includes standard printed information on manufactured products that has not been specially-prepared for this project, including but not limited to the following items:

1. Manufacturer's product specifications and installation instructions.
2. Standard color charts.
3. Catalog cuts.
4. Roughing-in diagram and templates.
5. Standard wiring diagrams.
6. Printed performance curves.
7. Operational range diagrams.
8. Mill reports.
9. Standard product operating and maintenance manuals.

C. Samples, where specifically required, are physical examples of work, including but not limited to the following items:

1. Partial sections of manufactured or fabricated work.
2. Small cuts or containers of materials.
3. Complete units of repetitively-used materials.

4. Swatches showing color, texture and pattern.
 5. Color range sets.
 6. Units of work to be used for independent inspection and testing.
- D. Miscellaneous submittals are work-related, nonadministrative submittals that do not fit in the three previous categories, including, but not limited to the following:
1. Specially-prepared and standard printed warranties.
 2. Maintenance agreements.
 3. Workmanship bonds.
 4. Survey data and reports.
 5. Testing and certification reports.
 6. Record drawings.
 7. Field measurement data.

1.04 SUBMITTAL PROCEDURES

- A. General: Refer to the General Conditions and Paragraph 1.02A hereinbefore for basic procedures for submittal handling:
- B. Coordination: Coordinate the preparation and processing of submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities that require sequential activity.
- Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Architect/Engineer's need to review a related submittal. The Architect/Engineer reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.
- C. Coordination of Submittal Times: Prepare and transmit each submittal to the Architect/Engineer sufficiently in advance of the scheduled performance of related work and other applicable activities. Transmit different kinds of submittals for the same unit of work so that processing will not be delayed by the Architect/Engineer's need to review submittals concurrently for coordination.
- D. Review Time: Allow sufficient time so that the installation will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary. Advise the Architect/Engineer on each submittal, as to whether processing time is critical to the progress of the work and if the work would be expedited if processing time could be shortened.

1. Allow a longer time period where processing must be delayed for coordination with subsequent submittals. The Architect/Engineer will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
 2. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect/Engineer sufficiently in advance of the work.
- E. Submittal Preparation: Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken.
1. Project name.
 2. Date.
 3. Name and address of Architect/Engineer.
 4. Name and address of Contractor.
 5. Name and address of subcontractor.
 6. Name and address of supplier.
 7. Name of manufacturer.
 8. Number and title of appropriate specification section.
 9. Drawing number and detail references, as appropriate.
 10. Similar definitive information as necessary.
- F. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect/Engineer, and to other destinations as indicated, by use of a transmittal form. Submittals received from sources other than the Contractor will be returned to the sender "without action".

1.05 SPECIFIC SUBMITTAL REQUIREMENTS

- A. 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.

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 two (2) which will be retained by the Engineer. Shop drawings shall be folded to an approximate size of 8-1/2" 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 writing of the deviation and the reasons therefore.
- 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 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 package 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 requires submittals until return of submittals with Engineer's stamp and initials or signature indicating review.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01631 - PRODUCTS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. General: Substitution of materials and/or equipment is defined in Paragraph 6.7.1 of the General Conditions and more fully hereinafter.
- B. Definitions: Definitions used in this paragraph are not intended to negate the meaning of other terms used in the Contract Documents including such terms as "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction" and similar terms. Such terms are self-explanatory and have recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, regardless of whether they were specifically purchased for the project or taken from the Contractor's previously purchased stock. The term "product" as used herein includes the terms "material", "equipment", "system" and other terms of similar intent.
 - 2. "Named Products" are products identified by use of the manufacturer's name for a product, including such items as a make or model designation, as recorded in published product literature, of the latest issue as of the date of the Contract Documents.
 - 3. "Materials" are products that must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form units of work.
 - 4. "Equipment" is defined as a product with operational parts, regardless of whether motorized or manually operated, and in particular, a product that requires service connections such as wiring or piping.
- C. Substitutions: The Contractor's requests for changes in the products, materials, equipment and methods of construction required by the Contract Documents are considered requests for "substitutions", and are subject to the requirements specified herein. The following are not considered as substitutions:
 - 1. Revisions to the Contract Documents, where requested by the Owner, Engineer are considered as "changes" not substitutions.
 - 2. Substitutions requested during the bidding period, which have been accepted prior to the Contract Date, are included in the Contract Documents and are not subject to the requirements for substitutions as herein specified.
 - 3. Specified Contractor options on products and construction methods included in the Contract Documents are choices available to the Contractor and are not subject to the requirements for substitutions as herein specified.

4. Except as otherwise provided in the Contract Documents, the Contractor's determination of and compliance with governing regulations and orders as issued by governing authorities do not constitute "substitutions" and do not constitute a basis for change orders.
- D. Standards: Refer to Division-1 section "Definitions and Standards" for applicability of industry standards to the products specified for the project, and for acronyms used in the text of the specification sections.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to Work of this Section.

1.03 SUBMITTALS

The information required to be furnished for evaluation of product substitution will be as follows:

- A. Performance capabilities, and materials and construction details will be evaluated based upon conformance with the Specifications. Products that do not conform with the Specification shall not be accepted.
- B. Manufacturer's production and service capabilities, and evidence of proven reliability will be acceptable if the following is furnished.
 1. Written evidence that the manufacturer has not less than (3) years experience in the design and manufacture of the substitute product.
 2. Written evidence of at least one application, of a type and size similar to the proposed substitute product, in successful operation in a wastewater treatment plant for a period of at least one year.
 3. In lieu of furnishing evidence of a manufacturer's Experience and successful operation of an application of the product to be substituted, the Contractor has the option of furnishing a cash deposit or bond which will guarantee replacement if the product the furnished does not satisfy the other requirements specified in this section. The amount of each deposit or bond will be subject to the approval.
- C. Specific reference to characteristics either superior or inferior to specified requirements will be evaluated based on their net effect on the project. Products with any characteristics inferior to those specified will not be acceptable unless offset by characteristics that, in the opinion of the Engineer, will cause the overall effect of the product on the project to be at least equal to that of those specified.

1.04 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same generic kind, from a single source, for each unit of work.

- B. Compatibility of Options: Compatibility of products is a basic requirement of product selection. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected must be compatible with other products previously selected, even if the products previously selected were also Contractor options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract Documents, but must be provided by the Contractor.
- C. The detailed estimate of operating and maintenance costs will be evaluated based on comparison with similar data on the specified products. Proposed substitute products which have an operating and maintenance cost that, in the opinion of the Engineer, exceeds that of the specified products will not be considered equal and will not be acceptable.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

General: Deliver, store, and handle products in accordance with manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft. Control delivery schedules to minimize long-term storage at the site and to prevent overcrowding of construction spaces. In particular coordinate delivery and installation to ensure minimum holding or storage times for items known or recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.

- A. Deliver products to the site in the manufacturer's sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
- B. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
- C. Store heavy materials away from the project structure in a manner that will not endanger the supporting construction.

PART 2 - PRODUCTS

2.01 GENERAL PRODUCT COMPLIANCE

- A. General: Requirements for individual products are indicated in the Contract Documents; compliance with these requirements is in itself a Contract Requirement. These requirements may be specified in any one of several different specifying methods, or in any combination of these methods. These methods include the following:
 - 1. Proprietary.
 - 2. Descriptive.
 - 3. Performance.
 - 4. Compliance with Reference Standards.

Compliance with codes, compliance with graphic details, allowances, and similar provisions of the Contract Documents also have a bearing on the selection process.

- B. Procedures for Selecting Products: Contractor's options in selecting products are limited by requirements of the Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects.

2.02 SUBSTITUTIONS

- A. Conditions: Contractor's request for substitution will be received and considered when extensive revisions to the Contract Documents are not required, when the proposed changes are in keeping with the general intent of the Contract Documents, when the request are timely, fully documented and properly submitted, and when one or more of the following conditions is satisfied, all as judged by the Engineer; otherwise the requests will be returned without action except to record non-compliance with these requirements.
1. The Engineer will consider a request for substitution where the request is directly related to an "or equal" clause or similar language in the Contract Documents.
 2. The Engineer will consider a request for substitution where the specified product or method cannot be provided within the Contract Time. However, the request will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly or to coordinate the various activities properly.
 3. The Engineer will consider a request for substitution where the specified product or method cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 4. The Engineer will consider a request for a substitution where a substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Engineer for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.
 5. The Engineer will consider a request for substitution when the specified product or method cannot be provided in a manner which is compatible with other materials of the work, and where the Contractor certifies that the substitution will overcome the incompatibility.
 6. The Engineer will consider a request for substitution when the specified product or method cannot be properly coordinated with other materials in the work, and where the Contractor certifies that the proposed substitution can be properly coordinated.
 7. The Engineer will consider a request for substitution when the specified product or method cannot receive a warranty as required by the Contract Documents and where the Contractor certifies that the proposed substitution receive the required warranty.
 8. The Contractor shall reimburse the Owner any costs for review by the Engineer of proposed product substitutions which require major design changes, as determined by the Owner, to related of adjacent work made necessary by the proposed substitutions.

- B. Work-Related Submittals: Contractor's submittal of and the Engineer's acceptance of shop drawings, product data or samples which relate to work not complying with requirements of the Contract Documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

2.03 GENERAL PRODUCT REQUIREMENTS

- A. General: Provide products that comply with the requirements of the Contract Documents and that are undamaged and, unless otherwise indicated, unused at the time of installation. Provide products that are complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 - 1. Standard Products: Where they are available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 2. Continued Availability: Where, because of the nature of its application, the Owner is likely to need replacement parts or additional amounts of a product at a later date, either for maintenance and repair or replacement, provide standard, domestically produced products for which the manufacturer has published assurances that the products and its parts are likely to be available to the Owner at a later date.
- B. Nameplates: Except as otherwise indicated for required labels and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on the exterior of the completed project.
 - 1. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface which, in occupied spaces, is not conspicuous.
 - 2. Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power operated equipment. Locate the nameplate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data.
 - a. Name of manufacturer
 - b. Name of product
 - c. Model number
 - d. Serial number
 - e. Capacity
 - f. Speed
 - g. Ratings

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS

- A. General: Except as otherwise indicated in individual sections of these Specifications, comply with the manufacturer's instructions and recommendations for installation of the products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work. Clean exposed surfaces and protect surfaces as necessary to ensure freedom from damage and deterioration at Time of Acceptance.

END OF SECTION

SECTION 01731 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work and subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cutting and patching" is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes upon written instructions of the Engineer.
- C. Cutting and patching is performed during the manufacture of products, or during the initial fabrication. Erection or installation processes are not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".
- D. "Cutting and Patching" includes removal and replacement of Work not conforming to requirements of the Contract Documents, removal and replacement of defective Work, and uncovering Work to provide for installation of ill-timed Work.
- E. No Work shall be endangered by cutting or altering Work or any part of it.

1.02 RELATED DOCUMENTS

- A. Drawing and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification sections, apply to Work of this Section.

1.03 SUBMITTALS

- A. Prior to cutting which affects structural safety of Project, submit written notice to the Engineer, requesting consent to proceed with cutting, including:
 - 1. Identification of Project.
 - 2. Description of affected work.
 - 3. Necessity for cutting.
 - 4. Effect on structural integrity of Project.
 - 5. Description of proposed work. Designate:
 - a. Scope of cutting and patching.
 - b. Trades to execute work.
 - c. Products proposed to be used.

- d. Extent of refinishing.
- 6. Alternatives to cutting and patching.
- B. Should conditions of work, or schedule, indicate change of materials or methods, submit written recommendation to the Engineer, including:
 - 1. Conditions indicating change.
 - 2. Recommendations for alternative materials or methods.
 - 3. Submittals as required for Substitutions.
- C. Submit written notice to the Engineer, designating time Work will be uncovered, to provide for observation.

1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.
- B. Operational and Safety Limitations: Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life or decreased energy.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. For replacement of work removed, comply with Specifications for type of work to be done.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

3.02 PREPARATION

- A. Temporary Support: To prevent failure, provide temporary support of Work to be cut. Provide shoring, bracing and support as required to maintain structural integrity of project.
- B. Protection: Protect other Work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be

exposed during cutting and patching operations. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas. Take precautions not to cut existing pipe, conduit or duct serving the building but scheduled to be relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching Work. Except as otherwise indicated or as approved by the Engineer, proceed with cutting and patching at the earliest feasible time and complete Work without delay.
- B. Cutting: Cut the Work using methods that are least likely to damage work to be retained or adjoining Work. Where possible, review proposed procedures with the original installer; comply with original installer's recommendations.
 - 1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.
 - 2. Comply with requirements of applicable sections of Division 2 where cutting and patching requires excavating and backfilling.
 - 3. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in wall or partitions to be removed. After by-pass and cutting, cap, valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.
- C. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the Work.
 - 1. Where feasible, inspect and test patched areas to demonstrate integrity of work.
 - 2. Restore exposed finishes of patched areas and where necessary, extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and refinishing.
 - 3. Execute fittings and adjustment of products to provide finished installations to comply with specified tolerances.
 - 4. Restore work which has been cut or removed; install new products to provide completed work in accord with requirements of Contract Documents.
 - 5. Refinish entire surfaces as necessary to provide an even finish.
 - a. Continuous Surfaces: To nearest intersection.
 - b. Assembly: Entire refinishing.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where Work is performed or used as access to work. Remove completely point, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 01740 - CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Maintain premises free from accumulations of waste, debris, and rubbish.
- B. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all exposed surfaces. Leave project clean and ready for occupancy.

1.02 RELATED DOCUMENTS

- A. Cutting and Patching: Section 01731.
- B. Project Closeout: Section 01770.
- C. Cleaning for Specific Products of Work: Specification Section for that work.

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 violative noxious substances.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 3. Do not dispose of wastes into streams or waterways.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At reasonable intervals during progress of work, clean site and public properties, and dispose of waste materials, debris and rubbish.
- D. Provide on-site containers for collection of waste materials, debris and rubbish.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- G. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

3.02 FINAL CLEANING

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from sight-exposed interior or exterior finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- E. Broom clean paved surfaces; rake clean other surfaces of grounds.
- F. Maintain cleaning until project, or portion thereof, is occupied by Owner.

END OF SECTION

SECTION 01770 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Liquidated Damages: Supplemental General Conditions
- B. Cleaning: Section 01740.
- C. Project Record Documents: Section 01785.

1.02 SUBSTANTIAL COMPLETION

- A. In order to initiate project closeout procedures, the Contractor shall submit the following:
 - 1. Written certification to Engineer that project is Substantially Complete.
 - 2. 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 01740.
 - b. Owner will occupy Project, under provisions stated in Certificates of Substantial Completion.
 4. Contractor: Complete work listed for completion or correction, within designated time.
- D. Should Engineer consider that work is not Substantially Complete:
1. He shall immediately notify Contractor, in writing, stating reasons.
 2. Contractor: Complete work, and send second written Engineer, certifying that Project, or designated portion of Project is substantially complete.
 3. Engineer will reinspect work.
- E. Should Engineer consider that work is still 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 third written notice to the Engineer certifying that the work is complete.
 3. Engineer and Owner will reinspect work at Contractor's expense.

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 reinspect work.

1.04 CLOSEOUT SUBMITTALS

- A. Project Record Documents: To requirements of Section 01785.
- B. Guarantees, Warranties and Bonds: To requirements of particular technical Specifications and Section 01782.

1.05 INSTRUCTION

- A. Instruct Owner's personnel in operation of all systems, mechanical, electrical, and other equipment.

1.06 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit final applications in accordance with requirements of General Conditions.

1.07 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of general conditions.
- B. Should final completion be materially delayed through no fault of Contractor, Engineer may issue a Semi-Final Certificate for Payment.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01782 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- 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. Submit to Engineer for review and transmittal to Owner.

1.02 RELATED DOCUMENTS

- A. Bid Bond: Instructions to Bidders.
- B. Performance and Payment Bonds: General Conditions and Supplemental General Conditions.
- C. Guaranty: General Conditions and Supplemental General Conditions.
- D. General Warranty of Construction: General Conditions.
- E. Project Closeout: Section 01770.
- F. Warranties and Bonds required for specific products: As listed herein.
- G. Provisions of Warranties and Bonds, Duration: Respective specification sections for particular products.

1.03 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.

1.04 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 1. Size 8-1/2 in. x 11 in., punch sheets for 3-ring binder.
 - a. 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.

1.05 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during progress of construction:
 1. 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.

1.06 SUBMITTALS REQUIRED

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

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01785 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 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.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Shop Drawings, Product Data, and Samples: Section 01340.

1.03 MARKING DEVICES

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

1.04 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. In the event that such items are not available then the proposed roadway centerline and off-set shall be used.
 2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 3. Field changes of dimension and detail.
 4. Changes made by Change Order or Field Order.
 5. Details not on original Contract Drawings.
- E. Specifications and Addenda: Legibly mark up each section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Change Order or Field Order.
 3. Other matters not originally specified.
- F. Shop Drawings: Maintain as record documents; legibly annotate shop drawings to record changes made after review.

1.05 SUBMITTALS

- 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.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

DIVISION 2

SITE WORK

SECTION 02240 - DEWATERING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor and equipment required to dewater all excavations.
- B. Dewatering of all excavations shall be the responsibility of the Contractor, and no additional compensation will be allowed for same unless specifically included as a bid item.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork is included in Section 02300.
- B. Erosion and sedimentation control is included in Section 02371.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 GENERAL

- A. Dewatering equipment shall be of adequate size and quantity to assure maintaining proper conditions for installing pipe, concrete, backfill or other material or structure in the excavation.
- B. Dewatering shall include proper removal of any and all liquid, regardless of its source, from the excavation and the use of all practical means available to prevent surface runoff from entering any excavation.
- C. The site shall be kept free of surface water at all times. The Contractor shall install drainage ditches, dikes and shall perform all pumping and other work necessary to divert or remove rainfall and all other accumulations of surface water from the excavations. The diversion and removal of surface water shall be performed in a manner that will prevent flooding and/or damage to other locations within the construction area where it may be detrimental. The Contractor shall provide, install and operate sufficient trenches, sumps, pumps, hose piping, well points, deep wells, etc., necessary to depress and maintain the ground water level at least two (2) feet below the base of the excavation during all stages of construction operations. The ground water table shall be lowered in advance of excavation and maintained a minimum of two (2) feet below the lowest excavation subgrade made until the structure has sufficient strength and weight to withstand horizontal and vertical soil and water pressures from natural ground water.
- D. No liquid from the excavated area shall be discharged into the sanitary sewer system.

END OF SECTION

SECTION 02260 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. This Section includes, but is not limited to, the following:
 - 1. Shoring and bracing necessary to protect existing buildings, streets, walkways, utilities, and other improvements and excavation against loss of ground or caving embankments.
 - 2. Maintenance of shoring and bracing.
 - 3. Removal of shoring and bracing, as required.
- B. Types of shoring and bracing systems include, but are not limited to, the following:
 - 1. Steel H-section (soldier) piles.
 - 2. Timber lagging.
 - 3. Steel sheet piles.
 - 4. Portable Steel Trench Box.
- C. Building excavation is specified in another Division 2 Section.

1.02 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Section 01340.
- B. Layout drawings for excavation support system and other data prepared by, or under the supervision of, a qualified professional engineer. System design and calculations must be acceptable to local authorities having jurisdiction.

1.04 QUALITY ASSURANCE

- A. Engineer Qualifications: A professional engineer legally authorized to practice in jurisdiction where Project is located, and experienced in providing successful engineering services for excavation support systems similar in extent required for this Project.

- B. Supervision: Engage and assign supervision of excavation support system to a qualified professional engineer foundation consultant.
 - 1. Submit name of engaged consultant and qualifying technical experience.
- C. Regulations: Comply with codes and ordinances of governing authorities having jurisdiction.

1.05 JOB CONDITIONS

- A. Before starting work, verify governing dimensions and elevations. Verify condition of adjoining properties. Take photographs to record any existing settlement or cracking of structures, pavements, and other improvements. Prepare a list of such damages, verified by dated photographs, and signed by Contractor and others conducting investigation.
- B. Survey adjacent structures and improvements, employing qualified professional engineer, establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.
- C. During excavation, resurvey benchmarks weekly, maintaining accurate log of surveyed elevations for comparison with original elevations. Promptly notify Engineer if changes in elevations occur or if cracks, sags, or other damage is evident.

1.06 EXISTING UTILITIES

- A. Protect existing active sewer, water, gas, electricity and other utility services and structures.
- B. Notify municipal agencies and service utility companies having jurisdiction. Comply with requirements of governing authorities and agencies for protection, relocation, removal, and discontinuing of services.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Provide adequate shoring and bracing materials which will support loads imposed. Materials need not be new, but should be in serviceable condition.
- B. Structural Steel: ASTM A 36.
- C. Steel Sheet Piles: ASTM A 328.
- D. Timber Lagging: Any species, rough-cut, mixed hardwood, nominal 3 inches thick, unless otherwise indicated.
- E. Portable Steel Trench Box shall be OSHA approved.

PART 3 - EXECUTION

3.01 SHORING

- A. Wherever shoring is required, locate the system to clear permanent construction and to permit forming and finishing of concrete surfaces. Provide shoring system adequately anchored and braced to resist earth and hydrostatic pressures.
- B. Shoring systems retaining earth on which the support or stability of existing structures is dependent must be left in place at completion of work.

3.02 BRACING

- A. Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move a brace, install new bracing prior to removal of original brace.
- B. Do not place bracing where it will be cast into or included in permanent concrete work, except as otherwise acceptable to Engineer.
- C. Install internal bracing, if required, to prevent spreading or distortion of braced frames.
- D. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.
- E. Remove sheeting, shoring, and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.
- F. Repair or replace, as acceptable to Engineer, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

END OF SECTION

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all materials, labor, equipment and services necessary to do all clearing and grubbing, excavation, backfilling, providing of additional fill material and topsoil, control of surface drainage and ground water, finished site grading and erosion control required to construct the work as shown.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. State and local code requirements shall control the disposal of trees and shrubs.
- B. All burning shall be controlled by applicable local regulations.
- C. EXCAVATION SUPPORT AND PROTECTION – Section 02260
- D. EROSION AND SEDIMENTATION CONTROL – Section 02371

1.03 JOB CONDITIONS

- A. Weather: Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained on account of rain, snow, ice, drought or other adverse weather conditions.
- B. Existing Utilities: Prior to commencement of work, the Contractor shall locate existing underground utilities in areas of the work. If utilities are to remain in place, provide adequate means of protection during earthwork operations.
- C. Use of Explosives: The Contractor (or any of his Subcontractors) shall not bring explosives onto site or use in work without prior written permission from the Owner. All activities involving explosives shall be in compliance with the rules and regulations of the State Department of Mines, and Minerals, Division of Explosives and Blasting. Contractor is solely responsible for handling, storage, and use of explosive materials when their use is permitted.
- D. Protection of Persons and Property:
 - 1. Barricade open excavations occurring as part of this work and post with warning lights.
 - a. Operate warning lights as recommended by authorities having jurisdiction.
 - b. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

- E. Dust Control: Use all means necessary to control dust on or near the project site where such dust is caused by the Contractor's operations or directly results from conditions left by the Contractor.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

- A. Definitions:
 - 1. Satisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups GW, GP, GM, SM, SW, SP, GC, SC, ML, and CL.
 - 2. Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups MH, CH, OL, OH and PT. The Contractor shall notify the Engineer if these soil materials are encountered.
 - 3. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed slag, natural or crushed sand.
 - 4. Drainage Fill: Washed, evenly graded mixture of crushed stone, or uncrushed gravel, with 100 percent passing a 1 - 2 inch sieve and not more than 5 percent passing a no. 4 sieve.
 - 5. Backfill and Fill Materials: Satisfactory soil materials free of debris, waste, frozen materials, vegetable, and other deleterious matter.

PART 3 - EXECUTION

3.01 CLEARING AND GRUBBING

- A. Work shall consist of cutting and removing designated trees, stumps, brush, logs, removal of fences, or other loose and projecting material. Unless otherwise specified, it shall also include the grubbing of stumps, roots, and other natural obstructions which, in the opinion of the Engineer, must be removed to execute properly the construction work and operate properly the facility upon the completion of construction.
- B. Trees, bushes, and all natural vegetation shall only be removed with the approval of the Engineer. No cleared or grubbed materials shall be used in backfills or embankment fills. All stumps, roots, and other objectionable material shall be grubbed up so that no roots larger than 3 inches in diameter remain less than 18 inches below the ground surface. All holes and depressions left by grubbing operations shall be filled with suitable material and compacted to grade, as recommended in Paragraph 3.06.
- C. Disposal shall be by burning or other methods satisfactory to the Engineer; however, burning will be permitted only when the Contractor has obtained written permission from the local regulatory agency.

- D. The Contractor shall also remove from the site and satisfactorily dispose of all miscellaneous rubbish including, but not limited to, masonry, scrap metal, rock, pavement, etc., that is under the fill or to be removed as shown on the Drawings, specified herein, or directed by the Engineer.
- E. Existing improvements, adjacent property, utility and other facilities, and trees, plants, and brush that are not to be removed shall be protected from injury or damage resulting from the Contractor's operations.
- F. Trees and shrubs, designated to remain or that are beyond the clearing and grubbing limit, which are injured or damaged during construction operations shall be treated or replaced at the Contractor's expense by experienced tree surgery personnel.

3.02 EROSION CONTROL

- A. Temporary measures shall be applied throughout the construction period to control and to minimize siltation to adjacent properties and waterways. Such measures shall include, but not be limited to, the use of berms, silt barriers, gravel or crushed stone, mulch, slope drains and other methods.
- B. These temporary measures shall be applied to erodible material exposed by any activity associated with the construction of this project.
- C. Refer to Section 02371, Erosion and Sedimentation Control for requirements.

3.03 EXCAVATION

- A. Excavation of every description and of whatever substances encountered within the grading limits of the project shall be performed to the lines and grades indicated on the Drawings. All excavation shall be performed in the manner and sequence as required for the work.
- B. All excavated materials that meet the requirements for fill, subgrades or backfill shall be stockpiled within the site for use as fill or backfill, or for providing the final site grades. Where practicable, suitable excavated material shall be transported directly to any place in the fill areas within the limits of the work. All excavated materials that are not suitable for fill, and any surplus of excavated material that is not required for fill shall be disposed of by the Contractor.
- C. The site shall be kept free of surface water at all times. The Contractor shall install drainage ditches, dikes and shall perform all pumping and other work necessary to divert or remove rainfall and all other accumulations of surface water from the excavations. The diversion and removal of surface water shall be performed in a manner that will prevent flooding and/or damage to other locations within the construction area where it may be detrimental. The Contractor shall provide, install and operate sufficient trenches, sumps, pumps, hose piping, well points, deep wells, etc., necessary to depress and maintain the ground water level at least two (2) feet below the base of the excavation during all stages of construction operations. The ground water table shall be lowered in advance of excavation and maintained a minimum of two (2) feet below the lowest excavation subgrade made until the excavation is backfilled or the structure has sufficient strength and weight to withstand horizontal and vertical soil and water pressures from natural ground water.

- D. Excavations for concrete structural slabs and footings on grade shall extend two (2) feet below the indicated bottom of slabs and footings. The over-excavation shall be backfilled with 18 inches, compacted thickness, of over lot fill material or suitable material as herein specified. The remaining six (6) inches of over-excavation shall be backfilled with porous fill material. The porous fill layer shall extend beyond the limits of the concrete slab a minimum of two (2) feet on all sides as indicated on the Drawings. The porous fill shall be crushed stone or gravel and shall have the following U.S. Standard Sieve gradation:

Sieve	1-1/2	1	3/4	1/2	3/8
% Passing	Min 100	95±5	58±17	Max 15	Max 5

- E. Excavations for the construction shall be carefully made to the depths required. Bottoms for footings and grade beams shall be level, clean and clear of loose material, the lower sections true to size. Bottoms of footings and grade beams, in all locations, shall be at a minimum depth of 30 inches below adjacent exterior finished grade or 30 inches below adjacent existing grade, whichever is lower, whether so indicated or not. Footings and grade beam bottoms shall be inspected by the Engineer before any concrete is placed thereon.
- F. In excavations for structures where, in the opinion of the Engineer, the ground is spongy or otherwise unsuitable for the contemplated foundation, the Contractor shall remove such unsuitable material and replace it with suitable material properly compacted.
- G. Sheeting and shoring shall be provided as necessary for the protection of the work and for the safety of the personnel. The clearances and types of the temporary structures, insofar as they affect the character of the finished work, will be subject to the review of the Engineer, but the Contractor shall be responsible for the adequacy of all sheeting, bracing and cofferdamming. All shoring, bracing and sheeting shall be removed as the excavations are backfilled in a manner such as to prevent injurious caving; or, if so directed by the Engineer, shall be left in place. Sheeting left in place shall be cut off 18 inches below the surface.
- H. Excavation for structures which have been carried below the depths indicated without specific instructions shall be refilled to the proper grade with suitable material properly compacted, except that in excavation for columns, walls or footings, the concrete footings shall extend to this lower depth. All work of this nature shall be at the Contractor's expense.

3.04 FILL

- A. All existing fill below structures and paved areas must be stripped. The upper six (6) inches of the natural subgrade below shall be scarified and recompacted at optimum moisture to at least ninety-five percent (95%) of Standard Proctor Density ASTM D 698 (latest revision).
- B. All vegetation, such as roots, brush, heavy sods, heavy growth of grass and all decayed vegetable matter, rubbish and other unsuitable material within the area upon which fill is to be placed shall be stripped or otherwise removed before the fill is started. In no case will such objectionable material be allowed to remain in or under the fill area. Existing fill from excavated areas on site shall be used as fill for open and/or planted areas. Additional fill stockpiled at the site can be used for structural fill if approved by the Engineer. Any additional material necessary for establishing the indicated grades shall be furnished by the Contractor and approved by the Engineer. All fill material shall be

free from trash, roots and other organic material. The best material to be used in fills shall be reserved for backfilling pipe lines and for finishing and dressing the surface. Material larger than 3 inches maximum dimension shall not be permitted in the upper 6 inches of the fill area. Fill material shall be placed in successive layers and thoroughly tamped or rolled in a manner approved by the Engineer, each layer being moistened or dried such that the specified degree of compaction shall be obtained. No fill shall be placed or compacted in a frozen condition or on top of frozen material. No fill material shall be placed when free water is standing on the surface of the area where the fill is to be placed and no compaction of fill will be permitted with free water on any point of the surface of the fill to be compacted.

- C. Where concrete slabs are placed on earth, all loam and organic or other unsuitable material shall be removed. Where fill is required to raise the subgrade for concrete slabs to the elevations as indicated on the Drawings or as required by the Engineer, such fill shall consist of suitable material and shall be placed in layers. Each layer shall be moistened or dried such that the specified degree of compaction shall be obtained. All compaction shall be accomplished in a manner and with equipment as approved by the Engineer. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for adjacent fill.

3.05 BACKFILLING

- A. After completion of footings, grade beams and other construction below the elevation of the final grades and prior to backfilling, all forms shall be removed and the excavation shall be cleaned of all trash and debris. Material for backfilling shall be as specified for suitable material, placed and compacted as specified hereinafter. Backfill shall be placed in horizontal layers of the thickness specified and shall have a moisture content such that the required degree of compaction is obtained. Each layer shall be compacted by mechanical tampers or by other suitable equipment approved by the Engineer to the specified density. Special care shall be taken to prevent wedging action or eccentric loading upon or against the structure. Trucks and machinery used for grading shall not be allowed within 45 degrees above the bottom of the footings or grade beams.
- B. The trenches shall be backfilled following visual inspection by the Engineer and prior to pressure testing. The trenches shall be carefully backfilled with the excavated materials approved for backfilling, or other suitable materials, free from large clods of earth or stones. Each layer shall be compacted to a density at least equal to that of the surrounding earth and in such a manner as to permit the rolling and compaction of the filled trench with the adjoining earth to provide the required bearing value, so that paving, if required, can proceed immediately after backfilling is completed.

3.06 COMPACTION

- A. Suitable material as hereinbefore specified shall be placed in maximum 8" horizontal layers. Compaction shall be performed by rolling with approved tamping rollers, pneumatic-tired rollers, three wheel power rollers or other approved equipment. The degree of compaction required is expressed as a percentage of the maximum dry density obtained by the test procedure presented in ASTM D-698. Laboratory moisture density tests shall be performed on all fill material. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction. Compaction requirements shall be as specified below:

Fill Utilized For	Required Density (%)	Maximum Permissible Lift Thickness As Compacted, Inches
Backfill & Utility Trenches Under Foundations & Pavements	95-100	8
Backfill Around Structures	95-100	8
Field and Utility Trench Backfill Under Sidewalks and Open Areas	90-100	8

- B. Field density tests shall be performed in sufficient number to insure that the specified density is being obtained. Tests shall be in accordance with ASTM Standards D 1556 or D 2922/D 3017 and shall be performed as authorized by the Engineer. Payment for field density tests shall be by the Owner. Contractor shall provide suitable notification for coordination of testing. Delays due to the lack of adequate advance notification shall be the responsibility of the Contractor.

3.07 SITE GRADING

- A. Where indicated or directed, topsoil shall be removed without contamination with subsoil and spread on areas already graded and prepared for topsoil, or transported and stockpiled convenient to areas for later application, or at locations specified. Topsoil shall be stripped to full depth and, when stored, shall be kept separate from other excavated materials and piled free of roots, stones, and other undesirable materials.
- B. Following stripping, fill areas shall be scarified to a minimum depth of six (6) inches to provide bond between existing ground and the fill material. Material should be placed in successive horizontal layers not exceeding twelve (12) inches uncompacted thickness. In general, layers shall be placed approximately parallel to the finished grade line.
- C. In general and unless otherwise specified, the Contractor may use any type of earth moving equipment he has at his disposal, provided such equipment is in satisfactory condition and of such type and capacity that the work may be accomplished properly and the grading schedule maintained. During construction, the Contractor shall route equipment at all times, both when loaded and empty, over the layers as they are placed, and shall distribute the travel evenly over the entire area.
- D. The material in the layers shall be of the proper moisture content before rolling or tamping to obtain the prescribed compaction. Wetting or drying throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on the fill thus affected shall be delayed until the material has dried to the required moisture content. If the material is too dry, it shall be sprinkled with water and manipulated to obtain the uniform moisture content required throughout a layer before it is compacted.
- E. Each layer of the fill shall be compacted by rolling or tamping to the standard specified in Paragraph 3.06 and not less than 90% maximum density at optimum moisture content as determined by field density tests made by the Standard Proctor method in accordance with ASTM D 698. In general and unless otherwise specified, the Contractor may use any type of compaction equipment such as sheepsfoot rollers, pneumatic rollers, smooth rollers and other such equipment he has at his disposal, provided such equipment is in satisfactory condition and is of such design, type, size, weight, and quantity to obtain the

required density in the embankment. If at any time the required density is not being obtained with the equipment then in use by the Contractor, the Engineer may require that different and/or additional compaction equipment be obtained and placed in use at once to obtain the required compaction.

- F. Samples of all fill and embankment materials, both before and after placement and compaction, will be taken by the Engineer, and from the tests made on such samples, certain corrections, adjustments, and modifications of methods, materials, and moisture content will be directed to obtain uniformity with the governing specifications for compaction and construct properly the fill and embankment.
- G. The Contractor shall be responsible for the stability of all embankments and shall replace any portion which, in the opinion of the Engineer, has become displaced due to carelessness or negligence on the part of the Contractor.

3.08 TOPSOIL

- A. Provide all labor, materials, equipment and services required for furnishing and placing topsoil. Samples of topsoil shall be submitted to the Engineer for review before topsoil is placed. The material shall be good quality loam and shall be fertile, friable, mellow; free from stones larger than one (1) inch, excessive gravel, junk metal, glass, wood, plastic articles, roots and shall have a liberal amount of organic matter. Light sand loam or heavy clay loam will not be acceptable.
- B. The topsoil shall be 3 inches thick in all areas to be seeded. No topsoil shall be placed until the area to be covered is excavated or filled to the required grade. Imported backfill material will be stockpiled on site for structure backfilling and top soiling.

END OF SECTION

**SECTION 02371 - EROSION AND SEDIMENTATION CONTROL-KY NPDES
REQUIREMENTS (for disturbed areas of one acre or more)**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, and equipment required for erecting, maintaining and removing temporary erosion and sedimentation controls as shown on the Drawings and as specified herein and as recommended by state and local regulatory agencies.
- B. Temporary erosion controls include, but are not limited to grassing, mulching, seeding, providing erosion control and turf reinforcement mats on all disturbed surfaces including waste area surfaces and stockpile and borrow area surfaces; scheduling work to minimize erosion and providing interceptor ditches at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits.
- C. Temporary sedimentation controls include, but are not limited to, silt dams, traps, barriers, and appurtenances on sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits.
- D. Contractor is responsible for providing and maintaining effective temporary erosion and sediment control measures prior to and during construction or until final controls become effective.
- E. The Contractor shall be responsible for placement of erosion and sedimentation controls. Prior to construction, the Contractor shall develop an erosion control plan and submit to the Engineer for review. Prior to excavation, fill or grade work, the Contractor shall place controls in locations required by the erosion control plan. If during the course of construction, the Engineer determines additional controls are required, the Contractor shall furnish, install and maintain additional mulching, blankets and/or sediment barriers to control erosion and sedimentation to the satisfaction of the Engineer.
- F. The Contractor shall notify the appropriate state agency before beginning construction, and shall implement erosion control measures as may be required by state and federal agencies. Contractor shall submit a signed Notice of Intent form to the Division of Water at least 48 hours prior to beginning of construction activity.
- G. The Contractor shall inspect and repair all erosion and sedimentation controls every seven (7) days and after each rainfall of 0.5 inch or greater.
- H. Bare soil areas must be seeded, mulched, or covered after 14 days if no work will be done in the area within the next 7 days.

1.02 RELATED WORK

- A. Dewatering is included in this Division, Section 02240.
- B. Final erosion protection measures where required are included in this Section.

PART 2 – PRODUCTS

2.01 SEED

A. The seed mixture to be sown shall be in the following proportions:

<u>Common Name</u>	<u>Proportion By Weight</u>	<u>% of Purity</u>	<u>% of Germination</u>
Kentucky 31 Tall Fescue	75	90	85
Italian Rye Grass	10	90	85
Red Top	10	90	85
White Clover	5	95	90

B. All seed shall be fresh and clean and shall be delivered mixed, in unopened packages, bearing a guaranteed analysis of the seed mixture.

2.02 FERTILIZER

A. Just prior to the planting of turf, evenly broadcast 15 pounds per thousand square feet of fertilizer, 10-10-10 (nitrogen, phosphorus, potassium). Disc or harrow fertilizer 2 to 4 inches into the soil.

B. Fertilizer shall be delivered to the site in the original unopened container bearing the manufacturer’s guarantee analysis. Any fertilizer that becomes caked or damaged making it unsuitable for use, will not be accepted.

2.03 SOD

A. Sod shall be at least 70% Bluegrass, strongly rooted and free of weeds.

B. It shall be mowed to a height not to exceed 3” before lifting, and shall be of uniform thickness with not over 1-1/2” of soil.

2.04 MULCH

A. Mulch for seeded areas shall be Conwed Hydro Mulch, Silva-Fiber, or equal. It shall be suitable for use in a water slurry or for application with hydraulic equipment.

B. Clean straw is acceptable as mulch. It shall be spread at the rate of one (1) bale per 1,000 feet (approximately 2” loose depth).

C. Mulch on slopes greater the 4:1 shall be held in place with erosion control netting.

D. Mulch on areas subject to surface water run-off or in drainage ditches shall be held in place with erosion control netting.

2.05 EROSION CONTROL BLANKETS

A. Erosion Control Blanket shall be made up of biodegradable and/or photodegradable products such as jute, wood fiber, coconut fiber, straw and degradable plastic netting. They shall degrade at a rate of approximately 6 months to 24 months.

- B. Erosion Control Blanket shall be installed on slopes greater than 4:1 and in all ditches and drainage channels, and where otherwise indicated on the Contract Drawings or directed by regulatory agencies.

2.06 TURF REINFORCEMENT MAT

- A. Where indicated on the Contract Drawings or as described in the Specifications, Turf Reinforcement Mat shall be installed for permanent erosion control.
- B. Turf Reinforcement Mat shall consist of top and bottom heavy weight netting and biodegradable matrix such as coconut fiber or aspen curled wood excelsior.
- C. Where slope and hydraulic conditions are severe, a synthetic matrix may be used, based on manufacturer’s recommendations.

2.07 SILT FENCE

- A. Temporary Silt Fence shall consist of woven geotextile fabric attached to 2” X 2” X 48” tall hardwood stakes.
 - 1. Fabric shall be 48” tall, with top being even with top of stakes. Bottom 12” shall be buried in trench as shown on the Detail Drawings.
 - 2. Stakes shall be at 6’ centers unless stated otherwise on Contract Documents.
- B. Temporary Reinforced Silt Fence
 - 1. For areas of steep slopes and high flows, where indicated on the Contract Drawings, or as directed by state or local regulations, Reinforced Silt Fence shall be installed.
 - 2. Fabric shall be woven monofilament geotextile attached to 11 gauge steel fencing of 2” X 4” grid.
 - 3. Stakes shall be 5” tall steel and shall be installed on 4’ centers.
 - 4. Fabric and fencing shall be buried in trench as shown on the Detail Drawings.
- C. Spacing of Silt Fences on slopes shall be according to the following table, or as directed by state or local regulatory agencies:

Slope Angle	Soil Type		
	Silty	Clays	Sandy
Very Steep (1:1)	50 ft.	75 ft.	100 ft.
Steep (2:1)	75 ft.	100 ft.	125 ft.
Moderate (4:1)	100 ft.	125 ft.	150 ft.
Slight (10:1)	125 ft.	150 ft.	200 ft.

- D. If runoff flows along the uphill side of the silt fence, Contractor shall install “J-hooks” every 40 to 80 feet. These are curved sections of silt fence above the continuous fence that serve as small dams to stop and hold the flow to allow sediment to settle.

2.08 FIBER ROLLS

- A. On long slopes less than 10:1, and where indicated on the Contract Drawings or recommended by the regulatory agency, Fiber Rolls shall be installed.
- B. Fiber Rolls shall be made of wood shavings, coconut fiber or other similar material encased in heavy duty netting.
- C. Wooden stakes at 4'-0" on center shall be used to anchor the Fiber Rolls along the contours of the slope.

2.09 AGGREGATE SILT CHECKS

- A. Where needed to slow flow velocity, to cause ponding or to protect storm water inlet structures, Aggregate Silt Checks shall be installed.
- B. Aggregate Silt Checks shall consist of rock of various sizes ranging from 2" to 6" contained in or placed on geotextile filter fabric. Pea-stone or gravel-filled bags are acceptable for temporary silt checks in low-flow conditions.

2.10 RIP RAP

- A. Rip Rap shall be installed at the outlets of storm drains and on channel banks as noted on the Contract Drawings and/or recommended by state and local regulatory agencies.
- B. Rip Rap shall have no less than 80%, by volume, of individual stones that range in size from 0.0247 to 1.483 cubic feet.

2.11 CONSTRUCTION ENTRANCE PAD

- A. Contractor shall construct entrance pads at all locations where vehicles will enter or exit the site.
- B. Pad shall be a minimum of 20 feet wide, 50 feet long and 6" thick, and consist of No. 2 stone laid on top of filter fabric.

PART 3 - EXECUTION

3.01 GENERAL

- A. Erosion and sediment control practices shall be consistent with the requirements of the state and local regulatory agencies and in any case shall be adequate to prevent erosion of disturbed and/or regraded areas.
- B. Contractor is responsible for notifying the state regulatory agency concerning inclusion under the NPDES General Permit for Storm Water Discharges From Construction Activities.

3.02 SEEDING

- A. The areas to be seeded shall be thoroughly tilled to a depth of at least 4" by discing, harrowing, or other approved methods until the condition of the soil is acceptable to the Engineer. After harrowing or discing, the seed bed shall be dragged and/or hand raked to finish grade.
- B. The incorporation of the fertilizer and the agricultural lime may be a part of the tillage operation and shall be applied no less than 24 hours nor more than 48 hours before the seed is to be sown.
- C. Seed shall be broadcast either by hand or approved sowing equipment at the rate of ninety (90) pounds per acre (two pounds per 1,000 square feet), uniformly distributed over the area. Broadcasting seeding during high winds will not be permitted. The seed shall be drilled or raked into a depth of approximately ½ inch and the seeded areas shall be lightly raked to cover the seed and rolled. Drilling seeding shall be done with approved equipment with drills not more than 3 inches apart. All ridges shall be smoothed out, and all furrows and wheel tracks likely to develop into washes, shall be removed.
- D. After the seed has been sown, the areas so seeded shall be mulched with clean straw at the rate of one (1) bale per 1,000 feet (approximately 2 inch loose depth). Mulch on slopes and in all ditches and drainage channels shall be held in place with erosion control blankets.
- E. Areas seeded shall be watered and protected until a uniform stand develops, and then inspected periodically and maintained appropriately. Displaced mulch shall be replaced or any damage to the seeded area shall be repaired promptly, both in a manner to cause minimum disturbance to the existing stand of grass. If necessary to obtain a uniform stand, the Contractor shall refertilize, reseed and remulch as needed. Scattered bare spots up to one (1) square yard in size will be allowed up to a maximum of 10 percent of any area.
- F. Payment for seeding and mulching shall be included in the Contractor's bid.

3.02 SOD

- A. To install, bring soil to final grade and clear of trash, wood, rock, and other debris. Apply topsoil, fertilizer at approximately 1000 lbs per acre.
- B. Use sod within 36 hours of cutting. Lay sod in straight lines. Butt joints tightly, but do not overlap joints or stretch sod. Stagger joints in adjacent rows in a brickwork type pattern. Use torn or uneven pieces on the end of the row.
- C. Notch into existing grass. Anchor sod with pins or stakes if placed on slopes greater than 3:1. Roll or tamp sod after installation and water immediately. Soak to a depth of 4 to 6 inches. Replace sod that grows poorly. Do not cut or lay sod in extremely wet or cold weather. Do not mow regularly until sod is well established.

3.04 INSTALLATION OF EROSION AND SEDIMENT CONTROL DEVICES

- A. All erosion and sediment control products and materials shall be installed per manufacturer's recommendations and in accordance with the Kentucky Erosion Prevention and Sediment Control Field Guide.
- C. Contractor shall pay special attention to the trenching-in of the bottoms of silt fence, the staking of sediment barriers, and the stapling of erosion control blankets.

3.05 MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES

- A. Erosion and sedimentation controls shall be inspected weekly and after rain events of 0.5 inch or greater. Replace silt fencing as needed, filter stone which is dislodged, erosion control blanket which is damaged, and make other necessary repairs.
- B. Remove sediment from fences and barriers when it accumulates to half the height of the barrier, or more often as needed.

3.06 CLEAN UP

- A. Upon completion of the project and/or establishment of satisfactory turf, vegetation or permanent erosion control structures, Contractor shall remove all temporary devices and properly dispose of such.

3.07 NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

- A. The Contractor is responsible for filing the appropriate Notice of Intent (NOI) letter at least 48 hours prior to start of construction activity. The Notice of Intent (NOI) is a Kentucky Pollution Discharge Elimination System (KPDES) permit application as provided by the Kentucky Revised Statutes, Chapter 224. This application is required to be submitted for construction projects that disturb one or more acres of land. A permit application form is included at the end of this section.
- B. The NOI is filed under the General Permit for Storm Water (issued 9/30/92, effective 10/01/92) and labeled as KYR100000 - General Permit for construction sites. The Notice of Intent (NOI) letter requirements are stated along with the mailing address below.

3.08 NOTICE OF INTENT LETTER REQUIREMENTS

- A. Concerning storm water permitting, you will be required to submit a letter of Notice of Intent to be covered under the storm water general permit. The following are to be contained in the Notice of Intent letter:
 - 1. Name, mailing address, and location of the facility for which the notification is submitted;
 - 2. Up to four (4) 4-digit SIC codes that best represent the principal products or activities provided by the facility. The following are the typical construction SIC codes utilized:

1542 - Building Construction, nonresidential, except industrial and warehouses
1623 - Water Main Construction, Sewer Construction
1629 - Water and Wastewater Treatment Plant Construction
1711 - Water Pump Installation
1781 - Drilling Water Wells

3. The operator's name, address, telephone number, ownership status and status as federal, state, private public or other entity. On construction sites, the facility operator is the Contractor.
4. The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the ultimate receiving water(s); and
5. Existing quantitative data describing the concentration of pollutants in the storm water discharge. If there is no existing quantitative data, report "no existing quantitative data."
6. **Additional requirements for construction activities.** The Notice of Intent for a storm water discharge associated with industrial activity from a construction site shall, in addition to the information required above, include a brief description of the project, estimated timetable for major activities, estimates of the number of acres of the site on which soil will be disturbed, **and a certification that the storm water pollution prevention plan for the facility provides compliance with state or locally approved sediment and erosion plans, state or locally approved storm water management plan, state or local sewer use ordinances, and state or local septic system requirements.**

3.09 WHERE TO SUBMIT

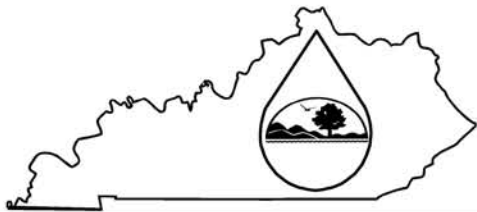
Section Supervisor, Inventory and Data Management Section, KPDES Branch, Kentucky Division of Water, 14 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601.

3.10 REQUIRED FOR THIS CONTRACT

- A. The Contractor shall prepare the NOI for both the Contractor and the Owner's signature.
- B. The Contractor shall submit the NOI to the Kentucky Division of Water (address noted above) at least forty-eight (48) hours prior to the start of work activities. There is no need to wait on a response from the regulatory agency.
- C. This shall occur at or before the Order to Commence Work date given by the Owner.
- D. The Contractor shall file a Notice of Termination (NOT) when General Permit coverage is no longer needed (General Permits describe how this is done). An example copy shall be on file as noted in Item 5 above.

END OF SECTION

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:		Phone:	
Address:		Status of Owner/Operator:	
City, State, Zip Code:			

II. Facility/Site Location Information

Name:			
Address:			
City, State, Zip Code:			
County:			
Site Latitude: (degrees/minutes/seconds)		Site Longitude: (degrees/minutes/seconds)	

III. Site Activity Information

MS4 Operator Name:							
Receiving Water Body:							
Are there existing quantitative data?	Yes <input type="checkbox"/>	If Yes, submit with this form.					
	No <input type="checkbox"/>						
SIC or Designated Activity Code Primary		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):			
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?		Yes <input type="checkbox"/>	No <input type="checkbox"/>

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:	

**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 authority 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.

Revised June 1999

SECTION 02400 - BORING AND JACKING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to furnish and install all bored and jacked carrier pipes in encasement pipes under railroad and highway crossings as shown on the Drawings and/or specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 02300
- B. Piping: Division 2

1.03 SUBMITTALS

- A. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the Engineer for review before ordering.
- B. At the time of submission, the Contractor shall, in writing, call the Engineer's attention to any deviations that the submittals may have from the requirements of the Contract Drawings and Specifications.
- C. Comply with all requirements of Section 01340.

PART 2 - PRODUCTS

2.01 CARRIER PIPE

- A. Carrier pipe shall be as specified in the applicable Division 2 section unless otherwise noted.

2.02 CASING PIPE

- A. Casing pipe shall be steel, plain end, have a minimum yield point strength of 35,000 psi and conform to ASTM A 252 Grade 2 or ASTM A 139 Grade B without hydrostatic tests. The steel pipe shall have welded joints and be in at least 18 foot lengths. The casing pipe shall be coal tar epoxy coated.

B. The diameter of the casing pipe shall be as follows:

Carrier Pipe Nominal Diameter (inches)	3/4	2	3	4	6	8	10	12	16	18	24
Casing Pipe Nominal Diameter (inches)	2	8	10	10	12	16	18	20	30	30	36

For carrier pipe sizes greater than 36-inches nominal diameter, the casing pipe diameter size shall be determined by the Engineer or as shown on the Contract Drawings.

C. The wall thickness of the casing pipe shall be as follows:

Casing Pipe Nominal Diameter (inches)	Under 20	20	24	30	33	36	42	48
Casing Pipe Nominal Thickness (inches)	0.250	0.281	0.312	0.406	0.438	0.469	0.562	0.625

However, should casing pipe thickness be specified or required on Highway or Railroad permit approval sheets, said permit thickness requirement shall govern. Permit approval sheets will be made available to the Contractor.

2.03 CASING SPACERS

- A. **Stainless Steel Casing Spacers:** Stainless steel casing spacers shall be bolt-on style with a shell made in two (2) sections of heavy T-304 stainless steel. Connecting flanges shall be ribbed for extra strength. The shell shall be lined with a PVC liner .090" thick with 85-90 durometer. All nuts and bolts are to be 18-8 stainless steel. Runners shall be made of ultra high molecular weight polymer with inherent high abrasion resistance and a low coefficient of friction. Runners shall be supported by risers made of heavy T-304 stainless steel. The supports shall be mig welded to the shell and all welds shall be fully passivated. Stainless steel casing spacers shall be made by Cascade Waterworks Mfg. Co., or equal.
- B. **Solid Polyethylene Casing Spacers (to be used with PVC pipe only):** Solid polyethylene casing spacers shall be bolt-on style with a shell made in two (2) sections. Carrier pipe shall be wrapped with rubber strap inside casing space to prevent slippage. All nuts and bolts are to be 18-8 stainless steel. Solid polyethylene casing spacers shall be made by Calpico Inc., Advance Products & Systems, Inc., or equal.

2.04 CASING END SEALS

- A. Wrap-around end seals - Wrap-around end seals shall be made of a waterproof flexible coal tar membrane reinforced with fiberglass, or synthetic rubber. The two exposed edges of the wrap-around seal shall be adhesively bonded forming a watertight seal. The ends of the wrap shall be sealed on the casing and carrier pipe by stainless steel bands. Wrap-around end seals shall be made by Calpico Inc., Advance Products & Systems, Inc., or equal.
- B. Upon approval the by Engineer, in lieu of wrap-around end seals, each end of the casing pipe and the carrier pipe shall be wrapped with two (2) layers of roofing felt.

PART 3 - EXECUTION

3.01 CROSSINGS - GENERAL

- A. Where designated on the drawings, crossings beneath state maintained roads, not to be disturbed shall be accomplished by boring and jacking a casing pipe.
- B. Steel casing pipe for crossings shall be bored and/or jacked (or open cut installed where indicated on the Drawings) into place to the elevations shown on the drawings. All joints between lengths shall be solidly butt-welded with a smooth non-obstructing joint inside. The casing pipe shall be installed without bends. The carrier pipe shall be installed after the casing pipe is in place, and shall extend a minimum of two (2) feet beyond each end of the casing to facilitate making joint connections. The carrier shall be braced and centered with casing spacers within the casing pipe to preclude possible flotation. Casing spacers shall be installed a maximum of eight (8) feet apart along the length of the carrier pipe within the casing pipe, within two (2) feet of each side of a pipe joint, and the rest evenly spaced. The height of the supports and runners combined shall be sufficient to keep the carrier pipe at least 0.75" from the casing pipe wall at all times. Manufacturer's recommendations may govern these requirements.
- C. At each end of the casing pipe, the carrier pipe shall be sealed with casing end seals. The end seals shall extend a minimum of 12 inches in each direction from the end of the casing pipe.
- D. Wood skids are not an acceptable method of supporting the carrier pipe.

3.02 BORING AND JACKING

- A. The Contractor shall excavate his own pits, as he may deem necessary, and will set his own line and grade stakes which shall be checked by the Engineer. Permits, as required, will be furnished or obtained by the Owner, but shall be in the Contractor's hands before any excavating is commenced.
- B. The boring method shall consist of pushing the pipe into the earth with a boring auger rotating within the pipe to remove the spoil.
 - 1. The boring operation shall be progressed on a 24-hour basis without stoppage (except for adding lengths of pipe) until the leading edge of the pipe has reached the receiving pit.

2. The front of the pipe shall be provided with mechanical arrangements or devices that will positively prevent the auger from leading the pipe so that there will be no unsupported excavation ahead of the pipe.
 3. The auger and cutting head arrangement shall be removable from within the pipe in the event an obstruction is encountered. If the obstruction cannot be removed without excavation in advance of the pipe, the pipe shall be abandoned in place and immediately filled with grout.
 4. The over-cut by the cutting head shall not exceed the outside diameter of the pipe by more than 2 inch. If voids should develop or if the bored hole diameter is greater than the outside diameter of the pipe by more than approximately 1 inch, grouting or other approved methods must be used to fill such voids.
 5. The face of the cutting head shall be arranged to provide a reasonable obstruction to the free flow of soft or poor material.
 6. Any method which does not have this boring arrangement will not be permitted. Contractor's boring arrangement plans and methods must be submitted to, and approved by, the Engineer.
- C. In the event an obstruction is encountered in boring which cannot be removed and it becomes necessary to withdraw the casing and commence elsewhere, the hole from which the casing is withdrawn shall be completely backfilled with coarse sand rammed in.
- D. Insurance to be furnished by the Contractor to cover this type of work shall be adequate to meet the requirements of the Railroad and/or State or County Highway Departments. Insurance shall consist of comprehensive general liability and automobile liability insurance.
- E. Before award of the contract, the Contractor shall furnish a statement of his experience of such work, or if inexperienced, shall advise the Owner as to whom he will sublet the work and give a statement of the experience of the subcontractor, which shall be satisfactory to the Owner.

3.03 CONTRACTOR'S RESPONSIBILITIES

- A. Obtain a copy of the Highway Encroachment Permit before beginning construction.
- B. Attend a preconstruction meeting at the construction site with the City Inspector, Railroad Inspector, Highway Inspector Engineer, and Contractor being present.

END OF SECTION

SECTION 02510 - WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required for furnishing and installing all piping and appurtenances specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Valves - Utility Services: Section 02515

1.03 SUBMITTALS

- A. A notarized certification shall be furnished for all pipe and fittings that verifies compliance with all applicable specifications.
- B. The requirement for this certification does not eliminate the need for shop drawings submittals in compliance with Section 01340.

1.04 EXISTING CONDITIONS

- A. The existing piping shown on the Contract Drawings is based on the best available information. The Engineer makes no guarantee as to the accuracy of the locations or type of piping depicted. All new piping which ties into existing lines must be made compatible with that piping.
- B. So that piping conflicts may be avoided, Contractor shall open up his trench well ahead of the pipe laying operation to confirm exact locations of existing piping before installing any new piping.
- C. Contractor shall provide all fittings and adapters necessary to complete all connections to existing piping.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE PLASTIC (PVC) PIPE

- A. ASTM D2241 (Outside Diameter compatible with Iron Pipe O.D.)
 - 1. 1-inch through 36-inch - PVC plastic pipe shall conform to ASTM Specification - D2241 (latest edition); Product Standards PS-22-70 NBS; Standard Dimension Ratio SDR 21 (200 psi); Maximum Length - 20 feet; Pressure Rating - 200 psi at 73.4° F. (SDR-21). Elastomeric gasket shall conform with the requirements of ASTM F-477. The seal of the National Sanitation Foundation Testing Laboratory must appear on each pipe.

- a. Fittings, adaptors or specials shall be furnished, as required, to connect the plastic pipe to the cast or ductile iron mechanical joint valves, fittings, and pipe.
 - b. Joints shall be push-on joints conforming to ASTM D-3139.
- B. Fittings shall be pressure class 350 ductile iron and have mechanical-joints or push-on joints in accordance with ANSI/AWWA C110/A21.10, latest revision, and shall conform to the details and dimensions shown therein. Fittings shall have interior cement-mortar lining as specified hereinbefore for the pipe. Compact ductile iron fittings meeting the requirements of ANSI/AWWA C153/A21.53, latest revision, will also be acceptable.
- C. The basis of acceptance of PVC plastic water main pipe will be a written, notarized certification, accompanied by a copy of test results, that the pipe and pipe material has been sampled, tested and inspected in accordance with the designated standard specifications. These certifications shall be obtained from the manufacturer and delivered to the Engineer's or Owner's representative on the project site. A sufficient number of tests and certifications shall be made so as to be representative of the complete project. Copies of the test results shall be kept on file by the manufacturer and shall be available for review by the Engineer or Owner upon request.
- D. Pipe shall be visually inspected on the project site for proper markings which shall include manufacturer's name or trademark, nominal pipe size, pressure rating for water at 73.4 degrees F., plastic pipe material designation code (e.g. PVC 1120), dimension ratio, AWWA or ASTM designation and pressure class with which the pipe complies, and the National Sanitation Foundation NSF 14 Seal of Approval for drinking water.

2.02 COUPLING AND ADAPTORS

- A. Flexible couplings shall be of the sleeve type with a middle ring, two wedge shaped resilient gaskets at each end, two follower rings, and a set of steel trackhead bolts. The middle ring shall be flared at each end to receive the wedge portion of the gaskets. The follower rings shall confine the outer ends of the gaskets, and tightening of the bolts shall cause the follower rings to compress the gaskets against the pipe surface, forming a leak-proof seal. Flexible couplings shall be steel with minimum wall thickness of the middle ring or sleeve installed on pipe being 5/16-inch for pipe smaller than 10 inches, 3/8-inch for pipe 10 inches or larger. The minimum length of the middle ring shall be 5-inches for pipe sizes up to 10 inches and 7 inches for pipe 10 inches to 30 inches. The pipe stop shall be removed. Gaskets shall be suitable for 250 psi pressure rating or at rated working pressure of the connecting pipe. Couplings shall be harnessed and be designed for 250 psi.
- B. Flanged adapters shall have one end suitable for bolting to a pipe flange and the other end of flexible coupling similar to that described hereinbefore. All pressure piping with couplings or adapters shall be harnessed with full threaded rods spanning across the couplings or adapters. The adapters shall be furnished with bolts of an approved corrosion resistant steel alloy, extending to the adjacent pipe flanges. Flanges on flanged adapter (unless otherwise indicated or required) shall be faced and drilled ANSI B16.1 Class 125.
- C. Flexible couplings and flanged adapters shall be as manufactured by Dresser, Rockwell, or equal, per the following, unless otherwise specified and/or noted on the Drawings:

- D. Steel couplings for joining same size, plain-end, steel, cast iron, and PVC plastic pipe -

Dresser	Rockwell
Style 138	411

- E. Transition couplings for joining pipe of different outside diameters-

Dresser	Rockwell
Style 162 (4"-12")	413 steel (2"-24")
Style 62 (2"-24")	415 steel (6"-48")
	433 cast (2"-16")
	435 cast (2"-12")

- F. Flanged adapters for joining plain-end pipe to flanged pipe, fittings, valves and equipment.

Dresser	Rockwell
Style 127 cast (3"-12")	912 cast (3"-12")
Style 128 steel (3"-48" C.I. Pipe)	913 steel (3" and larger)
Style 128 steel (2"-96" steel pipe)	

2.03 DETECTABLE UNDERGROUND UTILITY WARNING TAPES

- A. Detectable underground utility warning tapes which can be located from the surface by a pipe detector shall be installed directly above nonmetallic (PVC, polyethylene, concrete) pipe.
- B. The tape shall consist of a minimum thickness 0.35 mils solid aluminum foil encased in a protective inert plastic jacket that is impervious to all known alkalis, acids, chemical reagents and solvents found in the soil.
- C. The minimum overall thickness of the tape shall be 5.5 mils and the width shall not be less than 2" with a minimum unit weight of 2-1/2 pounds/1" x 1,000'. The tape shall be color coded and imprinted with the legend as follows:

Type of Utility	Color Code	Legend
Water	Blue	Caution Buried Water Line Below

- D. Detectable underground tape shall be "Detect Tape" as manufactured by Allen Systems, or equal.
- E. Installation of detectable tapes shall be per manufacturer's recommendations and shall be as close to the grade as is practical for optimum protection and detectability. Allow a minimum of 18" between the tape and the line.
- F. Payment for detectable tapes shall be included in the linear foot price bid of the appropriate bid item(s) unless it is listed as a separate payment item in the bid schedule.

2.04 CONCRETE PIPE ANCHORS, THRUST BLOCKS, CRADLE OR ENCASUREMENT

- A. Where indicated on the Drawings, required by the Specifications or as directed by the Engineer, concrete pipe anchors, thrust blocks, cradles or encasements shall be installed.

- B. Concrete shall be 3000 psi, and reinforcing bars shall be as installed as indicated on the details.

2.05 CONNECTION OF NEW WATER MAINS TO EXISTING SYSTEM

- A. The Contractor shall connect the new water main to existing water main where shown on the Drawings or directed by the Engineer, and shall furnish all necessary equipment and materials required to complete the connection.

PART 3 - EXECUTION

3.01 EXCAVATION FOR PIPELINE TRENCHES

- A. Unless otherwise directed by the Engineer, trenches in which pipes are to be laid shall be excavated in open cut to the depths required by field conditions or as specified by the Engineer. In general this shall be interpreted to mean that machine excavation in earth shall not extend below an elevation permitting the pipe to be properly bedded. Installation shall be in accordance with ANSI/AWWA C600 for ductile iron and Cast Iron O.D. (AWWA) PVC pipe or ASTM F-645 for Iron Pipe O.D. (ASTM) PVC pipe except as modified herein.
- B. If the foundation is good firm earth and the machine excavation has been accomplished as set out hereinbefore, the remainder of the material shall be excavated by hand, then the earth pared or molded to give full support to the lower quadrant of the barrel of each pipe. Where bell and spigot is 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 excavation that will permit the type of bedding specified above, then a layer of granular material shall be placed so that the lower quadrant of the pipe will be securely bedded in compact granular fill.
- C. Excavation may be undercut to a depth below the required invert elevation that will permit laying the pipe in a bed of granular material to provide continuous support for the bottom quadrant of the pipe. When this method is used, the bedding shall be as set out in Paragraph 3.02 hereinafter.
- D. 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'-0" plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than 2'-0" at the level of or below the top of the pipe, special precaution may be necessary, such as providing compacted, granular fill up to top of the pipe or providing pipe with additional crushing strength as determined by the Engineer after taking into account the actual trench loads that may result and the strength of the pipe being used. The Contractor shall bear the cost of such special precautions as are necessary.
- E. All excavated materials shall be placed a minimum of two feet (2') back from the edge of the trench.
- F. Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may necessitate changing the line or grade of the pipeline.

- G. The trench shall be straight and uniform so as to permit laying pipe to lines and grades given by the Engineer. It shall be kept free of water during the laying of the pipe and until the pipeline has been backfilled. Removal of trench water shall be at the Contractor's expense. Dry conditions shall be maintained in the excavations until the backfill has been placed. During the excavation, the grade shall be maintained so that it will freely drain and prevent surface water from entering the excavation at all times. When directed by Owner, temporary drainage ditches shall be installed to intercept or direct surface water which may affect work. All water shall be pumped or drained from the excavation and disposed of in a suitable manner without damage to adjacent property or to other work.
- H. Minimum cover of 42" shall be provided for all pipelines.

3.02 PIPE BEDDING

- A. All pipe shall be supported on a bed of granular material, unless the trench has been prepared in accordance with Paragraph 3.01B. In no case shall pipe be supported directly on rock. Bedding shall not be a separate pay item unless otherwise set out in the Detailed Specifications. Bedding shall be provided in earth bottom trenches, as well as rock bottom trenches. Bedding material shall be free from large rock, foreign material, frozen earth, and shall be acceptable to the Engineer. Bedding shall be a minimum of 6" below pipe barrel.
- B. In all cases the foundation for pipes shall be prepared so that the entire load of the backfill on top of the pipe will be carried on the barrel of the pipe so that none of the load will be carried on the bells.
- C. Where flexible pipe is used, the bedding shall be placed up to at least the spring line (horizontal center line) of the pipe. The bedding material and procedures shall conform to ASTM D 2321 and any Technical Specifications set out hereinafter. If conditions warrant, the Engineer may require the bedding to be placed above the springline of the pipe. Granular bedding shall be Size #9-m or ASTM C 33, Size #7 crushed stone, fine gravel, or sand, and is not a separate pay item.
- D. Where undercutting and granular bedding is involved it shall be of such depth that the bottom of the bells of the pipe will be at least three inches above the bottom of the trench as excavated. Undercutting is not a separate pay item.
- E. In wet, yielding mucky locations where pipe is in danger of sinking below grade or floating out of line or grade, or where backfill materials are of such a fluid nature that such movements of the pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective. When ordered by the Engineer, yielding and mucky materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe. Crushed stone or other such granular material, if necessary, as determined by the Engineer to replace poor subgrade material, shall be a separate pay item and classified as "Special Granular Fill". Removal of poor material is not a separate pay item.
- F. Installation shall be in accordance with ASTM D 2321 except as modified hereinafter.

3.03 SPECIAL GRANULAR FILL

- A. As noted in Paragraph 3.02E, granular material for " Special Granular Fill " when directed by the Engineer shall be Department of Transportation crushed limestone, Size #9. Payment for " Special Granular Fill " must have approval from the Engineer prior to installation.

3.04 LAYING PIPE

- A. The laying of pipe in finished trenches shall be commenced at the lowest point so the spigot ends point in the direction of flow.
- B. All pipes shall be laid with ends abutting and true to line and grade as given by the Engineer. Supporting of pipes shall be as set out hereinbefore under "Pipe Bedding" and in no case shall the supporting of pipes on blocks be permitted.
- C. Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure that it is clean. Each piece of pipe shall be lowered separately unless special permission is given otherwise by the Engineer. No piece of pipe or fitting which is known to be defective shall 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 to the longitudinal axis of the pipe.
- D. Pipe shall not be laid on solid rock. A pad of granular material as specified in Paragraph 3.02 "Pipe Bedding", shall be used as a pipe bedding. Pipe bedding is not a separate pay item. Irregularities in subgrade in an earth trench shall be corrected by use of granular material.
- E. When ordered by the Engineer, unsuitable materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe.
- F. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood or fabricated plug fitted into the pipe bell, so as to exclude earth or other material, and precautions taken to prevent flotation of pipe by runoff into trench.
- G. 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.

3.05 BACKFILLING PIPELINE TRENCHES

- A. Backfilling of pipeline trenches shall be accomplished as shown on the Drawings and with details set forth hereinafter. Before final acceptance, the Contractor will be required to level off all trenches or to bring the trench up to grade. The Contractor shall also remove from roadways, rights-of-way and/or private property all excess earth or other materials resulting from construction. In the event that pavement is not placed immediately following trench backfilling in paved areas, the Contractor shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times. Under pavement, all trench backfill shall be in accordance with Method C as shown on the Detail Drawings. All other trench backfill shall be in accordance with Method A or B.

B. Method "A" - Backfilling in Open Terrain:

Backfilling of pipeline trenches in open terrain shall be accomplished in the following manner:

1. The lower portion of the trench, from the pipe bedding to a point 12" above the top of the pipe, shall be backfilled with material free from rock and/or material acceptable to the Engineer. This material shall be placed in a manner approved by the Engineer, and shall be carefully compacted to avoid displacement of the pipe. Compaction shall be accomplished by hand-tamping or by approved mechanical methods.
2. The upper portion of the trench above the compacted portion shall be backfilled with material which is free from large rock. Incorporation of rock having a volume exceeding one-half cubic foot is prohibited. Backfilling this portion of the trench may be accomplished by any means approved by the Engineer. The trench backfill shall be heaped over or leveled as directed by the Engineer.

C. Method "B" - Backfilling Under Sidewalks & Unpaved Driveways:

Backfilling of pipeline trenches under sidewalks and unpaved driveways shall be accomplished in the following manner.

1. The lower portion of the trench, from the pipe bedding to a point 12 inches above the top of the pipe, shall be backfilled with material free from rock and/or material acceptable to the Engineer. This material shall be placed in a manner to avoid displacement of the pipe. Compaction shall be accomplished by hand-tapping or by approved mechanical methods.
2. The middle portion of the trench, from a point 12" above the top of the pipe to a point 6" below the grade line, shall be backfilled with material free from rock and/or acceptable to the Engineer. This material shall be placed and compacted in layers of approximately 6 inches. Water (puddling) may be used as required to obtain maximum compaction.

Upon approval of the Engineer, the Contractor may backfill the middle portion of the trench with crushed stone, fine gravel, or sand in lieu of materials which require compaction.

3. The upper portion of the trench shall be temporarily backfilled and maintained with crushed stone or gravel until such time as the sidewalk is constructed or the driveway surface is restored.

D. Method "C" - Backfilling Under Streets, Roads, and Paved Driveways:

Backfilling of pipeline trenches under streets, roads and paved driveways shall be accomplished in the following manner:

1. The lower portion of the trench from the pipe bedding to a point 6" below the bottom of the pavement or concrete sub-slab, shall be backfilled with # 9 crushed stone.
2. The upper portion of the trench, from a point 6" below the bottom of the pavement or concrete sub-slab to grade, shall be backfilled with a base course of

dense graded aggregate. At such time that pavement replacement is accomplished, the excess base course shall be removed as required.

E. Method "D" – Backfilling Open Cut Steel Encasement Pipe:

Open cut steel encasement pipes shall be backfilled with #9 crushed stone from the lower portion of the trench to a point 4" below the grade line and then shall be backfilled with earthen material that is free from rock.

F. Trenches outside existing sidewalks, driveways, streets, and highways shall be backfilled in accordance with Method "A". Trenches within the limits of sidewalk and unpaved driveways shall be backfilled in accordance with Method "B". Trenches within the paving limits of existing streets, highways and driveways shall be backfilled in accordance with Method "C". Trenches within the paving limits of the proposed highways shall be backfilled in accordance with Method "D". All methods are shown on the Detail Drawings. When directed by the Engineer, the Contractor shall wet backfill material to assure maximum compaction.

Before final acceptance, the Contractor will be required to level off all trenches or to bring the trench up to grade. The Contractor shall also remove from roadways, rights-of-ways and/or private property all excess earth or other materials resulting from construction.

In the event that pavement is not placed immediately following trench backfilling in streets and highways, the Contractor shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times.

3.06 SETTLEMENT OF TRENCHES

- A. Whenever lines are in, or cross, driveways and streets, the Contractor shall be responsible for any trench settlement which occurs within these rights-of-way within one (1) year from the time of final acceptance of the work. If paving shall require replacement because of trench settlement within this time, it shall be replaced by the Contractor at no extra cost to the Owner. Repair of settlement damage shall meet the approval of the Owner.

3.07 CONCRETE THRUST BLOCKS, CRADLE, ANCHORS OR ENCASEMENT

- A. Concrete thrust blocks, cradle, anchors or encasement shall be placed where shown on the Drawings, required by the Specifications, or as directed by the Engineer.
- B. For cradle and encasement, concrete shall be 3000 psi and shall be mixed sufficiently wet to permit it to flow under the pipe to form a continuous bed.
- C. For thrust blocks and anchors, concrete shall be 3000 psi, and shall be formed or be sufficiently stiff to maintain the forms indicated on the Details.
- D. In tamping concrete, care shall be taken not to disturb the grade or line of the pipe or injure the joints. Concrete placed outside the specified limits or without authorization from the Engineer will not be subject to payment.

- E. Water mains shall have concrete thrust or “kicker” blocks at all pipe intersections and changes of direction to resist forces acting on the pipeline. All reducers (increasers) shall be anchored.

3.08 BITUMINOUS CONCRETE HIGHWAY, STREET AND DRIVEWAY REPLACEMENT

- A. The Contractor shall replace those sections of existing roads, streets and driveways required to be removed to install the pipe lines under this contract. He shall construct same to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to the operations.
- B. Prior to trenching, the pavement shall be scored or cut to straight edges at least twelve (12) inches outside each edge of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be re-cut and trimmed to square, straight edges after the pipeline has been installed and prior to placing the new base and pavement.
- C. Backfilling of the trench shall be in accordance with Method "C" as described hereinbefore. Base course for the paving shall be dense graded crushed limestone furnished and placed in accordance with the current requirements of the Standard Specifications for Road and Bridge Construction of the Department of Transportation, to a depth of six (6) inches in roads and streets and four (4) inches in driveways.
- D. A subslab of reinforced concrete shall be placed for state maintained highways as indicated on the Drawings. The subslab shall have a minimum thickness of 6 inches. Concrete for the subslab shall be 2500 psi, in accordance with the Details shown on the Drawings.

3.09 UNPAVED DRIVEWAY (CRUSHED STONE) SURFACE REPLACEMENT

- A. The Contractor shall replace those sections of existing driveways and parking areas required to be removed to install the pipe lines under this contract. He shall construct same to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to the operations.
- B. Material for backfilling of the pipeline trench shall be dense-graded aggregate in accordance with Method “B” as described hereinbefore.

3.10 REMOVING AND REPLACING CONCRETE CURB AND GUTTER OR SIDEWALK

- A. The Contractor shall remove the curb and gutter or sidewalk when encountered when required for laying the pipe. Only that portion of the curb and gutter or sidewalk needed to lay the pipe shall be removed.
- B. Where concrete curb and gutter or sidewalk is removed or disturbed during the construction work, it shall be replaced, using 3000 psi concrete, in fully as good or better condition than that which existed prior to the Contractor's operation.

3.11 REPLACEMENT OF EXISTING MAIL BOXES, CULVERTS, CLOTHES LINE POSTS, FENCES AND OTHER SUCH FACILITIES

- A. Existing mail boxes, drainage culverts, clothes line posts, fences and the like shall not be damaged or disturbed unless necessary, in which case, they shall be replaced in as good condition as found as quickly as possible. Existing materials shall be reused in replacing such facilities when materials have not been damaged by the Contractor's operations. Existing facilities damaged by Contractor's operation shall be replaced with new materials of the same type at the Contractor's expense. Work in this category is not a pay item.
- B. Replacement of paved drainage ditches within highway right-of-way shall be accomplished in accordance with Department of Transportation specifications.

3.12 PORTLAND CEMENT CONCRETE DRIVEWAY REPLACEMENT

- A. Wherever Portland cement concrete driveways are removed, they shall be reconstructed to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than existed prior to the operation.
- B. The existing concrete paving shall be sawed or cut to straight edges 12-inches outside the edges of the trench or broken out to an existing joint, as directed by the Engineer. The concrete pavement shall be equal to the existing pavement thickness but not less than 6-inches in thickness for driveways.
- C. Pavement shall be reinforced with 6 x 6 #10-10 wire mesh and shall be constructed with 3000 psi concrete.

3.13 RIP-RAP STREAM BANK SLOPE PROTECTION

- A. The Contractor shall install rip-rap stream bank slope protection at locations directed by the Engineer. Rip-rap slope protection shall be 12-inches thick and shall meet State D.O.T. Standard Specifications.

3.14 TESTING

- A. All pressure piping (lines not laid to grade) shall be given a hydrostatic test of at least 1.5 times the normal operating pressure of the pipe (at its lowest elevation), but not to exceed the rated working pressure of the pipe or valves. Note: Engineer shall verify test pressure. Loss of pressure during the test shall not exceed 0 psi in a 4 hour period and 5 psi in a 24 hour period. Any test results that do not meet either of these requirements shall constitute a failure of the pressure test.
- B. Leakage in pipelines, when tested under the hydrostatic test described above, shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe.
- C. Contractor shall furnish a recording gauge and water meter for measuring water used during leakage test and recording pressure charts during duration of test. Recording pressure charts shall be turned over to the Engineer at conclusion of tests. The pressure recording device shall be suitable for outside service, with a range from 0-200 psig, 24-hour spring wound clock, designed for 9-inch charts, and shall be approved by the Engineer. For Contractor's information only, such pressure recording devices may be

available from the Foxboro Company, Foxboro, Massachusetts; Bristol Division of ACCO, Waterbury, Connecticut; or Weksler Instruments Corporation, Freeport, New York.

- D. Pipelines shall be tested before backfilling at joints except where otherwise required by necessity or convenience.
- E. Duration of test shall be not less than four (4) hours where joints are exposed and not less than 24 hours where joints are covered.
- F. Where leaks are visible at exposed joints, evident on the surface where joints are covered, and/or identified by isolating a section of pipe, the joints shall be repaired and leakage must be minimized, regardless of total leakage as shown by test.
- G. All pipes, fittings, valves, and other materials found to be defective under test shall be removed and replaced at no additional expense to the Owner.
- H. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with.
- I. Where nonmetallic joint compounds are used, pipelines should be held under normal operating pressure for at least three days before testing.
- J. The Owner will provide initial water for testing the pressure piping. Should the first test fail to pass, all additional water required for subsequent tests shall be furnished at the Contractor's expense.
- K. The cost of testing of pressure piping is incidental and is to be included in the Contractor's unit Contract Price.

3.15 CLEAN UP

- A. Upon completion of installation of the piping and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from the Work. The Contractor shall grade the ground along each side of pipe trenches in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line.

3.16 DISINFECTION OF POTABLE WATER LINES

- A. The new potable waterlines shall not be placed in service--either temporarily or permanently--until they have been thoroughly disinfected in accordance with the following requirements and to the satisfaction of the Engineer.
- B. After testing, a solution of hypochlorite using HTH or equal shall be introduced into the section of the line being disinfected sufficient to insure a chlorine dosage of at least 50 ppm in the main. While the solution is being applied, the water should be allowed to escape at the ends of the line until tests indicate that a dosage of at least 50 ppm has been obtained throughout the pipe. Open and close all valves and cocks while chlorinating agent is in the piping system. The chlorinated water shall be allowed to remain in the pipe for 24 hours, after which a residual of at least 25 ppm shall be obtained. The disinfection shall be repeated until 25 ppm is obtained after which time the main shall be thoroughly flushed until the residual chlorine content is not greater than 1.0 ppm, and

then may be connected to the system. Also, no additional payment will be allowed for providing taps for chlorine injection and/or flushing, if necessary. The Contractor is responsible for the disposal of highly chlorinated water flushed from the main.

END OF SECTION

SECTION 02515 - VALVES

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required to furnish and install all valves shown on the Drawings and/or specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this Section.
- B. Piping is specified in Division 2 Specification sections.

1.03 SUBMITTALS

- A. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the Engineer for review before ordering. Comply with provisions of Section 01340.
- B. At the time of submission, the Contractor shall, in writing, call Engineer's attention to any deviations that the submittals may have from the requirements of the Engineer's Contract Drawings and Specifications.

PART 2 - PRODUCTS

2.01 GATE VALVES

- A. Gate valves shall conform with AWWA C-509 standard, and shall be of the resilient seat type, iron body, fully bronze mounted, non-rising stem and have a design working pressure of 200 psi. Valves shall be of standard manufacturer and of the highest quality both as to materials and workmanship.
- B. All gate valves shall be furnished with mechanical joint connections, unless otherwise shown on the Drawings or specified hereinafter.
- C. An epoxy coating conforming to AWWA C-550 shall be applied to the interior and exterior ferrous surfaces of the valve except for finished or seating surfaces.
- D. All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working water pressure cast on the body of the valve.

- E. Each gate valve shall be installed in a vertical position with a roadway type valve box. Gate valves set with valve boxes shall be provided with a 2-inch square operating nut and shall be opened by turning to the left (counter-clockwise). There shall be a maximum 48" depth of valve operating nut. Contractor must use extension stems, if necessary, to raise operator nut within 48" of final grade.

2.02 TAPPING SLEEVES AND VALVES

- A. Tapping sleeves for connections to existing water lines shall be of the mechanical joint type suitable for working pressures of 200 psi and shall be Mueller No. H-615, American Valve and Hydrant No. 1004, M & H No. 1574, or equal, for taps up to 12" x 12". Tapping sleeves larger than 12" x 12" (up to 24" x 24") shall be of the mechanical joint type suitable for working pressure of 250 psi and shall be American Flow Control Series 2800, or equal.
- B. Tapping Valves:
 - 1. Tapping valves shall be of the mechanical joint type suitable for working pressures of 200 psi and shall be Mueller No. T-2360, American Valve and Hydrant No. 565, M & H No. 4751, or equal, for taps up to 12" diameter.
 - 2. Tapping valves for taps larger than 12" diameter shall be of the mechanical joint type suitable for working pressure of 250 psi and shall be American Flow Control Series 2500, Mueller No. T-2361, or equal, and shall be side mounted with geared actuator.
- C. All existing water mains to be tapped under this contract shall be exposed in order to verify line sizes prior to ordering tapping sleeves and valves.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. All valves shall be installed in accordance with details on the Contract Drawings and with the manufacturer's recommendations.
- B. All valves shall be anchored in accordance with the details on the Contract Drawings.

END OF SECTION

SECTION 02517 - HYDRANTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required for furnishing and installing all hydrants and appurtenances specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 02300
- B. Valves - Utilities Services: Section 02515
- C. Water Distribution Piping: Section 02510

1.03 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 01340 of this specification.
- B. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the Engineer for review before ordering.
- C. At the time of submission, the Contractor shall, in writing, call the Engineer's attention to any deviations that the submittals may have from the requirements of the Engineer's Contract Drawings and Specifications.

PART 2 - PRODUCTS

2.01 FIRE HYDRANTS

- A. The Contractor shall furnish and install fire hydrants and auxiliary gate valves where shown on the Drawings or directed by the Engineer. Hydrants shall conform in all respects to the most recent requirements of AWWA C502. Hydrant barrel shall have safety breakage feature above the ground line. All hydrants shall have 6-inch mechanical joint shoe connection, two (2) 2-1/2-inch discharge nozzles, and one (1) 4 1/2-inch pumper nozzle with rubber gasketed caps fitted with cap chains. Cap nuts are to be five (5) sided. Connection threads shall be National Standard Thread. Main valve shall have 5-1/4-inch full opening and be of the compression type opening against water pressure so that valve remains closed should barrel be broken off.
- B. Hydrants shall be fully bronze mounted. Main valve shall have a threaded bronze seat ring assembly of such design that it is easily removable by unscrewing from a threaded bronze drain ring. Bronze drain ring shall have multiple ports providing positive automatic drainage as the main valve is opened or closed. Drainage waterways shall be completely bronze to prevent rust and corrosion.

- C. The operating nut shall be five (5) sided bronze or bronze with a five (5) sided ductile iron cap, and mounted so that a counter clockwise motion will open the valve. There must be cast on top an arrow and the word "Open" indicating the direction of turn to open the hydrant.
- D. Operating stem shall be equipped with anti-friction thrust bearing to reduce operating torque and assure easy opening. Stop shall be provided to limit stem travel. Stem threads shall be enclosed in a permanently sealed lubricant reservoir protected from weather and the waterway with O-ring seals.
- E. Hydrants shall be shop tested to 300 psi pressure with main valve both opened and closed. Under test the valve shall not leak, the automatic drain shall function and there shall be no leakage into the bonnet.
- F. Type of shoe connection shall be mechanical joint and size shall be six inches (6").
- G. Hydrants shall be given two (2) coats of enamel high visibility paint to be selected by the Owner.
- H. Hydrants shall be Mueller Super Centurion Model A-423, or approved equal.

2.02 FLUSH (BLOW-OFF) HYDRANTS

- A. Flush type fire hydrants shall comply, where applicable, to AWWA Standard C-502, latest revision. Flush type fire hydrants shall be of the compression type, with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be 2-1/4" diameter. Flush type fire hydrants shall be of a dry barrel design.
- B. Flush type fire hydrants shall be rated at 150 psi water working pressure, tested at 300 pounds hydrostatic for structural soundness in the following manner; 300 pound hydrostatic test supplied from the inlet side, first with the main valve closed for the testing of the valve seat; second, with the main valve open for testing of the drain valves and the hydrant barrel.
- C. Hydrants shall be constructed of ASTM A-126 Class B cast iron. The main valve of the hydrant shall be made of rubber.
- D. The bottom stem threads of the main valve rods shall be fitted with a cap nut for sealing the threads away from the water.
- E. Changes in size or shape of the waterway shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than 120% of that of the net opening of the main valve, except for hydrants with 2-1/4" valve opening.
- F. Hose and steamer caps shall be individually chained to the hydrant.
- G. The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.
- H. Bonnet shall be weatherproof, free draining, and of a type that will maintain the operating mechanism in readiness for use under freezing conditions.

- I. The operating nut shall be provided with a convenient means to afford lubrication to insure ease of operating and the prevention of wear and corrosion. Hydrants shall be of dry barrel type. Hydrant shoe shall have two (2) positive acting non-corrodible drain valves that shall drain the hydrant completely by opening when the main valve is closed, and also to close tightly when the main valve is open.
- J. All like parts of hydrants of the same size and model produced by the same manufacturer shall be interchangeable.
- K. Hydrants shall open by turning to the left.
- L. Threads on hose and steamer nozzles shall be National Standard unless otherwise specified.
- M. Operating nuts and cap nuts shall conform to National Standard unless otherwise specified.
- N. Bury shall be 30" measuring depth from grade line to bottom of connecting pipe.
- O. Auxiliary shut-off (isolation) gate valves shall be of the same manufacturer as the hydrant when required.
- P. Hydrants with a 2", 2-1/4" 2-1/2", or 3" shoe (Style 333) shall be supplied with one 2-1/2" hose outlet. Hydrant assembly shall include a cast iron box and cover for installation flush with grade level.
- Q. The inside of all hydrants shall be coated in accordance with AWWA standards except for bronze and machined surfaces. Exterior on hydrant nozzle section shall be painted fire hydrant red (or as specified).
- R. Hydrant shoe shall have protective, thermosetting epoxy coating applied inside and out before assembly. Prior to application of coating, shoes shall be mechanically and chemically cleaned in compliance with SSPC Standards SP-5 and SP-8. A minimum average dry film thickness of 3 mils shall be applied on interior and exterior surfaces of hydrant shoe. Coating designation to be M&H 0271 epoxy and conform fully to AWWA C550-81, Section 3.
- S. Hydrants shall be marked with name of manufacturer, year of manufacture, and size.

2.03 FLUSH HYDRANT BOX

- A. Hydrant box and cover shall be cast iron with a minimum diameter of 16" and a minimum depth of 10".
- B. The hydrant box shall not be attached to the hydrant at any point thus prohibiting loads from being transferred to the hydrant, standpipe, or connecting pipe. Hydrant box, when properly installed with cover, shall withstand a 25,000 pound load.

PART 3 - EXECUTION

3.01 SETTING OF FIRE HYDRANTS

A. Location:

1. Hydrants shall be located as shown or as directed so as to provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians.
2. When placed behind the curb, the hydrant barrel shall be set so that the pumper or hose nozzle cap will be a minimum of five feet (5') from the back of curb.
3. When set in the lawn space between the curb and the sidewalk or between the sidewalk and the property line, no portion of the hydrant or nozzle cap shall be within six inches (6") of the sidewalk.

B. Position:

All hydrants shall be set plumb with not less than two (2) cubic feet of crushed stone and shall have their nozzles parallel with the roadway, with the pumper nozzle facing toward the roadway. Hydrants shall be set to the established grade, with nozzles at least eighteen inches (18") above the ground, as shown or as directed by the Engineer.

C. Connection to Main:

Each hydrant shall be connected to the main with a six-inch (6") restrained joint ductile iron branch controlled by an independent six -inch (6") gate valve, unless otherwise specified.

D. Hydrant Drainage in Pervious Soil:

Whenever a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing uncrushed course aggregate (AAHSTO M-43) No. 57 from the bottom of the trench to at least six inches (6") above the drain opening in the hydrant and to a distance of one foot (1') around the elbow. No drainage system shall be connected to a sewer.

E. Hydrant Drainage in Impervious Soil:

Whenever a hydrant is set in clay or impervious soil, a drainage pit two feet (2') in diameter and three feet (3') deep shall be excavated below each hydrant and filled compactly with uncrushed course aggregate (AASHTO M-43) No. 57 under and around the elbow of the hydrant and to a level of six inches (6") above the drain opening. No drainage pit shall be connected to a sewer (see Standard Details).

3.02 SETTING OF FLUSH HYDRANTS

A. Location:

Hydrants shall be located as shown on the Contract Drawings or as directed by the Owner or Engineer so as to provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians.

B. Position:

Hydrants shall be set plumb and to the established grade.

C. Connection to Main:

Hydrants shall be connected to the main by mechanical joint, screwed or flanged shoe. Mechanical joint shoes shall be fitted with strapping lugs.

D. Hydrant Drainage in Pervious Soil:

Whenever a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing uncrushed course aggregate (AAHSTO M-43) No. 57 from the bottom of the trench to at least six inches (6") above the drain opening in the hydrant and to a distance of one foot (1') around the elbow. No drainage system shall be connected to a sewer.

E. Hydrant Drainage in Impervious Soil:

Whenever a hydrant is set in clay or impervious soil, a drainage pit two feet (2') in diameter and three feet (3') deep shall be excavated below each hydrant and filled compactly with uncrushed course aggregate (AASHTO M-43) No. 57 under and around the elbow of the hydrant and to a level of six inches (6") above the drain opening. No drainage pit shall be connected to a sewer (see Standard Details).

F. Hydrant Box:

Hydrant box shall be installed at grade and per manufacturer's recommendations. Box shall not be attached to the hydrant at any point.

3.03 ANCHORAGE

- A. The bowl of each hydrant shall be tied to the pipe with suitable anchor couplings, as shown on the Standard Details in the Drawings or as directed by the Owner or Engineer.

3.05 FIRE HYDRANT WRENCHES

- A. One (1) hydrant wrench shall be furnished for each ten (10) hydrants or less. When the number of hydrants furnished and installed exceeds twenty-five (25), one (1) hydrant repair kit shall be supplied at no additional cost to the Owner.

END OF SECTION

SECTION 02530 - GRAVITY SEWER PIPING

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required for furnishing and installing all piping and appurtenances as shown on the Drawings and specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 02300
- B. Boring and Jacking: Section 02400
- C. Sanitary Sewer Manholes, Frames and Covers: Section 02532
- D. Excavation Support and Protection: Section 02260

1.03 SUBMITTALS

- A. Submit manufacturer's data as specified herein. Comply with all requirements of Section 01340.

1.04 INTERNAL PIPE DIAMETER

- A. All sewer pipe provided shall have a minimum actual internal diameter which is equal to or greater than the diameter indicated on the Contract Drawings.

PART 2 - PRODUCTS

2.01 GRAVITY SEWER PIPE

- A. Polyvinyl Chloride (PVC) Pipe and Fittings

PVC Pipe shall be installed where indicated on the Contract Drawings. PVC pipe shall not be used in locations where the depth of cut is greater than 16 feet.

Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical. Pipe shall not be stored outside where subject to sunlight.

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

The PVC pipe manufacturer shall provide special fittings, acceptable to the Engineer to

make watertight connections to manholes.

Pipe manufacturer shall furnish notarized certificate of compliance with applicable specifications.

1. Gravity Sewer Application (15" and Smaller):
 - a. PVC pipe used for gravity sewer applications shall meet all requirements of ASTM Specification D-3034, latest revision. Pipe and fittings shall meet the extra strength minimum of SDR-35 of that Specification.
 - b. All pipe and fittings shall be inspected at the factory and on the job site. Testing of PVC pipe and fittings shall be accomplished in conformance with the latest revision of ASTM D3034, ASTM D2444, ASTM D2412, and ASTM D2152. The manufacturer shall submit five (5) copies of certification of test for each lot of material represented by shipment to the job site.
 - c. The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform in color as commercially practical. PVC pipe shall have a ring painted around spigot ends in such a manner as to allow field checking of setting depth of pipe in the socket.
2. Large Diameter Gravity Sewer Application (Greater than 15"):
 - a. Large diameter PVC pipe used for gravity sewer applications shall meet or exceed all performance requirements of Paragraph 2.01.B. of this section, except ASTM F679 shall be referenced instead of ASTM D3034. Corrugated pipe is acceptable as specified herein.
 - b. All corrugated pipe shall be seamless profile wall. Pipe shall have a smooth interior with a corrugated cross-sectional rib exterior or a solid cross sectional rib exterior. Corrugated pipe shall meet the requirements of ASTM F949 and ASTM F794. Ribbed pipe shall meet the requirements of ASTM F794 and Uni-Bell Uni-B-9. Exterior corrugations or ribs shall be perpendicular to the axis of the pipe to allow placement of the sealing gasket without additional cutting or machining. The pipe stiffness shall be a minimum of 46 psi when tested at 5% deflection in accordance with D2412.
 - c. The cleaning and assembly of pipe and fittings shall be in accordance with the manufacturer's recommendation.

2.02 COMPRESSION COUPLINGS

- A. When joining different types of pipe together or new pipe to existing pipe, the Contractor shall use Fernco Compression Couplings, or equal, that are resistant to corrosion by soil and sewage and that will provide a permanent watertight joint.

- B. The compression coupling shall meet the physical test and joint-leak requirements specified in ASTM C425. The bands for attaching pipes shall be stainless steel conforming to ASTM C425. Each coupling shall bear the manufacturer's name and an indication of its size.

2.03 CONCRETE PIPE ANCHORS

- A. Where indicated on the Drawings, required by the specifications or as directed by the Engineer, concrete pipe anchors shall be installed. Concrete shall be 2000 psi, and reinforcing bars shall be as indicated on the anchor detail.

PART 3 - EXECUTION

3.01 EXCAVATION FOR PIPELINE TRENCHES

- A. Unless otherwise directed by the Engineer, trenches in which pipes are to be laid shall be excavated in open cut to the depths required by field conditions or as specified by the Engineer. In general this shall be interpreted to mean that machine excavation in earth shall not extend below an elevation permitting the pipe to be properly bedded. Installation shall be in accordance with ASTM-D-2321 except as modified herein.
- B. Excavation may be undercut to a depth below the required invert elevation that will permit laying the pipe in a bed of granular material to provide continuous support for the bottom quadrant of the pipe. When this method is used, the bedding shall be as set out in Paragraph 3.02 hereinafter.
- 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'-0" plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than 2'-0" at the level of or below the top of the pipe, special precaution may be necessary, such as providing compacted, granular fill up to top of the pipe or providing pipe with additional crushing strength as determined by the Engineer after taking into account the actual trench loads that may result and the strength of the pipe being used. The Contractor shall bear the cost of such special precautions as are necessary.
- D. All excavated materials shall be placed a minimum of two feet (2') back from the edge of the trench.
- E. Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may necessitate changing the line or grade of the pipeline.
- F. The trench shall be straight and uniform so as to permit laying pipe to lines and grades given by the Engineer. It shall be kept free of water during the laying of the pipe and until the pipeline has been backfilled. Removal of trench water shall be at the Contractor's expense. Dry conditions shall be maintained in the excavations until the backfill has been placed. During the excavation, the grade shall be maintained so that it will freely drain and prevent surface water from entering the excavation at all times. When directed by Engineer, temporary drainage ditches shall be installed to intercept or direct surface water which may affect work. All water shall be pumped or drained from the excavation and disposed of in a suitable manner without damage to adjacent property or to other work.

- G. Minimum cover of 42" shall be provided for all pipelines.

3.02 PIPE BEDDING

- A. All sewer pipe shall be supported on a bed of granular material. In no case shall pipe be supported directly on rock. Bedding shall not be a separate pay item unless otherwise set out in the Detailed Specifications. Bedding shall be provided in earth bottom trenches, as well as rock bottom trenches. Bedding material shall be free from rock, foreign material, frozen earth, and be acceptable to the Engineer. Bedding shall be a minimum of 6" below pipe barrel.
- B. In all cases the foundation for pipes shall be prepared so that the entire load of the backfill on top of the pipe will be carried on the barrel of the pipe and insofar as possible where bell and spigot pipe is involved so that none of the load will be carried on the bells.
- C. Where flexible pipe is used, the granular bedding shall be placed up to at least the spring line (horizontal center line) of the pipe. The bedding material and procedures shall conform to ASTM D 2321 and any Technical Specifications set out hereinafter. If conditions warrant, the Engineer may require the bedding to be placed above the springline of the pipe. Granular bedding shall be Size #9-m or ASTM C 33, Size #7 crushed stone, fine gravel, or sand, and is not a separate pay item.
- D. Where undercutting and granular bedding are involved the undercutting shall be of such depth that the bottom of the bells of the pipe will be at least three inches above the bottom of the trench as excavated. Undercutting is not a separate pay item.
- E. In wet, yielding mucky locations where pipe is in danger of sinking below grade or floating out of line or grade, or where backfill materials are of such a fluid nature that such movements of the pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective. When ordered by the Engineer, yielding and mucky materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe. Crushed stone or other such granular material, if necessary, as determined by the Engineer to replace poor subgrade material, shall be a separate pay item and classified as "Special Granular Fill". Removal of poor material is not a separate pay item.
- F. Installation shall be in accordance with ASTM D 2321 except as modified hereinafter.

3.03 SPECIAL GRANULAR FILL

- A. As noted in Paragraph 3.02E, granular material for " Special Granular Fill " when directed by the Engineer shall be Department of Transportation crushed limestone, Size #9. Payment for " Special Granular Fill " must have approval from the Engineer prior to installation.

3.04 LAYING PIPE

- A. The laying of pipe in finished trenches shall be commenced at the lowest point so the spigot ends point in the direction of flow.

- B. All pipes shall be laid with ends abutting and true to line and grade as given by the Engineer. Supporting of pipes shall be as set out hereinbefore under "Pipe Bedding" and in no case shall the supporting of pipes on blocks be permitted.
- C. Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure its being clean. Each piece of pipe shall be lowered separately unless special permission is given otherwise by the Engineer. No piece of pipe or fitting which is known to be defective shall be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe.
- D. Pipe shall not be laid on solid rock. A pad of granular material as specified in Paragraph 3.02 "Pipe Bedding", shall be used as a pipe bedding. Pipe bedding is not a separate pay item. Irregularities in subgrade in an earth trench shall be corrected by use of granular material.
- E. When ordered by the Engineer, unsuitable materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe.
- F. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood or fabricated plug fitted into the pipe bell, so as to exclude earth or other material, and precautions taken to prevent flotation of pipe by runoff into trench.
- G. 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.

3.05 BACKFILLING PIPELINE TRENCHES

- A. Backfilling of pipeline trenches shall be accomplished with the requirements set forth in "Earthwork" Section 02300 of these Specifications, in accordance with the details as shown on the Drawings, and as described hereinafter. Under pavement, all trench backfill shall be in accordance with Method C as shown on Standard Detail Drawing SD-2. All other trench backfill shall be in accordance with Method A or B.
- B. Method "A" - Backfilling in Open Terrain:

Backfilling of pipeline trenches in open terrain shall be accomplished in the following manner:

1. The lower portion of the trench, from the pipe bedding to a point 12" above the top of the pipe, shall be backfilled with material free from rock and/or material acceptable to the Engineer. This material shall be placed in a manner approved by the Engineer, and shall be carefully compacted to avoid displacement of the pipe. Compaction shall be accomplished by hand-tamping or by approved mechanical methods.
2. The upper portion of the trench above the compacted portion shall be backfilled with material which is free from large rock. Incorporation of rock having a volume exceeding one-half cubic foot is prohibited. Backfilling this portion of the trench may be accomplished by any means approved by the Engineer. The trench backfill shall be heaped over or leveled as directed by the Engineer.

3. Final grading and seeding or sodding shall be in accordance with Sections 02300 and 02920.

C. Method "B" - Backfilling Under Sidewalks & Unpaved Driveways:

Backfilling of pipeline trenches under sidewalks and unpaved driveways shall be accomplished in the following manner.

1. The lower portion of the trench, from the pipe bedding to a point 12 inches above the top of the pipe, shall be backfilled with material free from rock and/or material acceptable to the Engineer. This material shall be placed in a manner to avoid displacement of the pipe. Compaction shall be accomplished by hand-tapping or by approved mechanical methods.
2. The middle portion of the trench, from a point 12" above the top of the pipe to a point 6" below the grade line, shall be backfilled with material free from rock and/or acceptable to the Engineer. This material shall be placed and compacted in layers of approximately 6 inches. Water (puddling) may be used as required to obtain maximum compaction.

Upon approval of the Engineer, the Contractor may backfill the middle portion of the trench with crushed stone, fine gravel, or sand in lieu of materials which require compaction.

3. The upper portion of the trench shall be temporarily backfilled and maintained with crushed stone or gravel until such time as the sidewalk is constructed or the driveway surface is restored.

D. Method "C" - Backfilling Under Streets, Roads, and Paved Driveways:

Backfilling of pipeline trenches under streets, roads and paved driveways shall be accomplished in the following manner:

1. The lower portion of the trench from the pipe bedding to a point 6" below the bottom of the pavement or concrete sub-slab, shall be backfilled with # 9 crushed stone.
2. The upper portion of the trench, from a point 6" below the bottom of the pavement or concrete sub-slab to grade, shall be backfilled with a base course of dense graded aggregate. At such time that pavement replacement is accomplished, the excess base course shall be removed as required.

E. Trenches outside existing sidewalks, driveways, streets, and highways shall be backfilled in accordance with Method "A". Trenches within the limits of sidewalk and unpaved driveways shall be backfilled in accordance with Method "B". Trenches within the paving limits of existing streets, highways and driveways shall be backfilled in accordance with Method "C". All methods are shown on Sheet SD-2 of the Drawings. When directed by the Engineer, the Contractor shall wet backfill material to assure maximum compaction.

F. Before final acceptance, the Contractor will be required to level off all trenches or to bring the trench up to grade. The Contractor shall also remove from roadways, rights-of-ways and/or private property all excess earth or other materials resulting from construction.

- G. In the event that pavement is not placed immediately following trench backfilling in streets and highways, the Contractor shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times.

3.06 SETTLEMENT OF TRENCHES

- A. Whenever lines are in, or cross, driveways and streets, the Contractor shall be responsible for any trench settlement that occurs within these rights-of-way within one year from the time of final acceptance of the work. If paving shall require replacement because of trench settlement within this time, it shall be replaced by the Contractor at no extra cost to the Owner. Repair of settlement damage shall meet the approval of the Owner and/or the State Department of Transportation.

3.07 CONCRETE CRADLE, ANCHORS OR ENCASEMENT

- A. Concrete cradle, anchors or encasement shall be placed where shown on the Drawings, required by the specifications, or as directed by the Engineer.
- B. Concrete shall be 2000 psi and shall be mixed sufficiently wet to permit it to flow under the pipe to form a continuous bed. In tamping concrete, care shall be taken not to disturb the grade or line of the pipe or injure the joints. Concrete placed outside the specified limits or without authorization from the Engineer will not be subject to payment.

3.08 PRE-FABRICATED TRENCH BAFFLES

- A. Pre-fabricated trench baffles shall be installed where shown on the Drawings, required by the specifications or as directed by the Engineer. The product shall be installed according to the manufacturer's recommendations, and shall provide a watertight seal around the pipe. Contractor shall insure that the correct line and grade of the pipe is maintained before backfilling around the trench baffle.

3.09 BITUMINOUS CONCRETE HIGHWAY, STREET AND DRIVEWAY REPLACEMENT

- A. The Contractor shall replace those sections of existing roads, streets and driveways required to be removed to install the pipe lines under this contract. He shall construct same to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to the operations.
- B. Prior to trenching, the pavement shall be scored or cut to straight edges at least twelve (12) inches outside each edge of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be re-cut and trimmed to square, straight edges after the pipeline has been installed and prior to placing the new base and pavement.
- C. Backfilling of the trench shall be in accordance with Method "C" as described hereinbefore. Base course for the paving shall be dense graded crushed limestone furnished and placed in accordance with the current requirements of Section 303 of the Standard Specifications for Road and Bridge Construction of the Kentucky Department of Transportation, to a depth of six (6) inches in roads and streets and four (4) inches in driveways.

- D. A subslab of reinforced concrete shall be placed for state maintained highways as indicated on the Drawings. The subslab shall have a minimum thickness of 6 inches. Concrete for the subslab shall be 2500 psi, in accordance with the Details shown on the Drawings.
- E. Prior to placing the bituminous binder course, the granular base course shall be thoroughly cleaned and broomed and a prime coat of Refined Tar RT-2 shall be uniformly applied at the rate of 0.35 gallons per square yard.
- F. The bituminous base course shall be hot mixed, hot laid, bituminous concrete base, furnished and placed in accordance with Section 402 of the Standard Specifications, and to match the existing depth or to a minimum compacted thickness of 3 inches.
- G. The surface course shall be hot mixed, hot laid, bituminous concrete, furnished and placed in accordance with Section 402 of the Standard Specifications, and to match the existing depth or to a minimum compacted thickness of 1-1/2 inches.

3.10 GRAVITY SEWER CONNECTION OF NEW SANITARY SEWER TO EXISTING MANHOLES

- A. New sanitary sewer shall be extended through the wall of the existing manhole, a grout ring installed, sealed and patched with an expansive cement mortar and pipe sealed with a test plug. Test plug shall be a wing nut style as manufactured by Richmond Foundry, Richmond, Virginia, or equal. Apron and invert shall be removed in its entirety where required to allow placement of the new sewer at the specified invert elevation.
- B. At the time the new sewer is placed into permanent service, as designated by the Owner, the Contractor shall remove the old sewer pipe from the manhole, patch and seal the wall with an expansive cement mortar, construct new apron and invert in accordance with the standard details, and remove plug from the new sewer. All temporary pumping, piping, excavation, etc. as required to maintain or divert the sewage flow shall be included by the Contractor.

3.11 CONCRETE CURB AND GUTTER REPLACEMENT

- A. The Contractor shall remove the curb and gutter when encountered when required for laying the sewer. Only that portion of the curb and gutter needed to lay the sewer line shall be removed.
- B. Where concrete curb and gutter removed or disturbed during the construction work, it shall be replaced, using 3000 psi concrete, in fully as good or better condition than which existed prior to the Contractor's operation.

3.12 REPLACEMENT OF EXISTING MAIL BOXES, CULVERTS, CLOTHES LINE POSTS, FENCES AND OTHER SUCH FACILITIES

- A. Existing mail boxes, drainage culverts, clothes line posts, fences and the like shall not be damaged or disturbed unless necessary, in which case, they shall be replaced in as good condition as found as quickly as possible. Existing materials shall be reused in replacing such facilities when materials have not been damaged by the Contractor's operations. Existing facilities damaged by Contractor's operation shall be replaced with new

materials of the same type at the Contractor's expense. Work in this category is not a pay item.

- B. Replacement of paved drainage ditches within highway right-of-way shall be accomplished in accordance with Department of Transportation specifications.

3.13 PORTLAND CEMENT CONCRETE DRIVEWAY REPLACEMENT

- A. Wherever Portland cement concrete driveways are removed, they shall be reconstructed to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than existed prior to the operation.
- B. The existing concrete paving shall be sawed or cut to straight edges 12-inches outside the edges of the trench or broken out to an existing joint, as directed by the Engineer. The concrete pavement shall be equal to the existing pavement thickness but not less than 6-inches in thickness for driveways.
- C. Pavement shall be reinforced with 6 x 6 #10-10 wire mesh and shall be constructed with 3000 psi concrete.

3.14 RIP-RAP STREAM BANK SLOPE PROTECTION

- A. The Contractor shall install rip-rap stream bank slope protection at locations directed by the Engineer. Rip-rap slope protection shall be 12-inches thick and shall meet State D.O.T. Standard Specifications.

3.15 TESTING

On all projects involving installation of sanitary sewer lines, the finished work shall comply with the provisions listed below or similar requirements which will insure equal or better results:

- A. Rod Out: After the collecting and/or outfall lines or system have been brought to completion, and prior to final inspection, the Contractor shall rod out the entire system by pushing through each individual line in the system, from manhole to manhole, appropriate tools for the removal from the lines of any and all dirt, debris and trash.
- B. Inspect Lines: During the final inspection, the Engineer will inspect each individual line, from manhole to manhole, either by use of lights or other means at his disposal to determine whether the completed lines are true to line and grade as laid out or as shown on the plans.
- C. Ball Test: The Engineer will require that the Contractor pass through the system under its own momentum a wooden ball of a diameter one-inch less than the nominal diameter of the pipe, except that no ball larger than eight (8) inches in diameter shall be used.
- D. Deflection tests shall be performed on a flexible pipe. The test shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the soil-pipe system. No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent, pipe shall be replaced or corrected. The rigid ball cylinder or mandrel used for the deflection test shall have a diameter not less than 95 percent of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM Specification, including the appendix, to which the pipe is manufactured. The pipe shall

be measured in compliance with ASTM D2122 Standard Test Method of Determining Dimensions of Thermoplastic Pipe and Fittings. The test shall be performed without mechanical pull devices.

- E. **Replace Defective Lines:** All lines or sections of lines that are found to be laid improperly with respect to line or grade, that are found to contain broken or leaking sections of pipe, or are obstructed in such a manner that they cannot be satisfactorily corrected otherwise, shall be removed and replaced at the Contractor's expense.
- F. **I & I Limits:** The Contractor shall lay sewer lines, including house connections so that the access of ground water or loss of water from the sewer system or other gravity flow piping which does not normally flow full will be limited to 10 gallons per inch diameter per mile per day. This limitation is inclusive of manholes, sewers, house connections, and appurtenances. This requirement may be applied to a portion of the contract work, such as the sewers in a separate drainage area or to a single section of the line between two manholes.
- G. **Low Pressure Air Test:** To test for leaks, the Engineer will require that all completed piping as specified herein after back filling be tested by low-pressure air test, exfiltration, or infiltration test. Should the low pressure air test results be inconclusive, or at the request of the Engineer, an exfiltration or infiltration test will be required on the low pressure air tested segments. Labor, equipment and supplies required for all tests shall be furnished by the Contractor.

The low pressure air test shall consist of meeting a required holding time during a measured pressure drop. The initial test pressure shall be 4.0 psi, with the allowable pressure loss being 1.0 psi during the calculated holding time. Holding time shall be as indicated in the following table:

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015*											
1 Pipe Dia. (in)	2 Minimu m Time (min:sec)	3 Length for Minimum Time (ft)	4 Time for Longer Length (sec)	Specified Minimum for Length (L) Shown (min:sec)							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46
42	39:48	57	41.883 L	69:48	104:42	139:37	174:30	209:24	244:19	279:13	314:07
48	45:34	50	54.705 L	91:10	136:45	182:21	227:55	273:31	319:06	364:42	410:17
54	51:02	44	69.236 L	115:24	173:05	230:47	288:29	346:11	403:53	461:34	519:16
60	65:40	40	85.476 L	142:28	213:41	284:55	356:09	427:23	498:37	569:50	641:04

* If there is no leakage (0 psi drop) after one hour of testing, the tested section shall be accepted.

- H. **Exfiltration Test:** In order to test for infiltration the Engineer may also require exfiltration tests on each section of pipe between manholes after it has been laid but prior to back filling of joints. Exfiltration tests shall be conducted by plugging the lower end of the section of sewer to be tested and filling the sewer with water to a point approximately five feet above the invert at the lower end and at least one foot above the

pipe at the upper end, observing for leakage at all joints and measuring the amount of leakage for a given interval of time. Exfiltration shall not exceed 110 percent times the infiltration limits set out hereinbefore. All observed leaks shall be corrected even though exfiltration is within the allowable limits.

- I. Infiltration Test: To test for infiltration, the Engineer may also require that the Contractor plug the open ends of all lines at the manhole so that measurements may be made at each section of the sewer line. Infiltration tests shall consist of weir measurement to determine quantities of any infiltration. Measurements shall be taken at line locations directed by the Engineer. This infiltration test will not be made until the sewer line is completed, and the Contractor will be required to correct all conditions that are conducive to excessive infiltration and may be required to relay such sections of the line that may not be corrected even though infiltration is within allowable limits.
- J. Smoke testing may be used only to locate leaks and in no case shall be considered conclusive. In all cases the smoke test shall be accompanied by an air test, exfiltration test or infiltration test. Smoke testing may only be performed where ground water is low and smoke is blown into a conduit that is properly sealed. All such leaks or breaks discovered by the smoke tests shall be repaired and/or corrected by the Contractor at his own expense. Equipment and supplies required from smoke tests shall be furnished by the Contractor. The Contractor may also be required to smoke test the first section (manhole-to-manhole) of each size of pipe and type of joint on each construction contract prior to backfilling to establish and check laying and jointing procedures. Other supplementary smoke tests prior to backfilling may be performed by the Contractor at his option; however, any such tests shall not supplant the final tests of the completed work unless such final tests are waived by the Engineer.

3.16 CLEAN UP

- A. Upon completion of installation of the piping and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from the Work. The Contractor shall grade the ground along each side of pipe trenches in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line.

END OF SECTION

SECTION 02531 - SEWAGE FORCE MAINS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required for furnishing and installing all piping and appurtenances specified herein.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 02300
- B. Sewage Pumping Stations: 02537
- C. Valves - Site Utilities: 02515

1.03 SUBMITTALS

- A. Submit manufacturer's data and shop drawings for all materials and as specified herein. Comply with all requirements of Section 01340.
- B. A notarized certification shall be furnished for all pipe and fittings that verifies compliance with all applicable specifications. The requirement for this certification does not eliminate the need for shop drawings submittals in compliance with Section 01340.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PLASTIC PRESSURE PIPE

- A. PVC Pressure Piping, 3" and Larger:

PVC mains shall be polyvinyl chloride plastic pipe, Class 200 (SDR-21) pressure rated pipe. PVC pipe shall have a maximum laying length of 20 feet, with bell end and elastomeric gasket, and with plain end for ductile-iron fittings. All PVC pipe shall conform to the latest revisions of the following:

ASTM D 2241
Standard Dimension Ratio SDR-21 (200 psi)

- B. Joints for polyvinyl chloride (PVC) mains shall be integral bell and spigot type joints with rubber-o-ring gasket. The cleaning and assembling of the pipe joints shall be in accordance with manufacturer's recommendations.
- C. Fittings shall be pressure class 350 ductile iron and have mechanical-joints or push-on joints in accordance with ANSI/AWWA C110/A21.10, latest revision, and shall conform to the details and dimensions shown therein. Fittings shall have interior cement-mortar lining as specified hereinbefore for the pipe. Compact ductile iron fittings meeting the requirements of ANSI/AWWA C153/A21.53, latest revision, will also be acceptable.

2.02 COUPLING AND ADAPTORS

- A. Flexible couplings shall be of the sleeve type with a middle ring, two wedge shaped resilient gaskets at each end, two follower rings, and a set of steel trackhead bolts. The middle ring shall be flared at each end to receive the wedge portion of the gaskets. The follower rings shall confine the outer ends of the gaskets, and tightening of the bolts shall cause the follower rings to compress the gaskets against the pipe surface, forming a leak-proof seal. Flexible couplings shall be steel with minimum wall thickness of the middle ring or sleeve installed on pipe being 5/16-inch for pipe smaller than 10 inches, 3/8-inch for pipe 10 inches or larger. The minimum length of the middle ring shall be 5-inches for pipe sizes up to 10 inches and 7 inches for pipe 10 inches to 30 inches. The pipe stop shall be removed. Gaskets shall be suitable for 250 psi pressure rating or at rated working pressure of the connecting pipe. Couplings shall be harnessed and be designed for 250 psi.
- B. Flanged adapters shall have one end suitable for bolting to a pipe flange and the other end of flexible coupling similar to that described hereinbefore. All pressure piping with couplings or adapters shall be harnessed with full threaded rods spanning across the couplings or adapters. The adapters shall be furnished with bolts of an approved corrosion resistant steel alloy, extending to the adjacent pipe flanges. Flanges on flanged adapter (unless otherwise indicated or required) shall be faced and drilled ANSI B16.1 Class 125.
- C. Flexible couplings and flanged adapters shall be as manufactured by Dresser, Rockwell, or equal, per the following, unless otherwise specified and/or noted on the Drawings:
- D. Steel couplings for joining same size, plain-end, steel, cast iron, and PVC plastic pipe -

Dresser	Rockwell
Style 138	411

- E. Transition couplings for joining pipe of different outside diameters-

Dresser	Rockwell
Style 162 (4"-12")	413 steel (2"-24")
Style 62 (2"-24")	415 steel (6"-48")
	433 cast (2"-16")
	435 cast (2"-12")

- F. Flanged adapters for joining plain-end pipe to flanged pipe, fittings, valves and equipment.

Dresser	Rockwell
Style 127 cast (3"-12")	912 cast (3"-12")
Style 128 steel (3"-48" C.I. Pipe)	913 steel (3" and larger)
Style 128 steel (2"-96" steel pipe)	

2.03 DETECTABLE UNDERGROUND UTILITY WARNING TAPES

- A. Detectable underground utility warning tapes which can be located from the surface by a pipe detector shall be installed directly above nonmetallic (PVC, polyethylene, concrete) pipe.

- B. The tape shall consist of a minimum thickness 0.35 mils solid aluminum foil encased in a protective inert plastic jacket that is impervious to all know alkalis, acids, chemical reagents and solvents found in the soil.
- C. The minimum overall thickness of the tape shall be 5.5 mils and the width shall not be less than 2" with a minimum unit weight of 2-1/2 pounds/1" x 1,000'. The tape shall be color coded and imprinted with the message as follows:

<u>Type of Utility</u>	<u>Color Code</u>	<u>Legends</u>
Sewer	Safety Green	Caution Buried Sewer Line Below

- D. Detectable underground tape shall be "Detect Tape" as manufactured by Allen Systems, or equal.
- E. Installation of detectable tapes shall be per manufacturer's recommendations and shall be as close to the grade as is practical for optimum protection and detectability. Allow a minimum of 18" between the tape and the line.
- F. Payment for detectable tapes shall be included in the linear foot price bid of the appropriate bid item(s) unless it is listed as a separate payment item in the bid schedule.

2.04 CONCRETE PIPE ANCHORS, THRUST BLOCKS, CRADLE OR ENCASEMENT

- A. Where indicated on the Drawings, required by the specifications or as directed by the Engineer, concrete pipe anchors, thrust blocks, cradles or encasements shall be installed. Concrete shall be 2000 psi, and reinforcing bars shall be as installed as indicated on the details.

PART 3 - EXECUTION

3.01 EXCAVATION FOR PIPELINE TRENCHES

- A. Unless otherwise directed by the Engineer, trenches in which pipes are to be laid shall be excavated in open cut to the depths required by field conditions or as specified by the Engineer. In general this shall be interpreted to mean that machine excavation in earth shall not extend below an elevation permitting the pipe to be properly bedded. Installation shall be in accordance with ASTM-D-2321 except as modified herein.
- B. If the foundation is good firm earth and the machine excavation has been accomplished as set out hereinbefore, the remainder of the material shall be excavated by hand, then the earth pared or molded to give full support to the lower quadrant of the barrel of each pipe. Where bell and spigot is 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 excavation that will permit the type of bedding specified above, then a layer of granular material shall be placed so that the lower quadrant of the pipe will be securely bedded in compact granular fill.
- C. Excavation may be undercut to a depth below the required invert elevation that will permit laying the pipe in a bed of granular material to provide continuous support for the bottom quadrant of the pipe. When this method is used, the bedding shall be as set out in Paragraph 3.02 hereinafter.

- D. 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'-0" plus the nominal diameter of the pipe at the level of or below the top of the pipe. If the trench does become wider than 2'-0" at the level of or below the top of the pipe, special precaution may be necessary, such as providing compacted, granular fill up to top of the pipe or providing pipe with additional crushing strength as determined by the Engineer after taking into account the actual trench loads that may result and the strength of the pipe being used. The Contractor shall bear the cost of such special precautions as are necessary.
- E. All excavated materials shall be placed a minimum of two feet (2') back from the edge of the trench.
- F. Before laying the pipe, the trench shall be opened far enough ahead to reveal obstructions that may necessitate changing the line or grade of the pipeline.
- G. The trench shall be straight and uniform so as to permit laying pipe to lines and grades given by the Engineer. It shall be kept free of water during the laying of the pipe and until the pipeline has been backfilled. Removal of trench water shall be at the Contractor's expense. Dry conditions shall be maintained in the excavations until the backfill has been placed. During the excavation, the grade shall be maintained so that it will freely drain and prevent surface water from entering the excavation at all times. When directed by Owner, temporary drainage ditches shall be installed to intercept or direct surface water which may affect work. All water shall be pumped or drained from the excavation and disposed of in a suitable manner without damage to adjacent property or to other work.
- H. Minimum cover of 42" shall be provided for all pipelines.

3.02 PIPE BEDDING

- A. All sewer pipe shall be supported on a bed of granular material unless the trench has been prepared in accordance with Paragraph 3.01B. In no case shall pipe be supported directly on rock. Bedding shall not be a separate pay item unless otherwise set out in the Detailed Specifications. Bedding shall be provided in earth bottom trenches, as well as rock bottom trenches. Bedding material shall be free from large rock, foreign material, frozen earth, and shall be acceptable to the Engineer. Bedding shall be a minimum of 6" below pipe barrel.
- B. In all cases the foundation for pipes shall be prepared so that the entire load of the backfill on top of the pipe will be carried on the barrel of the pipe so that none of the load will be carried on the bells.
- C. Where flexible pipe is used, the bedding shall be placed up to at least the spring line (horizontal center line) of the pipe. The bedding material and procedures shall conform to ASTM D 2321 and any Technical Specifications set out hereinafter. If conditions warrant, the Engineer may require the bedding to be placed above the springline of the pipe. Granular bedding shall be Size #9-m or ASTM C 33, Size #7 crushed stone, fine gravel, or sand, and is not a separate pay item.

- D. Where undercutting and granular bedding is involved it shall be of such depth that the bottom of the bells of the pipe will be at least three inches above the bottom of the trench as excavated. Undercutting is not a separate pay item.
- E. In wet, yielding mucky locations where pipe is in danger of sinking below grade or floating out of line or grade, or where backfill materials are of such a fluid nature that such movements of the pipe might take place during the placing of the backfill, the pipe must be weighted or secured permanently in place by such means as will prove effective. When ordered by the Engineer, yielding and mucky materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe. Crushed stone or other such granular material, if necessary, as determined by the Engineer to replace poor subgrade material, shall be a separate pay item and classified as "Special Granular Fill". Removal of poor material is not a separate pay item.
- F. Installation shall be in accordance with ASTM D 2321 except as modified hereinafter.

3.03 SPECIAL GRANULAR FILL

- A. As noted in Paragraph 3.02E, granular material for " Special Granular Fill " when directed by the Engineer shall be Department of Transportation crushed limestone, Size #9. Payment for " Special Granular Fill " must have approval from the Engineer prior to installation.

3.04 LAYING PIPE

- A. The laying of pipe in finished trenches shall be commenced at the lowest point so the spigot ends point in the direction of flow.
- B. All pipes shall be laid with ends abutting and true to line and grade as given by the Engineer. Supporting of pipes shall be as set out hereinbefore under "Pipe Bedding" and in no case shall the supporting of pipes on blocks be permitted.
- C. Before each piece of pipe is lowered into the trench, it shall be thoroughly inspected to insure its being cleaned. Each piece of pipe shall be lowered separately unless special permission is given otherwise by the Engineer. No piece of pipe or fitting which is known to be defective shall be laid or placed in the lines. If any defective pipe or fitting shall be discovered after the pipe is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit in a line it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe.
- D. Pipe shall not be laid on solid rock. A pad of granular material as specified in Paragraph 3.02 "Pipe Bedding", shall be used as a pipe bedding. Pipe bedding is not a separate pay item. Irregularities in subgrade in an earth trench shall be corrected by use of granular material.
- E. When ordered by the Engineer, unsuitable materials in subgrades shall be removed below ordinary trench depth in order to prepare a proper bed for the pipe.
- F. When laying of pipe is stopped for any reason, the exposed end of such pipe shall be closed with a plywood or fabricated plug fitted into the pipe bell, so as to exclude earth or other material, and precautions taken to prevent flotation of pipe by runoff into trench.

- G. 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.

3.05 BACKFILLING PIPELINE TRENCHES

- A. Backfilling of pipeline trenches shall be accomplished with the requirements set forth in "Earthwork" Section 02300 as shown on the Drawings and with details set forth hereinafter.

- B. Method "A" - Backfilling in Open Terrain:

Backfilling of pipeline trenches in open terrain shall be accomplished in the following manner:

- 1. The lower portion of the trench, from the pipe bedding to a point 12" above the top of the pipe, shall be backfilled with material free from rock and/or material acceptable to the Engineer. This material shall be placed in a manner approved by the Engineer, and shall be carefully compacted to avoid displacement of the pipe.

Compaction shall be accomplished by hand-tamping or by approved mechanical methods.

- 2. The upper portion of the trench above the compacted portion shall be backfilled with material which is free from large rock. Incorporation of rock having a volume exceeding one-half cubic foot is prohibited. Backfilling this portion of the trench may be accomplished by any means approved by the Engineer. The trench backfill shall be heaped over or leveled as directed by the Engineer.

- C. Method "B" - Backfilling Under Sidewalks & Unpaved Driveways:

Backfilling of pipeline trenches under sidewalks and unpaved driveways shall be accomplished in the following manner.

- 1. The lower portion of the trench, from the pipe bedding to a point 12 inches above the top of the pipe, shall be backfilled with material free from rock, and acceptable to the Engineer or with crushed stone as specified in "Pipe Bedding". This material shall be placed in a manner to avoid displacement of the pipe. Compaction shall be accomplished by hand-tapping or by approved mechanical methods.
- 2. The middle portion of the trench, from a point 12" above the top of the pipe to a point 6" below the grade line, shall be backfilled with material free from large rock and acceptable to the Engineer. This material shall be placed and compacted in layers of approximately 6 inches. Water (puddling) may be used as required to obtain maximum compaction.

Upon approval of the Engineer, the Contractor may backfill the middle portion of the trench with crushed stone, fine gravel, or sand in lieu of materials which require compaction.

3. The upper portion of the trench shall be temporarily backfilled and maintained with crushed stone or gravel until such time as the sidewalk is constructed or the driveway surface is restored.

D. Method "C" - Backfilling Under Streets, Roads, and Paved Driveways:

Backfilling of pipeline trenches under streets, roads and paved driveways shall be accomplished in the following manner:

1. The lower portion of the trench from the pipe bedding to a point 6" below the bottom of the pavement or concrete sub-slab, shall be backfilled with # 9 crushed stone.
2. The upper portion of the trench, from a point 6" below the bottom of the pavement or concrete sub-slab to grade, shall be backfilled with a base course of dense graded aggregate. At such time that pavement replacement is accomplished, the excess base course shall be removed as required.

E. Method "D" – Backfilling Open Cut Steel Encasement Pipe:

Open cut steel encasement pipes shall be backfilled with #9 crushed stone from the lower portion of the trench to a point 4" below the grade line and then shall be backfilled with earthen material that is free from rock.

F. Trenches outside existing sidewalks, driveways, streets, and highways shall be backfilled in accordance with Method "A". Trenches within the limits of sidewalk and unpaved driveways shall be backfilled in accordance with Method "B". Trenches within the paving limits of existing streets, highways and driveways shall be backfilled in accordance with Method "C". Trenches within the proposed paving limits of new highways shall be backfilled in accordance with Method "D". All methods are shown on Sheet SD-2 of the Drawings. When directed by the Engineer, the Contractor shall wet backfill material to assure maximum compaction.

G. Before final acceptance, the Contractor will be required to level off all trenches or to bring the trench up to grade. The Contractor shall also remove from roadways, rights-of-ways and/or private property all excess earth or other materials resulting from construction.

H. In the event that pavement is not placed immediately following trench backfilling in streets and highways, the Contractor shall be responsible for maintaining the trench surface in a level condition at proper pavement grade at all times.

3.06 SETTLEMENT OF TRENCHES

A. Whenever lines are in, or cross, driveways and streets, the Contractor shall be responsible for any trench settlement which occurs within these rights-of-way within one year from the time of final acceptance of the work. If paving shall require replacement because of trench settlement within this time, it shall be replaced by the Contractor at no extra cost to the Owner. Repair of settlement damage shall meet the approval of the Owner and/or the State Department of Transportation.

3.07 CONCRETE THRUST BLOCKS, CRADLE, ANCHORS OR ENCASEMENT

- A. Concrete thrust blocks, cradle, anchors or encasement shall be placed where shown on the Drawings, required by the specifications, or as directed by the Engineer.
- B. For cradle and encasement, concrete shall be 2000 psi and shall be mixed sufficiently wet to permit it to flow under the pipe to form a continuous bed.
- C. For thrust blocks and anchors, concrete shall be 2000 psi, and shall be formed or be sufficiently stiff to maintain the forms indicated on the Details.
- D. When tamping concrete, care shall be taken not to disturb the grade or line of the pipe or injure the joints. Concrete placed outside the specified limits or without authorization from the Engineer will not be subject to payment.

3.08 BITUMINOUS CONCRETE HIGHWAY, STREET AND DRIVEWAY REPLACEMENT

- A. The Contractor shall replace those sections of existing roads, streets and driveways required to be removed to install the pipe lines under this contract. He shall construct same to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to the operations.
- B. Prior to trenching, the pavement shall be scored or cut to straight edges at least twelve (12) inches outside each edge of the proposed trench to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be re-cut and trimmed to square, straight edges after the pipeline has been installed and prior to placing the new base and pavement.
- C. Backfilling of the trench shall be in accordance with Method "C" as described hereinbefore. Base course for the paving shall be dense graded crushed limestone furnished and placed in accordance with the current requirements of the Standard Specifications for Road and Bridge Construction of the Department of Transportation, to a depth of six (6) inches in roads and streets and four (4) inches in driveways.
- D. A subslab of reinforced concrete shall be placed for state maintained highways as indicated on the Drawings. The subslab shall have a minimum thickness of 6 inches. Concrete for the subslab shall be 2500 psi, in accordance with the Details shown on the Drawings.

3.09 REMOVING AND REPLACING CONCRETE CURB AND GUTTER

- A. The Contractor shall remove the curb and gutter when encountered when required for laying the sewer. Only that portion of the curb and gutter needed to lay the sewer line shall be removed. Where concrete curb and gutter removed or disturbed during the construction work, it shall be replaced, using 3000 psi concrete, in fully as good or better condition than which existed prior to the Contractor's operation.

3.10 REPLACEMENT OF EXISTING MAIL BOXES, CULVERTS, CLOTHES LINE POSTS, FENCES AND OTHER SUCH FACILITIES

- A. Existing mail boxes, drainage culverts, clothes line posts, fences and the like shall not be damaged or disturbed unless necessary, in which case, they shall be replaced in as good condition as found as quickly as possible. Existing materials shall be reused in replacing such facilities when materials have not been damaged by the Contractor's operations. Existing facilities damaged by Contractor's operation shall be replaced with new materials of the same type at the Contractor's expense. Work in this category is not a pay item.
- B. Replacement of paved drainage ditches within highway right-of-way shall be accomplished in accordance with Department of Transportation specifications.

3.11 PORTLAND CEMENT CONCRETE DRIVEWAY REPLACEMENT

- A. Wherever Portland cement concrete driveways are removed, they shall be reconstructed to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than existed prior to the operation.
- B. The existing concrete paving shall be sawed or cut to straight edges 12-inches outside the edges of the trench or broken out to an existing joint, as directed by the Engineer. The concrete pavement shall be equal to the existing pavement thickness but not less than 6-inches in thickness for driveways.
- C. Pavement shall be reinforced with 6 x 6 #10-10 wire mesh and shall be constructed with 3000 psi concrete.

3.12 RIP-RAP STREAM BANK SLOPE PROTECTION

- A. The Contractor shall install rip-rap stream bank slope protection at locations directed by the Engineer. Rip-rap slope protection shall be 12-inches thick and shall meet State D.O.T. Standard Specifications.

3.13 TESTING

- A. All pressure piping (lines not laid to grade) shall be given a hydrostatic test to the rated working pressure of the pipe, under which leakage shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe. Loss of water pressure during test shall not exceed 10 psi in a 24 hour period, 5psi in a 10 hour period or, 0 psi in a 4 hour period.
- B. Leakage in pipelines, when tested under pressure of 50 psi excess of normal operating pressure, shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe.
- C. Contractor shall furnish a recording gauge and water meter for measuring water used during leakage test and recording pressure charts during duration of test. Recording pressure charts shall be turned over to the Engineer at conclusion of tests. The pressure recording device shall be suitable for outside service, with a range from 0-200 psig, 24-hour spring wound clock, designed for 9-inch charts, and shall be approved by the Engineer. For Contractor's information only, such pressure recording devices may be available from the Foxboro Company, Foxboro, Massachusetts; Bristol Division of

ACCO, Waterbury, Connecticut; or Weksler Instruments Corporation, Freeport, New York.

- D. Pipelines shall be tested before backfilling at joints except where otherwise required by necessity or convenience.
- E. Duration of test shall be not less than four (4) hours where joints are exposed and not less than 24 hours where joints are covered.
- F. Where leaks are visible at exposed joints and/or evident on the surface where joints are covered, the joints shall be laid and leakage must be minimized, regardless of total leakage as shown by test.
- G. All pipe, fittings, valves, and other materials found to be defective under test shall be removed and replaced at no additional expense to the Owner.
- H. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with.
- I. Where nonmetallic joint compounds are used, pipelines should be held under normal operating pressure for at least three days before testing.
- J. The Owner will provide initial water for testing the pressure piping. Should the first test fail to pass, all additional water required for subsequent tests shall be furnished at the Contractor's expense.
- K. The cost of testing of pressure piping is incidental and is to be included in the Contractor's unit Contract Price.

3.14 CLEAN UP

- A. Upon completion of installation of the piping and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from the Work. The Contractor shall grade the ground along each side of pipe trenches in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line.

END OF SECTION

SECTION 02532 - SANITARY SEWER MANHOLES, FRAMES, AND COVERS

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Provide all labor, materials, equipment and services required for furnishing and installing all manholes and appurtenances specified herein and shown on the Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork: Section 02300
- B. Gravity Sewer Lines: Section 02530

1.03 SUBMITTALS

- A. Submit manufacturer's data and shop drawings for the materials specified herein. Comply with all requirements of Section 01340.

PART 2 - PRODUCTS

2.01 MANHOLES

- A. Manholes of the form and dimensions shown on the Drawings shall be constructed of ASTM C 478 precast reinforced concrete manhole sections erected on 3,000 psi concrete foundation.
- B. Precast concrete manhole bottom sections may be substituted for "cast-in-place" foundations subject to the Owner's review.
- C. The excavation shall be kept free of water while the manhole is being constructed and the manhole shall not be backfilled until inspected by the Engineer.
- D. Standard Manholes:
 - 1. The standard manhole shall be 4' -0" in diameter and not greater than six (6) feet in depth, measured from the top of the cover frame to the invert of the outlet and shall be cone type- top construction as shown on the Drawings.
 - 2. Manholes greater than six (6) feet in depth, measured as above, shall be paid for as a standard six foot manhole, plus the additional vertical depth at the Contract unit price.
- E. Shallow Manholes:

The shallow manholes shall be five (5) feet or less in depth, measured from the top of the cover frame to the invert of the outlet and shall be of flat top construction as shown on the Drawings.

F. Concrete Manhole Sections:

Precast concrete manhole sections (risers and grade rings) shall conform to ASTM C 478.

G. Precast Concrete Eccentric Cones:

Precast concrete eccentric cones shall be of the size and shape shown on the Drawings and shall conform to ASTM C 478.

H. Precast Manhole Section Joints:

Precast manhole section joints shall be jointed with one of the following products:

ASTM C 443 rubber gaskets
AASHTO M-198-75 preformed flexible butyl type joint sealant
Hamilton-Kent AKent-Seal No. 2"
K.T. Snyder Co. "Rub'r-Nek"
Press Seal Gasket "E-Z stik"
Concrete Sealants, Inc. "Conseal"

or equal, or jointed with bituminous mastic joint sealing compound. When making joints with mastic compound prime and seal all joints with primer supplied with the joint compound. Manhole section joints shall be watertight. These requirements apply to all joints, including manhole risers, cones, and grade rings.

I. Manhole Inverts:

Manhole inverts shall be formed with 3,000 psi concrete. Inverts shall be constructed as shown on the Contract Drawings and shall form a smooth finish. The inverts shall be constructed on site after both inlet and outlet pipes are installed.

J. Manhole Steps

Plastic manhole steps shall be PS1-PF (Press Fit) polypropylene plastic as manufactured by MA Industries, Peachtree City, Georgia or equal. Steps shall be driven into specially sized holes cast into the manhole section. Holes shall be formed in the manhole section using an insert plug that is removed upon curing.

Steps shall be aligned vertically above the outlet, in line with the flow through. Step spacing shall be 15".

K. Manhole Frames and Covers:

Manhole castings shall consist of cast iron frames with a minimum clear opening of twenty-two (22) inches. Casting shall have a minimum of four (4) bolt holes for the purpose of anchoring the casting to the manhole cone or grade ring.

Manhole covers must set neatly in the rings, with contact edges machined for even bearing and tops flush with ring edge. They shall have sufficient corrugations to prevent slipperiness and be marked in large letters, "SANITARY SEWER". The covers shall have two concealed pick holes. Covers on sanitary sewer manholes shall not be perforated.

Acceptable manufacturers are J.R. Hoe & Sons, Middlesboro, KY; John Bouchard & Sons Co., Nashville, TN; and Neenah Foundry Company, Neenah, WI., or equal.

1. Where indicated on the Drawings or in the Specifications, Traffic Weight Manhole frames and covers shall be provided. These shall weigh a minimum of 325 pounds.
2. Non-Traffic Weight: Manhole frame and cover weight to be minimum of 250 pounds.

L. Watertight Manhole Covers:

Watertight manhole covers shall consist of cast iron frames with machined bearing surfaces, continuous gasket seal preinstalled into slots with dovetail design and shall be of the self-sealing type as manufactured by Neenah Foundry Company or equal. Watertight manhole covers shall have sufficient corrugations to prevent slipperiness and be marked in large letters "SANITARY SEWER". Weight of manhole covers shall be as specified in Paragraph 2.01.K of this specification.

M. Pipe Connections Into Manholes:

Sewer pipe shall be sealed in the manhole section pipe openings with a resilient connector meeting the requirements of ASTM C923. Resilient connector shall be A-Lok by A-Lok Products, Inc. or equal.

Resilient connector shall be cast integrally into the wall of the manhole section at time of manufacture. There shall be no mortar placed around the connector on the outside of the manhole and no mortar shall be placed around the top half of the connector on the inside of the manhole when completing the invert work.

Resilient connectors requiring compression clamps or take up clamps will not be approved.

Wherever plastic sewer pipe is to be field grouted into manhole openings, pipe-to-manhole connector seal shall be Fernco Concrete Manhole Adapters manufactured by Fernco, Inc., Division, Michigan, or equal. Adapter shall be mounted on pipe and shall be positioned about the center of the manhole wall.

N. Precast Concrete Manhole Base Sections:

Precast concrete manhole base sections, if provided in lieu of cast-in-place foundations, shall be "monolithic", consisting of base slab, and base riser section. Upon review and approval by the Owner and Engineer, precast base sections may include floor invert channel and apron. All precast base sections with pipe openings shall be furnished with ASTM C 923 pipe-to-manhole connector gaskets, as specified hereinbefore. **Precast base sections shall be furnished with an integral anti-flotation footing, thickness as specified hereinafter, with 6-inch projection, as shown in the Details.** Precast base sections shall be set on a 6-inch deep pad (compacted thickness) of dense graded aggregate, placed to proper elevation and leveled. The Engineer reserves the right to inspect precast manhole base sections at the construction site and to reject the use of such sections if the Engineer determines the products unsuitable for the Owner's installation.

Precast concrete manhole base slab thickness shall comply with the following schedule:

0' - 10'	Vertical Height - 6" Slab
10.1' - 15'	Vertical Height - 8" Slab
15.1' - 20'	Vertical Height - 10" Slab
20.1' - 25'	Vertical Height - 12" Slab
25.1' - 30'	Vertical Height - 14" Slab

O. Drop Connections into Manholes

Where indicated on the Drawings, drop connections into manholes shall be installed. Drop connections shall be cast-in-place or precast, and shall conform to the requirements shown on the Details.

2.02 COMPRESSION COUPLINGS

- A. When joining different types of pipe together or new pipe to existing pipe, the Contractor shall use Fernco Compression Couplings, or equal, that are resistant to corrosion by soil and sewage and that will provide a permanent watertight joint. The compression coupling shall meet the physical test and joint-leak requirements specified in ASTM C-594. The bands for attaching pipes shall be stainless steel conforming to ASTM C-594. Each coupling shall bear the manufacturer's name and an indication of its size.

PART 3 - EXECUTION

3.01 EXCAVATION FOR MANHOLE INSTALLATION

- A. Unless otherwise directed by the Engineer, excavation in which manholes are to be installed shall be excavated in open cut to the depths required by field conditions or as specified by the Engineer. In general this shall be interpreted to mean that machine excavation in earth shall not extend below an elevation permitting the manhole to be properly bedded.
- B. Excavation may be undercut to a depth below the required invert elevation that will permit installing the manhole on a bed of granular material to provide continuous support for the manhole base. When this method is used, the bedding shall be as set out in Paragraph 3.02 hereinafter.
- C. Excavations shall be of sufficient dimensions to provide free working space on all sides of the manhole and to permit proper backfilling around the manhole. All excavated materials shall be placed a minimum of two feet (2') back from the edge of the excavation.
- D. The excavation shall be straight and uniform so as to permit installation of the manhole to lines and grades given by the Engineer. It shall be kept free of water during the installation of the manhole and until the manhole has been backfilled. Removal of water shall be at the Contractor's expense. Dry conditions shall be maintained in the excavations until the backfill has been placed. During the excavation, the grade shall be maintained so that it will freely drain and prevent surface water from entering the excavation at all times. When directed by the Owner or the Engineer, temporary drainage ditches shall be installed to intercept or direct surface water which may affect work. All water shall be pumped or drained from the excavation and disposed of in a suitable manner without damage to adjacent property or to other work.

3.02 MANHOLE BEDDING

- A. All manholes shall be supported on a bed of granular material. In no case shall manhole be supported directly on rock. Bedding shall not be a separate pay item unless otherwise set out in the Detailed Specifications. Bedding shall be provided in earth bottom excavations, as well as rock bottom excavations. Bedding material shall be free from rock, foreign material, frozen earth, and be acceptable to the Engineer. Bedding shall be a minimum of 6" below manhole base.
- B. Granular bedding shall be Size #9-m or ASTM C 33, Size #7 crushed stone, fine gravel, or sand, and is not a separate pay item.
- C. Where undercutting and granular bedding is involved it shall be of such depth that the bottom of the manhole will be at least six inches above the bottom of the excavation. Undercutting is not a separate pay item.
- D. In wet, yielding, mucky locations where the manhole is in danger of sinking below grade or floating out of line or grade, or where backfill materials are of such a fluid nature that such movements of the pipe and/or manhole might take place during the placing of the backfill, the pipe and/or manhole must be weighted or secured permanently in place by such means as will prove effective. When ordered by the Engineer, yielding and mucky materials in subgrades shall be removed below ordinary excavation depth in order to prepare a proper bed for the manhole. Crushed stone or other such granular material, if necessary, as determined by the Engineer to replace poor subgrade material, shall be a separate pay item and classified as "Special Granular Fill". Removal of poor material is not a separate pay item.

3.03 SPECIAL GRANULAR FILL

- A. As noted in Paragraph 3.02D, granular material for " Special Granular Fill " when directed by the Engineer shall be Department of Transportation crushed limestone, Size #9. Payment for " Special Granular Fill " must have approval from the Engineer prior to installation.

3.04 BITUMINOUS CONCRETE HIGHWAY, STREET AND DRIVEWAY REPLACEMENT

- A. The Contractor shall replace those sections of existing roads, streets and driveways required to be removed to install the pipelines and manholes under this Contract. He shall construct same to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition than that which existed prior to the operations.
- B. Prior to excavating, the pavement shall be scored or cut to straight edges at least twelve (12) inches outside each edge of the proposed excavation to avoid unnecessary damage to the remainder of the paving. Edges of the existing pavement shall be re-cut and trimmed to square, straight edges after the manhole has been installed and prior to placing the new base and pavement.
- C. Backfilling of the excavation shall be in accordance with Method "C" as described hereinbefore. Base course for the paving shall be dense graded crushed limestone furnished and placed in accordance with the current requirements of the Standard Specifications for Road and Bridge Construction of the Department of Transportation, to a depth of six (6) inches in roads and streets and four (4) inches in driveways.

- D. A subslab of reinforced concrete shall be placed for state maintained highways as indicated on the Drawings. The subslab shall have a minimum thickness of 6 inches. Concrete for the subslab shall be 2,500 psi, in accordance with the Details shown on the Drawings.
- E. Bituminous Concrete Surface and Bituminous Concrete Base shall conform to the requirements of Sections 402 and 403 of the Standard Specifications for Road and Bridge Construction of the Department of Transportation.

3.05 REMOVING AND REPLACING CONCRETE CURB AND GUTTER

- A. The Contractor shall remove the curb and gutter when encountered when required for installing the manhole. Only that portion of the curb and gutter needed to install the manhole shall be removed. Where concrete curb and gutter removed or disturbed during the construction work, it shall be replaced, using 3,000 psi concrete, in fully as good or better condition than which existed prior to the Contractor's operation.

3.06 REPLACEMENT OF EXISTING MAIL BOXES, CULVERTS, CLOTHES LINE POSTS, FENCES AND OTHER SUCH FACILITIES

- A. Existing mail boxes, drainage culverts, clothes line posts, fences and the like shall not be molested or disturbed unless necessary, in which case, they shall be replaced in as good condition as found as quickly as possible. Existing materials shall be reused in replacing such facilities when materials have not been damaged by the Contractor's operations. Existing facilities damaged by Contractor's operation shall be replaced with new materials of the same type at the Contractor's expense. Work in this category is not a pay item.
- B. Replacement of paved drainage ditches within highway right-of-way shall be accomplished in accordance with Department of Transportation specifications.

3.07 MANHOLE FRAME INSTALLATION

- A. The manhole frame casting shall be centered over the opening in the cone or grade ring of the manhole, with a bituminous mastic joint sealing compound applied between the concrete and the casting.
- B. The frame shall be bolted to the cone or grade ring with wedge anchors.

3.08 TESTING

This specification shall govern the vacuum testing of sanitary sewer manholes and structures and shall be used as a method of determining acceptability by the Owner, in accepting maintenance of a sanitary sewer manhole or structure on behalf of the public. Other forms of testing of some manholes may be required, as deemed necessary by the Owner.

- A. Manholes shall be tested after installation with all connections in place.
 - 1. Lift holes, if any, shall be plugged with an approved, non-shrinkable grout prior to testing.

2. Drop connections shall be installed prior to testing.
3. The vacuum test shall include testing of the seal between the cast iron frame and the concrete cone, slab or grade rings.
4. The manholes shall be backfilled and finished to design grade.

B. Test Procedure:

1. Temporarily plug, with the plugs being braced to prevent the plugs or pipes from being drawn into the manhole, all pipes entering the manhole at least eight inches into the sewer pipe(s). The plug must be inflated at a location past the manhole/pipe gasket.
2. The test head shall be placed inside the frame at the tope of the manhole and inflated, in accordance with the manufacturer's recommendations.
3. A vacuum of 10" of mercury shall be drawn on the manhole. Shut the valve on the vacuum line to the manhole and disconnect the vacuum line.
4. The pressure gauge shall be liquid filled, having a 3.5 inch diameter face with a reading from zero to thirty inches of mercury.
5. The manhole shall be considered to pass the vacuum test if it holds at least 9 inches of mercury for the following time durations:

Manhole Depth	Time (Minutes)		
	4" Diameter	5' Diameter	6' Diameter
20 Feet or Less	1	2	3
20.1 to 30 Feet	2	3	4

6. If a manhole fails the vacuum test, the manhole shall be repaired with a non-shrinkable grout or other suitable material based on the material of which the manhole is constructed and retested, as stated above.
7. All temporary plugs and braces shall be removed after each test.

Manholes will be accepted as having passed the vacuum test requirements if they meet the criteria stated above.

3.09 CLEAN UP

- A. Upon completion of installation of the manholes and appurtenances, the Contractor shall remove all debris and surplus construction materials resulting from the Work. The Contractor shall grade the ground around and adjacent to the construction area in a uniform and neat manner leaving the construction area in a shape as near as possible to the original ground line.

END OF SECTION

SECTION 02920 - LAWNS AND GRASSES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide all labor, materials, equipment, and services required for seeding of all disturbed areas caused by construction activities and for installation of sod where indicated on the Contract Drawings or specified herein.

1.02 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to Work of this Section.
- B. Earthwork: Section 02300

1.03 MAINTENANCE

- A. Maintenance shall begin immediately following the last operation of installation for each portion of lawn.
- B. Lawns shall be maintained by watering, mowing, and for resodding for a period of forty-five (45) days. At the end of this period an inspection will be made and any deficiencies, which may be attributable to the Contractor, will be noted in writing. At this time, the Owner will assume the maintenance. Another inspection will be made at the beginning of the next planting season, and any of the previously noted deficiencies still existing shall be repaired by the Contractor.

1.04 INSPECTION FOR ACCEPTANCE

- A. The Inspection of the Work:

The inspection of the work of lawns to determine the completion of contract work exclusive of the possible replacement of plants, will be made by the Architect/Engineer upon written notice requesting such inspection submitted by the Contractor at least ten (10) days prior to the anticipated date.

- B. Acceptance:

After inspection, the Contractor will be notified in writing by the Owner of acceptance of all work of this Section, exclusive of the possible replacement of plants subject to guaranty, or if there are any deficiencies of the requirements of completion of the Work.

PART 2 - PRODUCTS

2.01 WATER

- A. Water used in this work shall be suitable for irrigation and free from ingredients harmful to plant life.
- B. Hose and other watering equipment required for the Work shall be furnished by the Contractor.

2.02 TOPSOIL

- A. The Contractor shall furnish and place sufficient topsoil for the seeding and installation of sod.

2.03 FERTILIZER

- A. Commercial fertilizer for lawn areas shall be complete fertilizer, formula 10-10-10, for lawns and shall conform to the applicable state fertilizer laws. Fertilizer shall be uniform in composition, dry and free flowing and shall be delivered to the site in the original, unopened containers, each bearing the manufacturer's guarantee analysis. Any fertilizer which becomes caked or otherwise damaged making it unsuitable for use will not be accepted.
- B. Fertilizer shall be applied at the rate of 25 pounds per 1,000 square feet.

2.04 GRASS SEED

- A. The seed mixture to be sown shall be in the following proportions:

<u>Common Name</u>	<u>Proportion By Weight</u>	<u>% of Purity</u>	<u>% of Germination</u>
Fine Lawn Fescue	40	90	85
Chewings Fescue	25	90	85
Italian Rye Grass	20	90	85
Red Top	10	90	85
White Clover	5	95	90

- B. All seed shall be fresh and clean and shall be delivered mixed, in unopened packages, bearing a guaranteed analysis of the seed mixture.
- C. Germination must be certified to conform to the following minimums:

Purity	90%
Germination	85%

2.05 SOD

- A. Sod shall be at least 70% Bluegrass, strongly rooted and free of pernicious weeds.

- B. It shall be mowed to a height not to exceed 3" before lifting, and shall be of uniform thickness with not over 1-1/2" or less than 1" of soil.

2.06 MULCH

- A. Mulch for seeded areas shall be Conwed Hydro Mulch, Silva-Fiber, or equal. It shall be suitable for use in a water slurry or for application with hydraulic equipment.
- B. Clean straw is acceptable as mulch. It shall be spread at the rate of one (1) bale per 1,000 feet (approximately 2 inch loose depth).
- C. Mulch on slopes greater than 1: 3 shall be held in place with erosion control netting.
- D. Mulch on areas subject to surface water run-off or in drainage ditches shall be held in place with erosion control netting.

PART 3 - EXECUTION

3.01 TIME OF PLANTING

- A. Planting operations shall be conducted under favorable weather conditions during seasons which are normal for such work as determined by accepted practice in the locality of the project. At the option and on full responsibility of the Contractor, planting operations may be conducted under unseasonable conditions without additional compensation.

3.02 LAWNS

- A. Areas to be sodded are designated on the Drawings. All other lawn areas, including areas of cut and fill and where existing ground has been disturbed by construction operations shall be seeded.

- B. Fertilizer:

Fertilizer shall be applied at the rate of 25 pounds per 1,000 square feet to the lawn area being prepared for planting and mixed lightly into the top few inches of topsoil. Fertilizer may be mixed with and distributed with grass seed.

- C. Planting of Lawns:

- 1. Sowing of Seed:

Immediately before any seed is to be sown, the ground shall be scarified as necessary, and shall be raked until the surface is smooth, friable and of uniformly fine texture. Lawn areas shall be seeded evenly with a mechanical spreader at the rate of 4 pounds per 1,000 square feet of area, lightly raked, rolled with a 200-pound roller and watered with a fine spray. The method of seeding may be varied at the discretion of the Contractor on his own responsibility to establish a smooth, uniform turf composed of the grasses specified. The sowing of seed shall be done only within the season extending from March 1st to May 15th and from September 1st to October 15th, unless other seasons may be approved by the Owner.

2. Laying of Sod:

Before any sod is laid, all soft spots and inequalities in grade shall be corrected. Fertilizer spread shall be raked in. Sod shall be laid so that no voids occur, tamped or rolled and then thoroughly watered. The complete sodded surface shall be true to finished grade, even and firm at all points. Sodding shall be done only within the seasons extending from March 1st to May 15th and from September 1st to October 15th, unless other seasons may be approved by the Owner.

3. Sod on Slopes:

Sod on slopes 2 to 1 or steeper shall be held in place by wooden pins about 1-inch square and about 6 inches long driven through the sod into the soil until they are flush with the top of the sod, or by other approved methods for holding the sod in place.

4. Mulching:

All seeded areas are to be mulched with Conwed Hydro Mulch, Silva-Fiber, or equal, or with clean straw as specified under PRODUCTS. Mulch shall be applied at the rate of 1,500 pounds per acre. It may be applied with hydraulic equipment or may be added to the water slurry in a hydraulic seeder and the seeding and mulching combined in one operation. Clean straw may be spread by hand to cover the seeded areas at a depth of two (2) inches. Erosion control netting shall be installed and anchored per manufacturer's instructions in areas of slopes, ditches, or surface water runoff.

3.03 CLEAN UP

- A. All soil, peat or similar material which has been brought over paved areas by hauling operations or otherwise, shall be removed promptly, keeping these areas clean at all times. Upon completion of the planting all excess soil, stone and debris which have not previously been cleaned up shall be removed from the site or disposed of as directed by the Owner. All lawns shall be prepared for final inspection.

3.04 OTHER WORK

- A. The Contractor also shall be responsible for the repair of any damage caused by his activities or those of his subcontractors, such as the storage of topsoil or other materials, operations or equipment, or other usages to all on-site areas outside the contract limits. Such repair operations shall include any regrading, seeding or other work necessary to restore such areas to an acceptable condition.

3.05 QUALITY CONTROL

- A. Areas seeded shall be protected until a uniform stand develops, when it will be accepted and the Contractor relieved of further responsibility for maintenance. Displaced mulch shall be replaced or any damage to the seeded area shall be repaired promptly, both in a manner to cause minimum disturbance to the existing stand of grass. If necessary to obtain a uniform stand, the Contractor shall refertilize, reseed and remulch as needed. Scattered bare spots up to one (1) square yard in size will be allowed up to a maximum of 10 percent of any area.

END OF SECTION
LAWNS AND GRASSES

N O T I C E

DIVISION OF WATER (WATER QUALITY CERTIFICATION)

PROJECT: Rockcastle & Lincoln County (I-64), Item No. 8-0163:00
US 150 Realignment

The Division of Water has previously approved the Section 401 activities for this project by issuance of a Individual Water Quality Certification for Individual Permit & Nationwide Permit #14, "Linear Transportation Projects". 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.



STEVEN L. BESHEAR
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

ROBERT D. VANCE
SECRETARY

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

14 REILLY ROAD

FRANKFORT, KENTUCKY 40601

www.kentucky.gov

December 20, 2007

David Waldner, Director
Division of Environmental Analysis
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, KY 40622

Re: Water Quality Certification #2007-0147-1
US 150 - Lincoln County
KTC No. 8-163.00 & 8-163.10
AI No.: 84482, Activity ID: APE20070001
Numerous intermittent and perennial streams
within the Dix River watershed
Lincoln & Rockcastle Counties, 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. 84482**. **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,

A handwritten signature in cursive script that reads "Alan Grant".

Alan Grant, Supervisor
Water Quality Certification Section
Kentucky Division of Water

AG:AJ:tw

Attachment

cc: Norma Condra, USACE: Louisville District
Lee Andrews, USFWS: Frankfort
✓ Roy Collins, KTC: Frankfort
Melissa McAlister, Kentucky River Basin Coordinator

KTC Water Quality Certification

US 150 - Lincoln County
Facility Requirements
Permit Number: WQC 2007-0147-1
Activity ID No.: APE20070001

AAZZ1 (US 150 Realignment) Lincoln and Rockcastle Counties, Kentucky: KYTC Item Nos. 8-163.00 & 8-163.10:

Submittal/Action Requirements:

Condition No.	Condition
S-1	The Kentucky Transportation Cabinet must submit notification: Due prior to construction commencement to the Water Quality Certification Section of the Kentucky Division of Water. This notification shall consist of verification of payment of the in-lieu fee amount of \$960,100.00 to the Kentucky Department of Fish and Wildlife Resources Stream Restoration Fund. The USACE may require a different amount. [Clean Water Act]
S-2	The Kentucky Transportation Cabinet must submit notification: Due prior to construction commencement to the Water Quality Certification Section of the Kentucky Division of Water. This notification shall verify the debit of 19.8 wetland mitigation credits from the Lincoln County Mitigation Site, east of Crab Orchard, Kentucky. [Clean Water Act]

Narrative Requirements:

Condition No.	Condition
T-1	The work approved by this certification shall be limited to: <ul style="list-style-type: none"> - the following stream impacts within the 05100205150230 14-digit hydrologic unit code beginning at the latitude/longitude coordinate of 37.4729/-84.5528, respectively; and ending at the latitude/longitude coordinate of 37.4560/-84.5188, respectively: 412 linear feet of perennial stream (S-01); 683 linear feet of perennial stream (S-02A); 558 linear feet of perennial stream (S-02B); 476 linear feet of intermittent stream (S-07A); 408 linear feet of intermittent stream (S-07B). - the following stream impacts within the 05100205150180 14-digit hydrologic unit code beginning at the latitude/longitude coordinate of 37.4529/-84.5126, respectively; and ending at the latitude/longitude coordinate of 37.4487/-84.4894, respectively: 380 linear feet of intermittent stream (S-09); 665 linear feet of intermittent stream (S-12); 38 linear feet of perennial stream (S-13); 863 linear feet of perennial stream (S-14); 156 linear feet of perennial stream (S-15); 102 linear feet of intermittent stream (S-17A); 299 linear feet of intermittent stream (S-17B); 16 linear feet of open intermittent headwater impact (W-12); 151 linear feet of intermittent stream (S-18). - the following stream impacts within the 05100205150170 14-digit hydrologic unit code beginning at the latitude/longitude coordinate of 37.4457/-84.4809, respectively; and ending at the latitude/longitude coordinate of 37.4444/-84.4479, respectively: 500 linear feet of intermittent stream (S-19) and 320 linear feet of intermittent stream (S-21). - the 321 linear feet of intermittent stream impact within the 05100205150110 14-digit hydrologic unit code located at latitude coordinate 37.4415, and longitude coordinate -84.4724. [Clean Water Act]

KTC Water Quality Certification

US 150 - Lincoln County
Facility Requirements
Permit Number: WQC 2007-0147-1
Activity ID No.: APE20070001

AAZZ1 (continued):

Narrative Requirements:

Condition No.	Condition
T-2	<p>The work approved by this certification shall also be limited to:</p> <ul style="list-style-type: none"> - the following stream and wetland impacts within the 05100205150090 14-digit hydrologic unit code beginning at the latitude/longitude coordinate of 37.4331/-84.4613, respectively; and ending at the latitude/longitude coordinate of 37.3974/-84.4281, respectively: 1.28 acres of wetland (W-24); 1.01 acres of wetland (W-29); 452 linear feet of intermittent stream (S-24); 371 linear feet of perennial stream (S-27); 443 linear feet of perennial stream (S-28); 526 linear feet of perennial stream (S-29B); 313 linear feet of perennial stream (S-30); 449 linear feet of perennial stream (S-31); 755 linear feet of perennial stream (S-32); 351 linear feet of intermittent stream (S-35); 1.94 acres of wetland (W-38); 336 linear feet of intermittent stream (S-40); and 398 linear feet of intermittent stream (S-41). - the following stream impacts within the 05100205150020 14-digit hydrologic unit code beginning at the latitude/longitude coordinate of 37.3609/-84.4089, respectively; and ending at the latitude/longitude coordinate of 37.3553/-84.4019, respectively: 612 linear feet of perennial stream (S-54); 401 linear feet of intermittent stream (S-55); and 415 linear feet of perennial stream (S-56). [Clean Water Act]
T-3	<p>The Kentucky Division of Water requires mitigation for the 9,601 linear feet of intermittent and perennial stream impacts associated with this project. The Kentucky Transportation Cabinet has chosen to pay an in-lieu-fee payment for the stream impacts. The Kentucky Division of Water will require a payment of \$960,100.00 to be made to the Kentucky Department of Fish and Wildlife Resources Stream Restoration Fund. The USACE may require a different amount. [Clean Water Act]</p>
T-4	<p>The Kentucky Division of Water requires mitigation for the 9.45 acres of jurisdictional wetland impacts associated with this project. The Kentucky Transportation Cabinet has proposed to debit the jurisdictional wetland impacts, (at a 2:1 ratio) from its Lincoln County Mitigation Site east of Crab Orchard, KY. The Kentucky Division of Water accepts the debit of 18.9 wetland credits from the Lincoln County Mitigation Site as compensatory wetland mitigation for the 9.45 acres of jurisdictional wetland impacts. [Clean Water Act]</p>
T-5	<p>All work performed under this certification shall adhere to the design and specifications set forth in the application submitted to the Kentucky Division of Water in March 2007, titled USACE Section 404 Permit Application and KDOW Section 401 Water Quality Certification Permit Application, US 150 Realignment, Lincoln and Rockcastle Counties, Kentucky, (Item nos. 8-163.00 & 8-163.10). [Clean Water Act]</p>
T-6	<p>Kentucky Transportation Cabinet 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]</p>
T-7	<p>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]</p>

KTC Water Quality Certification

US 150 - Lincoln County

Facility Requirements

Permit Number: WQC 2007-0147-1

Activity ID No.: APE20070001

Page 3 of 3

AAZZ1 (continued):

Narrative Requirements:

Condition No.	Condition
T-8	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-9	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 Durta. 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]

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.



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

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: 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.

KYTC BMP Plan for Contract ID #####



Kentucky Transportation Cabinet

**Highway District 8
And**

_____ **(2), Construction**

**Kentucky Pollutant Discharge Elimination System
Permit KYR10
Best Management Practices (BMP) plan**

Groundwater protection plan

For Highway Construction Activities

For

US 150 Stanford-Mt. Vernon Road

Contract ID #####

Six Year Plan 08-0163.10

Revised
1-28-08

KYTC BMP Plan for Contract ID #####

Project Information

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

1. Owner – Kentucky Transportation Cabinet, District 8
2. Resident Engineer: (2)
3. Contractor Name: (2)
 Address: (2)
 Phone number: (2)
 Contact: (2)
 Responsible Person: (3)
4. Contract ID Number: (2)
5. Route (Address): US 150
6. Latitude/Longitude (project mid-point): 37°22'18"N, 84°24'45"W
7. County (project mid-point): Rockcastle
8. Project start date (date work will begin): (2)
9. Projected completion date: (2)

KYTC BMP Plan for Contract ID #####

1.0 SITE DESCRIPTION.

- 1) Nature of construction activity: Reconstruct US 150 from Broadhead to KY 461.
- 2) Order of major soil disturbing activities. (2) and (3)
- 3) Projected volume of material to be moved. 2.6 million cu yd.
- 4) Estimate of total project area (acres). 278 acres.
- 5) Estimate of area to be disturbed (acres). 278 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. (1)
- 7) Data describing existing soil condition. Clayey Silt with vegetative cover.(2)
- 8) Data describing existing discharge water quality (if any). (1) & (2)
- 9) Receiving water name. Dix River.
- 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)

2.0 SEDIMENT AND EROSION CONTROL MEASURES.

2.1 Erosion Control Sheets. 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.

2.2 Annotations. 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

KYTC BMP Plan for Contract ID #####

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 BMPs shall be for the first phase (generally Clearing and Grubbing) and shall be modified as needed as the project changes phases. The BMP Plan will be modified to reflect disturbance in additional DDA’s as the work progresses. All DDA’s will have adequate BMPs in place before being disturbed.

2.3 Disturbed Drainage Areas. As DDAs are prepared for construction, the following will be addressed for the project as a whole or for each DDA as appropriate:

- A) 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.
- B) Sources.** 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.
- C) Clearing and Grubbing.** The following BMPs will be considered and used where appropriate.
 - 1) Leaving areas undisturbed when possible.
 - 2) Silt Basins to provide silt volume for large areas.
 - 3) Silt Traps Type A for small areas.
 - 4) Silt Traps Type C in front of existing and drop inlets which are to be saved.
 - 5) Diversion ditches to catch sheet runoff and carry it to basins or traps or to divert it around areas to be disturbed.
 - 6) Brush and/or other barriers to slow and/or divert runoff.
 - 7) Silt fences to catch sheet runoff on short slopes. For longer slopes, multiple rows of silt fence may be considered.
 - 8) Temporary Mulch for areas which are not feasible for the fore mentioned types of protections.
 - 9) Non-standard or innovative methods.
- D) Cut and Fill and Placement of Drainage Structures.** The BMP Plan will be modified to show additional BMPs such as:
 - 1) Silt Traps Type B in ditches and/or drainways as they are completed.
 - 2) Silt Traps Type C in front of pipes after they are placed.
 - 3) Channel Lining
 - 4) Erosion Control Blanket
 - 5) Temporary Mulch and/or seeding for areas where construction activities will be ceased for 21 days or more.
 - 6) Non-standard or innovative methods.

KYTC BMP Plan for Contract ID #####

- E) Profile and X-Section in Place.** The BMP Plan will be modified to show elimination of BMPs which had to be removed and the addition of new BMPs as the roadway was shaped. Probably changes include:
- 1) 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.
 - 2) Additional Silt Traps Type B and Type C to be placed as final drainage patterns are put in place.
 - 3) Additional Channel Lining and/or Erosion Control Blanket.
 - 4) Temporary Mulch for areas where Permanent Seeding and Protection cannot be done within 21 days.
 - 5) Special BMPs such as Karst Policy.
- F) Finish Work (Paving, Seeding, Protect, etc.).** A final BMP Plan will result from modifications during this phase of construction. Probable changes include:
- 1) Removal of Silt Traps Type B from ditches and drainways if they are protected with other BMPs which are sufficient to control erosion, i.e. Erosion Control Blanket or Permanent Seeding and Protection on moderate grades.
 - 2) Permanent Seeding and Protection.
 - 3) Placing Sod.
 - 4) Planting trees and/or shrubs where they are included in the project.
- G) Post Construction.** BMPs including Storm Water Management Devices such as velocity dissipation devices and Karst policy BMPs to be installed during construction to control the pollutants in storm water discharges that will occur after construction has been completed are: (1)

3.0 OTHER CONTROL MEASURES.

- 1) Solid Materials. 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

KYTC BMP Plan for Contract ID

Resident Engineer if there are 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.

2.4 Good Housekeeping. The following good housekeeping practices will be followed onsite during the construction project.

- 1) An effort will be made to store only enough product required to do the job.
- 2) 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.
- 3) Products will be kept in their original containers with the original manufacturer's label.
- 4) Substances will not be mixed with one another unless recommended by the manufacturer.
- 5) Whenever possible, all of the product will be used up before disposing of the container.
- 6) Manufacturers' recommendations for proper use and disposal will be followed
- 7) The site contractor will inspect daily to ensure proper use and disposal of materials onsite.

2.5 Hazardous Products. These practices will be used to reduce the risks associated with any and all hazardous materials.

- 1) Products will be kept in original containers unless they are not re-sealable.
- 2) Original labels and material safety data sheets (MSDS) will be reviewed and retained
- 3) Contractor will follow procedures recommended by the manufacturer when handling hazardous materials.
- 4) If surplus product must be disposed of, manufacturers' or state/local recommended methods for proper disposal will be followed.

2.6 The following product-specific practices will be followed onsite:

- A) 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.

KYTC BMP Plan for Contract ID #####

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.

- B) 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.
- C) 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.
- D) 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
- E) 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:
 - 1) 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.
 - 2) 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.
 - 3) All spills will be cleaned up immediately after discovery.
 - 4) The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
 - 5) Spills of toxic or hazardous material will be reported to the appropriate state/local agency as required by KRS 224 and applicable federal law.
 - 6) The spill prevention plan will be adjusted as needed to prevent spills from reoccurring and improve spill response and cleanup.
 - 7) Spills of products will be cleaned up promptly. Wastes from spill clean up will be disposed in accordance with appropriate regulations.

4.0 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

KYTC BMP Plan for Contract ID

technical guidance documents that are not identified in a specific plan or permit issued for the construction site by state or local officials. (1)

5.0 MAINTENANCE. The BMP plan shall include a clear description of the maintenance procedures necessary to keep the control measures in good and effective operating condition.

Maintenance of BMPs during construction shall be a result of weekly and post rain event inspections with action being taken by the contractor to correct deficiencies.

Post Construction maintenance will be a function of normal highway maintenance operations. Following final project acceptance by the cabinet, district highway crews will be responsible for identification and correction of deficiencies regarding ground cover and cleaning of storm water BMPs. The project manager shall identify any BMPs that will be for the purpose of post construction storm water management with specific guidance for any non-routine maintenance. (1)

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

- 1) All erosion prevention and sediment control measures will be inspected by the contractor at least once each week and following any rain of one-half inch or more.
- 2) 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.
- 3) Inspection reports will be written, signed, dated, and kept on file.
- 4) Areas at final grade will be seeded and mulched within 14 days.
- 5) 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.
- 6) All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of being reported and completed within 5 days.
- 7) Built-up sediment will be removed from behind the silt fence before it has reached halfway up the height of the fence.
- 8) Silt fences will be inspected for bypassing, overtopping, undercutting, depth of sediment, tears, and to ensure attachment to secure posts.
- 9) 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.
- 10) 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.
- 11) 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.
- 12) All material storage and equipment servicing areas that involve the management of bulk liquids, fuels, and bulk solids will be inspected weekly for conditions that represent a release or possible release of pollutants to the environment.

KYTC BMP Plan for Contract ID #####

7.0 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:

- 1) Water from water line flushings.
- 2) Water from cleaning concrete trucks and equipment.
- 3) Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).
- 4) 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.

8.0 GROUNDWATER PROTECTION PLAN.

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

Contractor's statement: (3)

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

_____ (e) Land treatment or land disposal of a pollutant;

_____ (f) Storing, treating, disposing, or related handling of hazardous waste, solid waste or special waste, or special waste in landfills, incinerators, surface impoundments, 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);

_____ (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;

_____ (j) Storing or related handling of road oils, dust suppressants, or deicing agents at a central location;

_____ (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);

_____ (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

KYTC BMP Plan for Contract ID #####

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

The contractor is responsible for the preparation of a plan that addresses the 401 KAR 5:037 Section 3. (3) Elements of site specific groundwater protection plan:

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

KYTC BMP Plan for Contract ID #####

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.

Contractor and Resident Engineer Certification:

(3)
Signed _____ title _____ , _____
typed or printed name¹ signature

(2)
Signed _____ title _____ , _____
typed or printed name² 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 Contract ID number 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 Contract ID number and KPDES number when one has been issued.*

KYTC BMP Plan for Contract ID #####

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:

Phone:

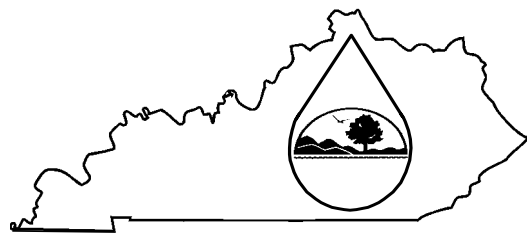
The part of BMP plan this subcontractor is responsible to implement is:

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 *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 Contract ID number 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:	KYTC DISTRICT 8	Phone:	(606) 677-4017
Address:	P. O. BOX 780	Status of Owner/Operator:	
City, State, Zip Code:	SOMERSET, KY 42502		

II. Facility/Site Location Information

Name:	KyTC PCN ##-#### ITEM # 08-0163.10		
Address:	US 150		
City, State, Zip Code:	BROADHEAD, KY 40409		
County:	ROCKCASTLE		
Site Latitude: (degrees/minutes/seconds)	37°22'18"N	Site Longitude: (degrees/minutes/seconds)	84°24'45"W

III. Site Activity Information

MS4 Operator Name:							
Receiving Water Body:	DIX RIVER						
Are there existing quantitative data?	Yes <input type="checkbox"/> If Yes, submit with this form. No <input checked="" type="checkbox"/>						
SIC or Designated Activity Code Primary	1611	2nd	1612	3rd		4 th	
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):			
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

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:

**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 authority 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.

**KENTUCKY TRANSPORTATION CABINET
COMMUNICATING ALL PROMISES (CAP)
ACTIVE**

22 OCT 2009

<u>Item No.</u>	8 - 163.1			<u>Project Mgr.</u>	BRIAN DUNBAR
<u>CAP #</u>	<u>Date of Promise</u>	<u>Promise made to:</u>	<u>Location of Promise</u>	<u>County</u>	ROCKCASTLE
				<u>Route</u>	US-150
1	28-APR-08	Turpin & Franklin	Station 589+00		
<u>CAP Description</u> PROPERTY OWNERS AGREE TO GRANT A CONSENT & RELEASE TO THE DEPARTMENT TO CONSTRUCT THE ENTRANCE SHOWN ON THE PLANS.					
2	08-NOV-07	Rockcastle Association of Baptist, Inc.	Freedom School Road		
<u>CAP Description</u> PROPERTY OWNER WILL HAVE THE SAME ACCESS TO FREEDOM SCHOOL ROAD AS THEY HAD PRIOR TO THE RECONSTRUCTION.					
3	03-APR-08	Roy E. or Judy L. Adams	Entrance on KY 1229 at approx. station Rt. 55+20		
<u>CAP Description</u> THE PROPOSED ENTRANCE SHALL BE 18' WIDE (AS SHOWN ON THE PLANS).					
4	20-DEC-07	Built-Wel Company	Entrance Lt. Sta. 477+00		
<u>CAP Description</u> THE CONTRACTOR SHALL CONSTRUCT A 24' WIDE ENTRANCE TO THIS PROPERTY AT THIS LOCATION.					
5	06-NOV-07	Virginia Lee Thomas	Entrances Lt & Rt. Sta 426+50		
<u>CAP Description</u> THE TWO PROPOSED ENTRANCES AT APPROXIMATE STATION 426+50 SHALL HAVE A WIDTH OF 16'.					

N O T I C E

**DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
(INDIVIDUAL & NATIONWIDE PERMIT AUTHORIZATION)**

PROJECT: Lincoln County, Item No. 8-163.00 & 8-163.10
Crab Orchard Bypass

The Section 404 activities for this project have been previously permitted under the authority of the Department of the Army Individual Permit & Nationwide Permit No. 14 "Linear Transportation Crossings". In order for this authorization to be valid, the attached conditions must be followed. The contractor shall post a copy of this Individual / Nationwide 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.



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059
FAX: (502) 315-6677
<http://www.lrl.usace.army.mil/>
March 19, 2009

Operations Division
Regulatory Branch (South)
ID No. LRL-2007-431-ncc

Mr. David Waldner
Kentucky Transportation Cabinet
Division of Environmental Analysis
200 Mero Street
Frankfort, Kentucky 40622

Dear Mr. Waldner:

This is in regard to your request for a Department of the Army (DA) permit concerning a proposal to realign approximately 13.5 miles of US 150. The project involves impacts to wetlands, open-water ponds, Flat Creek, Turkey Creek, Copper Creek, Slaty Creek, Negro Creek, Little Negro Creek and unnamed tributaries to these streams and would commence approximately 1.2 miles west of Crab Orchard in Lincoln County to the KY 461 intersection, approximately 2.0 miles west of Mount Vernon in Rockcastle County, Kentucky.

Your proposed work satisfies the Letter of Permission (LOP) criteria, as specified in our regulations and the procedures outlined in the LOP No. 200600259 issued on October 3, 2007. Therefore, you are authorized, in accordance with Section 404 of the Clean Water Act (CWA), to realign approximately 13.5 miles of US 150, which would require the filling of 31 wetlands and 8 open-water ponds, and the filling and or channelization of 61 stream sections. This permission is granted with the following Special Conditions:

- a. The project shall be constructed in accordance with plans included in the March 22, 2007 application for Kentucky Transportation Cabinet, Item 8-163.00, for a DA Permit.
- b. The permittee shall install and maintain adequate erosion/sedimentation controls around all disturbed earthen areas until such time as those areas have been stabilized and revegetated.
- c. The permittee shall make an in-lieu mitigation fee payment of \$3,216,330.00 to the Kentucky Department of Fish and Wildlife Resources for the Kentucky Stream and Wetland Trust Fund. Written proof of payment must be provided to the U.S. Army Corps of Engineers, Louisville District, prior to conducting work in "waters of the United States."
- d. The time limit for completing the work authorized ends on

March 19, 2013. If the permittee finds that more time is needed to complete the authorized activity, the permittee shall submit a request for a time extension to this office for consideration at least 1 month before the above date is reached.

- e. Upon completion of construction the permittee shall notify the District Engineer. The enclosed Completion Report Form must be completed and returned to this office.
- f. The permittee must agree to comply with the enclosed General Conditions.

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

This letter contains a proffered permit for your proposed project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the Lakes and Rivers Division Office at the following address:

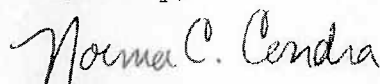
Mr. Michael Montone
Great Lakes and Ohio River Division
CELRD-CM-O
PO Box 1159
Cincinnati, OH 45201-1159
(513) 684-6212

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **May 18, 2009.**

It is not necessary to submit an RFA form to the Division office if you do not object to the decision in this letter.

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

Sincerely,



Norma C. Condra
Project Manager, North
Regulatory Branch

Enclosures

I accept the conditions of this authorization):

Daryl L. Harmon
Kentucky Transportation Cabinet

3/19/09
Date

TERMS FOR NATIONWIDE PERMIT NO. 14
Linear Transportation Projects

Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

ADDRESSES FOR COORDINATING AGENCIES

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

Ms. Sandra Gruzesky, Director
Environmental and Public Protection Cabinet
Division of Water
200 Fair Oaks 4th FL
Frankfort, Kentucky 40601

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

Ms. Donna M. Neary
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, Kentucky 40601

US ARMY CORPS OF ENGINEERS
LOUISVILLE DISTRICT
REGULATORY BRANCH
P. O. BOX 59
LOUISVILLE, KY 40201-0059
(502) 582-5452

COMPLETION REPORT

COE ID No. _____	Date. _____
Permittee Name: _____ Corporate Name: _____ Address: _____ _____ _____ <div style="display: flex; justify-content: space-between; width: 80%; margin-left: 20px;"> City State Zip Code </div>	
Telephone No. _____	
Agent Name: _____ Corporate Name: _____ Address: _____ _____ _____ <div style="display: flex; justify-content: space-between; width: 80%; margin-left: 20px;"> City State Zip Code </div>	
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	

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 July 24, 2009 Letting)

<p>SUBSECTION: REVISION:</p>	<p>101.02 Abbreviations. Insert the following abbreviation and text into the section: KEPSC Kentucky Erosion Prevention and Sediment Control</p>
<p>SUBSECTION: REVISION:</p>	<p>101.03 Definitions. Replace the definition for Specifications – <i>Special Provisions</i> with the following: Additions and revisions to the Standard and Supplemental Specifications covering conditions peculiar to and individual project.</p>
<p>SUBSECTION: REVISION:</p>	<p>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.</p>
<p>SUBSECTION: REVISION:</p>	<p>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 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.</p>
<p>SUBSECTION: REVISION:</p>	<p>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</p>
<p>SUBSECTION: REVISION:</p>	<p>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.</p>

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: 105.12 FINAL INSPECTION AND ACCEPTANCE OF WORK. REVISION:</p>	<p>Insert the following paragraphs after the first paragraph:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Delete the fifth paragraph from the section.</p>
<p>SUBSECTION: 105.13 CLAIM RESOLUTION PROCESS. REVISION:</p>	<p>Delete the last paragraph from the section.</p>
<p>SUBSECTION: 106.10 FIELD WELDER CERTIFICATION REQUIREMENTS. REVISION:</p>	<p>Insert the following sentence before the first sentence of the first paragraph:</p> <p>All field welding must be performed by a certified welder unless otherwise noted.</p>
<p>SUBSECTION: 112.03.11 Temporary Pavement Markings. PART: B) Placement and Removal of Temporary Striping. REVISION:</p>	<p>Replace the 2nd sentence of the first paragraph with the following:</p> <p>On interstates and parkways, and other roadways approved by the State Highway Engineer, install pavement striping that is 6 inches in width.</p>
<p>SUBSECTION: 112.03.12 Project Traffic Coordinator (PTC). REVISION:</p>	<p>Add the following at the end of the subsection:</p> <p>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.</p>

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: REVISION:</p>	<p>206.03.02 Embankment Replace the last paragraph with the following:</p> <p>When rock roadbed is specified, construct the upper 2 feet of the embankment according to Subsection 204.03.09 A).</p>
<p>SUBSECTION: REVISION:</p>	<p>213.03.03 Inspection and Maintenance. Insert the following paragraph after the second paragraph:</p> <p>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.</p>
<p>SUBSECTION: PART: REVISION:</p>	<p>213.03.05 Temporary Control Measures. F) Temporary Mulch. Replace the last sentence with the following:</p> <p>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.</p>
<p>SUBSECTION: REVISION:</p>	<p>303.05 PAYMENT. Replace the second paragraph of the section with the following:</p> <p>The Department will make payment for Drainage Blanket-Type II (ATDB) according to the Lot Pay Adjustment Schedule for Specialty Mixtures in Section 402.</p>
<p>SUBSECTION: PART: REVISION:</p>	<p>401.02.04 Special Requirements for Dryer Drum Plants. F) Production Quality Control. Replace the first sentence with the following:</p> <p>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.</p>
<p>SUBSECTION: REVISION:</p>	<p>401.02.04 Special Requirements for Dryer Drum Plants. Add the following:</p> <p>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:</p> <ol style="list-style-type: none"> 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.
<p>SUBSECTION: REVISION:</p>	<p>401.03.01 Preparation of Mixtures. Replace the last sentence of the second paragraph with the following:</p> <p>Do not use asphalt binder while it is foaming in a storage tank.</p>

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

SUBSECTION: REVISION:	<p>401.03.01 Preparation of Mixtures. Replace the third paragraph and Mixing and Laying Temperature table with the following:</p> <p>Maintain the temperature of the component materials and asphalt mixture within the ranges listed in the following table:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="4" style="text-align: center;">MIXING AND LAYING TEMPERATURES (°F)</th> </tr> <tr> <th colspan="2" style="text-align: left;">Material</th> <th style="text-align: center;">Minimum</th> <th style="text-align: center;">Maximum</th> </tr> </thead> <tbody> <tr> <td colspan="2">Aggregates</td> <td style="text-align: center;">240</td> <td style="text-align: center;">330</td> </tr> <tr> <td colspan="2">Aggregates used with Recycled Asphalt Pavement (RAP)</td> <td style="text-align: center;">240</td> <td style="text-align: center;">—</td> </tr> <tr> <td rowspan="2">Asphalt Binders</td> <td>PG 64-22</td> <td style="text-align: center;">230</td> <td style="text-align: center;">330</td> </tr> <tr> <td>PG 76-22</td> <td style="text-align: center;">285</td> <td style="text-align: center;">350</td> </tr> <tr> <td rowspan="4">Asphalt Mixtures at Plant (Measured in Truck)</td> <td>PG 64-22 HMA</td> <td style="text-align: center;">250</td> <td style="text-align: center;">330</td> </tr> <tr> <td>PG 76-22 HMA</td> <td style="text-align: center;">310</td> <td style="text-align: center;">350</td> </tr> <tr> <td>PG 64-22 WMA</td> <td style="text-align: center;">230</td> <td style="text-align: center;">275</td> </tr> <tr> <td>PG 76-22 WMA</td> <td style="text-align: center;">250</td> <td style="text-align: center;">300</td> </tr> <tr> <td rowspan="4">Asphalt Mixtures at Project (Measured in Truck When Discharging)</td> <td>PG 64-22 HMA</td> <td style="text-align: center;">230</td> <td style="text-align: center;">330</td> </tr> <tr> <td>PG 76-22 HMA</td> <td style="text-align: center;">300</td> <td style="text-align: center;">350</td> </tr> <tr> <td>PG 64-22 WMA</td> <td style="text-align: center;">210</td> <td style="text-align: center;">275</td> </tr> <tr> <td>PG 76-22 WMA</td> <td style="text-align: center;">240</td> <td style="text-align: center;">300</td> </tr> </tbody> </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
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: REVISION:	<p>402.01 Description. Replace the paragraph with the following:</p> <p>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.</p>																																																	
SUBSECTION REVISION:	<p>402.01.01 Warm Mix Asphalt (WMA) Evaluation and Approval. Add the following subsection:</p> <p>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.</p>																																																	
SUBSECTION: REVISION:	<p>402.05.02 Asphalt Mixtures and Mixtures With RAP. Replace Subsection Title as below:</p> <p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP.</p>																																																	
SUBSECTION: REVISION:	<p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP. Replace the paragraph with the following:</p> <p>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 subplot and average the subplot 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.</p>																																																	

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: PART: REVISION:</p>	<p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP. C) Conventional and RAP Mixtures Placed on Shoulders. Replace title with the following: HMA, WMA, and RAP Mixtures Placed on Shoulders.</p>												
<p>SUBSECTION: PART: REVISION:</p>	<p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP. D) Conventional and RAP Mixtures Placed Monolithically as Asphalt Pavement Wedge. Replace the title with the following: HMA, WMA, and RAP Mixtures Placed Monolithically as Asphalt Pavement Wedge.</p>												
<p>SUBSECTION: PART: TABLES: REVISION:</p>	<p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP. Lot Pay Adjustment Schedule, Compaction Option A, Base and Binder Mixtures VMA Replace the VMA table with the following:</p> <table border="1"> <thead> <tr> <th colspan="2">VMA</th> </tr> <tr> <th>Pay Value</th> <th>Deviation From Minimum</th> </tr> </thead> <tbody> <tr> <td>1.00</td> <td>≥ min. VMA</td> </tr> <tr> <td>0.95</td> <td>0.1-0.5 below min.</td> </tr> <tr> <td>0.90</td> <td>0.6-1.0 below min.</td> </tr> <tr> <td>⁽¹⁾</td> <td>> 1.0 below min.</td> </tr> </tbody> </table>	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.
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.												
<p>SUBSECTION: PART: TABLES: REVISION:</p>	<p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP. Lot Pay Adjustment Schedule, Compaction Option A, Surface Mixtures VMA Replace the VMA table with the following:</p> <table border="1"> <thead> <tr> <th colspan="2">VMA</th> </tr> <tr> <th>Pay Value</th> <th>Deviation From Minimum</th> </tr> </thead> <tbody> <tr> <td>1.00</td> <td>≥ min. VMA</td> </tr> <tr> <td>0.95</td> <td>0.1-0.5 below min.</td> </tr> <tr> <td>0.90</td> <td>0.6-1.0 below min.</td> </tr> <tr> <td>⁽¹⁾</td> <td>> 1.0 below min.</td> </tr> </tbody> </table>	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.
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.												

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: PART: TABLE: REVISION:</p>	<p>402.05.02 Asphalt Mixtures, HMA and WMA, Including Mixtures With RAP. Lot Pay Adjustment Schedule, Compaction Option B Mixtures VMA Replace the VMA table with the following:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">VMA</th> </tr> <tr> <th style="text-align: center;">Pay Value</th> <th style="text-align: center;">Deviation From Minimum</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.00</td> <td style="text-align: center;">≥min. VMA</td> </tr> <tr> <td style="text-align: center;">0.95</td> <td style="text-align: center;">0.1-0.5 below min.</td> </tr> <tr> <td style="text-align: center;">0.90</td> <td style="text-align: center;">0.6-1.0 below min.</td> </tr> <tr> <td style="text-align: center;">⁽²⁾</td> <td style="text-align: center;">> 1.0 below min.</td> </tr> </tbody> </table>	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.											
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.																							
<p>SUBSECTION: PART: NUMBER: REVISION:</p>	<p>403.03.03 Preparation of Mixture. C) Mix Design Criteria. 1) Preliminary Mix Design. Replace the last two sentences of the paragraph and table with the following:</p> <p>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:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2" style="text-align: center;">Class</th> <th rowspan="2" style="text-align: center;">ESAL's (millions)</th> <th colspan="3" style="text-align: center;">Number of Gyration</th> </tr> <tr> <th style="text-align: center;">$N_{initial}$</th> <th style="text-align: center;">N_{design}</th> <th style="text-align: center;">N_{max}</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">< 3.0</td> <td style="text-align: center;">6</td> <td style="text-align: center;">50</td> <td style="text-align: center;">75</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">3.0 to < 30.0</td> <td style="text-align: center;">7</td> <td style="text-align: center;">75</td> <td style="text-align: center;">115</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">≥ 30.0</td> <td style="text-align: center;">8</td> <td style="text-align: center;">100</td> <td style="text-align: center;">160</td> </tr> </tbody> </table>	Class	ESAL's (millions)	Number of Gyration			$N_{initial}$	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
Class	ESAL's (millions)			Number of Gyration																				
		$N_{initial}$	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																				
<p>SUBSECTION: PART: REVISION:</p>	<p>403.03.09 Leveling and Wedging, and Scratch Course. A) Leveling and Wedging. Replace the first sentence of the first paragraph with the following:</p> <p>Conform to the gradation requirements (control points) of AASHTO M 323 for base, binder, or surface as the Engineer directs.</p>																							
<p>SUBSECTION: PART: REVISION:</p>	<p>403.03.09 Leveling and Wedging, and Scratch Course. B) Scratch Course. Replace the second sentence of the first paragraph with the following:</p> <p>Conform to the gradation requirements (control points) of AASHTO M 323 for base, binder, or surface as the Engineer directs.</p>																							
<p>SUBSECTION: REVISION:</p>	<p>407.01 DESCRIPTION. Replace the first sentence of the paragraph with the following:</p> <p>Construct a pavement wedge composed of a hot-mixed or warm-mixed asphalt mixture.</p>																							
<p>SUBSECTION: REVISION:</p>	<p>409.01 DESCRIPTION. Replace the first sentence of the paragraph with the following:</p> <p>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.</p>																							
<p>SUBSECTION: REVISION:</p>	<p>410.01 DESCRIPTION. Delete the second sentence of the paragraph.</p>																							

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: REVISION:</p>	<p>410.03.01 Corrective Work. 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.</p>														
<p>SUBSECTION: PART: NUMBER: REVISION:</p>	<p>410.03.02 Ride Quality. B) Requirements. 1) Category A. 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.</p>														
<p>SUBSECTION: PART: NUMBER: REVISION:</p>	<p>410.03.02 Ride Quality. B) Requirements. 2) Category B. 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.</p>														
<p>SUBSECTION: REVISION:</p>	<p>410.05 PAYMENT. 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.</p>														
<p>SUBSECTION: REVISION:</p>	<p>413.05.02 CL3 SMA BASE 1.00D PG76-22. 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.</p>														
<p>SUBSECTION: TABLE: REVISION:</p>	<p>413.05.02 CL3 SMA BASE 1.00D PG 76-22. JOINT DENSITY TABLE Replace the joint density table with the following:</p> <table border="1"> <thead> <tr> <th colspan="2">LANE DENSITY</th> </tr> <tr> <th>Pay Value</th> <th>Test Result (%)</th> </tr> </thead> <tbody> <tr> <td>1.05</td> <td>95.0-96.5</td> </tr> <tr> <td>1.00</td> <td>93.0-94.9</td> </tr> <tr> <td>0.95</td> <td>92.0-92.9 or 96.6-97.0</td> </tr> <tr> <td>0.90</td> <td>91.0-91.9 or 97.1-97.5</td> </tr> <tr> <td>(1)</td> <td>< 91.0 or > 97.5</td> </tr> </tbody> </table>	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
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														
<p>SUBSECTION: REVISION:</p>	<p>413.05.03 CL3 SMA SURF 0.50A PG76-22 and CL3 SMA SURF 0.38A PG76-22. 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.</p>														

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: TABLE: REVISION:</p>	<p>413.05.03 CL3 SMA SURF 0.50A PG76-22 and CL3 SMA SURF 0.38A PG76-22. JOINT DENSITY TABLE Replace the joint density table with the following:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3" style="text-align: center;">DENSITY</th> </tr> <tr> <th style="text-align: center;">Pay Value</th> <th style="text-align: center;">Lane Density Test Result (%)</th> <th style="text-align: center;">Joint Density Test Result (%)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.05</td> <td style="text-align: center;">95.0-96.5</td> <td style="text-align: center;">92.0-96.0</td> </tr> <tr> <td style="text-align: center;">1.00</td> <td style="text-align: center;">93.0-94.9</td> <td style="text-align: center;">90.0-91.9</td> </tr> <tr> <td style="text-align: center;">0.95</td> <td style="text-align: center;">92.0-92.9 or 96.6-97.0</td> <td style="text-align: center;">89.0-89.9 or 96.1-96.5</td> </tr> <tr> <td style="text-align: center;">0.90</td> <td style="text-align: center;">91.0-91.9 or 97.1-97.5</td> <td style="text-align: center;">88.0-88.9 or 96.6-97.0</td> </tr> <tr> <td style="text-align: center;">0.75</td> <td style="text-align: center;">----</td> <td style="text-align: center;">< 88.0 or > 97.0</td> </tr> <tr> <td style="text-align: center;"><i>(1)</i></td> <td style="text-align: center;">< 91.0 or > 97.5</td> <td style="text-align: center;">----</td> </tr> </tbody> </table>	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	<i>(1)</i>	< 91.0 or > 97.5	----
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																							
<i>(1)</i>	< 91.0 or > 97.5	----																							
<p>SUBSECTION: REVISION:</p>	<p>501.05.02 Ride Quality. 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.</p>																								
<p>SUBSECTION: REVISION:</p>	<p>505.03.04 Detectable Warnings. 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.</p>																								
<p>SUBSECTION: REVISION:</p>	<p>505.04.04 Detectable Warnings. 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.</p>																								
<p>SUBSECTION: REVISION:</p>	<p>505.05 PAYMENT. Add the following to the bid item table:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;"><u>Code</u></th> <th style="text-align: left;"><u>Pay Item</u></th> <th style="text-align: left;"><u>Pay Unit</u></th> </tr> </thead> <tbody> <tr> <td>23158ES505</td> <td>Detectable Warnings</td> <td>Square Foot</td> </tr> </tbody> </table>	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>	23158ES505	Detectable Warnings	Square Foot																		
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>																							
23158ES505	Detectable Warnings	Square Foot																							
<p>SUBSECTION: REVISION:</p>	<p>509.01 DESCRIPTION. 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.)</p>																								
<p>SUBSECTION: REVISION:</p>	<p>601.03.02 Concrete Producer Responsibilities. 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.</p>																								

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: REVISION:</p>	<p>606.02.11 Coarse Aggregate. Replace with the following: Conform to Section 805, size No. 8 or 9-M.</p>
<p>SUBSECTION: REVISION:</p>	<p>609.04.06 Joint Sealing. Replace Subsection 601.04 with the following: Subsection 606.04.08.</p>
<p>SUBSECTION: REVISION:</p>	<p>609.05 Payment. Replace the Pay Unit for Joint Sealing with the following: See Subsection 606.05.</p>
<p>SUBSECTION: REVISION:</p>	<p>701.03.06 Initial Backfill. 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.</p>
<p>SUBSECTION: REVISION:</p>	<p>701.03.08 Testing of Pipe. Replace and rename the subsection with the following:</p> <p style="padding-left: 40px;">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.</p> <p style="padding-left: 40px;">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.</p> <p style="padding-left: 40px;">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.</p> <p style="padding-left: 40px;">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.</p> <p style="padding-left: 40px;">The Cabinet may elect to conduct Quality Assurance verifications of any pipe inspections.</p>

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

SUBSECTION: REVISION:	701.04.07 Testing. 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: REVISION:	701.05 PAYMENT. Add the following pay item to the list of pay items: <table border="0" style="width: 100%;"><tr><td style="text-align: left;"><u>Code</u> 23131ER701</td><td style="text-align: center;"><u>Pay Item</u> Pipeline Video Inspection</td><td style="text-align: right;"><u>Pay Unit</u> Linear Foot</td></tr></table>	<u>Code</u> 23131ER701	<u>Pay Item</u> Pipeline Video Inspection	<u>Pay Unit</u> Linear Foot									
<u>Code</u> 23131ER701	<u>Pay Item</u> Pipeline Video Inspection	<u>Pay Unit</u> Linear Foot											
SUBSECTION: TABLE: REVISION:	701.05 PAYMENT PIPE DEFLECTION DETERMINED BY CAMERA TESTING Replace this table with the following table and note: <table border="1" style="margin-left: auto; margin-right: auto;"><thead><tr><th colspan="2" style="text-align: center;">PIPE DEFLECTION</th></tr><tr><th style="text-align: center;">Amount of Deflection (%)</th><th style="text-align: center;">Payment</th></tr></thead><tbody><tr><td style="text-align: center;">0.0 to 5.0</td><td style="text-align: center;">100% of the Unit Bid Price</td></tr><tr><td style="text-align: center;">5.1 to 9.9</td><td style="text-align: center;">50% of the Unit Bid Price ⁽¹⁾</td></tr><tr><td style="text-align: center;">10 or greater</td><td style="text-align: center;">Remove and Replace</td></tr></tbody></table> ⁽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.	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		
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												
SUBSECTION: TABLE: REVISION:	701.05 PAYMENT PIPE DEFLECTION DETERMINED BY MANDREL TESTING Delete this table.												
SUBSECTION: REVISION:	713.02.01 Paint. Replace with the following: Conform to Section 842 and Section 846.												
SUBSECTION: REVISION:	713.03 CONSTRUCTION. 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: REVISION:	713.03.03 Paint Application. Replace the second paragraph with the following table: <table border="1" style="margin-left: auto; margin-right: auto;"><thead><tr><th style="text-align: center;">Material</th><th style="text-align: center;">Paint Application Rate</th><th style="text-align: center;">Glass Beads Application Rate</th></tr></thead><tbody><tr><td style="text-align: center;">4 inch waterborne paint</td><td style="text-align: center;">Min. of 16.5 gallons/mile</td><td style="text-align: center;">Min. of 6 pounds/gallon</td></tr><tr><td style="text-align: center;">6 inch waterborne paint</td><td style="text-align: center;">Min. of 24.8 gallons/mile</td><td style="text-align: center;">Min. of 6 pounds/gallon</td></tr><tr><td style="text-align: center;">6 inch durable waterborne paint</td><td style="text-align: center;">Min. of 36 gallons/mile</td><td style="text-align: center;">Min. of 6 pounds/gallon</td></tr></tbody></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
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											

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

SUBSECTION: REVISION:	713.03.04 Marking Removal. Replace the last sentence of the paragraph with 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: <table border="0"> <thead> <tr> <th><u>Code</u></th> <th><u>Pay Item</u></th> <th><u>Pay Unit</u></th> </tr> </thead> <tbody> <tr> <td>23159EN</td> <td>Durable Waterborne Marking – 6 IN W</td> <td>Linear Foot</td> </tr> <tr> <td>23160EN</td> <td>Durable Waterborne Marking – 6 IN Y</td> <td>Linear Foot</td> </tr> </tbody> </table>	<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>	23159EN	Durable Waterborne Marking – 6 IN W	Linear Foot	23160EN	Durable Waterborne Marking – 6 IN Y	Linear Foot
<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>								
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.									

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: PART: REVISION:</p>	<p>717.03.05 Proving Period. A) Requirements. Insert the following to this section:</p> <p>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.</p>																																							
<p>SUBSECTION: REVISION:</p>	<p>717.03.06 Marking Removal. Replace the third sentence of the paragraph with the following:</p> <p>Vacuum all marking material and removal debris concurrently with the marking removal operation.</p>																																							
<p>SUBSECTION: REVISION:</p>	<p>717.05 PAYMENT. Insert the following bid item codes:</p> <table border="1"> <thead> <tr> <th><u>Code</u></th> <th><u>Pay Unit</u></th> <th><u>Pay Item</u></th> </tr> </thead> <tbody> <tr> <td>06563</td> <td>Pave Marking – R/R X Bucks 16 IN</td> <td>Linear Foot</td> </tr> <tr> <td>20782NS714</td> <td>Pave Marking Thermo – Bike</td> <td>Each</td> </tr> <tr> <td>23251ES717, 23264ES717</td> <td>Pave Mark TY I Tape X-Walk, Size</td> <td>Linear Foot</td> </tr> <tr> <td>23252ES717, 23265ES717</td> <td>Pave Mark TY I Tape Stop Bar, Size</td> <td>Linear Foot</td> </tr> <tr> <td>23253ES717</td> <td>Pave Mark TY I Tape Cross Hatch</td> <td>Square Foot</td> </tr> <tr> <td>23254ES717</td> <td>Pave Mark TY I Tape Dotted Lane Extension</td> <td>Linear Foot</td> </tr> <tr> <td>23255ES717</td> <td>Pave Mark TY I Tape Arrow, Type</td> <td>Each</td> </tr> <tr> <td>23268ES717-23270ES717</td> <td></td> <td></td> </tr> <tr> <td>23256ES717</td> <td>Pave Mark TY I Tape- ONLY</td> <td>Each</td> </tr> <tr> <td>23257ES717</td> <td>Pave Mark TY I Tape- SCHOOL</td> <td>Each</td> </tr> <tr> <td>23266ES717</td> <td>Pave Mark TY 1 Tape R/R X Bucks-16 IN</td> <td>Linear Foot</td> </tr> <tr> <td>23267ES717</td> <td>Pave Mark TY 1 Tape-Bike</td> <td>Each</td> </tr> </tbody> </table>	<u>Code</u>	<u>Pay Unit</u>	<u>Pay Item</u>	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
<u>Code</u>	<u>Pay Unit</u>	<u>Pay Item</u>																																						
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																																						
<p>SUBSECTION: REVISION:</p>	<p>805.01 GENERAL. Replace the second paragraph with the following:</p> <p>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.</p>																																							
<p>SUBSECTION: REVISION:</p>	<p>805.04 CONCRETE. Replace the “AASHTO T 160” reference in first sentence of the third paragraph with “KM 64-629”</p>																																							
<p>SUBSECTION: TABLE: PART: REVISION:</p>	<p>805.15 GRADATION ACCEPTANCE OF NON-SPECIFICATION COARSE AGGREGATE. AGGREGATE SIZE USE Cement Concrete Structures and Incidental Construction Replace “9-M for Waterproofing Overlays” with “8 or 9-M for Waterproofing Overlays”</p>																																							

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

SUBSECTION: 805.15 GRADATION ACCEPTANCE OF NON-SPECIFICATION COARSE AGGREGATE.
REVISION: Replace the "SIZES OF COARSE AGGREGATES" table in with the following:

Aggregate Size	Sieve	AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENINGS) PERCENTAGE BY WEIGHT															
		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	Nominal ⁽³⁾ Maximum Aggregate Size 3 1/2 inch	100	90-100		25-60		0-15		0-5								
2	2 1/2 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							
4	1 1/2 inch					100	90-100	20-55	0-15		0-5						
467	1 1/2 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										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 1/2 inch				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.

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

<p>SUBSECTION: REVISION:</p>	<p>805.16 SAMPLING AND TESTING. 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.</p>									
<p>SUBSECTION: REVISION:</p>	<p>810.04.01 Coating Requirements. Replace the "Subsection 806.07" references with "Subsection 806.06"</p>									
<p>SUBSECTION: PART: REVISION:</p>	<p>810.06.01 Polyvinyl Chloride (PVC) Pipe. B) Culvert and Entrance Pipe. Replace the title with the following: B) Culvert Pipe, Storm Sewer, and Entrance Pipe.</p>									
<p>SUBSECTION: REVISION:</p>	<p>837.03 APPROVAL. 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.</p>									
<p>SUBSECTION: REVISION:</p>	<p>837.03.01 Composition. COMPOSITION Table: Replace <table border="1"> <tr> <td>Lead Chromate</td> <td>0.0 max.</td> <td>4.0 min.</td> </tr> <tr> <td colspan="3">with</td> </tr> <tr> <td>Heavy Metals Content</td> <td colspan="2">Comply with 40 CFR 261</td> </tr> </table> </p>	Lead Chromate	0.0 max.	4.0 min.	with			Heavy Metals Content	Comply with 40 CFR 261	
Lead Chromate	0.0 max.	4.0 min.								
with										
Heavy Metals Content	Comply with 40 CFR 261									
<p>SECTION: REVISION:</p>	<p>DIVISION 800 MATERIAL DETAILS 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.</p>									

**Supplemental Specifications to The Standard Specifications
for Road and Bridge Construction, 2008 Edition**
(Effective with the July 24, 2009 Letting)

PAINT COMPOSITION		
Property and Test Method	Yellow	White
Daytime Color (CIELAB) Spectrophotometer using illuminant D65 at 45° illumination and 0° viewing with a 2° 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 45° illumination and 0° viewing with a 2° 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	TiO₂	VOC	Heavy Metals Content
Reduction Rate	60%	10%	10%	10%	60%	60%

9Y

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:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
----	Asphalt Mixture, Type	Ton

March 12, 2008

10T

SPECIAL NOTE FOR ACCEPTANCE OF JPC PAVEMENT THICKNESS

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 covers the requirements for thickness of JPC pavement. Contrary to Subsection 501.03.21 and 501.05.01, the Department will accept JPC pavement thickness from cores based on a percent within limits (PWL) per lot. The PWL will not apply for projects involving less than 2,500 square yards of pavement per bid item. For quantities less than 2,500 square yards of pavement per bid item, acceptance will be in accordance with 3.1.2 of this note.

2.0 MATERIALS. Reserved

3.0 CONSTRUCTION.

3.1 Pavement Thickness. The Engineer will determine random sampling locations according to KM 64-113. Obtain 8 cores per lot at the randomly selected locations under the observance of the Engineer. Cut cores with a nominal diameter of not less than 4 inches. Take all cores after any corrective grinding. Provide the cores to the Engineer immediately. The Department will measure cores according to KM 64-308, taking 5 measurements for all cores. Furnish all tools, labor, and materials for cutting samples and filling the cored hole. Fill core holes with a non-shrink grout approved by the Engineer within one day after sampling.

When a core thickness is deficient by one inch or more, the Department will not accept the pavement. Remove and replace the deficient pavement. Take another random core from the subplot as the Engineer directs to determine the PWL.

3.1.1 Lot Size. The Department will divide each pavement bid item into lots of 6,000 linear feet of paved width. The lot will be divided into 8 sublots of equal length (750 feet). Take a core from each subplot for determination of pavement thickness.

For bid items with over 2,500 square yards and less than 6,000 linear feet of paved width, project area will be divided into 4 equal sublots for determination of PWL.

For a remainder lot of less than 3,000 feet, the Department will add the quantity of pavement to the previous lot and the 8 sublots will be equally divided over the increased length. For a remainder lot of 3,000 feet or greater, the Department will divide the remainder lot into 8 equal sublots for acceptance.

3.1.2 Small Quantities and Miscellaneous Areas. For quantities less than 2,500 square yards per bid item and for miscellaneous areas, the acceptance may be based on either of the following:

- 1) Engineer's inspection of the base grade elevation in relation to the forms, or
- 2) Engineer's monitoring of the yield rate and visual inspection of the placement,

Miscellaneous areas are entrances and tapers less than 10 feet wide. Furnish cores for areas where there are indications of deficient thickness as the Engineer directs. Replace areas found deficient by one inch or more at no cost. The Engineer will evaluate areas found deficient by 0.50 to 0.99 inches according to Subsection 105.04 for acceptance.

10T

3.1.3 Statistical Evaluation. The Department will use the Variability-Unknown/Standard Deviation Method to determine the estimate percentage of the lot that is within the specification limits (PWL). The Engineer will calculate the lower quality index (QL)

$$QL = \frac{\text{Average} - LSL}{s}$$

Where: Average = the arithmetic mean of the test values. The average will be determined to the nearest tenth of an inch.
LSL = the specified thickness minus 0.20 inch.
s = Standard Deviation = $[\text{Sum (Individual Measurement - Average)}^2 / (n-1)]^{1/2}$, determined to 2 decimal places.
N = Number of measurements.

QL will be determined to 2 decimal places.

For calculation of PWL, core thickness greater than 0.75 inches more than the specified thickness will be rounded down to the specified thickness plus 0.75 inch.

Percent Within Limits (PWL) will be determined by the attached tables with QL, for n = the number of tests for the Lot. PWL will be determined to 2 decimal places.

For all calculations round down when the last significant digit is followed by a number less than 5 and round up when the last significant digit is followed by a number equal to or greater than 5.

4.0 MEASUREMENT. The Department will not measure for payment any work or materials required to supply the cores or grout the holes and will consider it incidental to JPC Pavement.

5.0 PAYMENT. The Department will base acceptance of each lot of material on the percentage of material within specification limits (PWL). The following equation will determine the pay factor for thickness: $PF \% = 52.5 + 0.5 \text{ PWL}$. The Department will round the Pay Factor to 2 decimal places as noted above.

January 1, 2008

10T

PERCENT WITHIN LIMITS ESTIMATION TABLE
Variability - Unknown Procedure
Standard Deviation Method
Sample Size 4

Q	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	50.00	50.33	50.67	51.00	51.33	51.67	52.00	52.33	52.67	53.00
0.1	53.33	53.67	54.00	54.33	54.67	55.00	55.33	55.67	56.00	56.33
0.2	56.67	57.00	57.33	57.67	58.00	58.33	58.67	59.00	59.33	59.67
0.3	60.00	60.33	60.67	61.00	61.33	61.67	62.00	62.33	62.67	63.00
0.4	63.33	63.67	64.00	64.33	64.67	65.00	65.33	65.67	66.00	66.33
0.5	66.67	67.00	67.33	67.67	68.00	68.33	68.67	69.00	69.33	69.67
0.6	70.00	70.33	70.67	71.00	71.33	71.67	72.00	72.33	72.67	73.00
0.7	73.33	73.67	74.00	74.33	74.67	75.00	75.33	75.67	76.00	76.33
0.8	76.67	77.00	77.33	77.67	78.00	78.33	78.67	79.00	79.33	79.67
0.9	80.00	80.33	80.67	81.00	81.33	81.67	82.00	82.33	82.67	83.00
1.0	83.33	83.67	84.00	84.33	84.67	85.00	85.33	85.67	86.00	86.33
1.1	86.67	87.00	87.33	87.67	88.00	88.33	88.67	89.00	89.33	89.67
1.2	90.00	90.33	91.67	91.00	91.33	91.67	92.00	92.33	92.67	93.00
1.3	93.33	93.67	94.00	94.33	94.67	95.00	95.33	95.67	96.00	96.33
1.4	96.67	97.00	97.33	97.67	98.00	98.33	98.67	99.00	99.33	99.67
1.5	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

10T

PERCENT WITHIN LIMITS ESTIMATION TABLE
Variability - Unknown Procedure
Standard Deviation Method
Sample Size 8

Q	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	50.00	50.38	50.76	51.14	51.51	51.89	52.27	52.65	53.03	53.41
0.1	53.78	54.16	54.54	54.92	55.29	55.67	56.04	56.42	56.79	57.17
0.2	57.54	57.92	58.29	58.66	59.03	59.41	59.78	60.15	60.52	60.89
0.3	61.25	61.62	61.99	62.35	62.72	63.08	63.45	63.81	64.17	64.53
0.4	64.89	65.25	65.61	65.96	66.32	66.67	67.03	67.38	67.73	68.08
0.5	68.43	68.78	69.13	69.47	69.82	70.16	70.50	70.84	71.18	71.52
0.6	71.85	72.19	72.52	72.85	73.18	73.51	73.84	74.17	74.49	74.81
0.7	75.14	75.46	75.77	76.09	76.41	76.72	77.03	77.34	77.65	77.96
0.8	78.26	78.56	78.86	79.16	79.46	79.76	80.05	80.34	80.63	80.92
0.9	81.21	81.49	81.77	82.05	82.33	82.61	82.88	83.15	83.43	83.69
1.0	83.96	84.22	84.49	84.75	85.00	85.26	85.51	85.76	86.01	86.26
1.1	86.51	86.75	86.99	87.23	87.46	87.70	87.93	88.16	88.39	88.61
1.2	88.83	89.06	89.27	89.49	89.70	89.91	90.12	90.33	90.53	90.74
1.3	90.94	91.13	91.33	91.52	91.71	91.9	92.09	92.27	92.45	92.63
1.4	92.81	92.98	93.15	93.32	93.49	93.65	93.81	93.97	94.13	94.29
1.5	94.44	94.59	94.74	94.88	95.03	95.17	95.31	95.44	95.58	95.71
1.6	95.84	95.97	96.09	96.21	96.33	96.45	96.57	96.68	96.79	96.90
1.7	97.01	97.11	97.21	97.31	97.41	97.51	97.60	97.69	97.78	97.87
1.8	97.96	98.04	98.12	98.20	98.28	98.35	98.42	98.49	98.56	98.63
1.9	98.69	98.76	98.82	98.88	98.93	98.99	99.04	99.09	99.14	99.19
2.0	99.24	99.28	99.33	99.37	99.41	99.45	99.48	99.52	99.55	99.58
2.1	99.61	99.64	99.67	99.7	99.72	99.74	99.77	99.79	99.81	99.83
2.2	99.84	99.86	99.87	99.89	99.90	99.91	99.92	99.93	99.94	99.95
2.3	99.96	99.96	99.97	99.98	99.98	99.98	99.99	99.99	99.99	100.00

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:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02223	Granular Embankment	Cubic Yards
20209EP69	Granular Pile Core	Cubic Yards
20210EP69	Cohesive Pile Core	Cubic Yards

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

PART III

EMPLOYMENT, WAGE AND RECORD REQUIREMENTS

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

	Page
I. General-----	1
II. Nondiscrimination-----	1
III. Nonsegregated Facilities-----	3
IV. Payment of Predetermined Minimum Wage-----	3
V. Statements and Payrolls-----	6
VI. Record of Materials, Supplies, and Labor-----	6
VII. Subletting or Assigning the Contract-----	7
VIII. Safety: Accident Prevention-----	7
IX. False Statements Concerning Highway Projects-----	7
X. Implementation of Clean Air Act and Federal Water Pollution Control Act-----	8
XI. Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion-----	8
XII. Certification Regarding Use of Contract Funds for Lobbying-----	9

ATTACHMENTS

- A. Employment Preference for Appalachian Contracts
(included in Appalachian contracts only)

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 take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with 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 the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin,

age or disability; making full efforts to obtain qualified and/or qualifiable 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 of progress, 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 an 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 than the applicable wage rate and fringe benefits or cash equivalent for the classification of work 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 provide all 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 and supplemented;

Shall be fined not more than \$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 knowingly rendered 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 administering 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.

**TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES**

HIGHWAY BASIC HOURLY RATES	FRINGE BENEFIT PAYMENTS COMBINED
---	---

CRAFTS

Boilermakers	24.65.....	12.94
Bricklayers:.....	22.90.....	8.50
Stone Mason	21.50.....	8.50
Carpenters:	21.40.....	8.50
Cement Masons:	21.25.....	8.50
Electricians:	*29.26.....	10.53

*When workmen are required to work from bosum chairs, trusses, stacks, tanks, scaffolds, catwalks, radio and T. V. towers, structural steel (open, unprotected, unfloored raw steel), and bridges or similar hazardous locations where workmen are subject to a direct fall, except where using JLG's and bucket trucks up to 75 feet: Add 25% to workman's base rate for 50 to 75 feet, and add 50% to workman's base rate for over 75 feet.

Ironworkers, Structural:.....	21.50.....	8.50
Ironworkers, Reinforcing:	21.30.....	8.50
Painters		
All Excluding Bridges	19.92.....	9.57
Bridges	23.92.....	10.07
Piledrivers:.....	21.05.....	8.50
Plumbers.....	22.52.....	7.80
Sheet Metal Worker.....	20.40.....	7.80

Welders - Receive rate for craft in which welding is incidental.

LABORERS:

General laborer, Flagperson, Steam Jenny.	BASE RATE	19.45
	FRINGE BENEFITS	8.50

Batch Truck Dumper,	BASE RATE	19.70
Deck Hand or Scow Man, Hand Blade Operator.	FRINGE BENEFITS	8.50

Power driven Tool Operator of the following: Wagon Drill, Chain Saw, Sand Blaster, Concrete Chipper, Pavement Breaker, Vibrator, Power Wheelbarrow and Power Buggy, Sewer Pipe Layer, Bottom Men, Dry Cement Handler, Concrete Rubber, Mason Tender.

	BASE RATE	19.80
	FRINGE BENEFITS	8.50

**TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES**

LABORERS: (continue)

Asphalt Lute and Rakerman, Side Rail Setter.	BASE RATE19.85 FRINGE BENEFITS 8.50
Gunnite Nozzle Man, Gunnite Operator.	BASE RATE19.95 FRINGE BENEFITS 8.50
Tunnel Laborer (Free Air).	BASE RATE20.00 FRINGE BENEFITS 8.50
Tunnel Mucker (Free Air).	BASE RATE20.05 FRINGE BENEFITS 8.50
Tunnel Miner, Blaster and Driller (Free Air).	BASE RATE20.40 FRINGE BENEFITS 8.50
Caisson Worker.	BASE RATE20.95 FRINGE BENEFITS 8.50
Powderman.	BASE RATE21.05 FRINGE BENEFITS 8.50
Drill Operator of percussion type drills which are both powered and propelled by an independent air supply.	BASE RATE22.25 FRINGE BENEFITS 8.50

TRUCK DRIVERS:

Truckhelper and Warehouseman.	BASE RATE19.70 FRINGE BENEFITS 8.50
Driver, Winch Truck and A-Frame when used in transporting materials.	BASE RATE19.80 FRINGE BENEFITS 8.50

**TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES**

Driver, (Semi-Trailer or Pole Trailer), Driver (Dump Truck, Tandem Axle), Driver of Distributor.	BASE RATE19.90 FRINGE BENEFITS 8.50
Driver on Mixer Trucks (All Types).	BASE RATE19.95 FRINGE BENEFITS 8.50
Truck Mechanic	BASE RATE20.00 FRINGE BENEFITS 8.50
Driver (3 tons and under), Tire Changer and Truck Mechanic Helper.	BASE RATE20.03 FRINGE BENEFITS 8.50
Driver on Pavement Breakers.	BASE RATE20.05 FRINGE BENEFITS 8.50
Driver (over 3 tons), Driver (Truck Mounted Rotary Drill).	BASE RATE20.24 FRINGE BENEFITS 8.50
Driver, Euclid and other Heavy Earth Moving Equipment, Low boy	BASE RATE20.81 FRINGE BENEFITS 8.50
Greaser on Greasing Facilities.	BASE RATE20.90 FRINGE BENEFITS 8.50

OPERATING ENGINEERS:

Group A

Auto Patrol, Batch Plant, Bituminous Paver, Cable-Way, Clamshell, Concrete Mixer (21 cu. ft. or over), Concrete Pump, Crane, Crusher Plant, Derrick, Derrick Boat, Ditching and Trenching Machine, Dragline, Dredge Engineer, Elevator (regardless of ownership when used for hoisting any building material), Elevating Grader and all types of Loaders, Hoe-Type Machine, Hoisting Engine, Locomotive, LeTourneau or Carry-All Scoop, Bulldozer, Mechanic, Orangepeel Bucket, Piledriver, Power Blade, Roller (Bituminous), Roller (Earth), Roller (Rock), Scarifier, Shovel, Tractor Shovel, Truck Crane, Well Points, Winch Truck, Push Dozer, Grout Pump, High Lift, Fork lift (regardless of lift height), all types of Boom Cats, Multiple Operator, Core Drill, Tow or Push Boat, A-Frame Winch Truck, Concrete Paver, Gradeall, Hoist, Hyster, Material Pump, Pumpcrete, Ross Carrier, Sheep Foot, Sideboom, Throttle-Valve Man, Rotary Drill, Power Generator, Mucking Machine, Rock Spreader attached to equipment, Scoopmobile, KeCal Loader, Tower Cranes (French, German and other types), Hydrocrane,

**TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES**

OPERATING ENGINEERS: (continued)

Tugger, Backfiller, Gurries, Self-Propelled Compactor, Self-Contained Hydraulic Percussion Drill.

BASE RATE24.10
FRINGE BENEFITS 8.50

Group B

All Air Compressors (200 cu. ft. per min. or greater capacity), Bituminous Mixer, Concrete Mixer (under 21 cu. ft.), Welding Machine, Form Grader, Tractor (50 H.P. and over), Bull Float, Finish Machine, Outboard Motor Boat, Brakeman, Whirly Oiler, Tractair and Road Widening Trencher, Articulating Trucks, Mechanic Helper.

BASE RATE21.20
FRINGE BENEFITS 8.50

Group B2

Greaser on grease facilities servicing heavy equipment

BASE RATE21.40
FRINGE BENEFITS 8.50

Group C

Bituminous distributor, Cement Gun, Conveyor, Mud Jack, Paving Joint Machine, Pump, Tamping Machine, Tractors (under 50 H.P.), Vibrator, Oiler, Air Compressors (under 200 cu. ft. per min. capacity), Concrete Saw, Burlap and Curing Machine, Hydro Seeder, Power Form Handling Equipment, Deckhand Oiler, Hydraulic Post Driver.

BASE RATE20.79
FRINGE BENEFITS 8.50

Fringe benefit amounts are applicable for all hours worked except when otherwise noted.

No laborer, workman or mechanic shall be paid at a rate less than that of the General Laborer except those classified as bona fide apprentices.

These rates are listed pursuant to the Kentucky Determination No. CR-09-II-HWY dated July 1, 2009 and/or Federal Decision No. KY 20080026 dated July 1, 2009.

NOTE: Both Kentucky Determination No. CR-09-II-HWY and Federal Decision No. KY20080026 dated July 1, 2009 apply to this project. This set of wage rates contains a combination of these two wage decisions.

**TRANSPORTATION CABINET
DIVISION OF CONSTRUCTION PROCUREMENT
COMPLIANCE SECTION
PROJECT WAGE RATES**

Apprentices or trainees shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request from any interested person.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U. S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the contractor shall submit evidence of approval and registration by the U. S. Bureau of Apprenticeship and Training.

The contractor shall submit to the Contracting Officer, written evidence of the established apprenticeship-journeyman ratios and wage rates in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

TO: EMPLOYERS/EMPLOYEES

PREVAILING WAGE SCHEDULE:

The wages indicated on this wage schedule are the least permitted to be paid for the occupations indicated. When an employee works in more than one classification, the employer must record the number of hours worked in each classification at the prescribed hourly base rate.

OVERTIME:

Overtime is to be paid after an employee works eight (8) hours a day or forty (40) hours a week, whichever gives the employee the greater wages. At least time and one-half the base rate is required for all overtime. A laborer, workman or mechanic and an employer may enter into a written agreement or a collective bargaining agreement to work more than eight (8) hours a calendar day but not more than ten (10) hours a calendar day for the straight time hourly rate.

Wage violations or questions should be directed to the designated Engineer or to the undersigned.

Ryan Griffith, 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
7.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally-assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4, 3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed. The notification shall be mailed to:

**Evelyn Teague, Regional Director
Office of Federal Contract Compliance Programs
61 Forsyth Street, SW, Suite 7B75
Atlanta, Georgia 30303-8609**

4. As used in this Notice, and in the contract resulting from this solicitation, the "**covered area**" is Rockcastle 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: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 1
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
SECTION 0001 PAVING						
ALT GROUP AA1 ALT 1 - ASPHALT SURFACE W/ ASPHALT SHOULDER						
0010	00003	CRUSHED STONE BASE	102,471.000	TON		
0020	00020	TRAFFIC BOUND BASE	1,844.000	TON		
0030	00100	ASPHALT SEAL AGGREGATE	581.000	TON		
0040	00212	CL2 ASPH BASE 1.00D PG64-22	64,871.000	TON		
0050	00291	EMULSIFIED ASPHALT RS-2	69.000	TON		
0060	00301	CL2 ASPH SURF 0.38D PG64-22	9,654.000	TON		
0070	00307	CL2 ASPH SURF 0.38B PG64-22	6,759.000	TON		
0080	02084	JPC PAVEMENT-8 IN	238.000	SQYD		
0090	02099	CEM CONC ENT PAVEMENT-6 IN	390.000	SQYD		
0100	10203ND	PAVEMENT ADJUSTMENT (ASPHALT W/ ASPHALT SHOULDER)	(1.00)	LS	614,935.00	614,935.00
SECTION 0002 PAVING						
ALT GROUP AA2 ALT 2 - CONCRETE SURFACE W/ CONCRETE SHOULDER						
0110	00003	CRUSHED STONE BASE	95,983.000	TON		
0120	00020	TRAFFIC BOUND BASE	1,844.000	TON		
0130	00100	ASPHALT SEAL AGGREGATE	581.000	TON		
0140	00212	CL2 ASPH BASE 1.00D PG64-22	12,584.000	TON		
0150	00291	EMULSIFIED ASPHALT RS-2	69.000	TON		
0160	00301	CL2 ASPH SURF 0.38D PG64-22	4,691.000	TON		
0170	02078	JPC PAVEMENT-6 IN SHLD	72,184.000	SQYD		
0180	02084	JPC PAVEMENT-8 IN	98,555.000	SQYD		
0190	02099	CEM CONC ENT PAVEMENT-6 IN	390.000	SQYD		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 2
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0200	10203ND	PAVEMENT ADJUSTMENT (CONCRETE W/ CONCRETE SHOULDER)	(1.00)	LS	321,353.00	321,353.00
SECTION 0003 PAVING ALT GROUP AA3 ALT 2B - CONCRETE SURFACE W/ ASPHALT SHOULDER						
0210	00003	CRUSHED STONE BASE	101,487.000	TON		
0220	00020	TRAFFIC BOUND BASE	1,844.000	TON		
0230	00100	ASPHALT SEAL AGGREGATE	581.000	TON		
0240	00212	CL2 ASPH BASE 1.00D PG64-22	26,626.000	TON		
0250	00291	EMULSIFIED ASPHALT RS-2	69.000	TON		
0260	00301	CL2 ASPH SURF 0.38D PG64-22	9,654.000	TON		
0270	02084	JPC PAVEMENT-8 IN	98,555.000	SQYD		
0280	02099	CEM CONC ENT PAVEMENT-6 IN	390.000	SQYD		
0290	10203ND	PAVEMENT ADJUSTMENT (CONCRETE W/ ASPHALT SHOULDER)	(1.00)	LS	321,353.00	321,353.00
SECTION 0004 ROADWAY						
0300	00078	CRUSHED AGGREGATE SIZE NO 2	36.000	TON		
0310	01830	STANDARD INTEGRAL CURB	27.000	LF		
0320	01845	ISLAND INTEGRAL CURB	169.000	LF		
0330	02014	BARRICADE-TYPE III	16.000	EACH		
0340	02091	REMOVE PAVEMENT	8,713.000	SQYD		
0350	02159	TEMP DITCH	49,488.000	LF		
0360	02230	EMBANKMENT IN PLACE	2,651,223.000	CUYD		
0370	02262	FENCE-WOVEN WIRE TYPE 1	64,573.000	LF		
0380	02274	FENCE-6 FT CHAIN LINK	1,764.000	LF		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 3
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0390	02286	SINGLE VEHICULAR CHAIN LINK GATE	1.000	EACH		
0400	02360	GUARDRAIL TERMINAL SECTION NO 1	38.000	EACH		
0410	02363	GUARDRAIL CONNECTOR TO BRIDGE END TY A	8.000	EACH		
0420	02367	GUARDRAIL END TREATMENT TYPE 1	1.000	EACH		
0430	02369	GUARDRAIL END TREATMENT TYPE 2A	2.000	EACH		
0440	02371	GUARDRAIL END TREATMENT TYPE 7	5.000	EACH		
0450	02373	GUARDRAIL END TREATMENT TYPE 3	5.000	EACH		
0460	02381	REMOVE GUARDRAIL	1,887.500	LF		
0470	02391	GUARDRAIL END TREATMENT TYPE 4A	17.000	EACH		
0480	02397	TEMP GUARDRAIL	1,000.000	LF		
0490	02429	RIGHT-OF-WAY MONUMENT TYPE 1	288.000	EACH		
0500	02432	WITNESS POST	3.000	EACH		
0510	02488	CHANNEL LINING CLASS IV	14,896.000	CUYD		
0520	02545	CLEARING AND GRUBBING (335 ACRES)	(1.00)	LS		
0530	02555	CONCRETE-CLASS B	52.000	CUYD		
0540	02562	SIGNS	2,208.000	SQFT		
0550	02596	FABRIC-GEOTEXTILE TYPE I	21,414.000	SQYD		
0560	02597	FABRIC-GEOTEXTILE TYPE II	2,064.000	SQYD		
0570	02598	FABRIC-GEOTEXTILE TYPE III	12,119.000	SQYD		
0580	02599	FABRIC-GEOTEXTILE TYPE IV	2,200.000	SQYD		
0590	02600	FABRIC GEOTEXTILE TY IV FOR PIPE	35,694.000	SQYD	2.00	71,388.00

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 4
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0600	02650	MAINTAIN & CONTROL TRAFFIC	(1.00)	LS		
0610	02651	DIVERSIONS (BY-PASS DETOURS) (KY 1229)	(1.00)	LS		
0620	02651	DIVERSIONS (BY-PASS DETOURS) (KY 2108)	(1.00)	LS		
0630	02651	DIVERSIONS (BY-PASS DETOURS) (NAPIER ROAD)	(1.00)	LS		
0640	02651	DIVERSIONS (BY-PASS DETOURS) (NO 1)	(1.00)	LS		
0650	02651	DIVERSIONS (BY-PASS DETOURS) (NO 2)	(1.00)	LS		
0660	02692	SETTLEMENT PLATFORM	4.000	EACH		
0670	02701	TEMP SILT FENCE	49,488.000	LF		
0680	02703	SILT TRAP TYPE A	335.000	EACH		
0690	02704	SILT TRAP TYPE B	335.000	EACH		
0700	02705	SILT TRAP TYPE C	335.000	EACH		
0710	02706	CLEAN SILT TRAP TYPE A	1,005.000	EACH		
0720	02707	CLEAN SILT TRAP TYPE B	1,005.000	EACH		
0730	02708	CLEAN SILT TRAP TYPE C	1,005.000	EACH		
0740	02709	CLEAN TEMP SILT FENCE	49,488.000	LF		
0750	02726	STAKING	(1.00)	LS		
0760	02731	REMOVE STRUCTURE	(1.00)	LS		
0770	03340	STEEL PIPE-2 1/2 IN	147.000	LF		
0780	03343	STEEL PIPE-4 IN	147.000	LF		
0790	05950	EROSION CONTROL BLANKET	28,390.000	SQYD		
0800	05952	TEMP MULCH	1,621,400.000	SQYD		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 5
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0810	05953	TEMP SEEDING AND PROTECTION	48,329.000	SQYD		
0820	05966	TOPDRESSING FERTILIZER	38.400	TON		
0830	05985	SEEDING AND PROTECTION	740,433.000	SQYD		
0840	06510	PAVE STRIPING-TEMP PAINT-4 IN	142,876.000	LF		
0850	06514	PAVE STRIPING-PERM PAINT-4 IN	201,156.000	LF		
0860	06550	PAVE STRIPING-TEMP REM TAPE-W	8,950.000	LF		
0870	06551	PAVE STRIPING-TEMP REM TAPE-Y	8,950.000	LF		
0880	06568	PAVE MARKING-THERMO STOP BAR-24IN	62.000	LF		
0890	06574	PAVE MARKING-THERMO CURV ARROW	8.000	EACH		
0900	06588	PAVEMENT MARKER TY IVA-BY TEMP	450.000	EACH		
0910	06589	PAVEMENT MARKER TYPE V-MW	25.000	EACH		
0920	06591	PAVEMENT MARKER TYPE V-BY	901.000	EACH		
0930	20209EP69	GRANULAR PILE CORE	3,577.000	CUYD		
0940	21802EN	G/R STEEL W BEAM-S FACE (7 FT POST)	25,275.000	LF		
0950	23626EC	DETENTION BASIN	(1.00)	LS		
SECTION 0005 DRAINAGE						
0960	00440	ENTRANCE PIPE-15 IN	1,717.000	LF		
0970	00441	ENTRANCE PIPE-18 IN	1,210.000	LF		
0980	00443	ENTRANCE PIPE-24 IN	270.000	LF		
0990	00461	CULVERT PIPE-15 IN	18.000	LF		
1000	00462	CULVERT PIPE-18 IN	1,111.000	LF		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 6
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
1010	00464	CULVERT PIPE-24 IN	1,958.000	LF		
1020	00466	CULVERT PIPE-30 IN	1,725.000	LF		
1030	00468	CULVERT PIPE-36 IN	1,086.000	LF		
1040	00469	CULVERT PIPE-42 IN	631.000	LF		
1050	00470	CULVERT PIPE-48 IN	191.000	LF		
1060	00471	CULVERT PIPE-54 IN	389.000	LF		
1070	00472	CULVERT PIPE-60 IN	150.000	LF		
1080	00473	CULVERT PIPE-66 IN	835.000	LF		
1090	01000	PERFORATED PIPE-4 IN	2,321.000	LF		
1100	01010	NON-PERFORATED PIPE-4 IN	360.000	LF		
1110	01020	PERF PIPE HEADWALL TY 1-4 IN	1.000	EACH		
1120	01024	PERF PIPE HEADWALL TY 2-4 IN	7.000	EACH		
1130	01028	PERF PIPE HEADWALL TY 3-4 IN	18.000	EACH		
1140	01032	PERF PIPE HEADWALL TY 4-4 IN	10.000	EACH		
1150	01374	METAL END SECTION TY 1-30 IN	2.000	EACH		
1160	01450	S & F BOX INLET-OUTLET-18 IN	11.000	EACH		
1170	01451	S & F BOX INLET-OUTLET-24 IN	2.000	EACH		
1180	01452	S & F BOX INLET-OUTLET-30 IN	2.000	EACH		
1190	01480	CURB BOX INLET TYPE B	4.000	EACH		
1200	01544	DROP BOX INLET TYPE 11	1.000	EACH		
1210	01642	JUNCTION BOX-18 IN	1.000	EACH		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 7
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
1220	08100	CONCRETE-CLASS A	190.830	CUYD		
1230	08150	STEEL REINFORCEMENT	11,924.000	LB		
1240	23131ER701	PIPELINE VIDEO INSPECTION	4,047.000	LF		
SECTION 0006 BRIDGE						
1250	02231	STRUCTURE GRANULAR BACKFILL	463.000	CUYD		
1260	02355	GUARDRAIL-STEEL W BEAM-S FACE A	100.000	LF		
1270	02998	MASONRY COATING	1,474.000	SQYD		
1280	03299	ARMORED EDGE FOR CONCRETE	209.300	LF		
1290	08001	STRUCTURE EXCAVATION-COMMON	965.000	CUYD		
1300	08002	STRUCTURE EXCAV-SOLID ROCK	2,246.000	CUYD		
1310	08003	FOUNDATION PREPARATION (25679)	(1.00)	LS		
1320	08003	FOUNDATION PREPARATION (26551)	(1.00)	LS		
1330	08003	FOUNDATION PREPARATION (26552)	(1.00)	LS		
1340	08018	RETAINING WALL	3,899.000	SQFT		
1350	08019	CYCLOPEAN STONE RIP RAP	2,595.000	TON		
1360	08020	CRUSHED AGGREGATE SLOPE PROT	530.000	TON		
1370	08033	TEST PILES	166.000	LF		
1380	08046	PILES-STEEL HP12X53	1,303.000	LF		
1390	08094	PILE POINTS-12 IN	38.000	EACH		
1400	08100	CONCRETE-CLASS A	1,768.400	CUYD		
1410	08104	CONCRETE-CLASS AA	922.800	CUYD		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 8
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
1420	08150	STEEL REINFORCEMENT	309,761.000 LB		
1430	08151	STEEL REINFORCEMENT-EPOXY COATED	292,385.000 LB		
1440	08634	PRECAST PC I BEAM TYPE 4	2,673.400 LF		
1450	08801	GUARDRAIL-STEEL W BEAM-S FACE BR	28.700 LF		
1460	21532ED	RAIL SYSTEM TYPE III	1,127.100 LF		
SECTION 0007 SEWER					
1470	01052	SEWER PIPE-8 IN	875.000 LF		
1480	01787	REMOVE MANHOLE	3.000 EACH		
1490	01799	SANITARY SEWER MANHOLE	5.000 EACH		
1500	02714	SHOULDERING	1,200.000 LF		
1510	03444	RECONNECT SEWER SERVICE	4.000 EACH		
1520	03550	CUT & CAP EXIST WATER MAIN	1.000 EACH		
1530	20424EC	CONNECT TO EXIST MANHOLE	1.000 EACH		
1540	20424EC	CONNECT TO EXIST MANHOLE (DROP CONNECTION)	1.000 EACH		
1550	21213ED	CONCRETE PAVING REPLACEMENT	15.000 LF		
1560	21788ED	OPEN CUT W/ STEEL ENCASEMENT	485.000 LF		
1570	21921EN	MANHOLE-4 FT BARREL EXTENSION	7.000 VTFT		
1580	22960ED	BORE & JACK ENCASEMENT PIPE-INSTALL	90.000 LF		
1590	22997EN	PERM PAVE RESTORATION FOR 18 IN PIPE	1,060.000 LF		
1600	23013EN	SANITARY SEWER FORCE MAIN	403.000 LF		
1610	23300ED	CRUSHED STONE (SPECIAL PIPE BEDDING)	20.000 TON		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 9
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
1620	23668EC	CONN FORCE MAIN 3 IN TO FORCE MAIN 3 IN	2.000 EACH		
1630	23669EC	GRAVITY SEWER CREEK CROSSING	15.000 LF		
SECTION 0008 WATERLINE					
1640	02606	FIRE HYDRANT	6.000 EACH		
1650	03381	PVC PIPE-2 IN	643.000 LF		
1660	03383	PVC PIPE-4 IN	965.000 LF		
1670	03385	PVC PIPE-6 IN	5,475.000 LF		
1680	03387	PVC PIPE-8 IN	1,820.000 LF		
1690	03423	REMOVE METER	26.000 EACH		
1700	03434	REMOVE FIRE HYDRANT	3.000 EACH		
1710	03437	RECONNECT SERVICE (PROVIDE WATER LINE & SERVICE LIN)	14.000 EACH		
1720	03439	FLUSH HYDRANT	1.000 EACH		
1730	03442	DUCTILE IRON FITTINGS	6.000 LB		
1740	03526	GATE VALVE-6 IN	3.000 EACH		
1750	03550	CUT & CAP EXIST WATER MAIN (2 INCH WATER MAIN)	3.000 EACH		
1760	03550	CUT & CAP EXIST WATER MAIN (3 INCH WATER MAIN)	1.000 EACH		
1770	03550	CUT & CAP EXIST WATER MAIN (4 INCH PVC WATER MAIN)	2.000 EACH		
1780	03550	CUT & CAP EXIST WATER MAIN (6 INCH PVC WATER MAIN)	5.000 EACH		
1790	03550	CUT & CAP EXIST WATER MAIN (8 INCH PVC WATER MAIN)	2.000 EACH		
1800	03551	TAPPING SLEEVE & VALVE (CONNECT TO EX 4IN WATER MAIN W 4 4X4)	3.000 EACH		
1810	03551	TAPPING SLEEVE & VALVE (CONNECT TO EX 6IN WATER MAIN W 6 6X6)	5.000 EACH		

CONTRACT ID: 091314
COUNTY: ROCKCASTLE
PROPOSAL: ARRA 150-1 (097)

PAGE: 10
LETTING: 11/20/09
CALL NO: 108

LINE NO	ITEM	DESCRIPTION	APPROXIMATE UNIT QUANTITY	UNIT PRICE	AMOUNT
1820	03551	TAPPING SLEEVE & VALVE (CONNECT TO EX 8IN WATER MAIN W 8 8X8)	2.000 EACH		
1830	20311EC	SERVICE LINE-3/4 IN	622.000 LF		
1840	21788ED	OPEN CUT W/ STEEL ENCASEMENT (10 INCH)	190.000 LF		
1850	21788ED	OPEN CUT W/ STEEL ENCASEMENT (12 INCH)	1,325.000 LF		
1860	21788ED	OPEN CUT W/ STEEL ENCASEMENT (16 INCH)	290.000 LF		
1870	21788ED	OPEN CUT W/ STEEL ENCASEMENT (2 INCH)	224.000 LF		
1880	21788ED	OPEN CUT W/ STEEL ENCASEMENT (8 INCH)	600.000 LF		
1890	22004ND	RECONNECT HYDRANT	1.000 EACH		
1900	22960ED	BORE & JACK ENCASEMENT PIPE-INSTALL (KY 1229)	60.000 LF		
1910	22960ED	BORE & JACK ENCASEMENT PIPE-INSTALL (KY 150)	60.000 LF		
1920	22960ED	BORE & JACK ENCASEMENT PIPE-INSTALL (KY 3245)	30.000 LF		
1930	22960ED	BORE & JACK ENCASEMENT PIPE-INSTALL (US 150)	80.000 LF		
1940	23504EC	CONNECT TO WATER METER	4.000 EACH		
1950	23667EC	WATER MAIN CREEK CROSSING	65.000 LF		
SECTION 0009 TRAINEES					
1960	02742	TRAINEE PAYMENT REIMBURSEMENT 1 CARPENTER TRAINEE	1,400.000 HOUR		
SECTION 0010 MOBILIZATION / DEMOBILIZATION					
1970	02568	MOBILIZATION (NO MORE THAN 5%)	LUMP		
1980	02569	DEMOBILIZATION (AT LEAST 1.5%)	LUMP		
TOTAL BID					