



CONTRACT DOCUMENTS AND SPECIFICATIONS

FOR

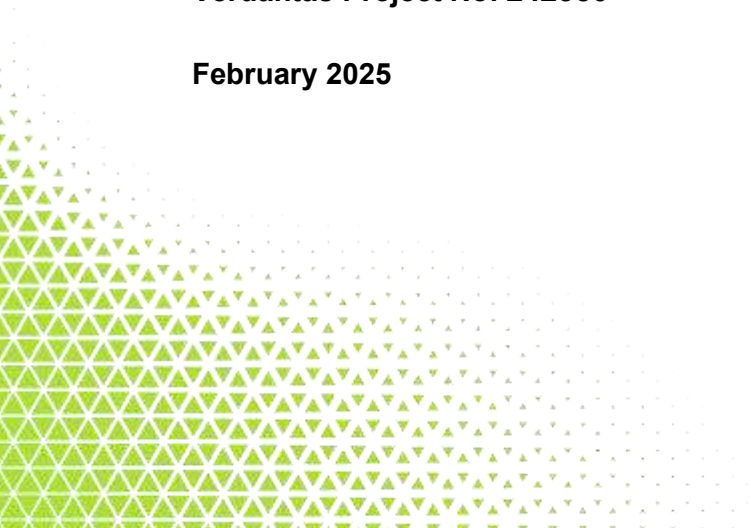
MARLO WAY AND SHAKER ROAD RECONSTRUCTION

Prepared for
CITY OF LAKESIDE PARK
9 BUTTERMILK PIKE
LAKESIDE PARK, KENTUCKY 41017

Prepared by:
Verdantas
2161 Chamber Center Drive
Fort Mitchell, Kentucky 41017

Verdantas Project No: 242350

February 2025



This page intentionally left blank.

Table of Contents

1.	Project Information	5
2.	CITY OF LAKESIDE PARK OFFICIALS	6
3.	Legal Notice – Invitation to Bid	7
4.	Instructions to Bidders	8
4.1	General	8
4.2	Definition of Terms	8
4.3	General Provisions	9
4.4	Examination of Plans, Specifications, General Provisions and Site	9
4.5	Interpretation of Quantities in Proposal	10
4.6	"Or Approved Equal" Items	10
4.7	Addenda	10
4.8	Alternate Bid	10
4.9	General Conditions	10
4.10	Bidder Qualifications	11
4.11	Subcontracts	11
4.12	Bid Guaranty	12
4.13	Preparation of Proposal	13
4.14	Commencement And Completion Dates	14
4.15	Delivery of Proposals	14
4.16	Withdrawal or Modification of Proposals	14
4.17	Public Opening of Proposals	14
4.18	Disqualification of Bids	14
4.19	Non-Responsive Proposals	14
4.20	Rights Reserved By The Owner	15
4.21	Material Guaranty	15
4.22	Notice of Award	15
4.23	Documents Required Prior To Signing of Contract	15
4.24	Contract Guaranty	16
5.	General Provisions	17
5.1	Quantities	17
5.2	Subcontractors	17
5.3	Insurance	17
5.4	Antidiscrimination Clause	19
5.5	Preconstruction Conference And Partnering	19
5.6	Haul Roads	19
5.7	Permits	20
5.8	Operations/Progress Schedule and Coordination	20
5.9	Coordination of Specifications, Plans and General Provisions	20
5.10	Plans	21
5.11	Notice To Proceed	21
5.12	Safety Standard And Accident Prevention	21
5.13	Cooperation By Contractor	22
5.14	Cooperation Between Contractors	22
5.15	Warranty	22
5.16	Control Of Material	22
5.17	Storage Of Materials	23



5.18	Sanitary Measures	23
5.19	Public Convenience And Safety	23
5.20	Protection And Restoration Of Property	23
5.21	Clean Up During Construction	24
5.22	Final Clean-Up	24
5.23	Final Inspection	24
5.24	Utilities	25
5.25	Sewage, Surface, and Floor Flows	25
5.26	Use Of Existing Facilities	25
5.27	Underground Utility Facilities/Cooperation With Utilities	25
5.28	Maintenance During Construction	26
5.29	Failure To Maintain Roadway Or Structure	27
5.30	Protection Of Existing Structure	27
5.31	Construction Videos And Photographs	27
5.32	Monuments And Landmarks	28
5.33	Base Lines and Benchmarks	28
5.34	Restoration Of Disturbed Areas	29
5.35	Supervision Of The Work	29
5.36	Defective Or Unacceptable Work	29
5.37	Intent of Contract	30
5.38	Measurement Of Quantities	30
5.39	Plans And Estimated Quantities	30
5.40	Prices	31
5.41	Alternation Of Plans Or Character Of Work	31
5.42	Extra Work	32
5.43	Modification Of Contractor Or Change Orders	32
5.44	Disputes And Contractor Claims	32
5.45	Time Of Completion And Damages For Delays	33
5.46	Failure To Complete On Time	34
5.47	Unsatisfactory Progress And Termination Of The Contract	34
5.48	Payments	35
5.49	Waiver Of Mechanic's Lien	35
5.50	Acceptance Of Final Payment	36
5.51	Termination Of The Owner's Liability	37
5.52	Termination For Cause	37
5.53	Termination For Convenience	38
5.54	Contractors Right To Terminate Contract	38
5.55	Guarantee Of Work	38
5.56	Notice	39
5.57	No Estoppel	39
5.58	Assignment	39
5.59	Independent Contractor Status	39
5.60	Other Contracts	39
5.61	Patents	40
5.62	Laws, Ordinances And Regulations	40
5.63	Environmental Protection	41
5.64	Taxes	41
6.	Utility Ownership	42
7.	Specifications For Construction	43



8.	Special Provisions	44
8.1	Items 105.07 / 107.15 - Cooperation With Utilities	44
8.2	Coordination With Utilities	44
8.3	Item 105.06 – Cooperation Between Contractors	44
8.4	Item 106 – Control Of Material	44
8.5	Item 106.08 - Storage Of Materials	45
8.6	Item 108.02 - Preconstruction Conference	45
8.7	Item 107.04 - Permits, Licenses And Taxes	46
8.8	Item 107.14 - Contractor's Responsibility For Work	46
8.9	Item 112 - Maintaining Traffic	47
8.10	Temporary Traffic Control Devices	47
8.11	Stake Out	47
8.12	Testing	48
8.13	Testing Requirements	48
8.14	Item 202 – Clearing and Grubbing	49
8.15	Item 202/203 - Removals	49
8.16	Item 202/203 - Debris Removal	49
8.17	Item SPL – Yard Restoration (4" Topsoil, Seed & Mulch)	49
8.18	Item 212/213 - Erosion Control and Water Pollution Control	51
8.19	Full-Depth Pavement Sawing	52
8.20	Item 214 - Woven Geotextile	52
8.21	Item 302/SPL – Crushed Stone Base For Subgrade Repair	52
8.22	Item SPL - Geogrid Reinforcement For Subgrade Repair	52
8.23	Item SPL - Sidewalk and/or Driveway Apron Finish	52
8.24	Item SPL – Concrete Driveway Replacement	53
8.25	Item SPL – Asphalt Driveway Replacement	53
8.26	Utility Adjustments	54
8.27	Item 601 – Concrete General	54
8.28	Item 701 – Grading At Inlets and Outfalls of Proposed Conduits	54
8.29	Existing Pipe	55
8.30	Item 701 - Review of Drainage Facilities	55
8.31	Item SPL - Conduit, Drainage and Utility Items	55
8.32	Item 701 – Removal of Water	56
8.33	Item 704 - Under Drain	56
8.34	Item SPL - 6" Downspout Collection Line	56
8.35	Item SPL – Downspout Connection To Existing Underdrain	57
8.36	Item SPL – Downspout Connection To Downspout Collection Line	57
8.37	Item 610/710 – Conduit End Treatment	57
8.38	Item SPL – Storm Sewer, Manholes, Inlets, Catch Basins and Headwalls	57
8.39	Shoring And Trench Box	58
8.40	Item SPL – Sheet piling and Shoring	58
8.41	Control Of Work	59
8.42	"Or Approved Equal" Items	59
8.43	Payment	59
9.	Supplemental Specifications Section	60
9.1	SD1 SPECIFICATIONS SECTION 02630	60
10.	Bid Proposal and Legal Forms	A
11.	Bidder Information Sheet	B
12.	Bid Proposal	C



13. Bid Form	D
14. Bid Guaranty And Contract Bond	E
15. Certificate As To Interest	G
16. Subcontractors List	H
17. Certification As To Kentucky Resident Status	I
18. Certification As To Non-Resident Status	K
19. Contract	L
20. Personal Property Tax Affidavit	N
21. Guarantee	O
22. Final Release Of Lien	P



1. Project Information

PROJECT: MARLO WAY AND SHAKER ROAD
RECONSTRUCTION

OWNER: CITY OF LAKESIDE PARK
9 BUTTERMILK PIKE
LAKESIDE PARK, KENTUCKY 41017
KENTON COUNTY, KENTUCKY

ENGINEER: VERDANTAS, LLC
2161 CHAMBER CENTER DRIVE
FT. MITCHELL, KENTUCKY 41017

CONTACT: MARTIN HELLMANN
TELEPHONE: (859) 534-9934
EMAIL: MHELLMANN@VERDANTAS.COM
Web Site: www.ctconsultants.com

PROJECT #: 242350

BID OPENING DATE: THURSDAY, FEBRUARY 27, 2025
@ 11:00 AM

ADVERTISING DATE: THURSDAY, FEBRUARY 13, 2025

COMMENCEMENT DATE: JULY 1, 2025

COMPLETION DATE: NOVEMBER 15, 2025



2. CITY OF LAKESIDE PARK OFFICIALS

MAYOR

Paul Markgraf

CLERK

Teresa Bruck

CITY COUNCIL

Tom Bernheimer

Dennis Landwehr

Cassi Schabell

Mary Ann Thaman

Brian Waite

Dave Wolfer

PUBLIC WORKS ADMINISTRATOR

Steve Greer



3. Legal Notice – Invitation to Bid

CITY OF LAKESIDE PARK, KENTUCKY

KENTON COUNTY

LEGAL NOTICE

Sealed proposals will be received at the office of the City Clerk, Municipal Building, **CITY OF LAKESIDE PARK, 9 BUTTERMILK PIKE, LAKESIDE PARK, KENTON COUNTY, KENTUCKY, 41017** until **11:00 AM**, local time on **FEBRUARY 27, 2025** for furnishing all labor, materials, and equipment necessary to complete project known as **MARLO WAY AND SHAKER ROAD RECONSTRUCTION** and, at said time and place, publicly opened and read aloud.

Bids must be in accordance with drawings and specifications and on forms available from CT Consultants, Inc. at a non-refundable cost of One Hundred Twenty-Five Dollars (\$125.00) for mailed hard copies and \$45.00 for electronic files. Documents may be ordered by registering and paying for the documents online at <https://bids.ctconsultants.com>. Please contact planroom@ctconsultants.com or call 440-530-2351 if you encounter any problems registering or paying for the documents.

The bid specifications, drawings, plan holders list, addenda, and other bid information (**but not the bid forms**) may be viewed and/or downloaded for free via the internet at <https://bids.ctconsultants.com>. The bidder shall be responsible to check for Addenda and obtain same from the web site.

Proposals must contain the full name of the party or parties submitting the same and all persons interested therein. It is the intent and requirements of the owner that this project be completed no later than **NOVEMBER 15, 2025**.

The City Council of the **CITY OF LAKESIDE PARK**, reserve the right to waive irregularities and to reject any or all bids.

The City Council of the **CITY OF LAKESIDE PARK** shall authorize acceptance of the bid made by the responsible bidder who, in Council's judgment, offers the best and most responsive proposal to the City, considering quality, service, performance record, and price; or Council may direct the rejection of all bids. The City may award based on "functional equivalence" concerning specified work or products.

By the order of the City Council of the **CITY OF LAKESIDE PARK**.

Publishing Date: LINKNKY.com – **FEBRUARY 13, 2025**



4. Instructions to Bidders

4.1 General

Sealed bids will be received until, **FEBRUARY 27, 2025 @ 11:00 AM**, at the office of the City Clerk, Municipal Building, **CITY OF LAKESIDE PARK, 9 BUTTERMILK PIKE, LAKESIDE PARK, KENTUCKY 41017** for the furnishing of labor and materials required for the **MARLO WAY AND SHAKER ROAD RECONSTRUCTION**, all in accordance with these instructions, conditions, specifications, and on the enclosed forms. All shall be submitted in a sealed envelope addressed to the **CITY OF LAKESIDE PARK** shall be plainly marked on the outside of the envelope **MARLO WAY AND SHAKER ROAD RECONSTRUCTION**. No bid may be withdrawn, once the bid has been deposited with the Owner, except in accordance with Kentucky Standard Specifications for Road and Bridge Construction, Section 102.11. Proposals received after the time for the opening of bids will be returned to the Bidder unopened. All bids shall remain valid for a period of sixty (60) days from the date of Bid Opening.

4.2 Definition of Terms

Whenever the term “Bidder” occurs, it shall mean any person, firm or corporation as a Prime Contractor who submits a proposal/bid for the Project, either acting directly or through a duly authorized representative.

Whenever the term “Bid Packet” occurs, it shall mean all the documents contained herein and any addenda thereto.

Whenever the term “City” or “Owner” occurs, it shall mean the **CITY OF LAKESIDE PARK**. The Mayor, or their designee, shall be the representative for the Owner.

Whenever the term “Contract” occurs, it shall mean the written agreement between the Owner and the Contractor covering the performance of the Work on the Project and the furnishing of labor and/or materials in the construction of the Work on the Project, including the Contract Documents.

“Contract Documents” shall mean these Instructions to Bidders and General Conditions, the Specifications, any Drawings and/or Plans, the Contract Bond and all other forms or certificates required by these Instructions, all forms included with the Contractor’s Bid, all the material contained in this Bid Packet, any Change Orders, and all addenda to any of the aforementioned items. The Contract Documents shall be a part of the Contract as if fully rewritten therein.

Whenever the term “Contractor” occurs, it shall mean a person, firm or corporation contracting with the Owner as a Prime Contractor to supply labor, materials, or equipment or all for the Project.

Whenever the term “Construction Manager” or “Engineer” occurs, it shall mean Verdantas LLC, or agent so designated by the Owner to act as the Owner’s agent.

Whenever the term “Director” occurs, it shall mean the Owner, or the Owner’s agent.

Whenever the term “Project” occurs, it shall mean the entire public improvement proposed by the Owner to be constructed in part or in whole pursuant to the Contract.



Whenever the term “Proposal or “Bid” occurs, it shall mean the offer of the Bidder to perform the Work on the Project, when said offer is made out and submitted on the prescribed forms, properly signed and guaranteed, and in the prescribed manner.

Whenever the term “Subcontractor” occurs, it shall mean a person, firm, or corporation other than the Prime Contractor supplying labor and materials for the Work to the Contractor and under the control of the Contractor.

Whenever the term “the Work” occurs, it shall mean the Work to be performed in constructing and completing the Project, including all labor, materials and equipment.

4.3 General Provisions

The most current State of Kentucky, Transportation Cabinet, Department of Highways (KTC) Standard Specifications for Road and Bridge Construction, as specifically set forth herein, are adopted and made part of these Contract Documents, unless specifically excluded herein.

All references to the Director, the Director of Highways, the First Assistant Director, and Chief Engineer, the Deputy Director of Design and Construction, the Deputy Director of Operations, the Engineer of Construction, the Engineer of Maintenance, the Engineer of Bridges, the Engineer of Tests, shall be considered to read the Engineer.

All references to the State, the State of Kentucky, the Cabinet, or the Transportation Cabinet shall be considered to read the Owner.

4.4 Examination of Plans, Specifications, General Provisions and Site

The Bidder is expected to examine carefully the site of the proposed Work, the proposal, plans, specifications, contract documents, general provisions, and addenda, before submitting a proposal. The submission of a bid shall be considered evidence that the Bidder has made such examination and is satisfied as to the conditions to be encountered in performing the Work and as to the requirements of the plans, specifications, general conditions, special provisions, addenda, and Contract.

Subject to public safety and convenience, prospective Bidders will be permitted to explore the site of the Work by boring or test pits, permits for which will be issued by the Engineer.

Explorations shall be at the sole risk and expense to the Bidder and under conditions of safety, maintaining traffic, and restoring all areas disturbed by any and all explorations to conditions equal to, or better than, the condition prior to exploration.

The Owner does not make any representation of soil or foundation conditions or materials, nor does it represent that drawings may not be modified to meet changes in soil conditions encountered as the Work progresses. The Contractor must inspect the site of the proposed Work and must assume all risk as to the nature and behavior of the material which may be encountered in excavation, whether apparent on the surface or disclosed only in the course of the Work.



4.5 Interpretation of Quantities in Proposal

The quantities appearing in the proposal are approximate only and are prepared for the comparison of bids. Payment to the Contractor will be made only for the actual quantities of Work performed and accepted or materials furnished and accepted in accordance with the Contract except for lump sum contracts and except for lump sum items in unit price contracts. The scheduled quantities of Work to be done and materials to be furnished may be increased, decreased, or omitted as hereinafter provided

4.6 "Or Approved Equal" Items

In the preparation of these documents and plans, several proprietary products may have been specified. In all such cases, it is to be understood that the Contractor may offer a substitute for the specified product, as indicated by "Or Approved Equal". However, the Contractor must be aware that, before commencement of construction, he must provide information to the Engineer concerning the substituted product, and that the Engineer must approve in writing the offered product as being equal to the specified product before use or incorporation in the Work.

Unless otherwise modified by the Engineer, proprietary products are to be installed and/or constructed in strict compliance with the pertinent manufacturer's specifications.

4.7 Addenda

The Contractor shall notify the Engineer promptly of any discrepancies in, or omissions from the Contract Documents. The Engineer will issue a clarifying addendum to each person on record as having received a set of Contract Documents. The Owner will not be responsible for oral instruction or information. Questions received less than five (5) days prior to bid date cannot be answered. Any Addenda issued during the bidding period are to be included in the Proposal and shall become a part thereof.

4.8 Alternate Bid

It is the Owner's intent for the Contractor to bid on both the base and alternate bid items (if provided). Upon award of the Contract, the Owner will inform the Contractor, in writing, which combination of base bid or alternate bid items will be included with the Project.

Award of the project will be based on the base bid or alternate bid items ultimately selected by the Owner for inclusion in the project and award amount.

The Owner reserves the right to award or delete any or all combinations.

4.9 General Conditions

The successful Bidder/Contractor shall be responsible for all site operations related to the Work as shown and described in the Specifications, Plans and related General Provisions, and shall meet



all requirements of these Instructions, General Provisions, and Specifications. All Work shall be completed in compliance with these Instructions, the General Provisions, Specifications, Plans and other Contract Documents.

4.10 Bidder Qualifications

The Owner requires that the Bidder furnish satisfactory evidence that he has the necessary resources to fulfill the conditions of the Contract and the Specifications. Each Bidder shall submit on the form included in the Bid Packet, a statement of the Bidder's qualifications. Each Bidder must furnish satisfactory evidence that it is operating a business of a type that can meet the Specifications for the Work and that it has operated such business for at least the last two (2) years. Only Bidders who have sufficient experience; ample equipment and personnel; adequate financial resources or the ability to obtain such resources as required during the performance of the Contract; who are able to comply with the required performance schedule for the Work; who have a satisfactory record of integrity; who have a satisfactory record of performance (Bidders who are delinquent in current contract performance, when the number and the extent of the delinquencies of each are considered, shall be presumed to be unable to fulfill this requirement, in the absence of evidence to the contrary or circumstances properly explained); and who are otherwise qualified and eligible to receive an award under applicable Kentucky laws and regulations, shall be considered.

The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract, and the Bidder shall furnish to the Owner all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.

The Owner requires that the Bidder furnish a list of references of all persons, corporations, political subdivisions or firms for whom the Bidder has done the type of Work required for this Project within the last two (2) years.

4.11 Subcontracts

The Bidder shall submit, with his bid, a complete list of the names and addresses of any subcontractors he contemplates for use on the Project. In addition, the Owner requires that the Bidder furnish a list of subcontractor references of all persons, corporations, political subdivisions or firms for whom the proposed subcontractor has done the type of Work proposed under contract between the Contractor and the subcontractor within the last two (2) years.

The subcontractor must be acceptable to the Owner and approved by the Owner, in writing, prior to the execution of the Contract. Although such approval shall not be arbitrarily withheld, subcontractors that have proven unsatisfactory in the past or do not have adequate manpower or resources to perform the Work will not be accepted. Only subcontractors who have sufficient experience; ample equipment and personnel; adequate financial resources or the ability to obtain such resources; who are able to comply with the required performance schedule for the Work; who have a satisfactory record of integrity; who have a satisfactory record of performance (Bidders who are delinquent in current contract performance, when the number and the extent of the delinquencies of each are considered, shall be presumed to be unable to fulfill this requirement, in the absence of evidence to the contrary or circumstances properly explained); and who are otherwise



qualified and eligible to receive an award under applicable Kentucky laws and regulations, shall be considered.

The subcontractor must submit a non-collusion affidavit prior to the execution of the Contract.

Approval of the proposed subcontractor(s) will not be given by the Owner unless and until the above requirements are met. Although the Bidder is not required to submit the required Subcontractor forms, filled out by any proposed subcontractors, with its bid, the Bidder is hereby advised of these requirements so that appropriate action can be taken to prevent subsequent delays in subcontract awards and/or the execution of the Contract.

After the Subcontractors have been approved and the Contract signed, no changes in the subcontractors shall be made without the prior written approval of the Owner.

4.12 Bid Guaranty

In accordance with Kentucky Transportation Cabinet Standard Specifications for Road and Bridge Construction Section 102.09, and in order to assure that if the Bidder's bid is accepted that it will enter into the Contract with the Owner, each bid must be accompanied by a Bid Guaranty in the form of either:

1. A Bond for 10% percent of the bid, in the form of a Bid Guaranty Bond, acknowledged by the Bidder, as principal, and by a surety company qualified to do business in the State of Kentucky, and satisfactory to the Owner as surety; or
2. A cashier's check or certified check issued by a responsible bank or trust company, and made payable to the order of the Owner, in the sum of at least ten percent (10%) of the Bid.

The Bid Guaranty shall be enclosed in the sealed envelope containing the Bid.

If the bidder chooses to submit a Bid Guaranty Bond, the bond shall be in form prescribed by KTC Standard Specifications for Road and Bridge Construction Section 103.05. The Bond must be signed by an authorized agent of an acceptable surety bonding company and by the Bidder. The bond must be countersigned by a resident agent of the bonding company and its corporate seals must be affixed to all copies. ***The name and address of both the surety and surety's agent must appear on the bond.*** Bid Guaranty must be supported by credentials showing the Power of Attorney of the surety's agent.

Bid guaranties (cashier's check or certified check) will be returned to unsuccessful Bidders within fifteen (15) days of the execution of the Contract with the successful Bidder.

Once the bid is awarded pursuant to the Notice of Award, the Contractor will be required to execute the Contract with the Owner within ten (10) days of its receipt of said Notice. Execution of the Contract shall require the submittal of a Performance Bond (unless the Bidder has already submitted a Bid Guaranty Bond), proof of insurance, and other documents, as outlined below. Executed copies of the bond and insurance certificates are required for each set of Contract Documents. If the Contractor fails to execute the Contract within the required time, the Contractor's Bid Guaranty may be forfeited to the Owner, not as a penalty, but as liquidated damages, in accordance with the terms of the Bid Guaranty. The Project may then be rebid or awarded to the next lowest and best bidder, as the Owner determines at its own discretion.



4.13 Preparation of Proposal

The Bidder shall submit their Proposal upon the forms furnished by the Owner. All blank spaces for bid prices must be filled in, in words or figures, and shall be written in ink or typewritten. The Bidder shall initialize any corrections or changes in the Proposal.

The Bidder's Proposal must be signed in ink by the individual, by one or more members of the partnership, or by one or more officers of a corporation, or by an agent of the Bidder legally qualified and acceptable to the Owner. If the Proposal is made by an individual, his name and business address must be shown; by a partnership, the name and business address of each partnership member must be shown; by a corporation, the name of the state under the laws of which the corporation is chartered and the name and title of the officer or officers having authority under the bylaws to sign contracts, the name of the corporation and the business address of its corporate officials must be shown.

A foreign corporation submitting a Proposal must comply with the laws of doing business in the State of Kentucky, if its Proposal or any part thereof is accepted.

To be considered responsive, each bid must contain a copy of the full contract document book along with the following fully executed forms:

1. Bidder Information Sheet
2. Bid Proposal
3. Bid Form
4. Bid Guaranty and Contract Bond
5. Certificate as to Interest
6. Subcontractors List
7. Certification As to Kentucky Resident Status OR Certification As to Non-Resident Status
8. Personal Property Tax Affidavit

The Bidder's attention is directed to all applicable Federal, State, and local laws, and the rules and regulations of all authorities and agencies having jurisdiction over the Work. All such laws, rules, and regulations shall apply to the Contract and every aspect of the Work and shall be deemed included as a part of the Contract as if the same were fully written therein.

The attention of Bidders is especially directed to the following:

1. Federal and Civil Rights Law regulating Equal Opportunity Employment
2. Bid Guaranty and Contract Bond requirements
3. Statutory requirements of the State of Kentucky relative to licensing of corporations organized under the laws of any other state
4. Federal or State of Kentucky Prevailing Wage Law

The price or prices shown on the proposal shall include all costs associated with the Work (including labor), shall be the actual price(s) to be paid by the Owner, and shall include all discounts, allowances, etc. Each Bidder shall bid on each item listed in the Proposal

Where a discrepancy appears between the sum shown in the "Total" column and the correct product of the sums appearing in the "Estimated Quantity" and "Unit Price" columns, the correct product of the sums appearing in the "Estimated Quantity" and "Unit Price" columns shall control.



4.14 Commencement And Completion Dates

Contractor may not begin work prior to **JULY 1, 2025** (unless previous approval is given by the Owner).

It is the intent and requirement of the Owner that the proposed work shall be installed and operational no later than the date stated in the contract contained within this document.

4.15 Delivery of Proposals

The total Contract Documents and Specifications book shall be placed, together the required completed forms, in a sealed envelope addressed to the Owner. Proposals will be received until the hour and date set for the opening thereof and must be in the hands of the Owner's appointed representative by such time. Proposals received after the time indicated for the opening of bids will be returned to the Bidder unopened.

4.16 Withdrawal or Modification of Proposals

No bid may be withdrawn, once the bid has been deposited with the Owner, except in accordance with Kentucky Standard Specifications for Road and Bridge Construction, Section 102.11. Likewise, modifications to a bid, once submitted, shall not be accepted.

4.17 Public Opening of Proposals

Proposals will be opened and read aloud publicly at the time and place designated in the Legal Notice to Bidders. Bidders, their authorized agents, and other interested parties are invited to be present.

4.18 Disqualification of Bids

Any bid submitted unsealed or unsigned, or any bid deemed unresponsive will be disqualified and returned to the Bidder. Bids submitted without a Bid Guaranty or an invalid Guaranty will be disqualified and will be returned to the Bidder.

4.19 Non-Responsive Proposals

Proposals may be considered non-responsive and may be rejected for the following reasons:

1. If the Proposal is on a form other than that furnished by the Owner or if the form is altered or any part thereof is detached.
2. If there are unauthorized additions, conditional or alternate bids, conditions, or irregularities of any kind which may tend to make the Proposal incomplete, indefinite or ambiguous as to its meaning.



3. If the Bidder adds any provisions reserving the right to accept or reject the Award or to enter into the Contract pursuant to the Award. This does not exclude a bid limiting the maximum gross amount of awards acceptable to any one Bidder at any one bid letting, provided that any selection of awards will be made by the Owner.

4.20 Rights Reserved By The Owner

The Owner reserves the right to review and evaluate all bids for a period of sixty (60) days.

The Owner reserves the right to reject any and all bids, to waive any discrepancies or irregularities in the bidding, and to determine, in its own discretion, which Proposal is the best bid. Lowest bid, while a major consideration, will not exclusively govern the Bid Award. The Bid Award shall be made from all considerations, including costs and the responsibility of the Bidder.

The Owner reserves the right to reject the bid of any Bidder who has previously failed to perform properly or complete on time contracts of similar nature; who is not in a position to perform the Contract; or who has habitually, and without just cause, neglected the payment of bills or otherwise disregarded his obligations to subcontractors, materialmen or employees.

In addition to the above-mentioned items, the Owner will also consider the following in determining the best bid: that the Bidder maintains a permanent place of business; has adequate equipment to do the Work properly and expeditiously; has suitable financial status to meet the obligations incidental to the Work; and has the necessary experience.

The Owner reserves the right to award or delete any or all items or combination of items.

4.21 Material Guaranty

Before the Contract is awarded, the Bidder may be required to furnish a complete statement of the origin, composition and manufacturer of any or all materials to be used in the construction of the Work together with samples, of which said samples may be subjected to any tests the Owner, in its sole discretion, deems appropriate to determine their quality and fitness for the Work.

4.22 Notice of Award

The award of the Contract, if it be awarded, will be made to the best overall Bidder whose Proposal complies with all the requirements prescribed. In no case will an award be made until all necessary investigations are made as to the responsibility of the Bidder to whom it is proposed to award the Contract. The successful Bidder will be notified by letter, mailed or emailed to the address shown on his Proposal that his bid has been accepted and that he has been awarded the Contract.

4.23 Documents Required Prior To Signing of Contract

Immediately upon the award of the bid and prior to the signing of the Contract, the Contractor shall furnish to the Owner:

1. Kentucky Workers' Compensation Certificate.



2. Credentials showing the Power of Attorney of the Agent of the Surety
3. A Certificate of Compliance issued by the Division of Insurance showing the right of the bonding company to do business in the State of Kentucky.
4. A Certificate of Insurance with coverage as specified in these Instructions, covering the period of time the Work will be in progress.
5. Listing of selected subcontractor(s) for Owner approval, in accordance with the second paragraph under "Subcontracts" of these Instructions.

4.24 Contract Guaranty

If the Contractor submitted a Bid Guaranty Bond in the form prescribed by the KTC Standard Specifications for Road and Bridge Construction Section 102.09 for the full amount of its bid, the same shall be retained by the Owner as the Contractor's Performance Bond.

If the Contractor submitted a cashier's check, certified check or letter of credit, the Contractor, at the time the Contract is entered into, shall furnish a Performance Bond, in the form prescribed by KTC Standard Specifications for Road and Bridge Construction Section 102.09, payable to the Owner, for the total amount of the Contract. Said Bond shall be duly executed by the Contractor, as principal, and by a surety company qualified to do business under the laws of the State of Kentucky and satisfactory to the Owner, as surety, for the faithful performance of the Contract and payment for labor and materials. The Bond must be signed by an Authorized Agent of an acceptable surety bonding company and by the Contractor. The Performance Bond must be countersigned by a resident agent of the bonding company and its corporate seals must be affixed to all copies. The name and address of both the surety and surety's agent must appear on Bond, and it must be supported by credentials showing the Power of Attorney of the surety's agent.

The premiums of such Bonds shall be paid by the Contractor.

If the Contractor fails to perform under the Contract, the Performance Bond may be forfeited by the Contractor to the Owner, in accordance with the termination provisions contained herein.



5. General Provisions

5.1 Quantities

The Owner reserves the right to delete quantities of either labor or materials or both, from the Contract, as deemed necessary by the Owner, to meet any funding restrictions for the Work.

5.2 Subcontractors

The Contractor may utilize subcontractors, subject to the following:

1. The Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of the Contract or his rights, title or interest in or to the same or any part thereof, without the written consent of the Owner. Such consent shall not release or relieve the Contractor or his Surety from any obligation or liability under the Contract. In no case will the Contractor be permitted to sublet more than fifty percent (50%) of the total Contract cost.
2. The Contractor shall not award subcontracts to any subcontractor without prior written approval of the Owner.
3. The Contractor shall be fully responsible for the acts or omissions of any of its subcontractors. Nothing contained in the Contract or the Contract Documents shall create any contractual relationship between the Owner and any subcontractors.
4. The Contractor shall cause appropriate provisions to be inserted in all subcontracts that bind the subcontractor to the Contractor under the same terms of any provisions of the Contract Documents that are applicable to the Work of the subcontractor, and that give the Contractor the right to terminate the subcontractor for any violation of those provisions by the subcontractor.

5.3 Insurance

The Contractor shall not commence Work under the Contract until it has obtained all insurance required under this paragraph. The policies shall also protect the Owner, its officers, agents, and employees as additional insured, and shall be in a form approved by the Owner. Certified copies of the insurance policies, fully executed by officers of the insurance company, shall be submitted with the executed Contract and must be submitted before the Notice to Proceed will be sent. Coverage will be provided through insurance companies licensed to do business in the State of Kentucky.

During the term of the Contract, the Contractor will agree to provide evidence of insurance in the amounts stated below. The Contractor may also be required to submit the original insurance policies for inspection and approval of the Owner before Work is commenced. Said policies shall provide that they cannot be cancelled, permitted to expire, or be changed without fifteen (15) days advanced written notice to the Owner. The Contractor shall provide all insurance required by this Contract.

Required Insurance: The Contractor shall take out, and maintain during the life of the Contract, Comprehensive General Liability Insurance, Automobile Liability Insurance and an Excess Liability Umbrella Form. Such policies shall protect the Contractor and the Owner from any and all claims or damages for bodily injury, including accidental death, as well as any and all claims for property



damage, during the performance of any and all Work under the Contract, whether such performance be by the Contractor, any subcontractor, or by anyone directly or indirectly employed by either of them or in any such manner as would impose liability on the Owner. The minimum required limits for each type of policy are as follows:

A. Comprehensive General Liability:

(1)	General Aggregate	\$1,000,000
(2)	Bodily Injury/Wrongful Death	\$1,000,000 per person \$1,000,000 per occurrence \$2,000,000 aggregate liability
(3)	Property Damage*	\$1,000,000 per occurrence \$2,000,000 aggregate liability

B. Comprehensive Automobile Liability:

(1)	Bodily Injury/Wrongful Death	\$1,000,000 per occurrence \$1,000,000 aggregate liability
(2)	Property Damage*	\$1,000,000 per occurrence \$1,000,000 aggregate liability

*Including any damage caused by blasting or underground excavation.

C. Excess Liability Umbrella Form:

(1)	General Aggregate	\$3,000,000
(2)	Each Occurrence	\$1,000,000

Owner's Protective Liability Insurance: The Contractor shall take out, and maintain during the life of the Contract, an Owner's Protective Liability Insurance policy in the name of the Owner. The primary insurance policy shall not be less than a minimum combined single limit of \$1,000,000. In addition, a \$1,000,000 excess policy will be required. The policy shall protect the Owner from any claims or damages that may arise out of or result from the performance of any Work or from any operations, either directly or indirectly, by the Contractor or its subcontractors under the Contract.

Subcontractor's Insurance: The Contractor shall require subcontractors not protected under the Contractor's insurance policies to take out and maintain insurance of the same nature and kind and in the same amounts as required of the Contractor.

Workers' Compensation Insurance: Before any Work is commenced, the Contractor shall take out, and maintain during the life of the Contract, Workers' Compensation Insurance for all of its employees, in accordance with the laws of the State of Kentucky. In case any Work is subcontracted, the Contractor shall require the subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees, unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in Work under this Contract is not protected under the Workers' Compensation statute, the Contractor shall provide Employee Liability Insurance for any such employees, and shall provide or cause each subcontractor to provide the same.



5.4 Antidiscrimination Clause

The Contractor hereby agrees to the following:

1. That in the hiring of employees for the performance of the Work under this Contract or any subcontract, neither the Contractor nor any subcontractor, nor any persons acting on behalf of the same, will discriminate against any citizen in the employment of or laborers or workers who are qualified and available to perform the Work, for reasons of race, creed, color, national origin, religion, age, sex, handicap, or familial status; and
2. That neither the Contractor nor any subcontractors, nor any persons acting on behalf of the same, shall in any manner discriminate or intimidate any employee hired for the performance of the Work on account of race, creed, color, national origin, religion, age, sex, handicap, or familial status.

5.5 Preconstruction Conference And Partnering

A preconstruction conference with the Owner will be required of the successful Bidder/Contractor. Said conference will be held for the purpose of reviewing the Specifications, Plans, and execution of the Work. The Engineer will arrange the meeting between the Contractor, the Owner, and representatives of the utility companies, and all parties shall be notified of the time, date, and location of the conference by the Engineer. The Agenda for the conference shall include, as a minimum, the following items:

1. Status of Contract and Notice to Proceed
2. Utility company requirements, BUD notification
3. Designation of emergency 24-hour Contractor contacts
4. Discussion of critical items
5. Required permits.
6. Notice to property owners
7. Maintenance of Traffic
8. Review of testing requirements and inspection procedures
9. Operations schedule and completion date
10. Listing of haul roads
11. Confirmation of subcontractors and suppliers
12. Review of the Change Order process
13. Payment Request submittal procedures
14. Payroll submittal procedure

5.6 Haul Roads

The Contractor shall also provide at the preconstruction conference, a list of the local roads to be used for the purpose of hauling equipment and/or material to or from the Project site. Only the local roads in the vicinity of the Project have to be listed; state and/or Federal roads do not have to be included. Where necessary, the list shall include the extent of the roads to be affected and any special restrictions, such as height or weight restrictions, which may be applicable. Construction shall not commence until the Owner has reviewed the haul roads list and approved the same. The submission of the list and approval of the same do not relieve the Contractor the responsibility for conforming to and obeying all applicable height and weight restriction on the haul roads, nor from responsibility for any damages done to, on or along said haul roads. The Contractor is referred



KTC Standards and Specifications for Road and Bridge Construction Section 105.10 concerning restrictions.

5.7 Permits

The Contractor will be required to obtain all permits necessary in connection with the Work. All permits shall be subject to the inspection of the Owner.

Work on this project will be subject to the requirements of the encroachment permit obtained from the Kentucky Transportation Cabinet, including work hours and maintenance of traffic requirements.

5.8 Operations/Progress Schedule and Coordination

At the preconstruction meeting, the Contractor shall submit to the Engineer a schedule showing the method and manner which the Contractor proposes to pursue so as to complete the proposed Work in such a manner that it will be ready for final acceptance within the time stated in the Proposal. Said schedule will show location, sequence, equipment, manpower, and estimated calendar days to complete each segment of Work required. Upon approval by the Engineer of the starting point of the various phases of the construction, the method and manner of performing the Work and the sequence of operations shall not be altered except with the approval of the Owner. Changes to said schedule are to be issued in writing and approved by the Engineer and Owner before operations are changed or rescheduled.

The Contractor shall use all practical means to make the progress of the Work conform to that shown on the progress schedule which is in effect. No payment will be made to the Contractor

while he is delinquent in the submission of a progress schedule. Should the prosecution of the Work, for any reason, be discontinued, the Contractor shall notify the Owner at least twenty-four (24) hours in advance of resuming operations.

5.9 Coordination of Specifications, Plans and General Provisions

The specifications, the supplemental specifications, the plans, general provisions, and all supplementary documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary to each other and to describe and provide for a complete project. In case of discrepancy, calculated dimensions will govern over scaled dimensions, plans will govern over specifications, proposals and special provisions will govern over both specifications and plans.

The Contractor shall take no advantage of any apparent error or omission in the plans or specifications. In the event the Contractor discovers such an error or omission, he shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the plans and specifications. See "Extra Work" and "Modification of Contract or Change Orders".

All items salvaged as part of this Contract shall be removed by the Contractor without damage as excavation and work progresses and placed within the right-of-way where they may be conveniently



picked up by the Owner's forces. Old materials not reserved by the Owner and not being used in the work will become property of and must be disposed of by the Contractor.

5.10 Plans

If applicable, the plans illustrate the general character and scope of the Work covered by the Specifications and Contract Documents. Additional detailed drawings and other information deemed necessary by the Engineer will be furnished to the Contractor when and as required by the Work. Shop drawings, when approved by the Engineer, shall govern all details of the Work and shall take precedence over all other drawings. Figured dimensions on drawings shall take precedence over general drawings and shall be considered as explanatory and not as indicating extra work.

5.11 Notice To Proceed

Once the Contract has been entered into and the preconstruction conference held, the Owner will provide the Contractor a Notice to Proceed. Said Notice shall state the beginning date the Contractor shall commence the Work and the date by which the Work is to be completed.

5.12 Safety Standard And Accident Prevention

With respect to all Work performed under the Contract, the Contractor shall comply with all safety standard provisions of (1) all applicable building and construction codes; (2) the *Manual of Accident Prevention in Construction*, published by the Associated General Contractors of America; (3) the requirements of the Occupational Safety & Health Act, and the requirements of Title 29 of the Code of Federal Regulations, Chapter 15.

The Contractor shall maintain at the job site all medical items and equipment necessary for administering first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or doctor's care of all persons injured on the job site. In no case shall the Contractor permit any employee to work at the job site before it has made arrangements for the immediate removal of injured persons to a hospital or doctor's care.

The Contractor shall at all times exercise every precaution for the protection of persons, including its employees, and property, and shall guard against creating any unnecessarily hazardous conditions. This protection shall include, but is not limited to, sheeting and shoring, barricades, and warning lights as needed.

The Contractor shall be responsible for all accidents arising out of or connected with its performance under the Contract and Contract Documents, and shall indemnify and hold harmless the Owner and the Engineer from all liability, costs, suits, claims or actions brought against it for any injury or alleged injury to any person or property. All loss or damage to the Work arising from fire, floods, storms or other natural causes, or from any detention, obstruction or difficulties which may be encountered in the prosecution of the Work shall be borne by the Contractor.

No blasting of any kind will be permitted on this Project.



5.13 Cooperation By Contractor

The Contractor will be supplied with three (3) copies of the specifications and three (3) sets of approved plans and contract assemblies including special provisions, one (1) set of which the Contractor shall keep available on the Work site at all times.

The Contractor shall give the Work the constant attention necessary to facilitate the progress thereof. He shall cooperate with the Engineer, his inspectors, and all other Contractors of any agency in every way possible.

5.14 Cooperation Between Contractors

The Contractor shall coordinate his work with other Contractors within or adjacent to the Project area. All completed Work shall meet the line and grade of other work in an acceptable manner.

5.15 Warranty

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations, to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Engineer, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

5.16 Control Of Material

The materials used on the Work shall meet all requirements of the Contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of his proposed sources prior to delivery. **All materials supplied shall meet KTC requirements or as otherwise specified in these Contract Documents.**

Unless otherwise specified, all materials shall be new, and both workmanship and material shall be of proper quality and sufficient for the purpose contemplated. The Contractor shall furnish, if requested by the Owner or Engineer, satisfactory evidence as to type and quality of materials and workmanship.

All items of equipment and/or material proposed by the Contractor for substitutions must be pre-approved by the Engineer, in writing, and shall be equal or superior to the items specified in the Contract Documents. If substitutions proposed by the Contractor for a specified item requires engineering revisions, the total expense of said revisions shall be paid by the Contractor. Any items of labor or materials required, but not shown as a separate pay item in the Proposal, shall be furnished and installed as incidental to the Contract, except as noted in the plans and specifications.



5.17 Storage Of Materials

The Contractor shall obtain prior written approval from the Owner for any locations proposed for use for the temporary storage of construction materials, tools and/or equipment. All such materials shall be neatly and compactly maintained in a manner as to cause the least inconvenience to adjacent property owners and to traffic. Under no circumstances shall existing drainage courses be blocked or water hydrants, valves, or meter pits covered in storing materials. All materials stored upon public thoroughfares must be provided with warning lights and reflective striping at nighttime and on weekends in a manner to alert traffic of such obstructions.

Private property shall not be used for storage purposed without written permission of the owner or lessee, and if requested by the Engineer, copies of such written permission shall be furnished him.

Any additional space required must be provided by the Contractor at their expense.

5.18 Sanitary Measures

The Contractor shall construct and maintain sanitary conveniences for use by its employees at the site of the Work. Such conveniences shall be of sufficient number and shall be placed in locations approved by the Engineer. The Contractor shall require all employees and persons connected with the Work to use said conveniences, and any employee or person who violates this rule shall not again be employed at the site of the Work by the Contractor. Such conveniences shall be in compliance with all State and local health department regulations, and the Contractor shall promptly and fully comply with all health department orders and regulations regarding said conveniences.

5.19 Public Convenience And Safety

The Contractor shall at all times so conduct his work as to assure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the highway and the protection of persons and property shall be provided for by the Contractor as specified under subsection Maintenance of Traffic.

The Contractor shall provide and maintain safeguards, safety devices and protective equipment and take any other needed actions as may be necessary to protect the public and property in connection with the work. The Contractor shall notify the Chiefs of the Police Department and Fire Department of the temporary blocking of any street.

The presence of barricades, lights or other traffic control devices provided and maintained by any party other than the Contractor, shall not relieve the Contractor of this responsibility.

5.20 Protection And Restoration Of Property

The Contractor shall be responsible for the preservation of all public and private property. The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

Dust nuisance originating from any work shall be controlled by the Contractor at the sole expense of the Contractor.



When and where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, he shall restore, at his own expense, such property to a condition equal or better to that existing before such damage or injury was done, by repairing, rebuilding or otherwise restoring as may be directed, or he shall make good such damage or injury in an acceptable manner.

When mailboxes, road or street name signs and supports interfere with construction, the Contractor shall remove and erect them in a temporary location during construction in a manner satisfactory to and as directed by the Engineer. After completion of the construction and before final acceptance of the project, the Contractor shall erect the mailboxes, road or street name signs and supports in a permanent location in accordance with the plans unless otherwise directed by the Engineer. This shall be considered a subsidiary obligation of the Contractor under the affected items. The Contractor shall cooperate with the Engineer in protecting and preserving cornerstones and monuments that are within the work area. Monuments, cornerstones and land markers unexpectedly encountered shall be protected, referenced and preserved in the same manner.

5.21 Clean Up During Construction

The Contractor shall at all times maintain the job site and working areas in an orderly condition, reasonably clean and free of accumulations of dirt and debris. If the Contractor fails to maintain the job site and working area in a satisfactory condition, the Owner shall have the right to employ others to do so at the Contractor's expense, commencing 24 hours after the Contractor has been notified that the job site and/or working areas require clean-up.

5.22 Final Clean-Up

As soon as portions of the work are ready for use, they shall be thoroughly cleaned by the Contractor of all dirt and rubbish, and cleared of all materials, forms, falsework, temporary structures and equipment.

The Contractor shall also clean out all sewer drains, inlets, manholes, and other underground lines and structures affected by his work and restore all disturbed areas to their original or better condition.

As soon as portions of the work are ready for use, they shall be thoroughly cleaned by the Contractor of all dirt and rubbish, and cleared of all materials, forms, falsework, temporary structures and equipment.

The Contractor shall also clean out all sewer drains, inlets, manholes, and other underground lines and structures affected by his work and restore all disturbed areas to their original or better condition.

5.23 Final Inspection

When the work has been entirely completed and final cleanup has been performed, the Engineer will inspect the improvement. If items remain which must be completed or remedied by the Contractor, he shall perform the work immediately upon being notified by the Engineer. When such items have been corrected by the Contractor, final inspection will be made. The work must pass final inspection before it will be accepted by the Owner.



5.24 Utilities

Any utility, such as telephone, electricity or water, required by the Contractor for the performance of the Work shall be the responsibility of the Contractor, who shall be responsible for the cost of the same.

5.25 Sewage, Surface, and Floor Flows

The Contractor shall furnish all the necessary equipment, shall take all necessary precautions, and shall assume the entire cost of handling and properly disposing of any sewage, seepage, storm, surface, flood or underground flows which may be encountered at any time during the performance of the Work. The manner of providing for these flows shall meet with the approval of the Engineer, and the entire cost of same shall be included in the unit prices stipulated for the various items of the Work. As applicable, all work must comply with the municipality or County storm water regulations.

5.26 Use Of Existing Facilities

The Owner, upon written notice to and with the approval of the Contractor, shall have the right to connect any sewers, conduit, or pipeline with any existing similar facilities or appurtenances, or to grant permits to make connections therewith at any time before the Work is completed. The Contractor shall not interfere with any such connections and no extra compensation shall be made to the Contractor on account thereof. The performance of the Work shall be planned in such a manner as to allow the use of all existing facilities during the construction period.

5.27 Underground Utility Facilities/Cooperation With Utilities

The Owner will notify all utility companies, all pipeline owners, or other parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practicable.

Within ten (10) days of the award of the Contract, the Owner shall notify all utilities of the name, address, and phone number of the Contractor. The Contractor shall notify the Registered Underground Utility Protection Service and nonmember owners of the starting date at least two (2) working days prior to starting the Work. The utility shall mark, stake, or otherwise designate the location of the underground facilities within 48 hours of receiving the Contractor's notice of the starting date. The marking or locating shall be coordinated to stay approximately two (2) days ahead of the planned construction.

The identification of underground facilities, any necessary relocation thereof, and the protection of the same shall be undertaken in conformance with KTC Standards and Specifications for Road and Bridge Construction Section 107.15. At least two (2) working days prior to commencing Work in an area that may involve underground utility facilities, as shown on the plans, the

Contractor shall notify the Engineer, the registered utility protection service, and the owners of the underground utility facility who are not members of the registered utility service.



The existing underground utilities are shown as accurately as possible on the plans, based on the information available. The Owner and/or Engineer do not assume any liability for location of underground service lines. Any utility services damaged that were previously marked in the field shall be replaced at the Contractor's expense.

Where the plans provide for conduit to be connected to, or to cross either over or under, or close to an existing underground structure, it shall be the responsibility of the Contractor to locate the existing structure, both as to line and grade, before starting to lay the proposed conduit, in order to assure compatibility with line and grade of the conduit. Payment for all such operations shall be included in the unit price bid for the pertinent conduit item.

The Contractor shall make arrangements with the utility company if adjustments to proposed grade of existing facilities (e.g. manholes, catch basins, valves, boxes, etc.) are to be made prior to the commencement of any paving operations. This shall include utility facilities not shown on the plans but that are located within the pavement area. Work performed on utility facilities shall be in strict accordance with the specifications of the applicable utility company and shall be performed under the direction, supervision and inspection of said company.

At points where the Contractor's operations are adjacent to properties of telephone and power companies, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The Contractor shall cooperate with the owner of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

In the event of interruption to underground or overhead utility services as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall immediately alert the occupants of nearby premises as to any emergency that the Contractor may create or discover at or near such premises. The Contractor shall then notify the Engineer and the owner or operator of the utility facility of the disruption and shall cooperate with said utility owner or operator in the restoration of service. If water service is interrupted, repair work shall be continuous until the service is restored. No work shall be undertaken around fire hydrants until the local fire authority has approved provisions for continued service.

5.28 Maintenance During Construction

The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces to the end that the roadway or structures are kept in satisfactory condition at all times.

In the case of a contract for the placing of a pavement course upon other pavement courses or a subgrade previously constructed, the Contractor shall maintain the previous pavement course or subgrade during all construction operations.



5.29 Failure To Maintain Roadway Or Structure

If the Contractor, at any time, fails to comply with the provisions of the above-reference section, the Engineer will immediately notify the Contractor of such non-compliance. If the Contractor fails to remedy unsatisfactory maintenance within 24 hours after receipt of such notice, the Engineer may immediately proceed to maintain the Project and the entire cost of this maintenance will be deducted from monies due or to become due to the Contractor on his Contract.

5.30 Protection Of Existing Structure

It shall be the responsibility of the Contractor to perform the Work in such a manner as not to damage or destroy any existing feature which is not marked for replacement or removal. The Contractor shall, at its own expense, protect and maintain any bridges, curbs, gutters, sidewalks, roadways, or any other private or public structures that may be endangered in the prosecution of the Work. The Contractor shall also exercise due care during the Work so as not to destroy any trees, plants, shrubs, or structures not specifically marked for removal or relocation within the area of the Project site. The Contractor hereby agrees to repair and make good any damages caused to any such property by reason of its prosecution of the Work.

In some instances, the Contractor will be required to excavate under and around existing utilities. The Contractor shall exercise extreme care so as not to damage the utility during the Work.

The Contractor shall schedule his operations so that the improved areas have had sufficient time to cure, set and/or harden before the area is opened to traffic or other use. The Contractor shall be responsible for the immediate repair of all improved areas if damage is done by traffic or other use. The Contractor shall also be responsible for the immediate rectification of problems created in areas outside of the improved areas, which are attributable to the failure of the improved area, such as, but not limited to, the tracking of materials into unimproved areas.

The Contractor shall be responsible for the protection of areas outside of the limits of the designated Project site, but which are adjacent to those limits. This will include those areas used by construction traffic for access to and from the Project site. Where the Engineer and/or the Owner determine that the Contractor's operations have been responsible for damage to areas outside of the Project site limits, the Contractor shall be responsible for the repair of the area, subject to the approval of the Engineer. No additional compensation will be due the Contractor for any such repairs.

5.31 Construction Videos And Photographs

Contractor shall document existing site conditions, progress of the work and the completed project through the use of videos and photographs. Videos and photographs shall be taken along the length of the sewer alignment and all areas of egress to the site pre-construction, during construction and post-construction. Pictures shall be taken at all property affected by the Work and at least every 50 feet along the sewer alignment. All existing structures or facilities affected by the Work shall also have videos and photographs taken of their before and after conditions. The OWNER shall be present during the pre-construction and post construction videotaping and photograph work and shall determine the limits at each location. All photographs shall be in digital format with a time and date stamp. Photographs shall be a minimum of 2.1 mega pixels. All videos shall be provided on DVD.



Before starting construction, video and take photographs along the length of the sewer alignment and all areas of egress to the site as directed by OWNER. Pictures shall be taken at all property affected by the Work and at least every 50 feet along the sewer alignment. All existing structures or facilities affected by the Work shall also have videos and photographs taken of their pre-construction conditions. The purpose of these videos and photographs is to document existing physical conditions at each site and its surrounding property.

- i. Before starting work, take a minimum of two photographs to show existing conditions at and adjacent to each driveway, landscaped area, fence and any other permanent structure that could potentially be affected by construction.
- ii. Provide one copy of the video and pictures to the OWNER prior to construction.
- iii. CONTRACTOR shall audibly record a brief description of each video and the date and time of the recording.

E-mail digital files of each photograph to the OWNER and ENGINEER as soon as they are available. Each digital file shall be labeled with the following information:

- i. Date photograph taken.
- ii. Title of Project.
- iii. Description of view shown in photograph.
- iv. Numbered identification of exposure.

Following substantial completion of the work and after final completion photographs have been taken, burn a CD with copies of all digital photographs taken for the Work. Submit two copies of CD's. Submit two copies of each video as soon as they are available. Each video shall be labeled with the following information:

- i. Date video was taken.
- ii. Title of Project.
- iii. Location of taping.

All work for the above shall be incidental to the Contract.

5.32 Monuments And Landmarks

The Contractor shall not remove, relocate or in any way damage any monuments, survey pins or landmarks without the approval of the Engineer. Any monument, survey pin or landmark so removed without approval of the Engineer may be replaced by the Owner and the expense of the survey and replacement charged to the Contractor.

5.33 Base Lines and Benchmarks

The Contractor shall carefully preserve all base lines and benchmarks which have been set by the Owner or its agent. The Contractor shall be charged with the expense of resetting any base lines or benchmarks caused by the loss or disturbance of such by the Contractor.



5.34 Restoration Of Disturbed Areas

In all cases where the Work requires the restoration of areas with topsoil, seeding and mulching, the Contractor shall not seed and mulch until directed to do so by the Engineer. The Engineer shall not so direct the Contractor until he has assured that the site is properly graded and topsoiled.

Upon completion of the seeding and mulching, the Contractor shall immediately notify the Engineer of the same. Upon receipt of notice from the Engineer that the restoration is complete, the Owner shall notify the property owners of their maintenance duties.

In cases where the Engineer determines the seeding and mulching should not be performed until after the designated completion date for the Work, the Engineer shall notify the Contractor of the same, in writing. Suspension of the seeding and mulching at the direction of the Engineer shall not count against the Contractor as a delay.

5.35 Supervision Of The Work

The Engineer or upon the authorization of the Engineer, the Owner's Public Works Director, shall in all cases, determine the amount, quality acceptability and fitness of the kinds of labor and material, which are to be paid for under the Contract. The Owner or the Owner's agent shall determine all questions related to the Work and the performance thereof, and decide every question which may arise relative to the fulfillment of the Contract on the part of the Contractor.

The Engineer will evaluate the materials furnished and the labor to be performed under the Contract, and is authorized by the Owner to reject all labor or materials, or any part thereof, that does not comply in kind, quality, quantity, time, place or manner with the Contract or Contract Documents. The approval or acceptance or any part of the Work, or any payment on account thereof, shall not prevent the rejection of said labor or materials at any time thereafter during the term of the Contract, if said labor or materials are found to not be in accordance with the requirements of the Contract or the Contract Documents.

5.36 Defective Or Unacceptable Work

All materials and each part or detail of the Work shall be subject to evaluation by the Engineer. The Engineer shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor, as is required to make a complete and detailed review.

Any work done or materials used without direct observation by an authorized representative may be ordered removed and replaced at the Contractor's expense.

All work, which does not conform to the requirements of the Contract, will be considered unacceptable unless otherwise determined acceptable.

Should defective or unacceptable labor or materials be suspected, and the Engineer so require, the Contractor shall uncover, take down or make openings in the finished work for the purpose of examination at such points as the Engineer designates.

If the Work so exposed or examined is satisfactory, the cost of uncovering, taking down or making openings shall be paid by the Owner to the Contractor as a change in Work; however, should the



Work thus exposed or examined be unsatisfactory, the cost of uncovering, taking down or making openings shall be borne by the Contractor.

If the exposed or examined labor or materials are found to be unacceptable or defective by the Engineer, he shall serve on the Contractor written notice of his rejection of the unsatisfactory labor or materials, his instructions for remedying the same, and a time within which the defective material or labor is to be remedied. If the Contractor neglects or refuses to remove and/or replace the defective labor or materials within the time limit given, the Owner may remedy the situation and charge the expense thereof to the Contractor. The expense so charges shall be deducted out of the monies due to the Contractor under the Contract. If the amounts still due the Contractor under the Contract are insufficient to meet the expense, the additional monies shall be paid by the Contractor, and if the Contractor refuses or neglects to pay, the monies shall be paid by his Surety or shall be deducted from its Performance/Contract Bond.

If, in the opinion of the Owner, an emergency arises that jeopardizes the continuity of water service and/or the public health, safety or welfare of the residents of the Owner, the Owner shall give notice of the emergency to the Contractor by telephone or in person. If the Contractor is unable to remedy the situation at the time it exists, the Owner reserves the right to immediately take steps to have the situation remedied. If, in the opinion of the Owner, the emergency was created through the carelessness or recklessness of the Contractor, then the Contractor and its Surety shall be liable to the Owner for all expenses incurred by the Owner in correcting the situation.

5.37 Intent of Contract

The intent of the Contract is to provide for the construction and completion in every detail of the Work described. The Contractor shall perform all items of work covered and stipulated in the proposal and perform altered and extra work, furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the plans, specifications and terms of the Contract. Should any misunderstanding arise as to the intent or meaning of the plans, specifications, special provisions or proposal, or any discrepancy appear, the decision of the Engineer shall be final and conclusive.

5.38 Measurement Of Quantities

For all contracts, except lump sum contracts, after an item of the Work is completed and before final payment is made, the Engineer will determine the quantities of various items of work performed, as the basis for final settlement. The Contractor, in case of unit price items, will be paid for the actual amount of work performed in accordance with these specifications as provided under the various items.

5.39 Plans And Estimated Quantities

The Plans and Bid Proposal quantities prepared by the Owner are intended to outline the Work to be done by the Contractor. The estimated quantities shall be used in determining the total amount of the bid and for the purpose of determining the lowest and best bid. It is understood and agreed,



however, that the Plan is subject to minor changes from time to time during the progress of the Work, that the estimated quantities listed in the Proposal are approximate only, that the Contractor has no claim for damage and is not entitled to extra pay above and beyond the agreed unit prices on account of increasing or decreasing the quantities, and that in measuring the work for payment to the Contractor, the Owner shall consider only the number, length, area and solid contents of the various items of Work incorporated in the improvement in accordance with the Plans or as ordered placed by the Owner.

5.40 Prices

The Owner will pay to the Contractor the prices herein stipulated as full compensation for everything furnished and work completed by the Contractor under the Contract, including all incidental work required but not specifically mentioned, and for any work arising from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all risks of every description connected with the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work, as herein specified and for well and faithfully completing the work, together with remedying all defects developing during the guarantee period.

5.41 Alternation Of Plans Or Character Of Work

The Owner reserves the right to make, at any time during the progress of the Work, such increases or decreases in quantities and such alterations in details of construction as may be found to be necessary or desirable. Such increases or decreases and alterations shall not invalidate the Contract nor release the Surety, and the Contractor agrees to perform the Work as altered, as if it had been a part of the original Contract.

Unless such alterations and increases or decreases materially change the character of the work to be performed or the cost thereof, the altered work shall be paid for at the same unit prices as other parts of the Work. No claim shall be made by the Contractor for any loss of anticipated quantities and the quantities of work as done. Payments shall be in accordance with Section 109 of the KTC Standard and Specifications for Road and Bridge Construction. If, however, the character of the Work of the unit costs thereof are materially changed, an allowance shall be made on such basis as may have been agreed to in advance of the performance of the Work, or in case no such basis has been previously agreed upon, then an allowance shall be made, either for or against the Contractor, in such amount as the Owner may determine to be fair and equitable.

Should the Contractor encounter or discover during the progress of Work, subsurface or latent physical conditions at the site differing materially from those indicated in this Contract, or unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract, the Engineer shall be promptly notified in writing of such conditions before they are disturbed. The Engineer will thereupon promptly cause the investigation of said conditions, and if they are found to so materially differ and cause an increase or decrease in the cost of, or the time required for performance of the Contract, an equitable adjustment will be made.

Any adjustment in compensation because of a change or changes resulting from one or more of the conditions described in the previous paragraph will be made in accordance with the provisions of Extra Work. Any adjustments in Contract time because of changes will be made in accordance



with the provisions in 108.07 of the Kentucky Standard Specification for Road and Bridge Construction.

5.42 Extra Work

Items of work with unit prices included in the estimate of the original Contract, in an amount less than \$10,000 may be authorized as Extra Work by the Engineer.

5.43 Modification Of Contractor Or Change Orders

Items of Work not included in the estimate of the original Contract and additional units of items included in the estimate of the original Contract in an amount in excess of \$10,000, may be authorized as a Modification of the Contract or Change Order. Payment shall be in accordance with Sections 109.04 of the Kentucky Standard Specification for Road and Bridge Construction. The Owner may, when necessary, by ordinance, authorize alterations or modifications in the Specifications and Plans for the Work, or omit from the Work covered by this Contract any portion thereof. Before any such alteration or modification shall be effective, the price to be paid for the Work or the material, or both, under the altered or modified Contract, shall have been agreed upon in writing and signed by the Contractor and by the Contractual Agent or Agents of the Owner. It is expressly agreed that such changes shall not, in any way, violate or annul the Contract, and the Contractor hereby agrees not to claim or bring suit for any damages, whether for loss of profits or otherwise, on account of these changes. Whenever, during the progress of the Work, any change or modification of the Work is agreed upon, such change shall be considered and treated as though originally contracted for, and shall be subject to all provisions of the original Contract.

The Contractor's Sureties will not be notified of changes in the work or cost thereof, except when by reason of any Change Orders, the total Contract price increases by more than twenty (20%) percent of the original price.

5.44 Disputes And Contractor Claims

In cases where there arises a dispute (whether over payment, claims, or quality of Work) between the Contractor and the Owner, the Contractor shall not cease Work on the Project because of said dispute, unless told to cease work by the Owner. The Contractor shall continue Work on the Project and agrees that such a dispute shall not relieve him from the requirements under "Time of Completion and Damages for Delays".

In all cases, the Contractor shall submit to the Owner any claims for disputed amounts, in writing, within seven (7) calendar days of learning of said dispute. In submitting such claim, the Contractor shall include his actual original calculations and raw cost data, along with his job cost reports and field diaries.

If the Owner makes to the Contractor an offer on a claim which the Contractor refuses, and if the Contractor then gets an amount equal to or less than the Owner's last offer in court, the Contractor shall pay all legal costs, including attorney's fees and expert witness fees, that the Owner incurs from the date of the Owner's last offer until the day the Contractor is awarded judgment.



Any claims or disputes shall be limited by the requirements of "Modification of Contract or Change Order".

5.45 Time Of Completion And Damages For Delays

The Project construction time shall commence upon the date indicated in the Notice to Proceed, which shall be sent to the Contractor by the Owner. The Contractor shall agree to commence the Work on the date specified in the written Notice to Proceed, weather permitting, and to fully complete the Work by the date stated in the contract, unless such time for completion is extended, in writing, by the Owner. However, neither the Contractor nor any subcontractors shall commence any part of the work under the Contract until it has obtained all insurance required, as listed in the General Conditions, and such insurance has been approved by the Owner.

The Contractor agrees that time is of the essence, and therefore, if the Contractor neglects, fails, or refuses to complete the Work within the allotted time, or fails to secure an extension of time for delays, the Contractor does hereby agree to pay to the Owner, as liquidated damages and not as a penalty, the amount as stated in the Contract for each calendar day beyond the completion date stated in the Notice to Proceed, unless the time for completion has been extended in writing by the Owner. Such damages shall be deducted from any monies due and owing to the Contractor under the Contract. If the amounts still due the Contractor under the Contract are insufficient to meet the expense, the additional monies shall be paid by the Contractor, and if the Contractor refuses or neglects to pay, the monies shall be paid by his Surety or shall be deducted from its Performance/Contract Bond.

If the Contract is revised in any material respect and it is determined that said revision will cause delay in the completion of the work, the Engineer will postpone the completion date by the number of calendar days he determines to be equitable.

If the Contractor finds it impossible for reasons beyond his control to complete the work by the date as specified or as extended in accordance with the provisions of this subsection, he may make a written request to the Engineer for an extension of time setting forth therein the reasons which he believes will justify the granting of his request. Requests for extensions of time shall be filed in writing by the Contractor to the Engineer not later than thirty (30) days following the termination of the delay. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify.

Delays caused by weather or seasonal conditions should be anticipated and will not be considered as the basis for an extension of time. The Engineer will not allow any extension of time for weather or resulting conditions, except for delays caused by earthquakes, tornadoes or other catastrophic forces per Section 108 of the Kentucky Standard Specification for Road and Bridge Construction.

The extended time for completion shall then be in full force and affect the same as though it were the original time for completion.

If the Owner should suspend the Work in whole or in part, the date for completion shall be extended by the number of days that the suspension directly or indirectly delays the completion of the Work. If the Work is delayed for unforeseeable causes beyond the control and without the fault of negligence of the Contractor, such as severe or unusual climatic conditions, acts of God, acts of the Owner or interference by other contractors, extensions of time may be granted by the Owner, upon the Contractor's written request for an extension. The Contractor shall, within five (5) days



from the beginning of such delay, notify the Owner in writing of the causes of the delay and request an extension. In no case shall such an extension of time exceed the time actually lost to the Contractor by reason of such delay or interference. The Owner reserves the right to suspend the whole or any part of the Work, when in the best interest of the Owner, in its sole discretion. Without any additional compensation to the Contractor for such suspension; however, the Contractor shall be granted an extension of time for completing the Work in the same amount of time that it was delayed by such suspension, unless said suspension was necessitated by the actions or inactions of the Contractor.

5.46 Failure To Complete On Time

If the Contractor fails to complete the Work within the time or times allowed by the Contract, the Owner, if satisfied that the Contractor is carrying the Work forward with reasonable progress and deems it to be in the best interest of the Public, may allow him to continue in control of the Work. It shall be necessary for the Contractor to make written application to the Owner in order to warrant such continuance. Payments to the Contractor for work performed and materials furnished will be made.

When the work is not completed within the time or times allowed by the Contract, and the Contractor is permitted to remain in control, the Work shall be prosecuted at as many different places, at such times, and with such forces as the Owner may request.

For each calendar day that any work shall remain uncompleted after the Contract completion date or dates, the sum specified in the Contract will be deducted from any money due the Contractor, not as a penalty but as liquidated damages provided, however, that due account shall be taken of any adjustment of the completion date or dates granted under the provision of "Time of Completion and Damages for Delays". In the event one or more interim completion dates are specified without specific separate liquidated damages, the amount set forth in the Schedule in Section 108 of the Kentucky Standard Specification for Road and Bridge Construction will separately apply to each interim date. In the event a period of liquidated damages for an interim completion date overlaps a subsequent completion date, the liquidated damages will be cumulative.

Permitting the Contractor to continue and finish the Work or any part of it after the date or dates fixed for its completion, or after the date or dates to which completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its right under the Contract.

The Owner may waive such portions of the liquidated damages as may accrue after the work is in condition for safe and convenient use by the public.

5.47 Unsatisfactory Progress And Termination Of The Contract

In case the Contractor or any Subcontractor fails to furnish materials or to execute the Work in accordance with the Plans and Specifications, or if the provisions of the Contract are otherwise violated, then in any such case, upon ten days written notice to the Contractor and his Surety, the Owner shall have the right to declare the Contractor in default on the Contract. Said notice shall contain the reason for the Owner's intention to declare the Contractor in default on the Contract and, unless within ten days after service of said notice the violation shall cease or satisfactory arrangements shall have been made for its correction, the Contractor, upon the expiration of said ten days, shall be in default on the Contract and his right to proceed under the Contract shall be terminated.



In the event the Contract is thus declared to be defaulted, the Owner will immediately notify the Contractor and his Surety of such action, and will at once cause the work already done to be measured and computed. The action of the Owner in the declaration of the default of the Contract shall be final and conclusive, and the Contractor shall not be entitled to claim or receive any damages for not being allowed to continue. After the default of the Contract, the Surety shall have the right to take over and complete the Work, provided, however, that the Surety shall notify the Owner in writing of its intent to do so within twenty (20) days after the notice of the default of the Contract. Such completion of the Work by the Surety shall be done in strict accordance with all the provisions of the original Contract. However, if the Surety does not take over the Contract as stated above, then the Owner shall cause the Work to be completed under a second contract. If the cost of the Work done under the second contract exceeds what it would have cost under the original Contract, the increased cost shall be paid from any money due the Contractor under the Contract, and if that is not sufficient, then the increased cost shall be paid by the Contractor and/or his Surety.

The Contractor and/or his Surety shall also pay all cost and expense of reletting the Work and all damages resulting from noncompletion of the Work within the Contract time. If, when the Work is completed, it is found that there is any money due the Contractor, it will be paid to him; but no money shall be paid to the Contractor under the Contract after it has been declared in default, until the Work has been completed and accepted and all claims and suits resulting therefrom shall have been settled.

5.48 Payments

The Owner shall pay to the Contractor the price stipulated in the Contract, by making progress payments to the Contractor during the performance of the Work, on the basis of the value of work performed.

The Contractor shall submit an invoice to the Engineer of the quantity of work performed for approval. Requests for payment shall not be made more frequently than every thirty (30) days. The Engineer shall forward the invoice to the Owner for approval, and upon approval of the invoice by the Engineer and the Owner. The Owner shall pay the Contractor within thirty (30) days.

Partial payment may be reduced or withheld entirely if, in the opinion of the Owner, construction is not proceeding according to the Contract, or if for any other violation, or for failure of the Contractor to comply with the orders of the Owner, or pending settlement of claims of liens filed against the Contractor.

The Owner shall make partial payments to the Contractor for work performed and materials delivered to the site at 95% of the value of work.

The Contractor shall submit three (3) signed and notarized original copies of each Application for Payment to the Engineer. One copy shall include waivers of lien and similar attachments if required.

5.49 Waiver Of Mechanic's Lien

Prior to Final Application for Payment, the Contractor shall submit waivers of mechanic's liens from subcontractors, materialmen, and suppliers for all construction to date.

1. Owner reserves the right to designate which entities involved in the Work must submit waivers.



2. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
3. Waiver Forms: Submit waivers of lien on forms provided.

5.50 Acceptance Of Final Payment

After the final inspection has been made and the Owner has accepted the Work, the final estimate and Final Statement of Cost will be prepared. If any items were erroneously overestimated in any partial estimate, such errors will be corrected in any subsequent partial estimate or in the final estimate, and the Contractor shall have no right to any such excess and shall not be entitled to any damage on account of such corrections in the final estimate.

The following paperwork is necessary from the Contractor to close-out the Project:

1. Final invoice for payment.
2. Final affidavit listing all subcontractors/suppliers used on the Project and indicating the amount paid in full
3. Final Release of Liens from all subcontractors indicating the amount paid in full.
4. Prevailing Wage Affidavit, if applicable.
5. Guarantee
6. Final Release of Lien.
7. Concrete Test Reports, if applicable.
8. Asphalt tickets stamped with the Inspector's seal, if applicable.
9. Any additional testing reports as required by the Contract.

After the final estimate and Final Statement of Cost have been prepared and after the Contractor has fulfilled all of his obligations under the Contract and all the above paperwork has been accepted, the Owner will pay the entire sum found to be due the Contractor after deducting all previous payments and any liquidated damages, if applicable.

After the final estimate and Final Statement of Cost have been prepared and after the Contractor has fulfilled all of his obligations under the Contract, the Owner will pay the entire sum found to be due the Contractor after deducting all previous payments and any liquidated damages, if applicable.

The date of acceptance of the Work by the Owner shall be the date of approval of the Final Statement of Cost.

If, after physical completion of the work and acceptance of the Owner's final measurements by the Contractor, the Owner finds that the Final Statement of Cost or final estimate or both may be unavoidably delayed, he may allow a payment on one-hundred percent (100%) of the final measurements, less such estimated amount of money as the Owner may deem necessary to withhold to take care of any contingencies which may arise.

Should the Contractor have any claim against the Owner because of a variance with the Owner's final measurement, the Owner may allow payment based on the Owner's measurement pending adjustments of the disputed item or items. Acceptance of payment on such basis shall not stop the Contractor's claim nor prevent its satisfactory adjustment.



Retainage shall be paid to the Contractor within thirty (30) days from the date of the Owner's final acceptance of the Work and the completion of the Contract. Upon the Contractor's acceptance of this final payment, the Owner and the Engineer shall be released from any and all claims and any liability to the Contractor for anything further under or relating to the Contract or the Contract Documents, including any act or omission by the Owner or any of its employees or agents, including the Engineer; however, no payments, final or otherwise, shall operate as a release on the Contractor or its Sureties from any obligations under the Contract or the Contract Documents.

5.51 Termination Of The Owner's Liability

No person, partnership, firm, or company other than the Contractor shall have any interest in the Contract and no claims shall be made or held valid and neither the Owner nor its agents shall be held liable for, nor shall be held to pay any money except as herein provided. The acceptance by the Contractor of the final payment made as aforesaid shall operate as, and shall constitute, a release to the Owner and its agents from any claim or liability to the Contractor for anything done or furnished for, or relating to the Work or for any act or neglect of the Owner or any person related to or connected with the Work.

5.52 Termination For Cause

- A. In the event that any of the provisions of the Contract are violated by the Contractor, or by any of its subcontractors, the Owner may serve written notice upon the Contractor and its surety of its intention to terminate the Contract. Such notice shall list the act or omission causing the breach, upon the service of such notice, the Contractor shall have ten (10) business days to correct the breach or to make arrangements for correction that is satisfactory to the Owner.
- B. If no such correction or arrangements are made within the allotted time, the Owner may, in its sole discretion, terminate the Contract on a date solely determined by the Owner. In the event of such termination, the Owner shall immediately serve notice thereof to the Contractor and its surety. The surety shall then have the right to take over and perform the Contract provided, however, if the surety does not elect to continue performance, the Performance Bond will be forfeited and the Owner shall cause the Contract to be completed.
- C. Upon termination for cause, the payment to the Contractor of compensation earned for Work performed to the date of such termination shall be in full satisfaction of all claims
 - 1. against the owner under this Contract, however the Owner shall have the right to deduct from any amounts due and owing to the Contractor, including retainage, any costs, both direct and incidental, incurred by the Owner in completing the Project. The Contractor and/or surety shall be liable for any excess costs the Owner may so incur, and the Owner shall have the right to pursue any legal remedies necessary to affect the same.



5.53 Termination For Convenience

- A. The Contractor hereby acknowledges that as the Owner is a public entity, due to unforeseen circumstances, funding restraints, or changes in the nature of the Work, it may become necessary for the Owner to terminate the Contract for convenience.
- B. In the event the owner finds it necessary to terminate the Contract for convenience, the Owner shall serve notice upon the Contractor and its surety of its intention to terminate the Contract ten (10) business days prior to the termination date.
- C. Upon termination for convenience, the Owner shall pay to the Contractor all compensation due for Work performed to the date of termination, including all costs for materials that were to be incorporated into the Project that cannot be returned; all restocking fees for materials that were to be incorporated into the Project that can be returned only upon the payment of a restocking fee. The Contractor shall submit to the Owner detailed invoices and proof of restocking fees, if any, within ten (10) business days of his receipt of notice of termination from the Owner. In addition, the Owner will negotiate compensation with the Contractor for actual costs incurred as a result of the termination.

5.54 Contractors Right To Terminate Contract

The Contractor may terminate the Contract, upon ten (10) days written notice to the Owner if any public authority should stop the work for three (3) months, or if the Owner should fail to issue a Certificate of Payment, or if the Owner should fail to pay in accordance with this agreement.

5.55 Guarantee Of Work

The Contractor hereby guarantees all work performed for a period of one (1) year from the date of completion, against all defects resulting from the use of inferior materials or equipment (unless said materials or equipment were provided by the Owner) or inferior workmanship. The Contractor

hereby agrees that during the guarantee period, it shall make all repairs, corrections, replacements or changes that, in the opinion of the Engineer, are necessary due to the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the Contract or Contract Documents. The Contractor shall, promptly upon receipt of written notice from the Owner, remove and replace all unsatisfactory work with suitable materials, equipment or workmanship, without additional expense to the Owner.

If the Contractor fails to proceed with these terms of the guarantee in a timely manner, the Owner shall have the right to have the defects corrected, and the Contractor and its sureties shall be liable to the Owner for all expenses incurred by the corrections.

Any or all special guarantees applicable to any definite parts of the Work, including the materials or equipment, shall also be subject to the terms of this section during the first year of the life of such special guarantees.

Customary manufacturer's guarantees in excess of one year shall be turned over to the Owner. If the terms and conditions as set forth are met to the satisfaction of the Owner and Contractor, the Owner may reduce the Performance Bond to ten percent (10%) of the total amount paid the Contractor in the performance of this Contract as a Guarantee bond.



5.56 Notice

Any written notice required to be served under the Contract or the Contract Documents shall be served by certified mail, or by personal service at the parties' places of business.

5.57 No Estoppel

At no time shall the Owner be precluded or estopped by any provisions of the Contract, from demanding and recovering from the Contractor any damages sustained because of the Contractor's failure to comply with the Contract or the Contract Documents. The final inspection of the Work shall not be binding or conclusive upon the owner if it subsequently appears that the Contractor willfully, fraudulently, or through collusion with an agent of the Owner, supplied inferior materials or workmanship, or departed from the terms of the Contract or Contract Documents, notwithstanding the acceptance of the Work and payment for the same by the Owner.

5.58 Assignment

Neither the Contract or any part thereof, nor any funds to be received there under, by the Contractor shall be assigned, except upon the prior written permission of the Owner, upon any conditions that may be imposed by the Owner, and upon the prior written permission of any sureties who executed the Performance Contract Bond on behalf on the Contractor.

5.59 Independent Contractor Status

At all times during the term of the Contract, the Contractor shall be and remain as an Independent Contractor with respect to all services performed under the Contract, The Contractor agrees that all income reporting requirements to the U.S. government, the State of Kentucky, and any local governments are its responsibility and not that of the Owner. The Contractor shall be responsible for the payment of all taxes including, but not limited to, Federal, state, and local taxes, Social Security taxes, unemployment insurance taxes, and other taxes or license fees required by law, for its officers, agents, and employees. The Contractor agrees that neither it, nor any of its officers, agents, nor employees is entitled to receive workers' compensation, unemployment compensation, vacation leave, sick leave, or any other fringe benefits provided to the employees of the Owner or any other Owner agency, under this Contract. Contractor acknowledges that under this Contract, the Owner is not required to contribute to the Kentucky Public Employees Retirement System on behalf of the Contractor, its officers, agents, or employees, nor is the Contractor eligible to contribute to or receive benefits from said system.

5.60 Other Contracts

The Owner reserves the right to allow other work or to enter into other contracts for work or materials to be constructed or placed in or about the Work to be performed under this Contract, and to order the starting and progress of such other contracts at any time prior to the completion of this Contract. The Contractor hereby agrees to allow the construction or progress of other such



work, under such arrangements for the joint occupation for the site of the Work as the Engineer may establish. The Contractor hereby waives any claim for damages or extra compensation by reason of any real or supposed interference with his performance of the Work; however, if in the judgment of the Engineer, the joint occupation of the site has unreasonably impeded the progress of the Contractor's work under the Contract, then the time for completion of the Work may be extended by the Owner.

5.61 Patents

The Contractor shall indemnify and hold harmless the Owner, its officers, employees, and agents from all liabilities, judgments, costs, damages, or claims arising from the infringement of any patent, patent rights or royalty rights by reason of the use of any patented materials, machinery, devices, and equipment furnished or used in the performance of the Work, or by reason of the use of patented designs furnished and incorporated into the Work by the Contractor and accepted by the Owner, excepting any materials or equipment furnished by the Owner. In the event that any claim, suit, or action in law or equity of any kind whatsoever is made or brought against the Owner involving any such patents, then the Owner shall have the right to retain, from the money due and owing to the Contractor, an amount the Owner deems sufficient to protect the Owner against loss until such claim, suit, or action has been settled and evidence of such settlement has been satisfactorily presented to the Owner's Law Director.

5.62 Laws, Ordinances And Regulations

The intent of the Contract and the Contract Documents is to include each and every provision and clause required by law to be inserted herein, and they shall be read and enforced as though there were included herein. The Contractor shall keep itself fully informed of, and shall strictly observe and comply with, all applicable Federal, State, County, and local laws, rules, regulations, and ordinances; building code requirements; permit requirements; licensing requirements; inspection requirements; all laws, rules, and regulations regarding the employment of and payment of all laborers, the legal rights of all laborers employed under the Contract; all orders or decrees that exist or that may be enacted by anybody or tribunal having jurisdiction or authority over any aspect of the Work. The Contractor shall also insure that its subcontractors are also informed of and strictly comply with and observe all applicable laws, rules, regulations, and ordinances.

The Contractor shall be required to give all notices and pay all fees for any required permits, licenses, or inspection, unless the Owner assumes the responsibility for giving such notices or paying such fees. The Engineer will discuss any special permits that may be required for the Project at the preconstruction conference.

The Contractor shall indemnify and hold harmless the Owner, the Owner's officers, employees and agents, including the Engineer, against any claim or liability arising from or based upon any violation of any such law, rule, regulations, ordinance, order, decree or requirement, whether by the Contractor itself, its employees or agents, or any of its subcontractors.

Should the Contractor at any time find that any requirement of the Contract or the Contract Documents is at variance with any applicable law, rule, regulation, requirement, order, or decree, it shall promptly notify the Engineer.



5.63 Environmental Protection

The Contractor shall observe and comply with all Federal, State, and local laws and regulations controlling pollution of the environment and shall comply with provisions of Section 107 of the Kentucky Standard Specification for Road and Bridge Construction.

5.64 Taxes

The Contractor will be required to pay, without additional expense to the Owner, all Federal, State, local and other taxes which may be applicable to the Work, excepting any taxes and assessments on the real property comprising the site of the Work.

The Contractor hereby agrees to withhold all City income taxes due or payable under the provisions of the Codified Ordinances of the City for wages, salaries, and commission paid to its employees who will work within the City limits for more than 12 workdays and further agrees that any of its subcontractors shall be required to withhold any such City income taxes due under said Code for services performed under this Contract. The Contractors are advised to get full information from the Tax Office prior to bidding.



6. Utility Ownership

Gas	Scott Pfefferman – Duke Energy 617 Todhunter Road Monroe, Ohio 45050
Electric	Matt Coleman 2010 Dana Ave-EF 324 Cincinnati, Ohio 45207
Water	Kyle Ryan P.O. Box 18640 Erlanger, Kentucky 41018
Telephone	Breck Cowan/Underground Jodi Geiman/Overhead Altafiber 221 E. Fourth St., M.L. 121-900 Cincinnati, Ohio 45201
Cable TV	Chris Gapinski 10920 Kenwood Road Cincinnati, Ohio 45252
Sanitary and Storm Sewer	Zach Atkerson 1045 Eaton Drive Fort Wright, Kentucky



7. Specifications For Construction

In general, unless specifically set forth herein, the work, material, and methods of measurement and payment shall conform to the applicable divisions and paragraphs (as noted on the Bid Proposal or in the plans) of the most current edition of the:

Commonwealth of Kentucky
Transportation Cabinet
Department of Highways, Frankfort

Standard Specifications
for
Road and Bridge Construction



8. Special Provisions

8.1 Items 105.07 / 107.15 - Cooperation With Utilities

All portions of Item 105.07 and Item 107.15 of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction shall apply.

At least two (2) working days prior to commencing construction operations in an area which may involve underground utility facilities as shown on the plans, the Contractor shall notify the Engineer, the registered utility protection service, and the owners of each underground utility facility not members of the registered utility protection service.

The existing underground utilities are shown as accurately as possible on the plans, based on information available. The Owner and/or the Engineer do not assume any liability for location of these underground utility service lines. Any utility services damaged that were previously marked in the field shall be replaced at the Contractor's expense.

Where the plans provide for conduit to be connected to, or to cross either over or under, or close to an existing underground structure, it shall be the responsibility of the Contractor to locate the existing structure, both as to line and grade, before he starts to lay the proposed conduit, in order to assure compatibility with line and grade of the proposed conduit. Payment for all operations described above shall be included in the unit price bid for the pertinent conduit item.

The Contractor shall adjust or arrange with utility company to adjust to proposed grade all existing utility facilities, i.e., manholes, catch basins, valves, boxes, etc., prior to the commencement of paving operations. This shall include utility facilities not shown on the plans, which may be found to be located within the pavement area. Work performed on the utility facilities shall be in strict accordance with the specifications of the applicable utility company and shall be performed under the direction, supervision, and inspection of said company.

8.2 Coordination With Utilities

Coordination of work schedules with affected utilities will be required. Upon the contract award, the coordination of all necessary relocations or adjustment of all utility facilities becomes the responsibility of the Contractor.

8.3 Item 105.06 – Cooperation Between Contractors

The Contractor shall coordinate his work with other Contractors within or adjacent to the project limits. All improvements completed under this contract shall meet the line and grade of other work in an acceptable manner.

8.4 Item 106 – Control Of Material

Unless otherwise specified, all materials shall be new, and both workmanship and materials shall be of proper quality and sufficient for the purpose contemplated. The Contractor shall furnish, if so required, satisfactory evidence as to type and quality of materials and workmanship.



All items of equipment and/or material proposed by the Contractor for substitutions must be approved by the Engineer in writing and shall be equal or superior to the items specified in the contract documents. If said substitution proposed by the Contractor for a specified item requires engineering revisions, the total expense of said revisions shall be paid by the Contractor.

Any items of labor and materials required, but not shown as a separate pay item in the proposal, shall be furnished and installed as incidental to the contract, except as noted in the plans and specifications.

8.5 Item 106.08 - Storage Of Materials

The Contractor shall obtain prior approval in writing from the Owner for the locations to be used for the temporary storage of construction materials, tools, and/or machinery. All such materials, tools, and machinery shall be neatly and compactly piled in such a manner as to cause the least inconvenience to the property owners and to traffic. Under no circumstances shall existing drainage courses be blocked or water hydrants, valves, or meter pits covered. All materials, tools, machinery, etc., stored upon public thoroughfares must be provided with warning lights and reflective sheeting at nighttime and weekends to alert traffic of such obstructions.

8.6 Item 108.02 - Preconstruction Conference

Prior to the commencement of construction activities, the Engineer will arrange a meeting between the Contractor, the representatives of the Owner, and the representatives of each of the utility companies. The time, date, and location of said meeting will be determined after the awarding of the contract, and the parties will be notified by the Engineer.

The agenda for the preconstruction meeting shall include the following items:

1. Announcement of Award
2. Utility Company Requirements
3. Designation of Emergency 24-hour Contractor Contacts
4. Discussion of Critical Plan Items
5. Review of Testing and Inspection Procedures
6. Operations Schedule
7. Listing of Haul Roads
8. Identification of Subcontractors
9. Review of Change Order Process
- 10.. Payment Request Submittal Procedure

The Contractor shall coordinate all work with the Engineer. A detailed schedule of operations shall be furnished by the Contractor to the Engineer at the preconstruction meeting and shall list the order of operations and the time frame for the completion of each item of work. The schedule of operations shall be approved by the Engineer and the Owner in writing prior to the beginning of the



work. Changes to said schedule are to be issued in writing and approved by the Engineer and the Owner before operations are changed or rescheduled. No payment will be made to the Contractor while he is delinquent in the submission of a progress schedule.

The Contractor shall supply to the Engineer at the preconstruction meeting, a list of the local roads to be used for the purpose of hauling equipment and/or material to or from the job site. Only the local roads in the vicinity of the project have to be listed; state and/or federal roads do not have to be included. Where necessary, the list shall include the extent of the roads to be affected and any special restrictions, such as height or weight restrictions, which may be applicable along said roads. Construction shall not commence until the Engineer and/or Owner has reviewed the haul road list and approved the haul roads in writing.

The submission of the list to and the review and approval of the list by the Engineer do not relieve the Contractor of the responsibility for the conforming to and the obeying of all applicable height and weight restrictions on the haul roads and of the responsibility for any damage done to and/or along said haul roads. The Contractor is referred to Item 105.10 concerning load restrictions.

8.7 Item 107.04 - Permits, Licenses And Taxes

The Contractor shall insure that all required notices are given and all permits acquired before the commencement of work. The Engineer will discuss any special permits required for this project at the preconstruction meeting.

8.8 Item 107.14 - Contractor's Responsibility For Work

It shall be the responsibility of the Contractor to perform his work in such a manner as not to damage or destroy any existing feature (i.e., existing inlets, conduits, etc.), which is not marked for replacement or removal. The Contractor shall exercise due care during construction so as not to destroy any trees, plants, shrubs or structures not specifically marked for removal or relocation within the work limits. In some instances, the Contractor will be required to excavate under and around the existing utilities. Extreme care should be used not to damage the utility during this operation. The Contractor shall schedule his operations so that the improved areas have had sufficient time to cure, set and/or harden before the area is opened to traffic or use. The Contractor shall be responsible for the immediate repair of the improved area if any damage is done by traffic. The Contractor shall also be responsible for the immediate rectification of problems created in areas outside of the improved areas which are attributable to the failure of the improved area, i.e., the tracking of materials into unimproved areas. The Contractor shall be responsible for the protection of areas outside of the designated work limits, but which may be adjacent to those work limits. This will include those areas used by construction traffic for access to and from the work areas. Where the Engineer and/or the Owner determine that the Contractor's operations have been responsible for damage to areas outside of the work limits, the Contractor shall be responsible for the repair of the area subject to the approval of the Engineer. No additional compensation will be due to the Contractor for any such repairs as described above.



8.9 Item 112 - Maintaining Traffic

Local traffic must be maintained at all times in conformance with Item 112. Removal and replacement of the pavement shall occur in a maximum of 500' sections (one side of the road). Contractor may be allowed to replace pavement in longer sections at the discretion of the Engineer. The Contractor shall adequately mark, through the use of barrels, flashing lights, portable gates and/or other devices approved by the Engineer, the limits of the project area and those areas of the site which are temporarily closed to traffic.

During the course of the normal working day, the Contractor shall insure the safety of the public by providing a sufficient number of flaggers to assist the traffic flow through the construction area. If, at the completion of the normal working day, any trench for pavement construction and/or construction of proposed sewer has not been completely backfilled and restored, a temporary cover, such as a metal plate or another approved device, shall be placed over that portion of the trench remaining open.

The Contractor shall notify the residents at least 48 hours in advance of when their drives will be blocked during construction. In those areas where existing pavement is to be removed and replaced, the Contractor shall conduct his operations so as to maintain driveway traffic through the construction area. Repeated blocking must allow at least a 15-minute interval of traffic access every hour. Length of residential driveway closures shall be kept to a minimum.

Maximum closure length shall be 96 hours. The Contractor shall place new driveways within 24 hours of removal. The Contractor shall keep driveways closed for a 72-hour period after concrete placement to permit the curing of concrete curbs, driveway aprons, or sidewalk across driveways. The Contractor will be responsible for barricading off and signing portions of the street sufficient in length to park all of the residents' cars whose driveways will be blocked. Where concrete restoration is involved, this inconvenience will be held to a minimum by revising curing specifications and permitting cars to use the driveway 72 hours after pouring.

The Contractor shall note that any interim material used for providing driveway ingress and egress will not be a separate pay item, and the cost of said interim material shall be included in the lump-sum price bid for Item 112.

8.10 Temporary Traffic Control Devices

Temporary traffic control devices and facilities shall be furnished, erected maintained and paid for in accordance with the provision of Section 112 – Maintenance and Control of Traffic During Construction. All traffic control devices shall conform to the current standards found in the Manual of Uniform Traffic Control Devices for Streets and Highways. The provisions of this item and this section shall not in any way relieve the Contractor of any of his legal responsibilities or liabilities for the safety of the public.

8.11 Stake Out

Construction stakeout shall be provided by the Contractor to establish line and grade as shown on the plans.



8.12 Testing

In addition to material testing by the supplier, on-site material and soil testing will be required to insure the work meets the specifications established as part of this project. The Contractor shall bear the cost and provide all materials and supplies to facilitate the testing and shall be responsible for coordinating all testing with the selected testing agency. The Contractor shall bear the cost of all other testing and provide all required materials, labor, apparatus, services and facilities in connection therewith.

All testing shall be done in the presence of the Engineer by an approved testing laboratory and one copy of the test shall be sent directly to him.

When questions arise as to whether the requirements of the Contract have been fulfilled, the Contractor shall engage an independent testing laboratory to perform any tests necessary to establish the acceptability of the work.

Should such additional tests show in the judgment of the Owner the work or materials to be defective or otherwise not meeting the requirements of the Contract, the Contractor shall, immediately upon notification by the Owner, remove, replace or reconstruct same, as the case may require and shall if directed by the Owner, make such further tests as may be necessary to determine fulfillment of the Contract requirements. The cost of all re-tests shall be deducted from the Contractor's fee for said work.

All tests shall be made under the supervision and direction of the Owner or Engineer except those required by a public authority shall be under the supervision and direction of such authority.

8.13 Testing Requirements

Minimum testing requirements shall be as follows:

Soil Testing: Excavation and embankment construction shall be constructed in accordance with the Kentucky Standard Specification for Road and Bridge Construction Item 204, 205 206 and 207. The testing agency shall test all embankments per the Kentucky Standard Specification for Road and Bridge Construction Item 206.03.03.

Subgrade shall be prepared in accordance with the Kentucky Standard Specification for Road and Bridge Construction Item 207. Following visual inspection, CONTRACTOR shall demonstrate to the engineer or his representative that the exposed subgrade does not contain previously unidentified soft areas by proof rolling. Proof rolling shall consist of rolling the entire surface with approved mechanical equipment while observing the subgrade for displacement or deformation. Areas marked for repair shall be addressed per the details provided in the plans.

Flexible Pavement: Shall be tested as per the latest edition of the Kenton County Subdivision Regulations.

Portland Cement Concrete: Shall be tested as per the latest edition of the Kenton County Subdivision Regulations.



8.14 Item 202 – Clearing and Grubbing

Clear grub, remove and dispose of all vegetation, building and foundations not removed by others, and debris within designated limits inside the right-of-way and easement areas. Do not remove objects designated to remain or to be removed according to other provisions of the Contract. Also, protect from injury or defacement all vegetation and objects designated to remain. All planters and plant materials other than grass and trees marked for removal shall be salvaged and set aside in a location conveniently accessed by the property owner. During final restoration it shall be the Contractor's responsibility to replace the planters and plant materials to match the existing locations and dimensions. This item shall also include all labor, equipment and personnel to remove, salvage and reinstall all signs, mailboxes and fences as per the plan and to remove all trees as indicated on the plans. Portions of the fence that are damaged during work operations or are in a condition such that they cannot be reused, shall be replaced with new, like material at no additional cost to the Owner. Whenever work is not taking place, all fence areas that have been removed shall be provided with temporary fencing to close off the opening until such time as the fence can be replaced with permanent materials. All work shall be in accordance with Kentucky Transportation Cabinet Standard Specifications Section 202. Payment shall be one lump sum.

8.15 Item 202/203 - Removals

When a bid item is to include the cost of removal of a classified or unclassified material, it shall be the responsibility of the Contractor to verify in the field the type of material and the thickness of the material to be removed prior to submitting his bid. No additional allowance will be due the Contractor for added expense of removals due to unknown materials or thickness.

In reference to the removal of storm sewer structures or pipes, where called for on the plans, the cost, in addition to removal and disposal of the material, shall include backfill of the excavated area with flowable fill.

8.16 Item 202/203 - Debris Removal

The Contractor will be responsible for removal of all construction debris from the site. All debris shall be disposed of in a proper manner and shall be as directed by all applicable local, state, or federal regulations.

8.17 Item SPL – Yard Restoration (4" Topsoil, Seed & Mulch)

The Contractor shall provide all labor, materials, tools, and equipment required to grade, fertilize, seed, and mulch in good, workmanlike manner the areas where shown on the plans or where directed by the Engineer and as specified herein.

Payment shall be made on a per Square Yard Basis for the following:

A. Materials

1. Topsoil – Topsoil shall be per ASTM D5268 with a pH range of 5.5 to 7. Topsoil



shall not contain more than 40% clay in that portion passing a No.10 sieve, shall contain not less than 5% or more than 20% organic matter as determined by loss on ignition of samples oven dried to constant weight at 212 degrees Fahrenheit, and shall be free of rock and other foreign material greater than 1 inch in any dimension and other extraneous materials harmful to plant growth.

2. Fertilizer –

- a) Fertilizer shall be lawn or turf grade 12-12-12
- b) Agricultural ground limestone when used shall have a minimum total neutralizing power of 90 and at least 40 percent passing a No. 100 sieve, and at least 95% passing a No. 8 sieve.

3. Seed – All areas to be seeded shall be seeded with the following mixture:

By Weight	Name of Grass	Purity	Germination
40%	Fine Lawn Turf-Type Fescue	95%	90%
40%	Creeping Red Fescue (<i>Festuca rubra</i>)	95%	90%
20%	Annual Ryegrass (<i>Lolium multiflorum</i>)	95%	90%

Weed seed content not over 0.25 percent and free of noxious weeds.

- 4. Mulch – Provide air-dry, clean mildew- and seed-free, slat hay or threshed straw of wheat rye, oats or barley.
- 5. Asphalt Emulsion – ASTM D977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors

B. Installation

1. Preparation of Seed Bed

- a) Topsoil – If suitable topsoil is available as part of the excavated material it shall be removed, stored and used to backfill the top 4 inches of the excavation. If sufficient material is not available on site it shall be imported on site at no additional cost to the Owner. All grass, weeds, roots, sticks, stones, and other debris are to be removed, and the topsoil carefully brought to the finish grade by **hand raking**. The topsoil shall be sufficiently compacted, by tracking in the material, to prevent significant settlement. Promptly and thoroughly remove topsoil and other materials dropped on pavement surfaces before being compacted by traffic. Before any fertilizer or seed is placed the topsoil shall be inspected and approved by the Engineer.

2. Fertilizing – Fertilizing shall be uniformly applied to all areas to be seeded at



the rate of 1 pound per 100 square foot. The fertilizer shall be thoroughly disked, harrowed or raked into the soil to a depth of not less than 2 inches. Immediately before sowing the seed, the Contractor shall rework the surface until it is a fine, pulverized, smooth seed bed, varying not more than 1 inch in 10 feet. A second application of fertilizer shall be applied at the same rate once the grass has been established or within 6 weeks of seeding.

3. Seeding – Immediately after the preparation and fertilization of the seed bed the Engineer shall inspect and approve the site prior to seeding. The seed shall be thoroughly mixed and then evenly sown over the prepared areas at the rate of 3 to 4 pounds per 1000 square feet. Seed shall be sown dry or hydraulically. After sowing, the area shall be raked, dragged, or otherwise treated to cover the seed to a depth of approximately 1/4 inch.
4. Mulching – Within 24 hours after any given area is seeded, mulching material shall be evenly placed over all seeded areas at the rate of approximately 2 tons per acre, when seeding is performed between the dates of March 15 and October 15, and at the approximate rate of 3 tons per acre when seeding is performed between the dates of October 15 and March 15 of the succeeding year. Mulching material shall be removed once a good turf has been established.
 - a) Emulsion – Mulching material shall be kept in place with asphalt emulsion applied at a minimum rate of 10 to 13 gallons per 1000 square feet of mulch or by methods as approved or may be otherwise required to prevent displacement of material. Mulching which is displaced shall be replaced at once but only after the seeding or other work which preceded the mulching and which work was damaged as a result of displacement of mulching material has been acceptably repaired.
5. Maintenance – Contractor shall water, mow, weed and otherwise maintain all seeded areas as necessary to secure a good turf. Settled areas shall be filled, graded, and re-seeded. Seeded areas shall be free of weeds and other debris. The Contractor shall be responsible for the condition of the seeded areas for a period of 1 year from the date of Final Acceptance. A satisfactory lawn shall consist of a healthy uniform, close stand of grass, free of weeds, rocks and surface irregularities, with coverage exceeding 95% over any 10 square feet, and bare spots not exceeding 2 by 2 inches.

8.18 Item 212/213 - Erosion Control and Water Pollution Control

The Contractor shall take extreme care to prevent unnecessary erosion, water pollution and siltation at all points of the project. Temporary seeding and mulching, Dandy Curb Bags, straw bales, slope drains, etc., shall be used as necessary or as directed by the Engineer. The cost of all temporary erosion control measures shall be included in the lump sum bid item.



8.19 Full-Depth Pavement Sawing

All existing pavement to be widened and/or removed shall be sawed full depth at the limits of removal, using a diamond saw blade to provide a uniform edge and prevent damage to pavement that is to remain in place. The cost of the sawing shall be incidental to the contract.

8.20 Item 214 - Woven Geotextile

Payment for Woven Geotextile will be made at the contract unit price per square yard for all materials, equipment and labor to complete the work per Kentucky Standard Specification for Road and Bridge Construction Section 214 to furnish and install Mirafi 600X or approved equal to the manufacturer's specifications and these plans and specifications. **The Contractor shall supply the City with the specifications prior to beginning work. The measurement area is based on the area between the edge of the underdrains. No additional payment will be made for required overlaps.**

8.21 Item 302/SPL – Crushed Stone Base For Subgrade Repair

A contingency amount of Item 302/SPL – Crushed Stone Base has been included for repair of soft and yielding, unsuitable subgrade material and should be used only when directed by the engineer. The cost of all labor, equipment, and material necessary to excavate and dispose of unsuitable material, place and compact the aggregate as per plan shall be included in the unit price bid for Item 302/SPL – Crushed Stone Base for Subgrade Repair.

8.22 Item SPL - Geogrid Reinforcement For Subgrade Repair

A contingency amount of Item SPL – Geogrid Reinforcement for Subgrade Repair has been included for repair of soft, yielding and unsuitable subgrade material and should be used only when directed by the Engineer. The cost of all labor, equipment, and materials necessary to place the geogrid (Tensar TX 5 or equivalent) as per plan shall be included in the Unit price bid for Item SPL – Geogrid Reinforcement for Subgrade Repair.

8.23 Item SPL - Sidewalk and/or Driveway Apron Finish

The finish applied to the Portland Cement concrete surface used as a sidewalk or driveway apron shall be a broom finish. All joints and outside edges of the pavement shall be tooled with an edger or joint tool after brooming the final finish. Final finish, joints, and edges shall be subject to the approval of the Engineer.

It is the Contractor's responsibility to protect the new surface until it cures.



8.24 Item SPL – Concrete Driveway Replacement

The unit price bid for Item SPL – Concrete Driveway Replacement shall include all labor, material, and equipment necessary for the removal and disposal of the existing concrete or asphalt driveway, excavation to proposed subgrade, subgrade compaction and the placement of the new concrete driveway.

In the event the driveway has settled, a stone fill leveling course shall be added to bring the driveway back to the grade of the existing sidewalk or curb and shall be incidental to the driveway replacement item.

The finish applied to the concrete driveways shall be a light broom finish. All joints and outside edges of the pavement shall be tooled with an edger or joint tool after brooming or hand finishing of the final finish.

Preformed expansion joint material, 1" thick, shall be placed between the proposed walk and curb. The joint shall be sealed using an asphalt sealant. Cost of expansion material and sealant shall be included in the unit price

The Contractor must notify the affected residents in writing at least 48-hours prior to closing driveways. If the residents and businesses have not been notified 48-hours in advance of the anticipated drive closure, the contractor will be prohibited from making these closures until such time as the proper advance notification is made.

The maximum time period for driveway closure shall be ninety-six (96) hours. The contractor shall place new driveways twenty-four (24) hours after removal.

The contractor shall keep driveways closed for a seventy-two (72) hour period after concrete placement to permit the curing of concrete curbs and driveways.

No concrete removal may take place on a Thursday or Friday unless the contractor will pour concrete on a Saturday.

It is the Contractor's responsibility to protect the new concrete surface until it cures.

The areas indicated on the plans may not be the final replacement areas and are subject to adjustments in the field by the Engineer.

Driveways shall be constructed in accordance with the Kenton County Subdivision regulations.

Expansion joints shall be sealed with a gray self-levelling sealant (Sika Flex or approved alternate).

8.25 Item SPL – Asphalt Driveway Replacement

The unit price bid for Item SPL Asphalt Driveway Replacement shall include all labor, material, and equipment necessary for the removal and disposal of the existing concrete or asphalt driveway, excavation to proposed subgrade, subgrade compaction and the placement of the new concrete driveway.

In the event the driveway has settled, a stone fill leveling course shall be added to bring the driveway back to the grade of the existing sidewalk or curb, and shall be incidental to the driveway replacement item.

All new asphalt abutting existing driveways, sidewalks or curbs shall be sealed using a hot poured elastic sealant.



The Contractor must notify the affected residents in writing at least 48-hours prior to closing driveways. If the residents and businesses have not been notified 48-hours in advance of the anticipated drive closure, the contractor will be prohibited from making these closures until such time as the proper advance notification is made.

The maximum time period for driveway closure shall be ninety-six (96) hours. The contractor shall place new driveways twenty-four (24) hours after removal.

The contractor shall keep driveways closed for a seventy-two (72) hour period after asphalt placement to permit the curing of concrete curbs and driveways.

No removal may take place on a Thursday or Friday unless the contractor will place the new material on a Saturday.

It is the Contractor's responsibility to protect the new surface until it cures.

The areas indicated on the plans may not be the final replacement areas and are subject to adjustments in the field by the Engineer.

Driveways shall be constructed in accordance with the Kenton County Subdivision regulations.

8.26 Utility Adjustments

Utility adjustments including water meter/valve, gas valves & gas meters, telephone, cable manholes shall be made as per the appropriate utility company requirements and shall be incidental to the contract. Utility adjustments to sanitary manholes, storm manholes, and catch basins shall be done per Sanitation District #1 requirements and will be paid for by the Owner on a per each basis. Contractor shall notify the utility company prior to adjustment and coordinate to have an Inspector present.

8.27 Item 601 – Concrete General

All concrete for roadway paving, curbs, sidewalks, drive aprons, and steps shall be in accordance with the Kenton County Subdivision Regulations with the following exceptions:

Concrete Roadway Pavement:

- Expansion for joint filler material shall consist of a flexible foam material such as Ceramar by W.R. Meadows or approved equal.
- Pavement lugs may be omitted.
- Contractor may substitute No. 57 crushed limestone for No. 467 crushed limestone.

8.28 Item 701 – Grading At Inlets and Outfalls of Proposed Conduits

The cost of the necessary reconstruction and/or regrading of swales or disturbed areas at the inlets and outfalls of all proposed conduits shall be included in the price bid for the pertinent conduit and inlet items.



8.29 Existing Pipe

The location, size, type and depth of all existing pipes are shown as nearly exact as available information will permit. The Engineer will not be responsible for any variations found during construction.

Where the plans provide for conduit to be connected to, or to cross either over or under, or close to an existing underground structure, it shall be the responsibility of the Contractor to locate the existing structure, both as to line and grade, before he starts to lay the proposed conduit, in order to assure compatibility of line and grade of the proposed conduit.

Payment for all operation described above shall be included in the unit price bid for the pertinent conduit item.

8.30 Item 701 - Review of Drainage Facilities

Before any work is started on the project and again before final acceptance by the Owner, the Contractor, with the Engineer, shall make an inspection of the existing sewers within the work limits, which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Written records of the inspection and/or photographic documentation shall be kept by the Engineer.

All existing sewers inspected initially by the above-mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer. All existing and/or new conduits, inlets, catch basins, and manholes constructed and/or cleaned as a part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the Owner. Payment for all operations described above shall be included in the unit prices bid for the pertinent item.

8.31 Item SPL - Conduit, Drainage and Utility Items

Unless otherwise specified on the plans, the unit price bid for the pertinent conduit, drainage and/or utility item shall include the cost of all necessary appurtenances, connections, fittings, plugs, tees, collars, etc.

Unless otherwise noted on the plans, the unit price for the pertinent conduit, drainage and/or utility item is to include the costs involved in the excavation of the trench in unclassified material, the supplying and placing of the required bedding material and the backfilling of the trench with the specified material to the appropriate subgrade elevations.

Any additional fill required due to the relocation of storm sewer shall be included in the storm sewer unit price. All backfill in pavement areas shall consist of flowable fill.



8.32 Item 701 – Removal of Water

The Contractor shall keep all excavations free from water while the excavation for or the construction of conduits is in progress; shall build all dams, bulkheads, underdrains, sumps, and other work necessary for this purpose; and shall provide and keep the excavation dry and free from water at all times.

The Contractor shall provide for the disposal of all water removed from the excavations in such manner as to prevent injury to the public, the public health, public or private property, or to any portion of the work completed or in progress, or the surface of the streets, and to prevent any inconvenience to the public. No ground and/or surface water shall be diverted into existing sanitary sewers.

No conduits shall be laid or built in water, and waste shall not be allowed to flow over to rise upon any concrete, brick masonry or conduit until the work has been observed and has set for at least twenty-four (24) hours.

The flow of water in all existing sewers, drains, gutters, or watercourses encountered during the construction period shall be adequately maintained by the Contractor at his expense.

8.33 Item 704 - Under Drain

Payment for Item 704 - Under Drain will be made at the contract unit price per linear foot for all materials, equipment and labor to complete the work per Kentucky Standard Specifications for Road and Bridge Construction Section 704 and these plans and specifications.

Payment for underdrain shall include 4" rigid perforated PVC pipe, Non-Woven Geotextile (Mirafi 140N or Approved Equal), No. 57 Stone backfill and trench as shown and noted on the provided plans/details.

Payment for edge drain extension shall include excavation, 4" solid PVC pipe, bedding and backfill. Yard Restoration to be paid under a separate bid item.

Payment shall also include any connections/taps to drainage structures.

8.34 Item SPL - 6" Downspout Collection Line

Payment for 6" Downspout Collection Line will be made at the contract unit price per linear foot for all materials, equipment and labor to complete the work per Kentucky Standard Specifications for Road and Bridge Construction Section 704 and these plans and specifications. Pipe to consist of smooth walled PVC. Fitters and tees shall be PVC. **This payment shall include trenching, bedding, backfill and connections to the curb inlet. Trenching, bedding and backfill as per the plan details.**



8.35 Item SPL – Downspout Connection To Existing Underdrain

Existing downspout leaders that are to connect to the Underdrain shall be replaced as per the detail “Downspout Connection to Existing Underdrain”. The cost for labor, equipment and materials necessary to remove and dispose of the existing downspout leader and install new pipe from the end of the existing pipe to the proposed underdrain connection point, including bends, green plastic pop-up cleanout cap (NDS 420C or approved equal), tee and connection to the downspout collection line shall be included for each downspout placed. Payment shall include trenching, bedding and backfill.

It is the intention that the existing pavement is not disturbed.

8.36 Item SPL – Downspout Connection To Downspout Collection Line

Existing downspout leaders that are to connect to the underdrain shall be replaced as per the detail “Downspout Connection to Downspout Collection Line”. The cost for labor, equipment and materials necessary to remove and dispose of the existing downspout leader and install new pipe including bends, green plastic pop-up cleanout cap (NDS 420C or approved equal), tee and connection to the downspout collection line shall be included for each downspout placed. Payment shall include trenching, bedding and backfill.

8.37 Item 610/710 – Conduit End Treatment

Immediately after placement of any conduits, the Contractor shall construct the end treatments required by the plans at both the outlet and inlet ends. This shall include headwalls, concrete riprap, rock channel protection, sodding, etc. The cost of the necessary reconstruction and/or regrading of swales or disturbed areas at the inlets and outfalls of all proposed conduits shall be included in the price bid for the pertinent conduit and inlet items.

8.38 Item SPL – Storm Sewer, Manholes, Inlets, Catch Basins and Headwalls

Storm sewer manholes, inlets and catch basins shall be constructed as per the details on the construction drawings and conforming to the requirements of SD1 Specifications Section 02630. All castings for manholes, catch basins and inlets shall conform to those specified in the standard construction drawings. Grated inlet tops shall be placed as specified on the plans. Tops of casting elevations are subject to final adjustments as approved by the Engineer. All castings used shall be subject to the final approval of the Engineer. Payment for these items shall include connection to proposed or existing storm sewer conduit.

Any additional backfill required due to the removal of an existing storm structure and relocation of the proposed storm structure shall be incidental to the manhole, inlet or catch basin. All backfill in pavement areas shall consist of flowable fill.



8.39 Shoring And Trench Box

Trenches and excavations for appurtenances shall be adequately shored and braced or a trench box utilized whenever the trenches and excavations cannot be opened up to a sufficient width to maintain natural soil stability and sloped per current OSHA regulations. All shoring shall meet safety codes in effect at the time of the work; and, if none are in effect, they shall meet the requirements of Employers Mutual, Factory Mutual, Associated General Contractors safety manuals or OSHA guidelines.

The Contractor is fully responsible at all times for the safety of their excavators and total compliance with OSHA regulations.

Shoring and sheeting, when used, that does not extend below the top of the sewer pipes may be removed at the Contractor's option after the trench backfill has been placed and compacted to a point one foot above the top of the pipes. Following removal of the shoring and sheeting, the space left shall be filled immediately with backfill material and compacted.

Shoring and sheeting that extends below the top of the sewer pipes shall be left in place below a point one foot above the top of the pipes and not be disturbed. The Contractor may remove the portion of shoring and sheeting above this point at his option.

When shoring and sheeting is not removed, the portion to a point two feet (2') below finished grade shall be removed. Bracing shall not be removed until after the trench backfill has been placed and compacted to a point one foot (1') above the top of the sewer pipes.

8.40 Item SPL – Sheeting and Shoring

The Contractor shall furnish, put in place, and maintain such piling, sheeting, bracing, etc., as is required by the State of Kentucky. The Contractor shall furnish, put in place, and maintain and remove such sheeting, shoring, planking and bracing as may be required to support the sides of the excavations and to prevent any movement which could in any way injure the work, human life, or adjacent structures and property, obstruct surface drainage channels or waterways, or otherwise injure or delay the work. If required at any time by the Engineer, the Contractor shall furnish and install such additional sheeting, shoring and bracing as may be necessary to protect the work, but compliance with such orders or failure on the part of the Engineer to give such orders shall in no case release the Contractor from liability for any damages or injuries caused by weak or insufficient sheeting, shoring and bracing, nor from his responsibility to protect the work or adjacent property. Except when ordered left in place, all wood sheeting above the top of the pipe, steel sheet piling, braces, shorer, walers or stringers, shall not be withdrawn until the backfill is practically complete. As the backfill progresses to the elevation of a set of walers and braces, such bracing shall be removed. All sheeting and bracing specified, shown on the plans, or directed by the Engineer to be left in place shall not be removed. All sheeting left in place shall be cut off at least two (2) feet below final finish grade. During the removal of sheeting, care must be taken to prevent movement of the sides of the excavation. All voids left by the withdrawal of sheeting shall immediately be carefully refilled by ramming with tools adapted to the purpose, pneumatic or other approved type, or by flushing sand into the voids.

Whenever the Engineer, in writing, orders any type sheeting, shoring, bracing or foundation material left in place, or when so shown on the plans or specified, the Contractor will be paid for the actual amount so left in place at prices stipulated for the applicable items. Sheeting, shoring



and bracing left in place by the Contractor for his own convenience will not be paid for under any item.

8.41 Control Of Work

Construction work shall take place between the hours of 7:00 A.M. to 7:00 P.M., Monday through Saturday.

Driveways and driveway aprons removed shall be formed and poured within 24 hours.

Driveways and driveway aprons may be removed on Thursday, but must be formed and poured on Friday.

Driveways and driveway aprons may not be removed on Friday.

8.42 "Or Approved Equal" Items

In the preparation of these documents and plans, several proprietary products may have been specified. In all such cases, it is to be understood that the Contractor may offer a substitute for the specified product, as indicated by the words "Or Approved Equal." However, the Contractor must be aware that, before commencement of construction, he must provide information to the Engineer concerning the substituted product, and that the Engineer must approve in writing the offered product as being equal to the specified product before use or incorporation into the work.

Unless otherwise modified by the Engineer, proprietary products are to be installed and/or constructed in strict compliance with the pertinent Manufacturer's specifications.

8.43 Payment

No adjustments to unit prices shall be due to the Owner or the Contractor for increases or decreases in the Engineer's approximate unit quantities shown in the proposal resulting from changes in the amount of work performed.

THE OWNER RESERVES THE RIGHT TO AWARD OR DELETE ANY OR ALL COMBINATIONS.



9. Supplemental Specifications Section

9.1 SD1 SPECIFICATIONS SECTION 02630



SECTION 02630

STORM SEWERS AND DRAINAGE STRUCTURES

PART 1 GENERAL

1.1 SUMMARY

The CONTRACTOR shall provide for all materials, equipment, tools, supplies, services, and labor necessary to install storm sewers and drainage structures as shown on the plans, project specifications, and contract documents and as may be further set out in any Special Provisions, Addenda, and Change Orders.

1.2 STANDARDS AND SPECIFICATIONS

1.2.1 SD1 Technical Specifications: Although this section has been developed to serve primarily as a stand-alone document, reference is made to other sections of the Sanitation District No. 1 (SD1) Technical Specifications. The ENGINEER or CONTRACTOR of a storm sewer project is responsible for obtaining a current edition of the SD1 Technical Specifications when designing or performing work that either involves SD1 funding or is to be accepted by SD1. Copies of the SD1 Technical Specifications may be obtained from:

Sanitation District No. 1
Capital Improvements Program
1045 Eaton Drive
Ft. Wright, KY 41017

and

<http://www.sd1.org/>

- 1.2.2 KTC Standard Specifications and Drawings: In this section, reference is made to the current Kentucky Transportation Cabinet (KTC) Standard Specifications for Road and Bridge Construction and the KTC Standard Drawings. In addition, construction requirements and material specifications not specifically covered in this section or in the referenced SD1 Technical Specifications shall conform to KTC Standards. The ENGINEER or CONTRACTOR of a storm sewer project is responsible for obtaining a current edition of the KTC Standard Specifications and the latest edition of the KTC Standard Drawings when designing or performing work that either involves SD1 funding or is to be accepted by SD1.

Copies may be obtained from:

Kentucky Transportation Cabinet
Manager, Policy and Procedures
Development Branch
112 State Office Building
Frankfort, Kentucky 40622

- 1.2.3 Latest Revisions: Wherever reference is made to any published standards, codes or standard specifications, it shall mean the latest standard code, specification or tentative specification of the technical society, organization or body to which reference is made. Where specified articles, sections, paragraphs or other subdivisions of the referenced publications are not stated, the referenced publication shall apply in full.

1.3 SUBMITTALS

- 1.3.1 For projects that are approved and funded, designed, or bid by SD1, submittals shall be required as follows:

A. Product Data: For the following:

- Pipe and fittings.
- Precast concrete manholes and drainage structures.
- Structure frames and grates.
- Any other items as requested by the ENGINEER or SD1.

B. Shop Drawings: For the following:

- Manholes: Include plans, elevations, sections, details, and frames and covers.
- Drainage Structures: Include plans, elevations, sections, details, and frames, covers, and grates.
- Cast-in-place and Precast Structures: Include plans, elevations, reinforcing, concrete mix design, and structural calculations stamped by a Professional Engineer, registered in the State of Kentucky, competent in structural design.
- Pipe material and layout for prefabricated sections
- Any other items as requested by the ENGINEER or SD1.

- C. Test Reports: The CONTRACTOR shall submit test reports for materials supplied to SD1 whenever SD1 has not received certified letters from suppliers that materials meet the applicable specifications called for, or there is visible evidence on the work site that the materials do not conform to the applicable specifications. These tests would include any concrete tests and soil tests performed for the project.

- D. The CONTRACTOR shall furnish one copy of the supplier's certification stating that pipe materials were manufactured, sampled, tested and inspected in accordance with the applicable standards and specifications.

- 1.3.2 For privately-funded storm sewer projects that include components to be dedicated to SD1 or another public entity, submittals shall be provided at the request of the ENGINEER or SD1. Submittals shall not normally be provided, except at the request of SD1 or the ENGINEER.

1.4 UNDERGROUND STRUCTURES AND UTILITIES (For SD1 Funded Projects)

- 1.4.1 The CONTRACTOR shall verify the locations of all underground structures and utilities prior to the start of construction. The CONTRACTOR shall avoid damaging existing utilities while verifying their locations. The CONTRACTOR shall notify the Kentucky Underground Utility Protection, Inc. at 1-800-752-6007, SD1, the local Water District (Northern Kentucky Water District for Campbell and Kenton Counties, Boone County Water District for Boone County) 48 hours in advance of any construction.
- 1.4.2 The CONTRACTOR shall be responsible for the protection of any structure or utility encountered on the site. The cost of repair, removal, replacement, relocation, etc. of such facilities arising because of carelessness or negligence on the part of the CONTRACTOR shall be the CONTRACTOR'S responsibility. The CONTRACTOR shall make every effort to protect private structures and utility service connections whether in right-of-way/easement or on private property, including sanitary and storm sewer facilities.
- 1.4.3 Should uncharted or incorrectly charted utilities be encountered, consult SD1 and the Utility Owner for directions. It shall be the sole responsibility of the CONTRACTOR to meet the requirements of the respective utility.

PART 2 STORM SEWER PIPE

2.1 MATERIALS

Storm sewer pipe shall be as specified on the approved design plans, unless otherwise approved by SD1. ENGINEER may select the following material types described in this section. Any pipe that is found defective, or otherwise not meeting the Specifications, shall be rejected and replaced by pipe meeting these Specifications at no cost to SD1.

- 2.1.1 Reinforced Concrete Pipe (RCP): Circular reinforced concrete pipe shall meet the requirements of ASTM C 76, Standard Specification for Reinforced Concrete Culvert, Storm Drain and Storm Pipe. Elliptical reinforced concrete pipe shall meet the requirements of ASTM C 507, Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe.

Rubber and plastic joints, or approved equal, shall be the jointing method for RCP and shall meet the requirements of AASHTO M 315 / ASTM C 443. Other methods of joining RCP will only be allowed upon explicit approval from SD1.

When RCP is used under pavement or driveways, a minimum of Class III RCP shall be

required.

- 2.1.2 Corrugated Metal Pipe (CMP): Corrugated steel pipe shall meet the requirements of AASHTO M36. Corrosion protection shall be provided through an aluminized coating conforming to AASHTO M274. Aluminum alloy spiral pipe shall meet the requirements of AASHTO M196. Coating materials shall be evaluated on a per project basis. Asphalt coatings shall not be permitted for corrugated metal pipe.

Joints for CMP shall be made using coupling bands and gaskets meeting the requirements of AASHTO M 36 and AASHTO M 274.

- 2.1.3 Ductile Iron Pipe (DIP): Ductile iron pipe shall conform to ANSI/AWWA C151/A21.51. Pressure class 350 shall be used for all piping, unless otherwise shown on the drawings or specified. Fittings shall conform to ANSI/AWWA C110/A21.10, or ANSI/AWWA C153/A21.53, with a minimum working pressure rating of 350 psi.

All gravity sewer piping shall be push-on joint or mechanical joint. Push-on joints and mechanical joints shall be in accordance with ANSI/AWWA C111/A21.11. All buried ductile iron pipe shall have cementitious lining inside, factory applied.

All buried ductile iron pipe shall be encased per the following requirements:

- (A) Polyethylene encasement shall be provided for all buried ductile iron pipe, including all straight pipe, bends, tees, wyes, adapters, closure pieces, field restraint devices, valves and other fittings or specials, in accordance with ANSI/AWWA C105/A21.5, Method A. Preparation of the pipe shall include, but not be limited to: removing lumps of clay, mud, cinders, etc., prior to installation.
- (B) Where ductile iron pipe is also embedded or encased in concrete or within a casing pipe, the polyethylene encasement shall be installed over the ductile iron pipe prior to concrete placement and in conjunction with installation in the casing pipe.
- (C) The pipe shall be wrapped with 8-mil thickness polyethylene tube wrap, using the recommended minimum flat tube widths for the specified pipe sizes. The polyethylene tube wrap shall be of virgin polyethylene as produced from DuPont Alathan resin or equal.
- (D) The polyethylene tube seams and overlaps shall be wrapped and held in place by means of 2-inch wide plastic backed adhesive tape. The tape shall be Polyken Number 900, Scotchrap Number 50, or equal. The tape shall be such that the adhesive shall bond securely to both metal surfaces and polyethylene film.
- (E) The polyethylene film supplied shall be clearly marked at a minimum of 2-ft along its length, containing the following information:
 - a. Manufacturer's name or trademark
 - b. Year of Manufacture
 - c. ANSI/AWWA C105/A21.5
 - d. Minimum film thickness and material type (LLDPE or HDCLPE)

- e. Applicable range of nominal pipe diameter size(s)
- f. Warning--Corrosion Protection--Repair any Damage

2.1.4 Polyvinyl Chloride (PVC) Pipe: The following PVC pipe types are permitted in storm sewer applications:

- (A) Smooth-Wall: PVC pipe meeting the requirements of ASTM D 3034, Standard Specification for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings. Unless shown otherwise on the Plans or in the Contract, SDR 35 pipe shall be required.
- (B) Large Diameter: PVC pipe meeting the requirements of ASTM F 679, Standard Specification for Polyvinyl Chloride (PVC) Large Diameter Plastic Gravity Sewer Pipe and Fittings. Unless shown otherwise on the Plans or in the Contract, SDR 35 shall be required.
- (C) Profile-Wall: PVC open or closed profile pipe meeting the requirements of ASTM F 794, Standard Specification for Polyvinyl Chloride (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
- (D) Corrugated: Corrugated PVC pipe meeting the requirements of ASTM F 949, Latest Revision, "Polyvinyl Chloride (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings".

Joints for PVC pipe shall be gasket, bell and spigot, push-on types which meet the requirements of ASTM D 3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals. Gaskets shall meet the requirements of ASTM F 477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

For Solid Wall PVC SDR 35 pipe, the maximum cover depth shall be 20-ft.

2.1.5 High Density Polyethylene (HDPE) Corrugated Pipe: Corrugated polyethylene pipe with an integrally formed smooth interior shall meet the requirements of AASHTO M 294, Standard Specification for Corrugated Polyethylene Pipe, 12 to 36 inch diameter, for Type S pipe. SD1 will consider the use of large diameter HDPE on a case-by-case basis; approval shall be at SD1's discretion

HDPE pipe shall be joined using an inline bell (IB) & spigot joint or fitting meeting AASHTO M294 or ASTM F2306. The joint or fitting shall be soil-tight and gaskets shall meet the requirements of ASTM F477.

2.1.6 Installation of all flexible pipe, regardless of diameter, shall follow the requirements of ASTM D2321, Standard Practice for Underground Installation of Thermoplastic Pipe. For installations of all pipe 30" or greater in diameter, full time inspection will be required during the bedding and backfill operations.

2.2 DESIGN REQUIREMENTS

Pipe selected shall be designed for the cover and loading requirements for each project. Pipe selection and size shall be designed to follow SD1's Stormwater Rules and Regulations. Pipe materials selected for installation in the project shall be approved by SD1 prior to construction. Design calculations for pipe wall thickness and structural design shall be provided by the ENGINEER, during the plan review process as requested by SD1. Engineer shall consider depth of burial, soil modulus of in situ material, type of in situ material in which the pipe is installed, bedding material required, etc when submitting calculations.

A minimum vertical separation of 18 inches or concrete encasement of pipes shall be required between storm pipes, sanitary pipes and water pipes, unless specifically waived by SD1. Minimum cover for all pipe types shall be 3 feet unless specifically waived by SD1. For pipe installations in rear-yard areas, less than three feet of cover may be approved by SD1 on a case-by-case basis. Drainage structures shall be installed at distances not greater than 500 feet for pipes 30 inches and less and 600 feet for pipes larger than 30 inches in diameter, unless waived by SD1. No curved alignments of pipe shall be allowed unless specifically approved by SD1.

PART 3 DRAINAGE STRUCTURES

3.1 GENERAL

- 3.1.1 Concrete for all cast-in-place storm drainage structures (including channels and benches) shall conform to Section 03300 of the SD1 Technical Specifications. Per that specification, the concrete design mix shall have a minimum 28-day compressive strength of 4,000 psi, a maximum water to cement ratio of 0.44, a minimum cement content of 564 pounds per cubic yard, entrained air between four (4) percent and eight (8) percent, a minimum slump of 1 inch and a maximum slump of 6 inches.
- 3.1.2 Grout shall consist of a mixture of water and cement or cement with fly ash, one part cement or cement with fly ash to two parts mortar sand as defined in Section 601.03.03B of the KTC Standard Specifications, by volume.
- 3.1.3 Non-shrink grout shall be an approved non-shrink, non-staining grout consisting of either a mixture of hydraulic cement, water, fine aggregate, and an approved nonferrous expansive admixture, or a packaged commercial product and shall meet the requirements of Section 601.03.03B of the KTC Standard Specifications.

3.2 MANHOLES AND STRUCTURES (Reference shall be made to SD1's Standard Drawings for the terminology used in this section)

- 3.2.1 Precast storm drainage structures with knockout panels shall only be used for curb inlets (catch basins) and yard drains and can be no greater than 6-ft in depth, unless load calculations are supplied. For pre-cast rectangular structures (other than those with

knockout panels), at least 6 inches of wall (measured from the interior corner) is required on each side of the pipe beyond the precast opening for the pipe. This rule is not applicable for structures which have pipe installed in opposite walls or where one outlet reinforced concrete pipe is utilized. Less than 6 inches of wall may be approved by SD1 with the submittal of design calculations.

- 3.2.2 Steps shall be PS1-PF (Press Fit polypropylene plastic) as manufactured by MA Industries, or equal, and provided when structure is greater than 4-ft in depth and shall conform to ASTM C 478.. Manhole and catchbasin steps shall be cast, epoxy grouted, or attached by mechanical means into the walls of the manholes in such manner as to conform with ASTM C 478. No steps shall be aligned over the flow channel. Step spacing shall be 16". Omit steps for structures less than 4-ft deep unless otherwise shown on the plans.
- 3.2.3 Castings for storm sewer manholes and drainage structures shall be heavy duty ductile iron conforming to ASTM A 536, Grade 60-40-18. Manhole frames and covers shall be Neenah R-1642 with the words "Storm Sewer" cast into the lids, or an approved equal, unless shown otherwise on the project plans. Catch basins and other structure castings shall be as specified on the standard details or project plans.
- 3.2.4 Round precast structures shall conform to ASTM C 478; square and rectangular precast structures shall meet the requirements of ASTM C 913. Structural calculations shall be provided for all precast structures as requested by SD1. Benching is required in the bottom of all drainage structures (curb inlets, yard drains, standard inlets, manholes) per SD1 standard details.

All standard inlets shall conform to the appropriate Standard Drawings No. STM-08 through STM-11. Pre-cast manholes shall conform to SD1's Standard Specifications, Section 02606 and Standard Drawings No. STM-13 and STM-13.1. All cone and transition sections shall be concentric in shape unless that requirement is specifically waived by SD1.

Base and riser sections shall be custom-made with openings to meet indicated pipe alignment conditions. The minimum distance allowed between precast holes, measured from edge to edge, in a manhole or standard inlet section shall be 12 inches. The maximum inside diameter (or horizontal dimension) of pipe to be used with a given size of manhole shall be as specified on SD1 standard drawing STM-13.

- 3.2.5 Joints between precast manhole, yard drain, and standard inlet sections in the roadway or yard areas shall be sealed with one of the following:
 - (A) ASTM C 443, a single, continuous rubber O-ring gasket and shall conform to AWWA C302.
 - (B) ASTM C-990, flexible butyl resin sealant such as Conseal CS-102, CS-202 as manufactured by Concrete Sealants, Inc.
 - (C) Hamilton-Kent "Kent-Seal No. 2"
 - (D) K.T. Snyder Co. "Rub'r-Nek"
 - (E) Press Seal Gasket "E-Z Stik".

Joints between riser sections for curb inlets (catch basins) are not required to have gaskets or butyl sealant between sections. These joints can be stacked dry as long as there are no holes or gaps in the joints. All holes or gaps shall be filled with non-shrink grout

- 3.2.6 For precast structures with openings cast into the unit, the minimum vertical distance from the pipe openings to the top of the structure or segment wall shall be 12 inches. If this distance is less than 12 inches, then additional reinforcing steel shall be furnished for this section. All pipe openings shall not be in joints between two precast sections unless specifically approved by SD1. The top slab must be designed for HS-20 loading in paved areas only.
- 3.2.7 Grade rings shall be used for all precast and masonry manholes to adjust height of manhole frame casting where required.
1. Grade rings shall be a maximum of ten (10) inches in height, constructed on the roof slab or cone section on which the manhole frame and cover shall be placed.
 2. The height of the grade ring shall be such as is necessary to bring the manhole frame to the proper grade.
 3. One piece precast concrete rings shall be used for grade adjustment greater than six (6) inches and up to ten (10) inches in height. The ring shall be set concentrically on top of the cone section or top slab if used.
 4. High density polyethylene (HDPE) rings shall be used for grade adjustment from two (2) inches to a maximum of six (6) inches in height. A maximum of three (3) HDPE grade rings is allowed to adjust the height of the manhole. Rings shall be set concentrically on top of the cone section or top slab if used.
 5. All grade rings shall be sealed using two rows of butyl rubber sealant.
 6. If structures are installed on slopes and a grade adjustment is needed to match the slope. cast-in-place concrete shall be placed and formed to construct the slope needed between the precast sections and the top slab. Bricks, blocks, etc. grouted in place to construct the slope will not be permitted.
- 3.2.8 Cast-in-place benches shall be of 4,000 psi concrete as described in 3.1.1 and shall conform to the shapes indicated on the Plans, SD1 Standard Drawings, or as otherwise directed. The invert channels shall be so constructed as to cause the least possible resistance to flow. The shapes of the invert channels shall conform uniformly to inlet and outlet pipes. Smooth and uniform finishes will be required. Inverts may also be precast into the structure.
- 3.2.9 PVC drainage structures and catch basins shall be approved on a case-by-case basis by SD1.

3.3 HEADWALLS AND OUTFALLS

- 3.3.1 Headwalls and outfalls shall be constructed of either cast-in-place or precast reinforced concrete that conforms to KTC Standard Specifications for Road and Bridge Construction.
- 3.3.2 Safety guards and railings: Safety guards and railings shall be provided along the top and sloped/winged sidewalls on all headwall inlet and outlet structures having a vertical drop of 4'-0" or greater. Such guards or railings shall be at least 42-inches in height measured vertically above the wall. Guards or railings shall not have an ornamental pattern that would provide a ladder effect. Vinyl coated chain link fencing and galvanized materials are an acceptable guard type.
- 3.3.3 Grates: Grates shall be provided on inlet headwalls for all pipes 24" and less. Grates shall be required for pipes greater than 24" as deemed necessary by SD1. Cases for pipes larger than 24" that would require a grated headwall include, but are not limited to, a propensity for debris to enter the sewer and become lodged, considerable length, drop structures or bends in the pipe run, etc.

3.4 CONNECTIONS

- 3.4.1 Flexible connections or hydrophilic sealant and Okum rope, or an approved non-bentonite equal, with the pipe grouted in place shall be used for all connections at manholes, yard drains, and standard inlets regardless of the pipe's diameter. Flexible connections at manholes shall be elastomeric gaskets or couplings, manufactured in accordance with ASTM C 1478, Standard Specification for Storm Drain Resilient Connectors Between Reinforced Concrete Structures, Pipes, and Laterals for pipes less than or equal to 48" in diameter.
- 3.4.2 For precast curb inlets (catch basins) (other than those with knockout panels), the opening around the pipe shall either be filled with non-shrink grout for the wall thickness of the structure or the pipe shall be encased with minimum 6 inch collar of concrete from the inside face of the wall to 1'-0" outside the outer face of the wall. The pipe shall be adequately supported to prevent settling while the grout or the concrete encasement is curing. The inside faces of the structure walls shall be finished with a trowel. The diameter of the opening shall be no more than 8 inches greater than the outside diameter of the pipe.
- 3.4.3 For precast yard drains and curb inlets (catch basins) with knockout panels, holes for the pipes shall not be cut into the structural members (i.e., top beams and corner columns) and non-shrink grout shall not be allowed to be placed around the pipes. The pipes shall be encased with a minimum 6 inch concrete collar all around the outside of pipe or a minimum of 3 inches beyond the hole knocked in the wall, whichever is greater. Also, the concrete encasement shall extend from the inside face of the wall to 1'- 0" outside the outer face of the wall.

3.5 STORM LATERAL CONNECTIONS

- 3.5.1 Roof downspouts, footing or foundation drains, and sump pumps shall discharge in accordance with the local governing subdivision regulations. All storm lateral connections (downspouts, footing or foundation drains, sump pumps, etc) to the storm sewer shall be prohibited unless explicitly approved by SD1 due to uncommon circumstances (i.e. inadequate discharge distances from foundations, narrow side yards, etc).

PART 4 EXCAVATION AND BACKFILL (Reference shall be made to section 02220 for additional requirements for excavation and backfill. This specification works in concert with the requirements in section 02220)

4.1 MATERIALS

- 4.1.1 Bedding: Pipe bedding shall be clean natural or washed sand and gravel, crushed gravel or crushed stone, free from cementitious substances and flat or flaky particles in an amount to cause caking, packing, yielding or uneven support for the pipe. All material shall be of such sizes that one-hundred percent (100%) passes the one and one half (1 ½) inch screen, 40% or less passes the No. 40 sieve, and ten (10) percent or less passes the No. 200 sieve. Bedding material shall not consist of any organic soil or stone larger than 1½-inch in any dimension.
- 4.1.2 Select Fill: Select fill shall be well graded sand and gravel, free from organic matter. Not more than 70 percent by weight shall pass through a No. 40 sieve; not more than 10 percent by weight shall pass through a No. 200 sieve; and 100 percent shall pass through a 3-inch square sieve. See SD1 technical specification 02220 for further requirements of Select Fill.
- 4.1.3 General Backfill: General backfill shall be soil materials that are free of rock thicker than 6 inches or larger than 24 inches maximum in any dimension, debris, waste, frozen materials, vegetation and other organic matter and other deleterious materials. Previously excavated materials meeting these requirements may be used for backfill. All rock shall be excluded from fill within 24 inches of the pipe. If the excavated trench material does not meet these requirements, this material shall be properly disposed and suitable imported material shall be used for backfill.
- 4.1.4 Rip Rap / Channel Lining: Cyclopean stone rip rap, channel lining, Class II and Class III, per the requirements of the "Slope Protection and Channel Lining" section contained in the KTC Standard Specifications for Road and Bridge Construction shall be used. Other channel lining materials, such as turf reinforcing mats and energy dissipators, may be considered on a case-by-case basis and may only be used with the explicit approval of SD1. Installation of riprap or other channel lining systems shall conform to the "Slope Protection and Channel Lining" section contained in the "Kentucky Transportation Cabinet, Standard Specifications for Road and Bridge Construction," current edition.

- 4.1.5 Control Density Fill (CDF): Control Density Fill shall be used where shown on the drawings or as directed by SD1. CDF materials shall conform to Section 02220 of the SD1 Technical Specifications. Per that specification, CDF shall achieve an initial traffic bearing strength within 4 hours of placement and an ultimate strength of between 50 and 100 psi.

4.2 EXCAVATION

- 4.2.1 The CONTRACTOR shall perform all excavation, necessary or required, for the construction of the storm sewers and drainage structures. The excavation shall include the removal of all materials of whatever nature encountered and disposal of unsuitable material, including water and all obstructions that would interfere with the proper construction and completion of the storm sewers and drainage structures.
- 4.2.2 Excavation shall include the removal and subsequent handling of all materials required and disposal of unsuitable material for the installation of the sewer. This includes, but is not limited to, earth, loose rock, gravel, shale, layered rock, monolithic rock, vegetation, debris, junk, brick, stone and other foreign matter encountered within the excavation, and soils of any moisture content as encountered. Excavation operations shall conform to all safety standards set by the Occupational Safety and Health Administration (OSHA). An experienced supervisor representing the CONTRACTOR shall be onsite during all excavation and trenching operations.
- 4.2.3 Any required blasting shall be performed in accordance with Section 02222 of the SD1 Technical Specifications.

4.3 TRENCHING

- 4.3.1 Trench construction shall be per SD1 pipe bedding and trench condition details (same as KTC requirements) and ASTM D2321 for thermoplastic pipe and ASTM C1479M for rigid pipe as follows:
- A. No more than 200 feet of trench may be opened in advance of pipe laying.
 - B. Trench width shall be minimized to greatest extent practical but shall conform to the following:
 - 1. Flexible Pipe: Sufficient to provide room for installing, jointing and inspecting piping, but a minimum of pipe barrel OD plus two feet for 36" and less diameter pipe. For pipe that is greater than 36" in diameter, the trench width shall be the OD of the pipe plus four feet. For pipes greater than 36" diameter, a narrower trench width may be allowed if the pipe manufacturer can provide calculations showing that a narrower trench will provide the same level of structural design. The revised trench width must be approved by SD1.

2. Rigid Pipe: Sufficient to provide room for installing, jointing and inspecting piping, but a minimum of pipe barrel OD plus two feet for 36" and less diameter pipe. For pipe that is greater than 36" in diameter, the trench width shall be : **$OD + 2*(OD/6)$** .
 3. Enlargements at pipe joints may be made if required and approved by SD1.
 4. Sufficient for shoring and bracing, or shielding and dewatering.
 5. Sufficient to allow thorough compaction of bedding material adjacent to bottom half of pipe.
 6. Do not use excavating or compaction equipment which requires the trench to be excavated to excessive widths.
- C. Depth of trench shall be as shown on the plans. If required and approved by SD1, depths may be revised.
 - D. Where pipe is installed in a trench excavation, pipe bedding shall be carefully placed and compacted before the pipe is laid. If required by the pipe manufacturer, the middle third of the trench beneath the pipe shall be loosely placed to allow proper bedding and to avoid a point load at that location. Depth of pipe bedding below the pipe shall be at least 6 inches. After laying pipe, the balance of the backfill shall be placed as described herein.
 - E. Excavate for pipe bells in bedding carefully so as not to disturb the surrounding compacted material and lay pipe so that the bell bears uniformly on the compacted trench bedding material below the pipe.
 - F. Place all bedding in pipe trenches in horizontal layers not exceeding 6 inches in depth up to a point 12-inches or more above the top of the pipe and thoroughly compact each layer before the next layer is placed. Bedding material shall be sliced or worked-in along the length of the pipeline during each 6-inch layer lift and then compacted.
 - G. No pipe shall be brought into position until the preceding length has been bedded and secured in its final position.
- 4.3.2 If the CONTRACTOR undercuts the trench bottom as described above more than eight (8) inches, the undercuts shall be backfilled with compacted bedding material.

4.4 STRUCTURES

- 4.4.1 The excavation for storm sewer manholes and other structures shall be of the width necessary to provide a minimum clearance of twelve (12) inches from the outside of the structure to the sides of the excavation to provide proper working space and maintain natural stability of the sides of the excavation.
- 4.4.2 The excavation bottom for manholes and other structures shall extend to a point that undercuts the structure not less than six (6) inches, nor more than eight (8) inches, below the entire base section. The undercut shall be backfilled bank to bank with bedding material and leveled to evenly support the manhole in plumb with no settling.
- 4.4.3 Bottom slabs or foundation footings may be poured against vertical sides of the excavation, thereby eliminating the need for form work for these items, unless the sides of the excavation will not stand almost vertical, in which case a form shall be required.

- 4.4.4 If the CONTRACTOR undercuts the excavation below the bottom of manholes and other structures more than 8-inches, other than when directed by SD1, the CONTRACTOR shall refill the undercut with compacted bedding material or other suitable fill material as approved by SD1 and compact the suitable fill material per Section 4.6. Any costs incurred in refilling unauthorized undercuts shall be borne by the CONTRACTOR. The cost for this work shall be considered incidental to the unit price for structure installation.
- 4.4.5 CONTRACTOR shall be required to compact bedding material around the entire circumference of the manhole and manhole excavation area to at least 12-inches above the highest incoming or outgoing pipe. CONTRACTOR shall compact general backfill around the entire circumference of the manhole and manhole excavation area to the proper grade, as shown on the drawings.
- 4.5 UNSTABLE SOIL AND DEWATERING
- 4.5.1 If in the course of excavation, unstable soil is encountered at the point of the bottom of the required excavation, the CONTRACTOR shall be required to undercut sufficiently to remove all of the unstable soil to the limits specified by the Geotechnical Engineer and in conjunction with the approval of SD1.
- 4.5.2 The CONTRACTOR shall refill the undercuts with bedding material or other suitable fill material as approved by SD1 and consolidate same to the required density of the material per Section 4.6, unless other means of refill are approved by SD1. CONTRACTOR is to provide reports from a qualified Geotechnical Engineering Firm indicating compliance with the required compaction limits. For SD1 funded projects, any costs incurred in refilling authorized undercuts in unstable soil shall be reimbursable to the CONTRACTOR on the basis of extra work or as otherwise set forth in the contract.
- 4.5.3 Ground Water: Pipe trenches and structure excavations shall be kept free from water during trench bottom preparation, pipe laying and jointing, pipe embedment and manhole installation as approved by a SD1 inspector or an authorized agent of SD1.
- 4.5.4 Where the trench or excavation bottom is saturated or otherwise unstable because of ground water, or where the ground water elevation is above the bottom of the trench or excavation, the ground water shall be lowered by means acceptable to SD1 to the extent necessary to keep the trench or excavation free from water while construction is in progress. The discharge of ground water from the trench or excavation area shall be to natural drainage channels, gutters, drains, or storm sewers which will conduct the water away from the trench or excavation area. Sediment control shall be provided at the point of discharge. Surface water shall be diverted away from the trench or excavation area in a manner acceptable to SD1; surface water shall be prevented from entering the trench or excavation area.

4.6 BACKFILL AND COMPACTION

4.6.1 Backfill Placement: Backfill shall be placed in horizontal loose lifts not exceeding 8-12 inches in thickness and shall be mixed and spread in a manner assuring uniform lift thickness.

4.6.2 Compaction requirements are as follows:

- A. Select Fill and Pipe Bedding: For fill and bedding within the influence zone of structures and foundations, compact granular materials that exhibit a well-defined moisture density curve to at least 98 percent of the standard proctor maximum dry density (ASTM D698). For all other fill and bedding, compact granular materials that exhibit a well-defined moisture-density curve to at least 95 percent (ASTM D698). Moisture-condition fill materials to within a range of two (2) percent below to three (3) percent above optimum moisture content (ASTM D698). Compact granular materials that do not exhibit a well-defined moisture-density curve to at least 85 percent relative density (ASTM D4253 and D4254) within the influence zone structures and foundations, and to at least 75 percent relative density (ASTM D4253 and D4254) for all other areas.
- B. General Backfill: Compact materials that exhibit a well-defined moisture density curve to at least 98 percent of the standard proctor maximum dry density (ASTM D698) within the influence zone of structures, foundations and the top one (1) foot below pavements, and at least 95 percent (ASTM D698) in all other areas. Moisture-condition fill materials to within a range of two (2) percent below to three (3) percent above optimum moisture content (ASTM D698). Compact granular or rock materials that do not exhibit a well-defined moisture-density curve to at least 85 percent relative density (ASTM D4253 and D4254) within the influence zone of structures and foundations, and to at least 75 percent relative density (ASTM D4253 and D4254) for all other areas. All pipes under State roadways shall meet KTC requirements for backfill.
 - 1. After the pipe sections have been embedded up to a point 12-inches or more above the top of the pipe, the pipe sections have been encased in concrete, or the structures or appurtenances have been constructed, as specified on the drawings, in non-ROW areas, the remainder of the trench or excavated area shall be back-filled using trench or structure excavated material if it meets the requirements set forth under *4.1.3 Excavation and Backfill: General Backfill*. If the material does not meet these requirements, the trench or structure excavated material shall be wasted and suitable imported material shall be used for backfill.
 - 2. Backfill shall be placed in horizontal loose lifts not exceeding 8-12 inches in thickness and shall be mixed and spread in a manner assuring uniform lift thickness after placing. Backfill shall then be compacted as specified under *4.6.2 Compaction Requirements* up to existing ground level or finished grade level if same has been established.

4.6.3 Rock Backfill

- A. Where the trench is located in areas from which rock had to be excavated in a quantity other than isolated stones, the excavated rock may be used as part of the backfill above a point 2 feet or more above the top of the pipe, or above a point 1 foot above pipe encasement. For backfill under paved areas, refer to Section 4.6.4.
- B. The rock fragments used in the backfill shall not exceed rock thicker than 6 inches or larger than 24 inches maximum in any dimension, shall not be dropped into the trench directly over the pipe centerline and shall be used with sufficient smaller dimensioned material so that voids between larger fragments shall be filled. Compaction shall meet the requirements specified under Section 4.6, Backfill and Compaction, up to existing ground level or finished grade level if same has been established.
- C. (For SD1 Funded Projects) Rock shall not be used in the top 12-inches of the backfill in yard areas, except across creeks, gullies, ravines or areas designated by the ENGINEER, where the rock may be used to the existing ground level as specified on the drawings.

4.6.4 Backfill in ROW Areas

- A. For storm sewers and structures located within the public ROW, refer to local subdivision regulations for backfill material requirements.

4.6.5 If proper compactions are not achieved because of improper control of placement or compaction procedures, or because of inadequate or improperly functioning compaction equipment, or because of soil moisture content, the CONTRACTOR shall perform whatever work is required to provide the required densities. This work shall include complete removal of unacceptable bedding, backfill or fill areas, and replacement and recompaction until acceptable densities are provided.

4.6.6 Any methods of backfilling other than the above shall not be used unless special instructions have been issued by SD1 calling for other methods. Water flooding or jetting shall not be used in any instance. Water shall only be used in minor quantities to improve compaction qualities of backfill materials when so ordered by the Geotechnical Engineer and approved by SD1.

4.6.7 In all methods of backfilling that are used, no backfill material shall be dumped into the trench, or allowed to fall directly on the sewer centerline when the previously deposited cover is less than two (2) feet above the top of the pipe. All backfill material shall be slowly shoved or "rolled" into the trench.

PART 5 EXECUTION

5.1 CLEARING AND GRUBBING (FOR SD1 FUNDED PROJECTS)

- 5.1.1 The CONTRACTOR shall clear the area within the limits of the sewer easement that is necessary to construct the sewer, including but not limited to brush, hedges and trees (unless designated as not to be disturbed on the plans or by direction of SD1), stumps, logs and loose or projecting material so as to allow the construction work to be completed. The cleared debris shall be removed and legally disposed of off-site unless otherwise approved by SD1 in writing.
- 5.1.2 All existing fencing and retaining walls shall be temporarily removed where crossing the sewer easement, and shall be completely restored to the pre-construction condition after construction work has been completed. Materials used shall be equal to or better than the original materials in the existing fences or retaining walls. The cost for such restoration shall be considered incidental to pipe construction unless otherwise stated in the contract.
- 5.1.3 A surveyor licensed in the state of Kentucky must put any and all survey monumentation encountered and removed during the course of construction back in its original location at the completion of construction. Any dedication of said established monuments that are disturbed during construction shall be the sole responsibility of the CONTRACTOR.
- 5.1.4 Temporary closures shall be erected, maintained and removed at the completion of construction where livestock are in evidence or where directed by SD1. Trees designated as not to be disturbed shall be protected from harm by machinery, materials or the construction work.

5.2 PIPE INSTALLATION

- 5.2.1 Install piping, beginning at a downstream structure and consistent with the approved plans, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Placing pipe upstream to downstream will be allowed on a case-by-case basis, if approved by SD1. In these instances, bell ends shall still face upstream to avoid debris getting caught on the lip of the spigot. Care shall be taken to avoid getting bedding material into the bell when shoving the spigot home. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- 5.2.2 Install piping at constant slope between points and elevations indicated. The CONTRACTOR shall use laser beam alignment or other suitable methods and equipment to determine the exact position of each pipe section at the bottom of the trench. No pipe sections shall be disturbed in any manner after being laid and joints made. As the pipe sections are laid and joined, the interior of the pipe shall be cleaned of all dirt and foreign matter (water shall be excluded). Washing out is not permitted without controls to

intercept debris prior to discharge. Pipe laying shall not be performed in severe cold or wet weather.

- 5.2.3 At the end of any work or whenever pipe laying ceases, the end of the pipe shall be closed with a suitable close fitting stopper. All pipe ends, branch connections and leads not to be used immediately or connected to other facilities or structures shall be closed with a stopper or bulkhead and sealed in a manner similar to the pipe joints, unless otherwise called for.

5.3 STRUCTURE INSTALLATION

- 5.3.1 Manholes shall be neatly and accurately built in accordance with the Plans and SD1 Standard Drawings. When the manhole base slab will consist of cast-in-place concrete on an existing storm sewer line, the pipe and the lower precast barrel section shall be in place and supported by concrete blocks prior to placing concrete for the base. Inlets, catch basins, drains, junction structures, and other drainage structures shall be neatly and accurately built in accordance with the plans or SD1 Standard Drawings. The structure shall be either of cast-in-place concrete or precast concrete. Precast manhole or structure sections shall be installed in accordance with ASTM C 891.
- 5.3.2 All cast-in-place structures shall be built using 4,000 psi concrete as described in 3.1.1. The structures shall be built on prepared foundations and conform to the dimensions and shapes shown on the Plans and SD1 Standard Drawings. The construction shall conform to the methods, forms, placement, protection, and curing for concrete as specified in accordance with KTC and SD1 Standards. Any required reinforcement shall conform to the Plans and SD1's Standard Drawings. Installed concrete reinforcing shall be inspected and approved by SD1 before any concrete is placed.
- 5.3.3 Headwalls and outfalls shall be constructed of either cast-in-place or precast reinforced concrete in conformance with SD1's Standard Drawings and KTC Standard Specifications for Road and Bridge Construction. All headwalls and outfalls built into slopes shall be properly seated as to avoid disconnection from the adjoining pipe.
- 5.3.4 Connections for inlet and outlet pipes shall conform to the sizes, alignments, and elevations shown on the Plans. Inlet and outlet pipes shall be cut-off so as not to extend more than two (2) inches beyond the inside surfaces of the structure wall. Pipe bells shall not be allowed inside the structure wall. The pipes shall intersect at the structure so that the invert bench between the inlet and outlet pipes can be smoothly formed. No hammer modifications are allowed to precast or existing structures, not including those with knockout panels. Neat saw cuts or core drilling shall be utilized when modifying an existing structure.

5.4 PIPE / STRUCTURE ABANDONMENT

- 5.4.1 Pipe and structure abandonment under roadways shall consist of completely filling the designated pipes with controlled density fill (CDF), grout or other approved materials.

Appreciable deposits of debris shall be removed from other structures prior to placement of CDF, grout or other approved materials. Inlets / outlets shall be plugged by use of bulkheads containing small openings at the tops through which the fill may be pumped at a minimum pressure of 15 pounds per square inch. Bulkheads shall be 12-inch thick, brick masonry or concrete construction, threaded metal caps, plastic plugs, or other acceptable methods suitable for the size and type of material being closed. Do not use wood plugs. Pipes and structure under roadways shall be filled completely.

- 5.4.2 Structure abandonment shall be per SD1 standard drawings and consist of removing structure frames, covers, grates, and similar items. All connecting pipes shall be bulkheaded. The walls shall be lowered to 2 feet below final grade if in earth or to 12 inches below subgrade if in pavement. The remaining structure shall be filled with crushed stone or sand compacted to match all backfill requirements here-in or shall be filled with controlled density fill.

5.5 STORM SEWER PIPE TESTING

- 5.5.1 Pipe shall be fully backfilled and compacted at least 30 days prior to testing.
- 5.5.2 Deflection: Under normal circumstances, the CONTRACTOR shall test approximately 20% of all flexible storm sewer piping, as determined and directed by SD1, by use of a calibrated mandrel or other device/method approved by SD1, to ensure that no pipe deflection has occurred greater than five (5) percent of the inside diameter of the pipe. If, however, SD1 determines additional deflection testing is required based on the condition of the system, SD1 reserves the right to require such testing at no additional cost to SD1. The CONTRACTOR shall test the entire length of the sewer installed. Any pipe section exhibiting greater than 5 percent deflection shall be repaired in a manner approved and acceptable to SD1 and retested, at no additional cost to SD1. If the pipe fails a second deflection test, the pipe shall be replaced and retested at no additional cost to SD1.
- 5.5.3 Displacement: Storm sewer pipe sections may be checked by SD1 to determine if any displacement of the pipe sections from alignment and grade has occurred as each portion of the sewer is completed between structure locations. When the test is performed, it shall be as follows:
- A. Flashing a light beam by means of a strong flashlight or reflecting sunlight through the portion of the sewer between structure locations or by utilizing a laser beam.
 - B. When viewed from the opposite end of the portion of the sewer from the light location, the light beam should be full throughout the sections, but not less than two-thirds full under any circumstances. There shall be no "dips" in the grade of the pipe invert.
 - C. If the pipe sections show any misalignment, displacement or any other defects in the sections or joints, the CONTRACTOR shall remedy the defect, at the CONTRACTOR'S sole cost, to the satisfaction of SD1.
- 5.5.4 Within the one-year warranty period, beginning when SD1 accepts the appropriate storm systems, storm sewer pipes may be CCTV inspected by SD1, at the discretion and sole

cost of SD1, to determine if any pipe defects exist. The one-year warranty period shall start at the time of acceptance of the roadway by the local city/county. If defects are found within this warranty period, the CONTRACTOR shall remedy the defect, at the CONTRACTOR's sole cost, to the satisfaction of SD1. Once repairs are made, SD1 will re-inspect the sewer by means of CCTV, at the CONTRACTOR'S sole cost.

5.6 LANDSCAPING / RESTORATION (FOR SD1 FUNDED PROJECTS)

- 5.6.1 Landscaping / restoration shall be performed in accordance with Section 02900 of the SD1 Technical Specifications.

5.7 ENVIRONMENTAL AND EROSION/SEDIMENT CONTROLS (FOR SD1 FUNDED PROJECTS)

- 5.7.1 Environmental and erosion/sediment controls shall be performed in accordance with the Regional Stormwater Management Program and SD1 Technical Specifications.
- 5.7.2 All privately funded projects shall follow requirements of SD1 Grading Permits and Land Disturbance Permits for erosion and sediment control requirements.

5.8 ENVIRONMENTAL IMPACTS

- 5.8.1 For projects that include environmental impacts (stream crossings, clearing, etc), permits from agencies other than SD1 may be required before beginning construction. Additional permits may be required from, but not limited to:
 - (a) US Army Corps of Engineers
 - (b) US Fish and Wildlife
 - (c) Kentucky Division of Water (KDOW)

++ END OF SECTION ++