

PROJECT NO. 20-0081-22
EAST RIDGE STREET IMPROVEMENTS
BID DATE - AUGUST 09, 2022

BID DOCUMENTS

CHRIS DORSEY
CITY MANAGER
CITY OF EAST RIDGE, TENNESSEE
1517 TOMBRAS AVENUE
EAST RIDGE, TENNESSEE 37412



Table of Contents
Contract Number 20-0081-22

Contract Documents	Page Number
00009 Request for Bidder Information	00009-1
00100 Advertisement for Bids	00100-1
00200 Instruction to Bidders	00200-1
00201 Contractor Identification	00201-1
Bidding Requirements and Documents	
00300 Bid Proposal	00300-1
00301 Bid Schedule	00301-1
00302 Bid Bond	00302-1
00303 Certification of Bidder-Equal Employment Opportunity	00303-1
00400 Statement of Bidder's Qualifications	00400-1
00401 Statement of References	00401-1
00402 Statement of Equipment	00402-1
00410 Partnership Certificate	00410-1
00411 Corporate Certificate	00411-1
00417 Iran Divestment Act Disclosure	00417-1
00430 Statement of License Certificate	00430-1
00435 Joint Venture Questionnaire	00435-1
00440 Affidavit of No Collusion by Prime Bidder	00440-1
00441 Affidavit of No Collusion by Subcontractor	00441-1
00486 Drug Free Work Place	00486-1
Contract Requirements	
00500 Contract	00500-1
00600 Performance Bond	00600-1
00601 Payment Bond	00601-1
00602 Change Order	00602-1
00603 Change Request Form (CRF)	00603-1
Project Close Out Requirements and Forms	
00701 Certificate of Property Restoration	00701-1
00706 Certificate of Substantial Completion	00706-1
Contract Regulations	
00830 General Provisions	00830-1
00831 Equal Employment Opportunities Specifications	00831-1
00832 Equal Employment Opportunities Clause	00832-1
00836 Progress Payment Request Form	00836-1

Table of Contents (continued)

Contract Number 20-0081-22

General Conditions

01010 Summary of Work and Schedule	01010-1
01025 Unit Prices	01025-1
01080 Applicable Codes and Standards	01080-1
01090 Abbreviations	01090-1
01300 Submittals	01300-1
01700 Cleaning	01700-1
01730 Guarantees and Warranties	01730-1

Detailed Specifications

00012 Bituminous Plant Mix	12-1
00014 Mineral Aggregate Base	14-1
00015 Concrete Pavement Removal	15-1
00021 Prime Coat	21-1
00022 Tack Coat	22-1
00026 Bituminous Plant Mix	26-1
00027 Asphaltic Concrete Surface	27-1
00033 Adjusting Manhole Frames and Covers	33-1
00067 Bituminous Materials	67-1
00075 (Milling) Cold Planing	75-1
00717 Mobilization	717-1
02452 Traffic Signs and Pavement Markings	02452-1

Contract Documents

REQUEST FOR BIDDER INFORMATION

Questions regarding the project or the Bid Documents must be in writing as required by the Instruction to Bidders. Questions must be in writing on this form and addressed to **Asa Engineering & Consulting, Inc. at 714 Cherry Street, Chattanooga, Tennessee, 37402, email: cdavis@asaengineeringinc.com**. To be given consideration, the request must be received at least five (5) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be emailed, with telephone or email verification, to all prospective bidders no later than three (3) days prior to the date fixed for the opening of bids. I will also be mailed at the request of the bidder. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the Contract Documents.

Contract: **EAST RIDGE STREET IMPROVEMENTS**

Contract Number: **20-0081-22**

From: _____

Company: _____

Date: _____

CLARIFICATION IS NEEDED FOR THE FOLLOWING ITEMS:

(List Specification Section, Paragraph, Drawing Number and/or Detail Number)

END OF DOCUMENT

ADVERTISEMENT FOR BIDS

CITY OF EAST RIDGE, TENNESSEE
OWNER

Separate sealed bids for furnishing all supervision, materials, labor, tools, equipment, and appliances necessary for the construction of the following described project, will be received by the City of East Ridge at **City Hall, 1517 Tombras Ave, East Ridge, TN, 37412** until **2:00 p.m., local time, on Tuesday, August 9, 2022**, and then at said place publicly opened and read aloud:

**STREET IMPROVEMENTS
CONTRACT NUMBER 20-0081-22**

The scope of work shall consist of the following major elements including but not limited to the following:

Furnishing all labor and material for 1.5" asphaltic concrete surface milling and overlay of several City streets to include: asphalt milling, asphaltic concrete surface, full depth pavement removal and replacement of isolated areas including pavement removal, mineral aggregate base, asphaltic concrete binder, asphaltic concrete surface, prime coat and tack coat, sawcutting where required, limited pavement markings and any incidentals required to complete construction.

The Plans, Contract Documents and specifications may be downloaded at the City of East Ridge's website after 7/19/2022:

<http://www.eastridgetn.gov/Economic-Development/Bidding-Opportunities.aspx>

A Pre-Bid Conference will be scheduled and advertised on the City's website above.

All bidders must be licensed and shall comply with all requirements of the State of Tennessee Contractor's Licensing Act.

The City of East Ridge is an Equal Opportunity Employer.

CITY OF EAST RIDGE, TENNESSEE

RECOMMENDED FOR APPROVAL:

APPROVED:

END OF DOCUMENT

INSTRUCTIONS TO BIDDERS

1. General

Instructions to Bidders are also contained in other parts of these Contract Documents and apply with equal force to the instructions set forth in these Instructions to Bidders. All Bidders shall comply with every requirement, obligation, responsibility, and provision imposed on the Contractor by these Contract Documents even though said requirements, obligations, responsibilities, and provisions shall be complied with by the Contractor in part or in total prior to the opening of bids or the award of the Contract. If any Bidder fails to comply in every respect with any condition imposed on the Bidder or the Contractor, as the case may be, it is understood and agreed that the bid submitted may be declared by the Owner, at the sole discretion of the Owner without recourse, as non-responsive, and the Owner may award the Contract to the next lowest responsive and responsible bidder, or all bids may be rejected.

Definitions of terms used in these Instructions to Bidders and other Contract Documents are contained in the General Conditions of these Contract Documents.

2. Proposal Requirements and Conditions

The Bidder's attention is directed to Section 2, Proposal Requirements and Conditions, of the General Conditions of these Contract Documents which contains specific instructions to, and information for, Bidders. The instructions and information contained in said Section 2 are supplemented by that set forth herein and in other parts of these Contract Documents.

3. Qualification of Bidders

The Bidder must be capable of performing the work covered by these Contract Documents in a satisfactory manner and within the time specified. The Bidder shall furnish with his Bid, on forms contained in the Proposal, information and evidence required by the Owner for the Owner's use in determining the Bidder's qualifications for performing the work. The Bidder shall promptly furnish all additional information, evidence, or statements requested by the Owner, after the bids have been opened and evaluated, or his bid may be declared non-responsive.

If the Bidder is a subsidiary, division, or corporation, 50 percent or more of whose ownership is held by another corporation, firm, or person, the Bidder shall furnish the same information, evidence, and statements on the principal owner that is required to be submitted by the Bidder to the Owner by these Contract Documents.

The information and evidence required to be submitted by the Bidder shall include, but not be limited to: (1) financial statements; (2) list of subcontractors; (3) list of Bidder experience; and (4) lists of construction equipment available to the Bidder for performing the work.

4. Responsibility of Bidder to Inform Himself as to All Conditions Relating to the Work and the Project

The Bidder, by and through the submission of his Bid, agrees that he shall be held responsible: (1) for examining and fully understanding the Scope of Work, the Contract Documents, and all requirements thereof; (2) for having examined the site, the location, and the route of all proposed work; (3) for having familiarized himself fully with the construction schedule, site constraints, and the contractor's access requirements to the site; (4) for having satisfied himself as to the character of the work, the location, the surface and underground obstructions, the nature of the ground, subsurface water conditions, and all other subsurface conditions, and all other physical characteristics of the work and conditions relating thereto, in order that he may include in the prices bid, all costs pertaining to the work and thereby provide for the satisfactory completion thereof, including the removal, relocation, or replacement of any objects or obstructions which will be encountered in the performance of the work (based on the Unit Price descriptions in the Specifications).

If Bidders fail to fully understand any clause or requirement of these Contract Documents, inquiry in writing must be made of the Engineer for his interpretations of the Contract Documents five (5) calendar days in advance of the submission of a bid. Failure on the part of Bidders to thoroughly acquaint themselves with the work to be performed and the conditions under which it will be performed shall not be considered as a valid excuse for claims of any kind after the award of the Contract.

5. Familiarity with Laws and Regulations

The Bidder is required to be familiar with all Federal, State, and Local laws, ordinances, rules, and regulations that in any manner affect the work. Ignorance on the part of the Bidder shall not, in any way, relieve him from responsibility for compliance with said laws and regulations or any of the provisions of these Contract Documents.

The Bidder's attention is directed to the fact that all applicable Federal, State, and Local laws, ordinances, rules, and regulations and the regulations of any agency of government having jurisdiction over the work, or any part thereof, shall apply to the work or the performance thereof, and that said laws and regulations shall be a part of these Contract Documents, the same as if herein repeated.

6. Time for Completion and Liquidated Damages

6.01 It is understood and agreed that time is of the essence of the Contract and the Bidder agrees to complete the work within the contract time specified in the Proposal, the Contract, and other Contract Documents.

6.02 Should the Contractor fail to complete the work under these Contract Documents within the time specified in the Proposal, the Contractor shall pay to the Owner, as liquidated damages and not as a penalty, the amount specified in

the Proposal per calendar day of default unless extensions of time granted by the Owner specifically provide for the waiving of liquidated damages.

7. Addenda

If a Bidder is in doubt as to the meaning of any of the Contract Documents or if he finds discrepancies or ambiguities in, or omissions from any of the Contract Documents, he shall immediately submit a written request at least five (5) calendar days in advance of the bid opening date to the Engineer for interpretation or clarification. Said request by the Bidder and reply by the Engineer in the form of an addendum shall be in conformance with the provisions of these Contract Documents. All addenda shall become a part of these Contract Documents and shall be attached to the front cover of this bound volume submitted by the Bidder as his bid. The issuance of a written addendum by the Engineer shall be the only method whereby an interpretation or clarification will be made. No oral clarifications by the Owner or the Engineer will be made. Each Bidder shall be bound by all addenda, whether or not received by him.

8. Preparation of Bids

All bids shall be submitted on the prescribed forms contained in this bound volume and shall include all items listed in the Table of Contents of this volume and all addenda. All blank spaces of the Proposal and required accompanying documents, certifications, and statements shall be filled in handwritten in ink or typewritten, and completed as required by the provisions of these Contract Documents. Failure by the Bidder to fill in and complete all blanks and to supply all required information, documents, certifications, and statements may render the bid non-responsive, at the Owner's sole discretion without recourse, and the Owner may award the Contract to the next lowest responsive, responsible bidder or all bids may be rejected.

8.01 Proposal: The Proposal bound in this volume, together with other documents, certifications, and statements required with the submission of the bid, shall be the form on which the bid is submitted and may not be removed from this bound volume. Alternately the contractor may only submit the bid documents provided separately with these specifications. Items such as bid bonds may be stapled to the appropriate pages in the documents. Modification of the Proposal or accompanying documents, certifications, and statements, may render the bid non-responsive.

The Bidder must sign the Proposal in the space provided for the signature. If the Bidder is an individual, the words "doing business as _____" or "Sole Owner" should appear beneath such signature. In the case of partnership, the signature of at least one of the partners must follow the firm name, and the words "Member of the Firm" should be written beneath such signature. If the Bidder is a corporation, the title of the officer signing the Proposal in behalf of the corporation must be stated, and evidence of his authority to sign the Proposal must be submitted.

8.02 Proposal: The total base bid for the work described in these Contract Documents shall be the sum of the prices bid for the individual bid items in the Schedule I - Base Bid Items. Any Additive Alternate may be included in the Contract at the option of the City.

The amount of the total price or total unit price bid for each individual bid item in the Schedule I - Base Bid Items will determine the lowest bid subject to qualification and other requirements of these Contract Documents, and the City may make multiple awards to the lowest bidder for each individual bid item.

The City reserves the right to make one award to the bidder whose total base bid (the sum of the bid prices bid for the individual bid items in Schedule I – Base Bid Items) is the lowest, subject to qualification and other requirements of these Contract Documents.

8.03 Sales Taxes: The attention of the Bidder is directed to the laws of the State of Tennessee. The Bidder shall include all applicable state and local sales taxes in the price bid. The Bidder will be required to comply with all applicable laws and to file any required exemption certificates.

8.04 Statement of Equipment: The Bidder shall fill out the Statement of Equipment, providing all the data requested on the form.

8.05 Financial Statement: The successful Bidder shall be required to submit a Financial Statement prior to award of the contract, if requested.

8.06 Statement of Bidder's Qualifications: The Bidder shall fill out the Statement of Bidder's Qualifications, providing all the data requested on the form.

8.07 Affidavit: The Bidder shall fill out and properly execute the Affidavit contained in the Proposal.

9. Bid Security

Each bid must be accompanied by a certified check or Bid Bond on the prescribed form included herein or an approved form in an amount not less than five percent (5%) of the amount of the bid, duly executed by the Bidder as principal and having as surety thereon a surety company acceptable to the Owner and the Owner's attorney and authorized to write such Bid Bond under the laws of the State of Tennessee. The certified checks or Bid Bonds of all unsuccessful Bidders, except the three lowest Bidders, will be returned after the opening of bids. The certified checks or Bid Bonds of the three lowest Bidders will be returned after the Owner and the accepted Bidder have executed the Contract and the accepted Bidder has filed an acceptable Contract Bond; or if the award of the Contract has not been made within 60 days after the date of the opening of bids, upon demand of any Bidder at any time thereafter, provided that he has not been notified of the acceptance of his bid.

Attorneys-in-Fact of other officers who sign bid bonds for a surety company must file with such bonds a certified copy of his power of attorney authorizing him to sign said bonds.

10. Obligation of Bidders

It is the obligation of the Bidder prior to submitting his bid:

- (1) To fully satisfy himself, using whatever means and methods he considers necessary or convenient, as to the requirements of these Contract Documents and the work covered hereunder.
- (2) To read and to be thoroughly familiar with the Drawings and other Contract Documents.
- (3) To comply with all requirements and provisions of these Contract Documents.
- (4) To make, from his own personal knowledge and experience, or professional advice, his own investigation of subsurface conditions.
- (5) To satisfy himself that the Drawings and other Contract Documents are adequate for the work to be performed hereunder.
- (6) To complete the Proposal and all accompanying documents, certifications, and statements as specified in these Contract Documents.

The failure of the Bidder to understand or comply with these obligations shall not relieve him from any responsibilities, duties, or obligations imposed by any provision of these Contract Documents. It is understood and agreed that the Bidder will not make any claims against the Owner or the Engineer for the Bidder's failure to comply with these requirements and that failure to comply may render the bid non-responsive at the Owner's sole discretion without recourse.

11. Submission of Bids

Each bid shall be submitted on the Proposal Form as furnished herein, together with a suitable bid security and with the required documents, certifications and statements, herein described.

Each bid must be submitted in a sealed envelope. In compliance with all the requirements of Chapter No. 135, Public Acts of 1945 of the General Assembly of the State of Tennessee, and House Bill No. 2180 (Public Chapter No. 882) known as the Contractor's Licensing Act of 1976, the envelope must also bear on the outside the following:

- (1) Name of the bidder
- (2) Address of the bidder
- (3) Name of Project for which bid is submitted;
- (4) Bidder's License Number and State of Registration

- (5) Bidder's License Date of Registration
- (6) Bidder's License Category or Classification; License Amount; and
- (7) Bidder's License Expiration Date.
- (8) The names of the bidder's Subcontractors for electrical, plumbing and heating, ventilating and air conditioning work (no more than one in each category) must also appear on the face of the envelope with the license classification, license number and expiration date shown for each one.

All envelopes containing bids that are not marked as described above will be declared non-responsive, will not be opened, will be returned to the Bidder unopened, and will be handled as described in Paragraph 14 herein.

If the bid is forwarded by mail, the sealed envelope containing the Proposal shall be enclosed in another envelope addressed to the **City of East Ridge, City Hall, 1517 Tombras Avenue, East Ridge, TN 37412.**

12. Modification of Bids

Bid modifications will be accepted from Bidders if addressed to the Owner and received prior to the opening of the bids.

Any Bidder may modify his bid by telegraphic communication at any time prior to the opening of bids, provided such telegraphic communication is received by the Owner prior to the opening of bids, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the opening of bids. The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two (2) calendar days from the opening of bids, no consideration will be given to the telegraphic modification.

13. Withdrawal of Bids

Any bid may be withdrawn prior to the time scheduled in the Advertisement for Bids for the opening thereof. A bid may also be withdrawn 60 days after the date of the opening of the bids, provided that the Bidder has not been notified that his bid has been accepted.

14. Opening of Bids

Bids will be publicly opened and read aloud at the time and place stated in the Advertisement for Bids. The officer whose duty is to open them will decide when the specified time has arrived, and no bids received thereafter will be considered. No responsibility will be attached to any officer for the premature opening of a bid not properly addressed and identified. Bidders or their authorized agents are invited to be present.

15. Right to Accept or Reject Bids

Bids which contain modifications to the Contract Documents, or which are incomplete, unbalanced, conditional, or obscure, or which contain additions not requested or irregularities of any kind, or which do not comply in every respect with the "Instructions to Bidders" and other Contract Documents, may be declared non-responsive and rejected at the sole discretion of the Owner without recourse. The Owner reserves the right to waive any informality, to evaluate the bids, to reject any or all bids, and to re-advertise for bids.

16. Non-responsive Bids

Any bid that does not fully comply, in every respect, with all provisions, instructions, conditions, and requirements of these Contract Documents may be declared to be non-responsive by the Owner, at the Owner's sole discretion and without recourse, and the Owner may award the Contract to the next lowest responsive and responsible Bidder, or all bids may be rejected.

A bid may be declared by the Owner to be non-responsive for, but not limited to, any of the following reasons:

- (1) Failure to fill out all blanks and complete the Proposal and required accompanying documents, certifications, and statements.
- (2) Modification or alteration of the Proposal or other Contract Documents.
- (2) Failure to furnish adequate information for the Owner to determine if the Bidder is qualified.
- (3) Submission of a qualified or conditional bid.
- (4) Failure to furnish information, evidence, and statements of the principal Owner when the Bidder is owned 50 percent or more by another firm, corporation, or person.
- (5) Submission of unrealistic data, erroneous data, inaccurate data, or data that cannot be documented or substantiated.
- (7) Lack of adequate financial resources and capabilities.
- (8) Failure to comply with the requirements of Article 20 of Instructions to Bidders.

17. Disqualification of Bidders

17.01 One Proposal: Only one Proposal from a person, firm, partnership, or corporation under the same or under different names will be considered. If it is believed that a Bidder is interested in more than one Proposal for the work

involved, all Proposals in which such a Bidder is interested will be declared non-responsive and will be rejected.

17.02 Collusion Among Bidders: If it is believed that collusion exists among the Bidders, the Proposals of all participants in such collusion will be declared non-responsive and will be rejected. Participants in such collusion will not be considered in future Proposals for the same work.

17.03 Debarred or Suspended Contractors: Bidders debarred or suspended by the City of East Ridge or who are debarred or suspended by operation of any other applicable state or federal law or regulation, are not eligible to be contractors or subcontractors to this contract.

17.04 Affidavit of No Collusion by Bidder: All bidders are required to execute a notarized affidavit of No Collusion by Bidder, and a bidder who fails to do so will be disqualified.

18. Criteria for Evaluation of Bids

A contract will be awarded, if it is awarded, to the lowest responsible and responsive bidder who submits the lowest bid for each individual bid item in Schedule I in accordance with the Contract Documents. It is understood and agreed that the Owner will determine, without recourse, which Bidder is the lowest responsible and responsive Bidder for each individual bid item. The Owner reserves the right to award a single contract to the Bidder whose total base bid (the sum of the prices bid for the individual bid items in Schedule I – Base Bid Items) is the lowest. In determining the Bidder or Bidders who will receive awards, the following specific criteria will be considered.

18.01 The Bidder shall maintain a permanent place of business. This requirement applies to the Bidder where the Bidder is a division of a corporation, or where the Bidder is owned, 50 percent or more, by a person, corporation, or firm.

18.02 The Bidder shall demonstrate that he has adequate construction management experience and sufficient equipment resources to properly perform the work under, and in conformance with, these Contract Documents. This evaluation will be based upon a list of completed or active projects and a list of construction equipment available to the Bidder to perform the work.

18.03 The Bidder shall demonstrate that he is familiar with the work covered by these Contract Documents.

18.04 The Bidder shall demonstrate that he has financial resources of sufficient strength to meet the obligations incident to the performance of the work covered by these Contract Documents. The Bidder shall complete the financial statement in the Proposal form. The ability to obtain the required Performance and Payment Bonds will not alone demonstrate adequate financial capability.

The Bidder may demonstrate financial capability by submitting a suitable financial statement of an Equity Partner, provided an agreement is executed binding the Bidder and said Equity Partner, jointly and severally, to fulfill all duties, obligations, and responsibilities of the Contractor covered by these Contract Documents if the Contract is awarded to the Bidder. The agreement shall be submitted with the Bid and shall be satisfactory to the Owner's Attorney, or the bid may be declared non-responsive.

18.05 The Bidder shall furnish all data required by these Contract Documents. Failure to do so may result in the Bid being declared non-responsive. Acceptance of the Bidder's documentation and substantiation or Contract Award by the Owner does not relieve the Bidder of liability for nonperformance as covered in the Contract Documents; nor will the Bidder be exempted from any other legal recourse the Owner may elect to pursue.

19. Award of Contract

Following the opening of bids, the Engineer will evaluate the proposals. After completion of the evaluation of the proposals the Engineer will recommend to the Owner that the Bidder who is both responsive and responsible and whose bid totals the lowest number of dollars, for each individual bid item in Schedule I, should be awarded a contract. The Owner reserves the right to award a multiple contract to the Bidder based on the total of Schedule I, individual Site Locations or a combination of Site Locations based on lowest bid per each site. The Engineer will notify all Bidders in writing of the Owner's intent to award a contract or contracts. The City Council in an open public session will pass a Resolution of award of the contract or contracts to the recommended bidder(s).

20. Liquidated Damages for Failure to Enter into Contract

The certified check or Bid Bond filed with and as a part of the Proposal will be forfeited to the Owner as agreed upon as liquidated damages if the Bidder to whom the Contract is awarded shall fail to execute the appropriate Contract Documents within ten (10) days following written notice to him that such forms are ready for execution.

21. Execution of Contract

Each Bidder to whom a Contract is awarded will be required to execute, in seven (7) counterparts, the prescribed Contract form, Performance Bond form, and Payment Bond form within ten (10) days from the date of notice to him that such forms are ready for execution.

22. Security for Faithful Performance of Contract

Simultaneously with his delivery of the executed Contract form to the Owner, the Bidder to whom the Contract has been awarded shall deliver to the Owner an executed Performance Bond on the prescribed form in the amount of one hundred percent (100%) of the total amount of the accepted total bid as security for the faithful performance of his Contract,

including meeting performance guarantees and for the repair and/or replacement of defective or deficient work for a period of one (1) year after the date of final acceptance of the work. At the same time, the successful Bidder shall deliver to the Owner an executed Payment Bond on the prescribed form in the amount of one hundred percent (100%) of the total amount of the accepted total bid as security for the payment of all persons performing labor or furnishing materials in connection therewith. The surety on said bonds or other security shall meet the requirements of these Contract Documents and shall be satisfactory to the Owner and the Owner's Attorney.

END OF DOCUMENT

SECTION 00201

CONTRACTOR'S IDENTIFICATION
(ALL BLANKS MUST BE FILLED. USE N/A AS NECESSARY)

This form shall be attached to the sealed envelope containing the Bid. All prime contractors and contractors for electrical, plumbing, and heating, ventilation, and air conditioning contracts for bids of \$25,000 or more and/or masonry items for \$100,000 or more are required to complete this form pursuant to TCA 62-6-119. Failure to provide all of this information on the sealed envelope shall be considered a non-responsive Bid and shall not be opened or shall automatically disqualify such bid.

BIDDER:

Complete the following for all applicable Electrical, Plumbing, Masonry and Heating, Ventilation, and Air Conditioning Subcontractors: Prime Contractor must fill in space below when performing Electrical, Plumbing, or Heating, Ventilation, and Air Conditioning Sub-Contractor work for any bids of \$25,000 or more; and for Masonry for any bids of \$100,000 for more:

Name: _____

Subcontractor: _____

Address: _____

Tennessee License No.: _____

License Expiration Date: _____

License Classification: _____

If TaxID Number (TIN) issued, list below. Otherwise, list Owner's Social Security Number (SSN).

TaxID Number: _____

Subcontractor: _____

Tennessee License No.: _____

Tennessee License No.: _____

License Registration Date: _____

License Expiration Date: _____

License Expiration Date: _____

License Classification: _____

Monetary Limit: _____

_____ (\$ _____)

Subcontractor: _____

Classification : _____

Tennessee License No.: _____

License Expiration Date: _____

License Classification: _____

City of East Ridge
City Hall
1517 Tombras Ave
East Ridge, TN 37412
Phone Number: (423) 867-7711

SEALED BID PROPOSAL FOR :

CONTRACT NAME: EAST RIDGE STREET IMPROVEMENTS
Contract Number: 20-0081-22

TIME: 2:00 p.m. 08/09/2022

Bidding
Requirements & Documents

BID PROPOSAL

Project Description: East Ridge Street Improvements; Contract No. 20-0081-22

Proposal _____

_____ hereinafter called "Bidder"), doing business as

a corporation, a partnership, an individual

To the City of East Ridge, Tennessee (hereinafter called "Owner").

The Bidder, in compliance with your Advertisement for Bids for the construction of this project having examined the Drawings and Specifications with related documents, other Contract Documents, and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all supervision, labor, materials and equipment, and to construct the project in accordance with the Contract Documents, within the time set forth therein, and at the price stated on the attached Bid Schedule. This price is to cover all expenses including overhead and profit incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder hereby agrees to begin work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within the number of consecutive calendar days stipulated in the specifications. Bidder further agrees to pay liquidated damages as hereinafter provided in the General Conditions.

Bidder acknowledges receipt of the following addenda:

Bidder agrees to perform all the construction of the project for the attached price complete with appurtenant and accessory work described in the specifications and as shown on the plans.

The attached price shall include all supervision, labor, materials, equipment, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be firm and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract attached within ten (10) days and deliver a surety bond or bonds as required by the General Conditions. The bid security attached in the sum of 5% of the total bid is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

By _____
Signature

Title _____

Business Address

ATTEST:

Name _____ (SEAL)
(Please Type)

Title _____

Note: Attest for a corporation must be by the corporate secretary; for a partnership, by another partner; for an individual, by a Notary.

END OF DOCUMENT

BID SCHEDULE

STREET IMPROVEMENTS

CONTRACT NUMBER 20-0081-22

EAST RIDGE, TENNESSEE

DESCRIPTION

Furnishing all labor and material for 1.5" asphaltic concrete surface milling and overlay of several City streets to include: asphalt milling, asphaltic concrete surface, full depth pavement removal and replacement of isolated areas including pavement removal, mineral aggregate base, asphaltic concrete binder, asphaltic concrete surface, prime coat and tack coat, sawcutting where required, limited pavement markings and any incidentals required to complete construction.

TOTAL BASE BID

Total Base \$ _____

Note: Dollar amounts are to be shown in both words and figures. In case of discrepancy, dollar amounts shown in words will govern.

Contractor certifies that he has reviewed the plans and specifications, and that all items of work not specifically listed in the Bid Schedule are included in the prices for the various items listed on the Bid Schedule.

BIDDER:

DATE:

BY:

(Signature) TITLE:

ADDRESS:

CITY:

STATE:

ZIP CODE:

TELEPHONE NUMBER:

**STREET IMPROVEMENTS
CONTRACT NO. 20-0081-22**

Contractor shall familiarize himself with the project and be comfortable that the bid price provided is adequate to perform the proposed work based on the estimated quantities listed in the plans. The quantities listed in the plans are based on GIS information and not actual field surveys. Reimbursement for quantity overages will be paid at the appropriate contract unit price below (scale tickets required).

Work for each bid item shall include all work proposed in the plans, including mobilization, pavement markings and any incidentals required to complete the project. If the project is delayed, and starts after the fall of 2022, then TDOT Special Provision 109B Bituminous Material Index will be utilized.

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	ITEM TOTAL
1	Asphalt Surface, ACS MIX(PG64-22) GRADING E (1.5") per Detail 1, Sheet C0.1 including Tack Coat	SY	12600		
2	Cold Planing Asphalt Surface As Directed (1.5" AVG) per Detail 1, Sheet C0.1	SY	12600		
3	Full Depth Pavement Removal and Replacement per Details 2 or 3, Sheet C0.1	SY	6770		
4	Overexcavation of Unsuitable Soils in the Subgrade and Replacement and Compaction with Mineral Aggregate Base (303-01)	CY	200		

TOTAL BASE BID, CONTRACT 20-0081-22 _____

Proposed start date: _____

ALTERNATE ADD / DEDUCT

ALTERNATE PRICING FOR ITEMS NOT INCLUDED IN THE BASE BID

If the project is to start after the fall of 2022, then TDOT Special Provision 109B Bituminous Material Index will be utilized.

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	ITEM TOTAL
303-01	Mineral Aggregate Base	Ton	-		
307-01.01	Asphalt Conc. Mix (PG64-22) (BPMB-HM) GR A	Ton	-		
307-01.06	Asphalt Binder, Asphaltic Conc. Mix (PG64-22) (BPMB-HM)GR B (3.5")	Ton	-		
411-01.11	Asphalt Surface, ACS MIX(PG64-22) GRADING E (1.5")	Ton	-		
402-01	Prime Coat (PC)	Ton	-		
403-01	Tack Coat (TC)	Ton	-		
415-01.02	Cold Planing Asphalt Surface As Directed (1.5" AVG)	SY	-		
611-01.20	Adjustment of Existing Manhole	EA	-		

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____

as Principal, and _____

as Surety, are hereby held and firmly bound unto City of East Ridge, Tennessee, as Owner in the penal sum of five percent of the total bid for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to City of East Ridge, Tennessee, a certain Bid attached hereto and hereby made a part hereof to enter into a contract in writing for the construction of

Contract Number 20-0081-22, East Ridge Street Improvements

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and Surety have executed this Bond by causing their respective names to be hereunto subscribed and their seals to be hereunto affixed by their duly authorized officers, on this the _____ day of _____, 2022.

CONTRACTOR - PRINCIPAL:

By _____

Name _____

(Please Type)

Title _____

(SEAL)

SURETY:

By _____

Name _____

(Please Type)

Title _____

WITNESS:

Name _____

(Please Type)

(SEAL)

Title _____

Note: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

END OF DOCUMENT

00302-2

**CERTIFICATION OF BIDDER REGARDING
EQUAL EMPLOYMENT OPPORTUNITY**

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F. R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the Equal Opportunity Clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name: _____

Address: _____

-
1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. Yes___ No___
 2. Compliance reports were required to be filed in connection with such contract or subcontract. Yes___ No___
 3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. Yes___ No___
 4. If answer to Item 3 is "No," please explain in detail below.

Certification -- The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (Please Type)

Signature

Date

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered, and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires. Attach all additional sheets to these Contract Documents.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to or been directed not to complete any work awarded to you? If so, where and why, and which project?
9. Have you ever defaulted on a contract? If so, where, and why and which project?
10. List the most important projects recently completed by your company, stating the approximate cost for each, and the month and year completed. (See form 00400-(2))
11. List your major equipment available for this contract.
12. List experience in construction work similar in importance to this project.

13. Background and experience of the principal members of your organization, including officers.

14. Credit available: \$ _____

15. Give bank reference: _____

16. Will you, upon request, submit a detailed financial statement and furnish any other information that may be required by the City of East Ridge?

17. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of East Ridge in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this _____ day of _____, 2022.

Name of Bidder

By _____

Title _____

State of _____

County of _____

_____ being duly sworn deposes and says that he is
_____ of _____

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 2022.

Notary Public

(SEAL)

My Commission Expires:

(Date)

END OF DOCUMENT

STATEMENT OF REFERENCES

List three (3) projects constructed by your company within the last five (5) years that are of similar scope and size as this project.

Project 1: _____

Description: _____

Approximate Cost: _____ Completed: _____

Client or Owner Contact: _____

Title: _____ Phone: _____

Project 2: _____

Description: _____

Approximate Cost: _____ Completed: _____

Client or Owner Contact: _____

Title: _____ Phone: _____

Project 3: _____

Description: _____

Approximate Cost: _____ Completed: _____

Client or Owner Contact: _____

Title: _____ Phone: _____

END OF DOCUMENT

STATEMENT OF EQUIPMENT

I/We hereby, certify that all machinery and equipment necessary to perform the scope of work contained in these contract documents is either owned by me/us or that we have made arrangements to obtain the same from others. I/We further agree that I/we will furnish a complete list of equipment/machinery with kind/size/capacity/ownership, should the owner request the same.

Signed: _____

Name: _____

Title: _____

END OF DOCUMENT

PARTNERSHIP CERTIFICATE

STATE OF _____

COUNTY OF _____

On this _____ day of _____, 2022, before me personally appeared _____

_____ known to me to be the person who executed the above instrument, who, being by me first duly sworn, did depose and say that he is a general partner in the firm of

_____ and that said firm consists of himself and _____

_____ and that he executed the foregoing instrument on behalf of said firm for the uses and purposes stated therein, and that no one except the above named members of the firm have any financial interest whatsoever in said proposed contract.

_____ Subscribed and sworn to before me, this _____ day of _____, 2022.

Notary Public

My Commission Expires:

END OF DOCUMENT

CORPORATE CERTIFICATE

I, _____, certify that I am the Secretary of the corporation named as Contractor in the foregoing proposal; that _____, who signed said proposal in behalf of the Contractor was then _____ of said corporation; that said proposal was duly signed for and in behalf of said corporation by authority of its Board of Directors, and is within the scope of its corporate powers; that said corporation is organized under the laws of the State of _____.

This _____ day of _____, 2022.

(SEAL)

END OF DOCUMENT

Chapter No. 817 (HB0261/SB0377). "Iran Divestment Act" enacted.
Vendor Disclosure and Acknowledgement

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to § 12-12-106.

(SIGNED) _____

(PRINTED NAME) _____

(BUSINESS NAME) _____

(DATE) _____

(SIGNED) _____

(PRINTED NAME) _____

(BUSINESS NAME) _____

(DATE) _____

END OF DOCUMENT

STATEMENT OF LICENSE CERTIFICATE

Each Contractor Bidding Shall Fill In and Sign the Following:

This is to certify that _____
has fully complied with all the requirements of Chapter No. 135, Public Acts of
1945 of the General Assembly of the State of Tennessee and House Bill No. 2180
(Public Chapter No. 822), known as the Contractors Licensing Act of 1976. The
Contractor's license number and other information outlined in the Information for
Bidders, expiration date, and that part of classification applying to the bid shall
appear on the envelope containing the bid; otherwise the bid will not be
considered.

The State Board for Licensing General Contractors issued to _____

Certificate No. _____, which expires on _____, 2022.

Signed: _____

Name: _____

Title: _____

END OF DOCUMENT

JOINT VENTURE QUESTIONNAIRE

In the event a joint venture bid is submitted, the following questions shall be answered, submitted with the bid and signed by the owner, partner, officer, representative, or agent of each joint venturer.

1. What is the separate bonding capability of each member of the joint venture?
2. What other work is in progress by total contract dollar amount and percentage of completion for each joint venturer?
3. Are there any particular risks associated with this Contract which contributed to the decision to joint venture, and if so, what?
4. Has consideration been given to utilization of a subcontract as opposed to formation of a joint venture, and if so, why was the joint venture format chosen?
5. Has either member of the joint venture been separately awarded a contract by the City of East Ridge, and if so, what was the most recent contract awarded to each?
6. What will be the contribution of each participant in the joint venture with respect to personnel, equipment, and other resources of each company allocated to this Contract?
7. What will be the specific contribution of each participant of the joint venture for the completion of work to be performed and material to be supplied under this Contract?
8. Will there be separate management for the joint venture? If not, which company will supervise, or how will the contract be supervised?
9. Why will the joint venture be more efficient than the possibility of both companies separately bidding and either company being awarded the contract separately?

10. Does the formation of the joint venture promote competition on this Contract, and if so, how?

11. Has the joint venture, or any participant therein, received any legal advice with respect to the antitrust implications of formation of a joint venture, and if so, from what attorneys?

_____	_____
Name of Joint Venturer	Name of Joint Venturer
By _____	By _____
Title _____	Title _____

State of _____

County of _____

_____ being duly sworn deposes and says that he is _____ of _____

and _____ being duly sworn deposes and says that he is _____ of _____

and that the answers to the foregoing questions and all statements therein contained are true and correct. Subscribed and sworn to before me this _____ day of _____, 2022.

Notary Public

My Commission Expires:

(Date)

(SEAL)

END OF DOCUMENT

AFFIDAVIT OF NO COLLUSION BY PRIME BIDDER

**CONTRACT NUMBER 20-0081-22
FOR THE CITY OF EAST RIDGE**

STATE OF _____

COUNTY OF _____

The undersigned, _____, having been
duly sworn, deposes and states as follows:

1. I am the (title) _____
(sole owner, a partner, president, secretary, etc.) of _____

(Name of Corporation) (Partnership) (Limited Partnership) (Joint Venture) which is a
_____ (Corporation) (Proprietorship)
(Partnership) (Limited Partnership) (Joint Venture) in good standing formed under the law of
_____ (State of Incorporation or formation),
hereinafter referred to as "bidder."
2. I am authorized to make this affidavit on behalf of said bidder, and I have personal
knowledge of the matters set forth herein.
3. On _____, 2022, said bidder is submitting a bid to the
City of East Ridge for the above captioned contract. This bid was prepared under my
personal supervision and direction. During the preparation of the bid, I have taken
affirmative steps to inquire about the circumstances of the bid preparation in general and
about any contacts between or among this bidder and any other bidders or prospective
bidders in particular.
4. I am aware of the Federal and State laws including without limitation, the Sherman Act (15
U.S.C. 1) and the Tennessee antitrust laws (T.C.A. 47-25-101, et seq.), which make it illegal to
agree to fix or rig bids or otherwise agree to restrain competition in bidding for contracts
with the City of East Ridge. I am aware in particular that violations of the Sherman Act are

AFFIDAVIT OF NO COLLUSION BY PRIME BIDDER

**CONTRACT NUMBER 20-0081-22
FOR THE CITY OF EAST RIDGE**

federal crimes punishable by a fine of up to \$1.0 million for a corporation, and a fine of up to \$100,000 for an individual or by imprisonment not exceeding three years, or both.

5. I hereby certify and attest that the bid identified in paragraph 3 is based solely upon the independent knowledge, expertise and business judgment of the bidder acting through its officers and agents and is not the product of, nor was it prepared in connection with, any contract, combination, conspiracy, understanding or collusion between or among any other bidder or prospective bidder on said contract.

Signature

Subscribed and sworn to before me this _____ day of _____, 2022.

Notary Public

My Commission Expires: _____ (SEAL)

END OF DOCUMENT

AFFIDAVIT OF NO COLLUSION BY SUBCONTRACTOR

**CONTRACT NUMBER 20-0081-22
FOR THE CITY OF EAST RIDGE**

STATE OF _____

COUNTY OF _____

The undersigned, _____, having been
duly sworn, deposes and states as follows:

1. I am the (title) _____
(sole owner, a partner, president, secretary, etc.) of _____

(Name of Corporation) (Partnership) (Limited Partnership) (Joint Venture) which is a
_____ (Corporation) (Proprietorship)
(Partnership) (Limited Partnership) (Joint Venture) in good standing formed under the law of
_____ (State of Incorporation or formation),
hereinafter referred to as "subcontractor."
2. I am authorized to make this affidavit on behalf of said subcontractor, and I have personal
knowledge of the matters set forth herein.
3. On _____, 2022, said subcontractor is submitting a bid
to the City of East Ridge for the above captioned contract. This bid was prepared under my
personal supervision and direction. During the preparation of the bid, I have taken
affirmative steps to inquire about the circumstances of the bid preparation in general and
any other subcontractor or prospective subcontractors in particular.
4. I am aware of the Federal and State laws including without limitation, the Sherman Act (15
U.S.C. 1) and the Tennessee antitrust laws (T.C.A. 47-25-101, et seq.), which make it illegal to
agree to fix or rig bids or otherwise agree to restrain competition in bidding for contracts
with the City of East Ridge. I am aware in particular that violations of the Sherman Act are

AFFIDAVIT OF NO COLLUSION BY SUBCONTRACTOR

**CONTRACT NUMBER 20-0081-22
FOR THE CITY OF EAST RIDGE**

federal crimes punishable by a fine of up to \$1.0 million for a corporation, and a fine of up to \$100,000 for an individual or by imprisonment not exceeding three years, or both.

5. I hereby certify and attest that the bid identified in paragraph 3 is based solely upon the independent knowledge, expertise and business judgment of the bidder acting through its officers and agents and is not the product of, nor was it prepared in connection with, any contract, combination, conspiracy, understanding or collusion between or among any other subcontractor or prospective subcontractor on said contract.

Signature

Subscribed and sworn to before me this _____ day of _____, 2022.

Notary Public

My Commission Expires: _____ (SEAL)

END OF DOCUMENT

SECTION 00486

DRUG-FREE WORKPLACE AFFIDAVIT OF PRIME BIDDER

STATE OF _____

COUNTY OF _____

Comes the affiant after having first been duly sworn and testifies as follows:

1. My name is _____ I hold the principal office of
_____ for _____.
(Name of Principal Office) (Name of Bidding Entity)

2. _____ has submitted a bid to
the
(Name of Bidding Entity)
City of East Ridge for the construction of Contract:
EAST RIDGE STREET IMPROVEMENTS, CONTRACT NUMBER 20-0081-22.

3. _____ employs more than five (5)
employees.
(Name of Bidding Entity)

4. In accordance with Tenn. Code Ann. §50-9-113, this is to certify that
_____ has in effect at the time of its submission of
(Name of Bidding Entity)
a bid to perform the construction of the City of East Ridge project identified above,
a drug-free workplace program that complies with Title 50, Chapter 9 of the Tennessee
Code.

5. This affidavit is made on personal knowledge.

Further the affiant saith not this _____ day of _____, 2022.

Signature

Subscribed and sworn to before me this _____ day of _____,
2022.

Notary Public

My Commission Expires:

(Date)

(SEAL)

END OF DOCUMENT

Contract Requirements

CONTRACT

ARTICLES OF AGREEMENT entered into this _____ day of _____, 2022, between the CITY OF EAST RIDGE, TENNESSEE, hereinafter called the City, and _____, hereinafter called the Contractor.

ARTICLE I. The Contractor hereby contracts and agrees to furnish all supervision, labor, materials and equipment and execute in a thorough and workmanlike manner, complete in every respect, in accordance with the Drawings, Specifications and other Contract Documents made therefor and hereto attached, and to the satisfaction of the City of East Ridge, or its successor, all of the Work shown, specified and otherwise required in these contract documents, to-wit:

Contract No. 20-0081-22
EAST RIDGE STREET IMPROVEMENTS

ARTICLE II. The prices shown in the Bid Schedule shall be the amount of the compensation to the Contractor for the proper and satisfactory completion of the work specified herein, including all contingencies, in full conformity with the Contract Documents. This compensation shall be full payment for the performance of the work and the furnishing of labor, materials, transportation, supplies, tools, equipment, taxes, employee benefits, incidentals, services, and other items necessary or convenient for completion of the work in a satisfactory and acceptable manner, and within the intent of these Contract Documents.

ARTICLE III. The Contractor agrees that he has informed himself fully of the conditions relating to the construction and labor under which the work will be or is now being performed, and this Contractor must employ, so far as possible, such methods and means in the carrying out of his work as will not cause any interruption or interference with any other contractor.

ARTICLE IV. All work and material required under this Contract shall be in such quantities, kinds and qualities, and in such places, and of such dimensions and forms as may be designated by the plans and specifications, or by the working plans provided by the Engineer.

ARTICLE V. The purchase of all materials, the delivery of same, and all incidental expenses which may arise during the construction and finishing of said work above specified, shall be at the sole cost and expense of the Contractor.

ARTICLE VI. All materials which the said Contractor may procure or deliver upon or in the vicinity of said work herein specified to be incorporated in and become a part of said improvement, shall, from the time of such procurement or delivery become the property of the City of East Ridge, except any surplus which shall remain over the final completion of this Contract.

ARTICLE VII. The Contractor hereunder contracts and agrees to complete the whole of the work contemplated in this Contract in **sixty (60) calendar days**. Time of the completion of the work is the essence of the Contract, and the Contractor is prepared to make completion of the work in such quantity and on such dates as are herein specified, and the parties having agreed, after estimates, that the sum of **two Hundred dollars and no cents (\$200.00)** per day would be liquidated damages in case of the Contractor's failure to perform, now, therefore, the aforementioned sum per day, not as a penalty but to be considered and taken as liquidated damages suffered by the City of each day's delay in completion of this Contract.

ARTICLE VIII. It is agreed that the Contractor will not assign, transfer, or sublet the said work or any part thereof without the written consent of the City of East Ridge.

ARTICLE IX. Estimates shall be made every thirty (30) days during the progress of the work by the Contractor and submitted to the Engineer for his approval. When, in the Engineer's judgment, the estimate shall represent a fair value of such work done in accordance with the provisions of this contract, the Contractor shall be paid ninety-five (95%) percent with five (5%) percent being retained as collateral security, said five (5%) percent to be paid within ninety (90) days after completion of such work or within ninety (90) days after substantial completion of the project for work completed, whichever occurs first.

ARTICLE X. An omission to disapprove the work badly done, at the time of a monthly or other estimate, by the Engineer shall not be construed into an acceptance of any defective work.

All documents bound herein and all other documents not bound herein but given to Contractor in connection with the work shall be and are hereby made a part of this contract. These contract documents shall include, but not be limited to, the following: the Contract, Advertisement for Bids, Instructions to Bidders, Bid Proposal and Proposal Documents, Bid Bond, Performance Bond, Payment Bond, Certificates, General Provisions, Supplementary General Provisions, Specifications, Drawings, Addenda, Change Orders, Notice to Proceed, and Specifications, Drawings, and Engineering Data furnished to the Contractor.

IN TESTIMONY WHEREOF, the said parties have hereunto set their hands and seals the day and year first above written.

Attest:

CITY OF EAST RIDGE

_____ By: _____
City Manager

CONTRACTOR

Name

Attest:

_____ By: _____

Title

CITY FINANCE OFFICER'S CERTIFICATE

I do hereby certify that the funds required to be paid by the City under this contract have been appropriated or a loan authorized and have been encumbered and will be available as needed for payment.

This _____ day of _____, 2022.

City Finance Officer

CITY ATTORNEY'S APPROVAL

This contract approved as to form and legality this the ____ day of _____, 2022.

City Attorney

END OF DOCUMENT

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that _____

_____, a
(Name and Address of Contractor)

_____ of the State of _____,
(Corporation, Partnership, or Individual)

the "Principal," and _____
(Name and Address of Surety)

_____, the "Surety," are held and firmly bound unto the
City of East Ridge, Tennessee (the "Owner") existing under and by virtue of the laws of the
State of Tennessee, The Engineer, and their agents and employees in the sum of

_____ (\$ _____)

of the United States, for the payment of which sum in lawful money of the United States
well and truly to be made we do hereby bind ourselves, our heirs, executors,
administrators, successors, and assigns jointly and severally.

The condition of this obligation is such that whereas Principal has entered into a
certain Contract with the Owner, dated as of the _____ day of
_____, 2022, which is by reference incorporated in and made a part
hereof as fully as if copied here verbatim, for the following work:

Contract No. 20-0081-22

EAST RIDGE STREET IMPROVEMENTS

NOW, THEREFORE, if the Principal shall in all respects comply with and perform all the terms and conditions of the Contract (which includes the Drawings, Specifications, and Contract Documents) and such alterations as may be made in said contract as the documents therein provide for, during the original term thereof and any extensions thereof which may be granted by the Owner, with or without notice to Surety, and during the one-year warranty period, and if Principal shall satisfy all claims and demands and shall fully indemnify, protect, defend, save and hold harmless the Owner, the Engineer, and their agents and employees against and from all costs, expenses, damages, injury, or conduct, want of care, skill, negligence, or default, including compliance with performance guarantees and patent infringement by the Principal, then this obligation shall be void; otherwise, Principal and Surety jointly and severally agree to pay to Owner any difference between the sum to which the Principal would be entitled on completion of the contract and that which the Owner may be obliged to pay for the completion of the work by contract or otherwise, together with any damages, direct or indirect, or consequential, which Owner may sustain on account of such work, or on account of the failure of the Principal to keep and execute all provisions of the Contract.

Principal and Surety further bind themselves, their heirs, executors, administrators, and assigns, jointly and severally, that if the Principal shall keep and perform its agreement to repair or replace defective work or equipment during the warranty period of one (1) year as provided, then this paragraph shall be void; but if default shall be made by Principal in the performance of its contract to so repair or replace said work, then this paragraph shall be in effect and Owner shall have and recover from Principal and its Surety damages for all defective conditions arising by reason of defective materials, work, or labor performed by or on the account of Principal and it is further understood and agreed that this obligation shall be a continuing one against the Principal and Surety hereon, and that successive recoveries may be had hereon for successive breaches until the full amount shall have been exhausted; and it is further understood that the obligation therein to maintain said work shall continue throughout said maintenance period, and the same shall not be changed, diminished, or in any manner affected from any cause during said time; and to fully indemnify, protect, defend, save and hold harmless the Owner, the Engineer, and their agents and employees for any damages it may be caused to pay on account of injury to person, loss of life or damage to property.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this Bond shall in no way be impaired or affected by any extension of time, modification, omission, addition, or change in or to the contract, the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment subletting or other transfer thereof, or of any part thereof, of any work to be performed, or of any moneys due to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts, and transfer, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors, and other transferees shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Principal.

IN WITNESS WHEREOF, the Principal and Surety have executed this Bond by causing their respective names to be hereunto subscribed and their seals to be hereunto affixed by their duly authorized officers, on this the _____ day of _____, 2022

CONTRACTOR - PRINCIPAL:

By _____

Name _____
(Please Print or Type)

Title _____

ATTEST:

Name _____
(Please Print or Type)

(SEAL)

Title _____

Note: Attest for a corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SURETY:

By _____

Name _____
(Please Print or Type)

Title _____

WITNESS:

Name _____
(Please Print or Type)

(SEAL)

Title _____

Note: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

END OF DOCUMENT

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that _____

_____, a
(Name and Address of Contractor)

_____, of the State of _____,
(Corporation, Partnership, or Individual)

the "Principal," and _____
(Name and Address of Surety)

_____, the "Surety," are held and firmly bound unto
the City of East Ridge, Tennessee (the "Owner") existing under and by virtue of the laws of
the State of Tennessee, in the sum of _____

(\$ _____) in lawful money of the United States, for the payment of which
sum in lawful money of the United States well and truly to be made we do hereby bind
ourselves, our heirs, executors, administrators, successors, and assigns jointly and
severally.

The condition of this obligation is such that whereas Principal has entered into a
certain Contract with the Owner, dated as of the _____ day of _____,
2022, which is by reference incorporated in and made a part hereof as fully as if copied
here verbatim, for the following work:

Contract No. 20-0081-22

EAST RIDGE STREET IMPROVEMENTS

NOW, THEREFORE, if the Principal shall fully pay for all the labor and materials used by said Principal or any immediate or remote subcontractor or furnisher of labor or materials under him in the performance of the work in lawful money of the United States as the same shall become due, including all amounts due for materials, lubricants, oil, gasoline, electricity, coal and coke, repairs on machinery, equipment, and tools, consumed or used in connection with performance of the work and all insurance premiums and other charges incurred under said contract, then this obligation shall be void; otherwise to remain in full force and effect.

Principal and Surety further bind themselves, their heirs, executors, administrators, and assigns, jointly and severally, that they shall promptly make payments of all taxes, licenses, assessments, contributions, penalties, and interest thereon, when, and if, the same may be lawfully due the State of Tennessee or any County, Municipality, or political subdivision thereof by reason of and directly connected with the performance of the Contract, or any part thereof.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this Bond shall in no way be impaired or affected by any extension of time, modification, omission, addition, or change in or to the contract, the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment subletting or other transfer thereof, or of any part thereof, of any work to be performed, or of any moneys due to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts, and transfer, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors, and other transferees shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Principal.

IN WITNESS WHEREOF, the principal and Surety have executed this Bond by causing their respective names to be hereunto subscribed and their seals to be hereunto affixed by their duly authorized officers, on this the _____ day of _____, 2022.

CONTRACTOR - PRINCIPAL:

By _____

Name _____
(Please Print or Type)

Title _____

ATTEST:

Name _____
(Please Print or Type)

(SEAL)

Title _____

Note: Attest for a corporation must be by the corporate secretary; for a partnership by another partner; for an individual by a Notary.

SURETY:

By _____

Name _____
(Please Print or Type)

Title _____

WITNESS:

Name _____
(Please Print or Type)

(SEAL)

Title _____

Note: Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

END OF DOCUMENT

CITY OF EAST RIDGE



CHANGE ORDER

Contract No.: 20-0081-22
 Contractor: _____
 Project Name: East Ridge Street Improvements

Change Order No.: _____
 Date: _____
 Council Res. #'s: _____
 (Attach Copies)
 Purchase Order # _____

Check Reason for Change Order

- Error/Omission
- Field Condition
- Field Dispute Settlement
- Owner Request
- Value Engineering
- Other: _____

Contract Days Changed: _____

Revised Completion Date: _____

Original Contract Amount \$ _____
 Net Change by Previous C.O.s \$ _____
 Contract Amount Prior to this C.O. \$ _____
 Total Amount of this C.O. \$ _____
NEW CONTRACT AMOUNT \$ _____

Description / Justification (Add more pages if necessary)

The terms and conditions of this Change Order, including the cost and time contained herein, constitute a full accord and complete satisfaction for all costs and time of performance related to the work described or referenced herein, including but not limited to, all delay and impact costs for the entire Project resulting from this Change Order. Except as amended herein, all provisions of the Contract remain in full force and effect.

APPROVALS

CONTRACTOR		CITY OF EAST RIDGE	
Signature _____	Date _____	Signature _____	Date _____
TITLE _____		TITLE _____	
ENGINEER / ARCHITECT		CITY OF EAST RIDGE	
Signature _____	Date _____	Signature _____	Date _____
TITLE _____		TITLE _____	

CR# _____

Date Issued: _____

PO#: _____

CHANGE REQUEST FORM (CRF)

Contract No. _____

Project Name: _____

Engineer: _____

Contractor: _____

Requested By: _____

Drawing: _____

Problem Desc: _____

Revised Scope Description/Details

Contractor Acknowledgement:	
<input type="checkbox"/> No Change in Contract Amount is required.	<input type="checkbox"/> A Change in Contract Amount is required: _____
<input type="checkbox"/> No Change in Contract Time is required.	<input type="checkbox"/> A Change in Contract Time is required: _____ days
_____ INSPECTOR	_____ CONTRACTOR
Change in Contract Amount is within the Contingency Amount authorized under Resolution No. _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____	Proceed with Execution <input type="checkbox"/> Yes <input type="checkbox"/> No _____
_____ ENGINEER	_____ CITY OF EAST RIDGE



CR# _____
Date Issued: _____
PO#: _____

CHANGE REQUEST FORM (CRF)

Contract No. _____
Project Name: _____
Engineer: _____
Contractor: _____

Requested By: _____
Drawing: _____
Problem Desc: _____

Revised Scope Description/Details

Contractor Acknowledgement:	
<input type="checkbox"/> No Change in Contract Amount is required.	<input type="checkbox"/> A Change in Contract Amount is required: _____
<input type="checkbox"/> No Change in Contract Time is required.	<input type="checkbox"/> A Change in Contract Time is required: _____ days
_____ INSPECTOR	_____ CONTRACTOR
Change in Contract Amount is within the Contingency Amount authorized under Resolution No. _____ <input type="checkbox"/> Yes <input type="checkbox"/> No _____	Proceed with Execution <input type="checkbox"/> Yes <input type="checkbox"/> No _____
_____ ENGINEER	_____ CITY OF EAST RIDGE

Project Close Out Requirements & Forms

CERTIFICATE OF PROPERTY RESTORATION

Project _____ Date _____
Contractor _____
Property Owner _____
Property Address _____

The contractor for this project has cleaned up and restored my property to my satisfaction where the property was disturbed during construction.

- I agree
- I do not agree (please explain below)

Property Owner Date

Witness Date

Please explain why you do not agree:

Note: A copy will be forwarded to the Contractor if the Property Owner is not satisfied with the restoration for further action.

CERTIFICATE OF SUBSTANTIAL COMPLETION

Contract No. _____ Engineer's Project No. _____

Project _____

Contractor _____

Contract For _____ Contract Date _____

This Certificate of Substantial Completion applies to all Work under the Contract documents or to the following specified parts thereof:

To _____
Owner

And To _____
Contractor

The work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR AND ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on:

(Date of Substantial Completion)

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. When this certificate applies to a specified part of the Work the items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

Recommended by _____
Engineer/Architect Date

Recommended by _____
Project Manager Date

END OF DOCUMENT

Contract Regulations

GENERAL PROVISIONS

SECTION 1. DEFINITION OF TERMS

- 1.1 Definitions. Wherever the words, forms or phrases defined or pronouns used in their stead, occur in these specifications, in the contract or in the advertisement or any document, or instrument herein contemplated or to which these specifications apply, the intent and meaning shall be construed and interpreted as set forth in this section.
- 1.2 Addenda. Any change in specifications after advertisement for bids which modify or interpret the contract documents, drawings or specifications by additions, deletions, clarifications, or modifications. After issuance, any addenda shall become a part of the specifications, as much as though fully contained therein.
- 1.3 Administrator. The City Manager of the City of East Ridge under whose general administration and observation this contract is being performed.
- 1.4 Award. The formal acceptance of the proposal of the lowest responsible bidder by the City Council, subject to the execution and approval of a satisfactory contract and the required bonds therefor, and following such other conditions as may be specified or otherwise required by law.
- 1.5 Bid. The offer or proposal of the Bidder submitted on the prescribed Bid Proposal Form setting forth the Contract Price(s) for the work to be performed under these Contract Documents.
- 1.6 Bonds. Bid, Performance, and Payment Bonds and other instruments of security to be furnished by the contractor in accordance with the Contract Documents.
- 1.7 Change Order. A written agreement, executed by the City, the Contractor, the Engineer and the Architect authorizing an addition, deletion, or revision of the work within the general scope of the Contract Documents or authorizing an adjustment in the contract price or the contract time. This "change order" becomes a part of the contract when properly executed and approved.
- 1.8 City. The City of East Ridge, Tennessee.
- 1.9 City Attorney. The person duly authorized by the City of East Ridge to act in the capacity of City Attorney, his authorized designee, or special counsel to the City, acting severally within the scope of the particular duties entrusted to them.
- 1.10 Contract. The written agreement between the City and the Contractor for the performance of the work in accordance with the requirements of the Contract Documents, and for the payment of the agreed consideration therefore. Whenever, in any portion of the Contract Documents, a requirement of the Contract is stated, it shall be interpreted to mean a requirement of the Contract Documents as defined herein, unless

the context indicates the more restricted definition of that portion of the Contract Documents which is captioned "Contract."

- 1.11 Contract Documents. The Contract, Advertisement for Bids, Instructions to Bidders, Bid Proposal and Proposal Documents, Bid Bond, Performance Bond, Payment Bond, Certificates, General Provisions, Supplementary General Provisions, Specifications, Drawings, Addenda, Change Orders, Notice to Proceed, and Specifications, Drawings and Engineering Data furnished by the Contractor and accepted by the Owner. Whenever, in any portion of the Contract Documents, the terms "plans and specifications" or "specifications" or "contract" or words of like import appear, they shall be interpreted to mean "Contract Documents" as defined herein unless the context indicates that a more restrictive designation of a particular portion of the Contract Documents is intended.
- 1.12 Contract Time. The number of calendar days allowed by these Contract Documents, including authorized time extensions, for the completion of the work sufficient to be accepted as substantially complete by the Owner. The Contract Time shall begin ten (10) days after the date of issuance of the Notice to Proceed.
- 1.13 Contractor. The person, firm, or corporation whose proposal is accepted by the Owner and who entered into a Contract with the Owner for performance of the work covered by and in conformance with these Contract Documents.
- 1.14 Engineer. The City Engineer (or when retained by the City, an Architect or consulting engineer) and his duly authorized assistants, observers, inspectors or administrators acting severally within the scope of the particular duties entrusted to them.
- 1.15 Inspector. An authorized representative of the Engineer assigned to make necessary observations of the work performed by the Contractor.
- 1.16 Multiple Awards. The City reserves the right to award more than one contract from a single solicitation. Multiple Awards are the formal acceptance by the City Council of the proposal of the lowest responsible bidder for each individual bid item, subject to the execution and approval of a satisfactory contract and the required bonds therefore, and following such other conditions as may be specified or otherwise required by law.
- 1.17 Owner. The City of East Ridge, Tennessee.
- 1.18 Plan or Plans. All of the drawings pertaining to the contract showing the scope and characteristics of the work or a part thereof, including such supplementary drawings as the Engineer may issue in order to elucidate other drawings or for the purpose of showing the changes in the work or for showing details not shown thereon.
- 1.19 Shop Drawings. All drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by the Contractor, a Subcontractor, a Manufacturer, a Supplier, or a Distributor, which illustrate how specific portions of the work shall be fabricated or installed. Shop drawings may also mean detail drawings, working drawings, construction drawings, and engineering data.

- 1.20 Specifications. The written directions, provisions and requirements contained herein pertaining to the method and manner of performing the work or to the quantities or qualities of materials, equipment, construction systems, standards or workmanship to be furnished under the contract.
- 1.21 Special Provisions. The special clauses setting forth conditions or requirements peculiar to the specific project, supplementing the General Provisions and taking precedence over any condition or requirements of the General Provisions with which they are in conflict.
- 1.22 Subcontractor. The person, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for performing a part of the work covered by these Contract Documents at the site.
- 1.23 Substantial Completion. The date of completion of the work in conformance with the Contract Documents, as determined by the Owner or Engineer, when the project or a specified part thereof can be utilized for the purposes for which it is intended.
- 1.24 Supplemental General Provisions. Modifications to these standard General Conditions.
- 1.25 Surety or Sureties. The corporate body which is bound by such bonds as are required with and for the contractor, and which engages to be responsible for the entire and satisfactory fulfillment of the contract and for any and all requirements as set out in the specifications, contract or plans.
- 1.26 The Work. The Work, including the furnishing of labor, materials, tools, and incidentals, necessary or required to complete the improvement in conformity with the directions, provisions and requirements of the specifications, limitations and conditions of the contract and in accordance with the intent of the plans.
- 1.27 Working Day. Any day, other than a legal holiday or Sunday, on which the approximate normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the work, unless work be suspended for causes beyond the contractor control.

SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

- 2.1 Contents of Proposal Form. The City will furnish bidders with proposal forms which will state the general location and description of the contemplated work.
- 2.2 Interpretation of Estimate. The quantities of the work and materials shown on the proposal form or on the plans are believed to approximately represent the work to be performed and materials to be furnished and are to be used for comparison of bids. Payment to the contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased or portions of the work omitted as hereinafter provided without in any way invalidating the bid prices. When the Bid

Proposal Form contains the provision for receiving bids based on a lump sum price, the Contractor shall be held responsible for having prepared his own estimate of the quantities necessary for the satisfactory completion of the work specified in these Contract Documents and for having based the lump sum price bid on his estimate of quantities.

- 2.3 Examination of Documents and Site of the Work. Bidders are advised that the plans, specifications, estimates, addenda and bulletins of the Engineer shall constitute all the information which the City will furnish. No other information given by the City or any official thereof, prior to the execution of the contract shall ever become a part of or change the contract, plans, specifications or estimates or be binding upon the City. Bidders are required, prior to submitting any proposal, to read carefully the specifications, the proposal, and other contract documents; to examine carefully all estimates open for examination and all plans on file in the Engineer's office; to visit the site of the work, to examine carefully local conditions; to inform themselves by their independent research of the difficulties to be encountered and judge for themselves the accessibility of the work and all attending circumstances affecting the cost of doing the work or the time required for its completion and obtain all information required to make an intelligent proposal. Bidders shall rely exclusively upon their own estimates, investigation and other data which are necessary for full and complete information upon which the proposal may be based. It is mutually agreed that submission of a proposal will be evident that the bidder has made the examination and investigations required herein.
- 2.4 Preparation of Proposal. The bidder shall submit his proposal on the forms furnished by the City with all blank spaces in the proposal form correctly filled in. Bid prices shall be either typed or legibly written with ink, both in words and in numerals, for which it is proposed to do the work contemplated or furnish the materials required. In case of conflict between words and numerals, the words will govern. Proposals shall be submitted in a sealed envelope which has the completed "Contractor's Identification" form securely attached thereto.
- 2.5 Proposal Guaranty. Proposals will not be considered unless accompanied by a certified or cashier's check on a duly organized bank payable to the order of the City of East Ridge, Tennessee, or bidding bond made by some bonding company authorized to transact business in the State of Tennessee, for a sum of not less than five percent of the total amount of the bid. The proposal guaranty is required as evidence of good faith and as a guarantee that, if awarded the contract, the bidder will execute the contract and furnish the required bonds within ten (10) days after the award.
- 2.6 Filing of Proposal. No proposals will be considered by the City unless they are filed in sealed envelopes with the City within the time limit for receiving proposals as stated in the advertisement and shall be made on proposal forms attached to Specifications, together with the Contract Documents, Bid Bond, and Statement of Compliance with General Contractors Licensing Law and other required miscellaneous forms, all of which are to be sealed in an envelope addressed to the City of East Ridge, Tennessee, with the completed "Contractor's Identification" form securely attached thereto.

Each proposal must contain the full name and address of each person, firm or corporation interested therein. In case of a partnership, the name and address of each partner must be stated. The firm, corporation or individual name of the bidder must be signed in the space provided for the signature on the proposal blank. In case of a corporation, the title of the officer signing must be stated, and the person signing shall also state under the laws of what State the corporation was chartered and the names and titles of the officers having authority, under the by-laws, to sign contracts. The proposal shall also be attested by its Secretary. In case of a partnership or firm, the signature of at least one of the partners must follow the firm name.

- 2.7 Withdrawal of Proposal. Permission will not be granted to withdraw or modify any proposal after it has been filed and before time set for opening of proposals. Requests for non-consideration must be made in writing addressed to and filed with the City before the time set for opening the proposals. After other proposals are opened and read, the proposal for which withdrawal is properly requested will be returned unopened.
- 2.8 Opening of Proposals. The proposals filed with the City will be opened at the time stated in the advertisement. Bidders are invited to attend the meeting at the time set for opening of proposals, at which time they should make any protests as to procedure followed in inviting bids.
- 2.9 Irregular Proposals. Proposals will be considered irregular if they show any omissions, alterations of forms, additions or conditions not called for, unauthorized alternate bids or irregularities of any kind. However, the City reserves the right to waive technicalities and make the award in the best interest of the City.
- 2.10 Rejection of Proposals. The City reserves the right to reject any or all proposals, and all proposals submitted are subject to this reservation.
- 2.11 Disqualification of Bidders. Bidders may be disqualified and their proposal not considered for any of the following specific reasons:
 - (a) Failure to complete and sign any of the following forms:
 - Equipment Statement
 - State License Certificate
 - Proposal
 - Affidavit of No Collusion by Bidder
 - (b) Where more than one proposal for an individual, firm, partnership or corporation is filed under the same or different names and where such proposals are not identical in every respect.
 - (c) Where the bidder is in arrears on any existing contracts, interested in any litigation against the City or having defaulted on a previous contract.
 - (d) A failure to have adequate equipment.

- (e) Uncompleted work which in the judgment of the City will hinder or prevent prompt completion of additional work, if awarded.

Nothing herein shall be deemed to limit the discretion of the City to determine whether or not a bidder not hereby disqualified is the lowest responsible bidder.

2.12 Conditions Precedent to Award of Contracts. The following stipulations shall all and severally be conditions precedent to the award by the City of East Ridge of all contracts for construction, to-wit:

- (a) No member of the City Council nor any officer, director or other person whose duty it is to vote for, let out, overlook or in any manner superintend this contract and who is related to said member within the third degree by either consanguinity or affinity, nor any other official who may be directly interested in this contract or work of any kind whatsoever under its direction. "Directly interested" means any contract with the official himself or with any business in which the official is the sole proprietor, a partner, or the person having the controlling interest. "Controlling interest" shall include the individual with the ownership or control of the largest number of outstanding shares owned by any single individual or corporation.
- (b) It shall not be lawful for any officer, director, or other person whose duty it is to vote for, let out, overlook, or in any manner to superintend any work or any contract in which the City shall or may be interested, to be indirectly interested in any such contract unless the officer publicly acknowledges his interest and rescues himself from any of his duties which include the consideration of, voting on, letting out, overseeing, or superintending the work or contract giving rise to the conflict. "Indirectly interested" means any contract in which the officer is interested but not directly so, but includes contracts where the officer is directly interested but is the sole supplier of goods or services in a municipality or county. (See T.C.A. Section 12-4-101, et seq.)
- (c) The essence of all the contracts shall be excellence of quality, integrity and durability of the completed product as specified; and the contractor hereunder shall be held responsible therefor.
- (d) The contractor shall maintain and guarantee the integrity of the completed work for a full period of one year after the completion as set forth more fully in Section 4 of these General Provisions.
- (e) The decisions of the Engineer, as to quality, integrity and durability of the work shall be final and conclusive as to all parties to said contract, whether it be directly by and between the contractor and said City or by and between him and another party; and said Engineer shall have full authority to condemn by written notice to contractor, or his agent or foreman on job, and shall order the removal, reconstruction and restoration of all work that in his opinion, is in any respect inferior, defective or faulty, or that shows signs of disintegration and failure, at any time before final estimate is issued and payment made therefor, or within a period of one year after the completion and acceptance thereof in writing by the City.

- (f) Contractor shall remove, reconstruct and restore all such condemned work in full conformance with the specifications, and in complete compliance with the requirements of the official notice, in writing, of said Engineer relating thereto, and within the period of time designated in the notice.

Should the contractor neglect, refuse, or fail to remove, reconstruct and restore all of the defective work so condemned and rejected, within the period of time, as required by said official notice, then and in event of such failure on contractor's part, whether said work was executed by contract directly with the City or by private contract directly with other parties, the City of East Ridge will look to and require, respectively, the surety on the Performance Bond, executed by the contractor under contract directly with said City, to make good and have all such defective and condemned work removed, reconstructed and restored in complete compliance with the requirements of the official notice of said Engineer to that effect; and likewise, in the event that such work was done under private contract, as aforesaid, the City of East Ridge will look to and require the surety on the Performance Bond executed by said contractor to make good and have all such defective and condemned work removed, reconstructed and restored in complete compliance with the requirements of the official notice of said Engineer to that effect, in each instance as the case may be.

- (g) The unit price bid by the contractor for any and all work and the compensation to be paid therefore shall cover and include the cost of all materials, forms, supports, labor, work and things necessary for a complete workmanlike job, and shall also include the cost of all services, duties and obligations of said contractor and of the corresponding surety on the Performance Bond collateral therewith as stipulated in subsections above set out, to the satisfaction and approval of the Engineer.

SECTION 3. AWARD AND EXECUTION OF CONTRACT

- 3.1 Consideration of Proposal. After the proposals are opened, the unit prices will be tabulated for comparison on the basis of the quantities shown in the approximate estimate. Until the final award of the contract, the City reserves the right to reject any and/or all proposals, to waive technicalities; and to advertise for new proposals or to have the improvements done by said City.
- 3.2 Award of Contract. The City acting by and through the City Council will either award the contract or reject all proposals received thereon after the formal opening of proposals and evaluation of the bids.

The award of the contract, if it is awarded, will be to the lowest responsible bidder whose proposal complies with the requirements of the City.

Projects will be awarded only to responsible bidders, and an award will not be made in any case, until all necessary investigations have been made into the responsibility of the low bidder.

If the project is funded in part by a state or federal grant, then the award may be subject to the concurrence of the granting contract agency.

All references to contract include each to be awarded where multiple awards are made.

- 3.3 Return of Proposal Guaranty. As soon as the proposal prices have been compared, the Engineer may, in his discretion, return the proposal guaranties accompanying those proposals which in his judgment would not be considered in making the award. After the award is made, only each successful bidder's proposal will be retained until the required contract and bonds have been executed, after which it will be returned to the bidder.
- 3.4 Surety Bonds. With the execution and delivery of the contract, the contractor shall furnish and file with the City in the amount herein required, the following bonds which must be approved by the City Attorney.

A good and sufficient Performance Bond in an amount equal to one hundred percent (100%) of the total amount of the contract, guaranteeing the full and faithful execution of the work and performance of the contract according to its terms, which bond shall remain in effect for twelve (12) months after the completion of the work.

A good and sufficient Payment Bond in an amount equal to one hundred (100%) percent of the total amount of the contract, guaranteeing full payment for all of the labor and materials used in the performance of the work and all other charges incurred under this contract.

No surety will be accepted who is now in default or delinquent on any bond. All bonds shall be executed by surety companies licensed to do business in the State of Tennessee and acceptable to the City Attorney, and in the event the contract is funded in part by federal or state grants, then said bonds must also be satisfactory to the granting agency. Each bond shall be executed by the contractor and the surety.

Should any surety on the contract be determined unsatisfactory at any time by the City, notice will be given to the contractor to that effect and the contractor shall forthwith substitute a new surety or sureties satisfactory to the City Attorney. No payment will be made under the contract until the new surety or sureties, as required, have qualified and been accepted by the City Attorney.

- 3.5 Execution of Contract. The contract shall be made in the name of the City of East Ridge and shall be executed on behalf of the City by the Administrator following approval by the City Council.
- 3.6 Failure to Execute Contract. Upon failure of the bidder to execute the required bonds or to sign the required contract within ten (10) days after the contract is awarded, he will be considered to have abandoned his proposal and the City may annul the award. By reason of the uncertainty of market prices of materials and labor, and it being impracticable and extremely difficult to fix the amount of damages to which the City would be put by reason of said bidder's failure to execute said bonds and contract within ten (10) days, the

proposal guaranty accompanying the proposal shall be the agreed amount of damages which the City will suffer by reason of such failure on the part of the bidder and shall thereupon immediately be forfeited to the City. The filing of a proposal will be considered as an acceptance of this provision.

SECTION 4. SCOPE OF WORK.

- 4.1 Intent of Contract Documents. The intent of the contract documents including the plans and specifications is to prescribe a complete work or improvement which the Contractor undertakes to do, in full compliance with the contract documents. The Contractor shall do all the work as provided in the plans, specifications, proposal and contract and shall do such additional, extra and incidental work as may be considered necessary to complete the work in a satisfactory and acceptable manner. He shall furnish all labor, materials, products, supplies, tools, equipment and incidentals necessary to the prosecution of the work.

The Contractor shall provide all work and materials not shown in detail but necessary for completion of the project as indicated or specified including a proper and suitable foundation preparation, base or support and a reasonable finish consistent with adjacent work which is shown or specified. The Contractor shall make plural and complete all work which, to avoid needless repetition or for the sake of brevity, has been shown singly or partially indicated. The Contractor shall follow the drawings and execute all work in strict accordance therewith and with the kind and quality of materials indicated and specified. Materials or work described in words which, when so applied, have a well-known technical or trade meaning shall be held to refer to such recognized standards. Any deviation from the Drawings, Specifications, and other Contract Documents which may be required by the exigencies of construction, shall in all cases conform to the written instruction of the Engineer. The applicable provisions of the Contract Documents shall apply with equal force to all work, including extra work, performed under these Contract Documents, whether performed either directly by the Contractor or by any Subcontractor.

- 4.2 Special Provisions. Should any work or any condition which is not thoroughly or satisfactorily stipulated or covered by the Standard Specifications be anticipated on any proposed work, "Special Provisions" for such work may be prepared and shall be considered as a part of the specifications and contract, the same as though contained fully therein.
- 4.3 Increase or Decrease Quantities. The City shall have the right to increase or decrease the amount of work to be done under these Contract Documents at any time or times during the life of the Contract, when and, as found necessary and the Contractor shall perform the work as altered, increased or decreased at the contract unit price. The City shall have the right to delete any bid item in its entirety.

Any such changes will be set forth in a Change Order which will specify, in addition to the work to be done in connection with the changes made, adjustment of contract time, if any, and the basis of compensation for such work, if any. A Change Order will not become

effective until approved by the City. After approval, the Change Order will become a part of the Contract Documents.

- 4.4 Alterations of Plans and Specifications. The City reserves the right, at any time, to make such changes in the plans and the character of the work as may be necessary or desirable to insure completion in the most satisfactory manner, provided such changes do not materially alter the original plans and specifications or change the general nature of the work as a whole. Such changes shall not be considered as waiving or invalidating any condition or provision of the contract.
- 4.5 Extra Work. When any work is necessary to the proper completion of the project of which no prices are provided in the proposal or contract, the Contractor shall do such work, but only when and as ordered by the Engineer. Payment for the extra work will be made as hereinafter provided.

Extra work is defined as: (1) that additional work of a different character or function or for that work for which no basis of payment is prescribed in these Contract Documents; such as a lump sum contract, or (2) that work involving revisions of the details of the work in such manner as to render inequitable payment under items upon which the Contractor bid; or (3) that additional work of a similar nature and character as that done under the unit prices named in these Contract Documents. (See para. 8.9 of this Section)

No claim for extra work will be considered unless said extra work was ordered in writing as aforesaid, and the claim presented in writing to the Engineer within 30 days after receipt by the Contractor of the written order to perform said extra work.

If the performance of the extra work results in additional time being required by the Contractor to complete the work covered by these Contract Documents, said Change Order will provide for an equitable extension in the contract time.

- 4.6 Final Cleaning Up. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall clean and remove from the site of the work surplus and discarded materials, temporary structures, stumps or portions of trees and debris of any kind. He shall leave the site of the work in a neat and orderly condition and shall obtain a signed release from the owners of private property upon which the work has been done. Waste materials removed from the site of the work shall be disposed of at locations satisfactory to the Engineer.
- 4.7 Maintenance of the Work. The Contractor shall maintain the work during construction and until the work is accepted. The notice of final acceptance by the City shall also notify him that he is relieved of the maintenance except as otherwise provided in Section 4.8. Portions of the work shall be opened for use by the City or the general public, and this shall not be interpreted to mean that the Contractor is relieved of maintenance.

All costs of maintenance work during construction and before the work is finally accepted shall be included in the Contract Price bid for the work, and the Contractor will not be paid any additional amount for maintenance work.

- 4.8 Maintenance of the Work After Completion. The Contractor shall maintain and keep in good repair the work covered by these Contract Documents for a period of one (1) year from the date of acceptance by the City. The Contractor shall promptly (a) perform all necessary work, (b) repair or replace all defective materials or products, and (c) correct any defective condition resulting from defective materials, products, work, or labor performed by the Contractor under these Contract Documents which may appear or be discovered during said period. It is further understood and agreed that the Contractor shall fully indemnify, protect, defend, save and hold harmless the City, the Engineer, and their agents and employees from all liabilities on account of injury to persons, loss of life, or damage to property resulting from said defective conditions or failure to promptly correct said defective conditions.

The Contractor will not be required to perform any routine maintenance, repairs resulting from normal wear and tear, or repairs necessary due to acts of the City, its employees, or agents.

- 4.9 Guarantee. The Contractor shall guarantee the equipment, materials, products, and workmanship furnished under these Contract Documents to be as specified and to be free from defects for a period of one year after the date of final acceptance by the City. In addition, the equipment furnished by the Contractor shall be guaranteed to be free from defects in design.

Upon notification, the Contractor shall promptly make all adjustments, repairs, or replacements which, in the opinion of the Engineer or the City, arose out of defects and became necessary during the guarantee period.

The cost of all materials, parts, labor, transportation, supervision, special tools, and supplies required for replacement or repair of parts and for correction of defects shall be paid by the Contractor or by the Surety.

This guarantee shall be extended to cover all repairs and replacements furnished under the guarantee, and the period of the guarantee for each such repair or replacement shall be one year after installation or completion of said repair or replacement.

If within ten (10) days after the City has notified the Contractor of a defect, failure, or abnormality in the work, the Contractor has not started to make the necessary repairs or adjustments, or if the Contractor fails to complete the repairs or adjustments in a timely and satisfactory manner, it is understood and agreed that the City is hereby authorized to make the repairs or adjustments or to order the work to be done by a third party, the cost of the work to be paid by the Contractor or by the Surety.

In the event of an emergency that occurs when the Contractor or his representative cannot be immediately contacted, and where the emergency is such that, in the sole judgment of the City, delay could cause serious loss or damage or presents an imminent hazard to others, repairs or adjustments may be made by the City, or a third party chosen

by the City, without advance notice to the Contractor, and the cost of the work shall be paid by the Contractor or by the Surety.

SECTION 5. CONTROL OF WORK AND MATERIALS.

5.1 Authority of the Engineer. The Engineer shall administer the Contract. All work shall be done to the satisfaction of the Engineer. The Engineer shall consult with the Architect or other Project Engineer when appropriate, and the Engineer shall decide all questions which arise as to quality and acceptability of materials furnished, work performed, manner of performance, rate of progress of the work, sequence of construction, interpretation of plans and specifications, acceptable fulfillment of the contract, compensation and suspension of work. He shall determine the amount and quality of work performed and materials furnished, and his decision and estimates shall be final.

The Contractor may request and shall receive written instructions from the Engineer upon any important item.

5.2 Conformity With Plans; Allowable Deviations. All work shall conform to the lines, grades, cross-sections and dimensions shown on the plans. Any deviation from the plan which may be required by the exigencies of construction will be determined by the Engineer and authorized by him in writing.

5.3 Coordination and Interpretation of Contract Documents. The parts of the Contract Documents are complementary, each part being an essential part of these Contract Documents which are intended to describe and provide for a complete work. A requirement occurring in one is as binding as though occurring in all.

The Contractor shall carefully study and compare all Drawings, Specifications, and other instructions; shall test all figures on the Drawings before laying out the work; shall notify the Engineer of all errors, inconsistencies, or omissions which he may discover; and shall obtain specific instructions before proceeding with the work. The Contractor shall not take advantage of any error or omission which may be found in the Drawings or other Contract Documents. The Engineer will make such corrections therein and interpretations thereof as he may deem necessary for the fulfillment of the intent of the Contract Documents, and his interpretations shall be final. The Contractor shall be responsible for all errors in construction which could have been avoided by such examination and notification and shall correct at his own expense all work improperly constructed through failure to notify the Engineer and request specific instruction.

In case of unresolved conflict between items of the Contract Documents, the following order of precedence shall govern, with the higher item taking precedence over a lower item:

Contract (including Supplemental Agreements and Change Orders thereto)
Addenda
Bid Proposal
Supplementary General Provisions

General Provisions
General Conditions
Specifications
Governing Standard Specifications
Schedules on Drawings
Notes on Drawings
Details on Drawings
Large Scale Drawings
Small Scale Drawings
Dimensions Given in Figures
Scaled Dimensions

In the event of any discrepancy between any drawing and the figure written thereon, the figures, unless obviously incorrect, shall be taken as correct.

When measurements are affected by conditions already established or where items are to be fitted into constructed conditions, it shall be the Contractor's responsibility to verify all such dimensions at the site, and the actual job dimensions shall take precedence over scale and figure dimensions on the Drawings.

Wherever a stock size of manufactured item or piece of equipment is specified by its nominal size, it shall be the responsibility of the Contractor to determine the actual space requirements for setting and for entrance to the setting space and to make all necessary allowances and adjustments therefor in his work without additional cost to the City.

- 5.4 Governing Standard Specifications. The Governing Standard Specifications specified herein shall be considered a part of these Specifications and other Contract Documents the same as if herein repeated.

All materials and other work and the prosecution and control of the work shall be in conformance with the applicable requirements of Governing Standard Specifications unless specifically modified or superseded in these Contract Documents. In case of conflict between the Governing Standard Specifications and other parts of these Contract Documents, these Specifications and other Contract Documents bound herein shall govern. All sections of Governing Standard Specifications relating to measurement and payment shall not apply to the work specified herein. Where terms such as Engineer, Purchaser, City, Department, or other terms of similar import are used in the Governing Standard Specifications, it shall be understood that they will be appropriately interpreted to mean the City or the Engineer as specified herein.

Various Governing Standard Specifications referred to throughout these Contract Documents are frequently indexed by number and year (i.e., AWWA C110-71). When the year has not been designated or no year is associated with the referenced specification, the Governing Standard Specification in effect on the date of the Advertisement shall govern. Tentative specifications shall be construed as current unless otherwise noted. Where obsolete Federal Specifications have been referenced, they shall be superseded by the Federal Specification in effect on the date of the Advertisement.

All standard specifications, manuals, standard details, publications, or other standard items referred to in the Drawings or other Contract Documents shall be considered a part of these Contract Documents the same as if herein repeated.

- 5.5 Authority of the City Engineer. If the City has retained an Architect or consulting engineer to assist the City Engineer in administering the contract, then the authority of the City Engineer should be as specified herein. If the administration of the contract is performed by the City Engineer without having an Architect or consulting engineer, then the authority of the City Engineer shall be as specified in this section and the following section captioned "Authority of the Project Engineer." The general administration and observation of the performance and execution of the work under these Contract Documents is vested in the City Engineer. The detailed administration and observation of the performance and execution of the work is vested in the Project Engineer as set forth below.

The City Engineer may authorize a person to act as the City Engineer's authorized representative or agent in carrying out the duties specified in these Contract Documents. The instructions of the City Engineer, or authorized representative, shall be strictly and promptly followed in every case.

The City Engineer, or authorized representative, shall have authority to suspend operations at any time, without additional cost to the Owner, when the work, in the City Engineer's opinion, is not being carried out in conformity with the Drawings, Specifications, and other Contract Documents.

The City Engineer, or authorized representative, may appoint Inspectors as are necessary to observe the performance of the work under these Contract Documents and the amount, character, and quality of materials supplied.

- 5.6 Authority of the Project Engineer. The Project Engineer (severally referred to in the Contract documents simply as "Engineer") is an Architect, consulting engineer, or other person designated by the City to perform certain duties of the City, specified herein, as a duly authorized representative or agent of the City. When such specified duties are indicated herein to be performed by the "Engineer" or by the City's "authorized representative," said duties shall be performed by the Project Engineer acting for the City and solely as an agent or representative of the City. The City may specifically designate that other duties will be performed by the Project Engineer by notifying the Contractor and the Project Engineer that said duties will be performed by the Project Engineer.

The Project Engineer shall have free access to the materials and the work at all times for measuring or observing the same, and the Contractor shall afford him all necessary facilities and assistance for so doing. After written authorization to proceed with the work, the Project Engineer shall:

- 5.6.1 Make periodic visits to the site to observe the progress and quality of the executed work and to determine in general if the work is proceeding in accordance with the

Contract Documents; he will appoint a Resident Project Representative and Inspectors to make periodic and timely on-site observations to check the quality and quantity of the work; he will not supervise the contractor's work; he will not act as foreman or superintendent for the Contractor, nor will he manage or interfere with management of the contractor's work; he will not be responsible for the techniques, construction means, methods, sequences or procedures, time of performance, or the safety precautions and programs incident thereto; and he will not be responsible for the Contractor's failure to perform the construction work in accordance with the Contract Documents. During such visits and on the basis of his on-site observations and professional judgment, the Project Engineer will keep the City informed of the progress of the work, will exercise reasonable care to guard the City against defect and deficiencies in the work of the Contractor, and will advise the City immediately verbally and by written notifications of any work he knows to be defective or not conforming to the requirements of these Contract Documents.

- 5.6.2 Review engineering data, samples, catalog data, schedules, shop drawings, laboratory, shop, and mill tests of materials and equipment and other data which the Contractor is required to submit, only for conformance with the design concept of the project and compliance with the information given by these Contract Documents; and assemble written guarantees which are required by these Contract Documents.
 - 5.6.3 Advise and consult with the City during the performance of the work; and act as the City's representative to issue instructions of the City to the Contractor.
 - 5.6.4 Based on his on-site observations and on his review of the Contractor's payment requests, determine the amount owed to the Contractor and approve in writing payment to the Contractor in such amounts; such approvals of payment to constitute a representation to the City, based on such observations and review and the data comprising such requests, that the work has progressed to the point indicated and that, to the best of his knowledge, information, and belief, the quality of the work is in accordance with these Contract Documents, subject to the results of any subsequent test called for in these Contract Documents and any qualifications stated in his approval.
 - 5.6.5 Conduct, in company with the City, a final inspection of the project for conformance with the design concept of the project and compliance with the information given by these Contract Documents, and approve a Final Payment request.
 - 5.6.6 Prepare and submit for the City's approval proposed change orders.
- 5.7 Authority and Duties of Resident Project Representative. The Resident Project Representative and Inspectors are authorized to observe all work done and materials furnished under these Contract Documents, but will not be on-site at all hours the work is in progress. Such observation will extend to all or to any part of the work and when

appropriate to the preparation, fabrication, or manufacture of the materials or products to be incorporated in the work.

The authority and duties of the Resident Project Representative and Inspectors are to examine the materials and products furnished, observe the work done, call to the attention of the Contractor any deviation from these Contract Documents and report the results of the examinations and observations to the Engineer.

The Resident Project Representative and/or Inspectors will not be authorized to revoke, alter, enlarge, or relax any requirements of these Contract Documents, nor to approve or accept any portion of the work, nor will they be authorized to issue instructions contrary to these Contract Documents. They will in no case act as foremen nor will they interfere with management of the work.

- 5.8 Inspection. The Engineer and authorized representatives thereof shall be given every facility for ascertaining whether or not the work performed, and materials used are in accordance with the requirements and intent of these Contract Documents.

Failure of the Engineer or authorized representatives during the progress of the work to discover defects or deficiencies in the work or to reject materials, products, or work not in accordance with these Contract Documents shall not be considered to relieve the Contractor, under any circumstances, from his obligations under these Contract Documents or the acceptance thereof or a waiver of defects therein; and payment to the Contractor or partial or entire occupancy by the City shall not be construed to be an acceptance of the work or materials which are not strictly in accordance with these Contract Documents.

Moreover, the undertaking of inspections by the Engineer or authorized representatives thereof shall not be construed as supervision of actual construction nor make the Engineer or authorized representative responsible for providing a safe place or safe conditions for the performance of work under the Contract by the Contractor, or Contractor's employees or those of Suppliers or Subcontractors, or for access, visits, use, work, travel, or occupancy by any person and the Contractor agrees to fully indemnify, protect, defend, save and hold harmless the City, the Engineer, and their agents and employees from all claims for damages for personal injury (including accidental death) and property damage which may arise from any operations under this contract, including claims by employees of the Contractor or of any Subcontractor or Supplier.

The payment of any compensation, irrespective of its character or form, or the giving of any gratuity, or the granting of any valuable favor, directly or indirectly, by the Contractor to any authorized representative of the City or Engineer is strictly prohibited, and any such act on the part of the Contractor will constitute a breach of the Contract.

Any advice or consultation offered to the Contractor by a representative of the City or Engineer shall not be construed as binding on the City or Engineer or as releasing the Contractor from fulfilling all the terms and conditions of these Contract Documents.

All materials and products shall be inspected before their use in the work, and the Contractor shall notify the Engineer in time to enable him to inspect any work or materials before being covered. The Contractor shall furnish necessary personnel and facilities for such inspection. The presence or absence of a representative of the Engineer shall not lessen or otherwise affect the responsibility of the Contractor to properly perform the work.

5.9 Additional Instructions and Detail Drawings. The Contractor may be furnished additional instructions and detail drawings by the Engineer as necessary to carry out the work required by these Contract Documents. The additional instructions and detail drawings furnished shall become a part of these Contract Documents. The Contractor shall perform the work in accordance with the additional instructions and detail drawings.

5.10 Review of Engineering Data. Engineering Data covering all equipment and fabricated products to be furnished under these Contract Documents shall be submitted to the Engineer for review. These data shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement, and operation of component materials and devices; the external connections, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment. Data submitted shall include drawings showing essential details of any changes proposed by the Contractor and all required wiring and piping layouts.

At the time of each submission, the Contractor shall in writing call the Engineer's attention to any deviations that the Engineering Data may have from the requirements of these Contract Documents.

The Engineer will review the engineering data submitted in a timely and expeditious manner, provided the data is submitted in accordance with these Contract Documents, is complete, and is suitable for his review.

Seven (7) copies of each drawing and necessary data shall be submitted to the Engineer. Each drawing or data sheet shall be clearly marked with the name of the project, the Contractor's name, and references to applicable specification paragraphs and drawing sheets. When catalog pages are submitted, the applicable items shall be identified. Each drawing or data sheet shall bear the Contractor's stamp of approval which shall be construed as certification that he has reviewed, checked, and approved the Engineering Data and that the data are in conformance with the requirements of these Contract Documents and that he has determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data required for preparation, accuracy, and sufficiency of the Engineering Data.

When the drawings and data are returned marked "NOT APPROVED," the corrections shall be made as noted thereon and as instructed by the Engineer and seven (7) corrected copies resubmitted.

Unless otherwise directed by the Engineer, when drawings and data are returned marked "APPROVED AS NOTED," the changes shall be made as noted thereon and not less than seven (7) corrected copies shall be furnished. All corrections and changes made on the drawings or data sheets other than those noted by the Engineer shall be clearly identified with a revision symbol and shall be suitably documented on the drawing with a brief description and date.

When drawings are submitted after final review (after being returned marked "APPROVED" or "APPROVED AS NOTED"), one (1) of the copies shall be a reverse reading translucent matte finish mylar reproducible (ozalid process). The Engineer's review of drawings and data submitted by the Contractor will cover only general conformity to the drawings and specifications, external connections, and dimensions which affect the layout. The Engineer's review of drawings returned marked "APPROVED" or "APPROVED AS NOTED" does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, device, or item shown and shall not in any way be deemed to relieve the Contractor from any responsibility for errors or deviations from the requirements of these Contract Documents or from full responsibility for complete and accurate performance of the work in conformance with these Contract Documents, or from any liability placed upon him by any provisions of these Contract Documents.

All drawings and data, after final processing by the Engineer, shall become a part of these Contract Documents, and the work shown or described thereby shall be performed in conformity therewith unless otherwise authorized by the City.

The schedule of submittals of engineering data and submittals of samples of materials or products, if required, shall be made by the Contractor in accordance with the requirements in the section entitled "Submittals" of the Detailed Specifications.

- 5.11 Oral Statements. It is understood and agreed that the written terms and provisions of these Contract Documents shall supersede all oral statements of representatives of the City, and oral statements shall not be effective or be construed as being a part of these Contract Documents.
- 5.12 Notice and Service Thereof. Any notice to the Contractor from the City or the Engineer relating to any part of these Contract Documents shall be in writing, and shall be considered delivered and the service thereof completed when said notice is mailed to the said Contractor at his last given address, or delivered in person to said Contractor or his authorized representative on the work.
- 5.13 Rejected Work, Materials, or Products. The Contractor, upon written notice from the Engineer, shall remove all work, including materials and products, rejected as defective, unsound, improper, or, in any way, failing to conform to the requirements of these Contract Documents. All removal and replacement work shall be done at the Contractor's expense. The Contractor shall at his sole expense make good all work damaged by such removal and shall promptly replace materials damaged or improperly worked by him and re-execute his own work in accordance with these Contract Documents. This includes re-executing or replacing the work of any other contractor or the City that is in any way

affected by the removal of the defective work. The obligations of the Contractor under this section shall not extend to defective materials or equipment supplied by the City.

Should the Contractor fail or refuse to begin to remove and renew any defective work, or to make any necessary repairs in an acceptable manner and in accordance with the requirements of these Contract Documents within ten (10) days of the written notice, the City may cause the unacceptable or defective work to be removed and replaced, or such repairs as may be necessary, to be made at the Contractor's expense. Any expense incurred by the City in making these replacements or repairs, which the Contractor has failed or refused to make, shall be paid for out of any monies due the Contractor or which may become due under the provisions of these Contract Documents, or may be charged against the Contract Performance Bond. Continued failure or refusal on the part of the Contractor to make any or all necessary repairs promptly, fully, and in an acceptable manner shall be sufficient cause for the City to declare the Contract forfeited, in which case the City, at its option, may contract with any other person, firm, or corporation to perform the work. All costs and expenses incurred thereby shall be charged against the defaulting Contractor and the amount thereof deducted from any monies due, or which may become due him, or shall be charged against the Contract Performance Bond. Any special work performed, as described herein, shall not relieve the Contractor in any way from his responsibility for the work performed by him.

- 5.14 Substantial Completion of the Work. Upon receipt of written notice from the Contractor that the work, or acceptable portion thereof, is substantially complete in conformance with these Contract Documents and submission of a list of items to be completed or corrected, the Engineer, in company with the City, will promptly make an inspection for substantial completion of the work, including any tests of operation, performance tests, material tests, and such other tests as specified or as the Engineer deems necessary, desirable, or proper. After completion of the inspection and tests and preparation of a detailed list of items to be completed or corrected, as determined by the inspection, the Engineer, if all things are satisfactory to him, and if, in his professional judgment and opinion the Contractor's statement appears correct, will inform the City in writing that he has examined the work, that it is substantially complete in conformance with these Contract Documents, and that he recommends the work be accepted as substantially complete. The written recommendation of acceptance of the work as substantially complete from the Engineer shall be accompanied by the list of items to be completed or corrected. It is understood and agreed that such notice from the Engineer does not in any way relieve the Contractor from any duties, responsibilities, and obligations of these Contract Documents.

Should the Engineer consider that the work is not substantially complete, he will immediately notify the Contractor, in writing, stating the reasons for his determination. The Contractor shall complete the work and send another written notice to the Engineer certifying that the work or designated portion thereof is substantially complete. The Engineer, in company with the City, will reinspect the work.

If the Engineer's recommendation is acceptable to the City, the City will notify the Contractor in writing that the work is accepted as substantially complete and will establish the date of substantial completion after which time charges shall cease, and the City will begin use of the work. It is understood and agreed that said notice from the City shall not in any way be construed to relieve the Contractor from any duties, responsibilities, or obligations of the Contract Documents or from his responsibility to deliver a complete work in accordance with the intent of these Contract Documents.

- 5.15 Final Inspection. Upon receipt of written notice from the Contractor that all items listed for completion or correction during the inspection for substantial completion have been performed and that the work has been completed in conformity with the Contract Documents, the Engineer shall promptly examine the work, in company with the City, making additional tests and investigations as he may deem proper and using due care and judgment normally exercised in the examination of the completed work by a properly qualified and experienced professional engineer and shall satisfy himself that the Contractor's statement appears to be correct. The Engineer shall then inform the City and, when applicable, regulatory agencies that the work is, in his opinion, complete in apparent conformity with these Contract Documents and shall schedule the final inspection.

Should the Engineer consider that the work is not finally complete, he will notify the Contractor in writing, stating reasons for his determination. The Contractor shall take immediate steps to remedy the stated deficiencies and/or conditions and, after correction of the deficiencies and/or conditions, send another written notice to the Engineer certifying that the work is complete. The Engineer, in company with the City, will re-inspect the work.

After the final inspection and after the submission by the Contractor of acceptable Project Record Documents, operation and maintenance data and other items required by these Contract Documents, the Engineer shall notify the City in writing that he has examined the work and that, in his opinion, it appears to conform to these Contract Documents and therefore recommends acceptance of the work and final payment to the Contractor. It is understood and agreed that such statement by the Engineer does not in any way relieve the Contractor or his Sureties from any duties, responsibilities, and obligations under these Contract Documents.

- 5.16 Final Acceptance of the Work. After the Engineer recommends acceptance of the work covered by these Contract Documents and final payment to the Contractor, the City will, if it concurs in the Engineer's recommendation, promptly notify the Contractor in writing that the work is accepted. If the City does not concur in the Engineer's recommendation, the City will promptly notify the Contractor in writing that it does not accept the work as complete and stating the deficiencies and/or conditions that shall be corrected or resolved before final acceptance will be made. After the deficiencies and/or conditions are corrected or resolved and the City is satisfied that the work is complete, the City will notify the Contractor in writing that the work is considered complete and final acceptance is made. The guarantee period(s), as specified in these Contract Documents, shall begin on the date the Contractor is notified by the City that final acceptance of the work is

made. Final acceptance of the work by the City will not be made until the Project Record Documents, operation and maintenance data and other required items are acceptable to the City.

It is understood and agreed that said notice of final acceptance or final payment by the City shall not in any way be construed to relieve the Contractor, or his Sureties from any duties, responsibilities or obligations under or in connection with these Contract Documents.

- 5.17 Discrepancies. The Contractor shall check all dimensions, elevations, and quantities shown on the drawings and schedules. The Contractor shall verbally notify the Engineer immediately confirming the notice in writing soon thereafter of any discrepancy between the drawings and the conditions on the ground or any discrepancies, errors, or ambiguities in, or omissions from, the Drawings, Specifications, or other Contract Documents which he may discover at any time during the performance of the work. The Contractor shall also notify the Engineer of any discrepancies, errors, or ambiguities in the layout as given by stakes, points or instructions which he may discover during the course of the work. The Engineer will promptly investigate the matters and will furnish full instructions in writing correcting such discrepancies, errors, ambiguities, or omissions and the Contractor shall carry out such instructions as if originally specified. If, knowing of such discrepancy, error, ambiguity, or omission and prior to reviewing written instructions from the Engineer regarding correction thereof, the Contractor proceeds with the work, any of the work so done shall not be considered as work done under these Contract Documents and in performance thereof unless and until duly approved and accepted by the Engineer. The Contractor shall not take any advantage of any discrepancy, error, ambiguity, or omission in the Drawings, Specifications, or other Contract Documents.
- 5.18 Equivalent Materials and Equipment. Whenever a material, product, article, or piece of equipment is specified or described in these Contract Documents by using the name of a proprietary product or the name of a particular manufacturer or vendor and catalog number, it is understood and agreed that the specific item is named for the purpose of establishing the type, function, dimension, appearance, quality, durability, performance, or other salient requirements and that other materials, products, articles, or pieces of equipment of equal capacities, quality and function will be considered. The Contractor may request the substitution of material, product, article, or piece of equipment of equal substance and function for those designated in these Contract Documents. The Contractor shall request substitution in writing to the Engineer stating in detail how the substituted product differs in composition and performance from the designated product and furnishing suitable complete data on which the Engineer may make the determination on the merits of the proposed substitution. If, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that designated, the Engineer may approve its substitution and use by the Contractor. Any cost differential shall be deductible from the Contract Price, and the Contract Documents shall be appropriately modified by a change order. The Contractor warrants that if substitutes are approved, no major changes in the function or general design of the project will result. Incidental changes or extra component parts required to accommodate the substitute shall be made by the Contractor without a change in the

Contract Price or Contract Time. Requests relative to substitutions for materials, products, articles or pieces of equipment specifically designated on the Drawings or in the Specifications will not be considered until after the award of the Contract.

It is understood and agreed that (1) the Engineer is to use his own judgment whether or not any material, product, article, or piece of equipment proposed to be substituted is equal to that specified; (2) the decision of the Engineer on all such questions of equality shall be final and binding upon the Contractor; and (3) in the event of any decision of the Engineer that is considered adverse by the Contractor, no claim of any sort by the Contractor shall be made or allowed against the City or the Engineer.

- 5.19 Materials. The materials, fixtures, and apparatus furnished shall be new, except as otherwise provided herein, unused and of good quality, and shall be incorporated into the work in an undamaged condition. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials. Whenever materials are sold by the manufacturer in sealed packages, they shall be so delivered to the site of the work. The materials shall be manufactured, handled, and used in a workmanlike manner to provide a completed work in accordance with these Contract Documents.

Materials, products, and equipment designated for permanent installation in the work shall be properly stored by the Contractor in a manner to ensure protection against deterioration of any type. These items shall be so placed as to cause a minimum of interference with the prosecution of the work and to the public. The method of storing shall be so as to facilitate inspection. Deterioration of any kind or to any degree shall be cause for rejection. Stored materials, even though meeting the requirements of these Contract Documents before being stored, shall be inspected prior to incorporation in the work and shall meet the requirements of these Contract Documents at the time of incorporation in the work. If material, products, or equipment stored by the Contractor and paid for under the terms of these Contract Documents is damaged, or otherwise becomes unsuitable, before its permanent incorporation into the work, the amounts paid the Contractor for the damaged material shall be deducted from the next progress payment.

- 5.20 Contractor's Responsibility for Materials. The Contractor shall be responsible for the condition of all materials, products, and equipment which he has furnished, and shall replace at his own expense all such material found to be defective or which has been damaged after delivery. This includes the replacement of material which is found to be defective at any time prior to expiration of the guarantee period.
- 5.21 Testing of Materials and Equipment. The testing of materials shall be made by a competent laboratory or other person selected and paid for by the City. The Contractor shall submit samples of materials for testing as required by the Engineer. The cost of all retests made necessary by the failure of materials to conform to the requirements of these Contract Documents shall be paid by the Contractor.

The testing of equipment and products shall be performed as provided in the Specifications.

5.22 Access to the Work. The Engineer and his authorized representatives shall at all times have access to the work. Authorized representatives of the regulatory agencies shall have access to the work and to the materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor shall provide proper facilities for such access and observation of the work and records and also for any inspection or testing of the work.

5.23 Uncovering Completed Work. If any work is covered contrary to the written instructions of the Engineer it must, if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense.

If the Engineer considers it necessary or advisable that covered work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose, or otherwise make available for observation, inspection, or testing as the Engineer may require that portion of the work in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such work is defective, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and satisfactory reconstruction. If, however, such work is not found to be defective, the Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time or both, directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction, and an appropriate change order shall be issued.

5.24 Minimum Requirement for Materials and Workmanship. Unless otherwise definitely specified, it is a general requirement of these Contract Documents that all materials, products, and workmanship shall meet the requirements of the applicable standard specifications of the American Society for Testing and Materials, or of the Federal Specifications Board as minimum requirements.

5.25 Equipment Operation Experience Clauses. In cases where experience clauses are used for manufacturers or suppliers, in lieu of experience, a bond or cash deposit may be accepted from manufacturers or suppliers which do not meet the specified experience period. The bond or cash deposit provided by the manufacturers shall guarantee replacement of the equipment or process in the event of failure or unsatisfactory service. The period of time for which the bond or cash deposit is required shall be the same as the experience period of time specified.

5.26 Surveys. The City will furnish all boundary surveys and establish all base lines for locating the principal component parts of the work together with a suitable number of bench marks adjacent to the work. From the information provided by the City, unless otherwise specified in these Contract Documents, the Contractor shall develop and make all detailed surveys needed for construction such as slope stakes, batter boards, stakes for pile locations, and all other working points, lines, elevations, and cut sheets.

SECTION 6. LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

6.1 Cooperation with Public Utilities. The Contractor shall notify the owners of adjacent utilities when the prosecution of the work may affect the utility facilities or operation. The Contractor shall perform and carry on the work so as not to interfere with or damage utility facilities in the vicinity of the work. The Contractor shall take every possible precaution to properly protect and preserve, including temporary supports and bracing where necessary, the utility facilities from damage, injury or displacement. The Contractor shall remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the contractor, any Subcontractor or any person directly or indirectly employed or engaged by the Contractor or a Subcontractor or any person for whose acts the Contractor or a Subcontractor is liable.

The City and the Engineer will not be responsible for any delay in performing the work resulting from the existence, removal or adjustment of any utility facilities. Additional costs incurred by the Contractor as a result thereof shall be borne solely by the Contractor.

Utility facilities, such as water mains, gas mains, storm sewers, sanitary sewers, telephone lines, power lines and buried facilities and structures in the vicinity of the work are indicated on the drawings only to the extent such information has been made available to or discovered by the Engineer during the course of preparing the drawings. The actual locations of the utility facilities may vary from the locations shown, and there may be utility facilities existing that are not indicated on the drawings. It is understood and agreed that there is no guarantee as to the accuracy or completeness of the utility information indicated on the drawings, and all responsibility for the accuracy or completeness thereof is expressly disclaimed. Generally, service connections are not indicated on the drawings.

The Contractor shall be solely responsible for locating all existing underground facilities, including service connections, in advance of excavating, trenching or other work, by contacting the owners of the facilities or prospecting. The Contractor shall use his own information and shall not rely upon the information shown on the drawings concerning utility facilities.

In the event of accidental damage to or disruption of utilities by the Contractor or any of his Subcontractors or agents, the Contractor shall immediately take all necessary steps to replace any pieces of damaged equipment and all damaged materials, make all necessary repairs and restore all services to normal. The Contractor shall engage any and all required additional labor, individuals, subcontractors or other outside services which may be deemed necessary, to operate on a continuous "around-the-clock" basis until services are restored. He shall also provide and install all required equipment and materials to maintain temporary emergency services for uninterrupted use of facilities. All costs involved in making the repairs and restoring the disrupted service to normal shall be borne by the Contractor responsible for such disruption of services, and he shall be fully responsible for any and all damage claims resulting from such disruption.

Under no circumstances shall the Contractor or any of his subcontractors or agents disrupt or disconnect any type of facility whatsoever without first obtaining the written permission of the utility owner to do so. Request for disruption or disconnection shall state:

1. The location of the required disconnect and which utility is concerned.
2. The exact date and time at which the disconnect will be required.
3. The duration of the proposed disconnect or interruption.

Where it is necessary to temporarily interrupt services, the Contractor shall notify the utility owner, both before the interruption and again immediately before service is resumed. Before disconnecting any pipes or cables, the Contractor shall obtain permission from the owners thereof, or shall make suitable arrangements for their disconnection by the owners. Where it is necessary to temporarily interrupt house services, the Contractor shall notify the house owner or occupant, both before the interruption and again immediately before service is resumed. Should underground utilities or structures be encountered that are in minor conflict with the alignment or gradient of the proposed work, the proposed work may be adjusted by the Engineer where such adjustment is feasible and will not interfere with the operation of the proposed system. No payment will be made for these adjustments.

Where major conflicts in the proposed work and existing utilities or structures occur and adjustment of the new work is not feasible, then the Engineer may revise the alignment and/or grade to suit these conditions. If, in the opinion of the City, these revisions are necessary and are outside the scope of the bid items, they will be paid for as extra work.

- 6.2 **Railway Crossings.** When the work encroaches upon the right-of-way of any railway, the City will secure for the Contractor all the necessary easements or authority to enter upon such right-of-way for the prosecution and completion of the work. Where railway tracks are to be crossed, the railway company will construct the necessary bridges, trestles, cribs or other structures for safe operations of the trains or cars across any excavation during the time of construction of the work. Where such crossings require a change of grade, such change shall be made by or at the expense of the railway company. Contractor shall, however, take such special precaution for the safety of the work and the traveling public as may be necessary, by sheeting, bracing, and thoroughly supporting the sides of any excavation and supporting and protecting any adjacent structures.
- 6.3 **Protection of Public and Private Property.** The Contractor shall protect from damage all property in the vicinity of the work or that is in any way affected by the work, the removal or destruction of which is not called for by the Contract Documents. This applies to public and private property, utility facilities, trees, grass, shrubs, crops, signs, monuments, fences, pipe, underground structures, public roadways, sidewalks, curb and gutters, driveways and any other natural or man-made terrain features. Whenever such property is damaged due to the Contractor's performance of the work, the Contractor shall immediately restore it to condition equal to or better than that existing before such

damage or injury was done by the Contractor. The Contractor shall make good all such damage or injury in an acceptable manner at his own expense. In case of failure of the Contractor to restore such property, or to make good such damage or injury, the City may, upon forty-eight (48) hours' notice, under ordinary circumstances and without notice when a nuisance or hazardous condition results, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary, and the cost thereof will be deducted from any monies due or which may become due the Contractor under the terms of these Contract Documents.

Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

The Contractor shall not enter upon private property for any purpose without first obtaining permission, and he shall be responsible for the preservation of all public and private property. The Contractor shall at all times while the work is in progress use extraordinary care to see that adjacent buildings are not endangered in any way by reason of fire, water, or construction operations, and to this end shall take such steps as may be necessary or directed to protect the property therefrom, and the same care shall be exercised by all Contractor's and Subcontractor's employees. The Contractor shall give due notice to any controlling person, department, or public service company, prior to adjusting items to grade and shall be held strictly liable to the City if any such items are disturbed, damaged or covered up during the course of the work. The Contractor shall not disturb, remove or relocate any land monuments and property marks until an authorized agent has witnessed or otherwise referenced their location.

Any temporary drains and drainage which may be required by the Contractor during the construction period shall be furnished, installed and maintained by him. No such drains or drainage systems shall be installed or used without the prior approval of the Engineer. At the completion of the work, all such drains and drainage systems shall be removed and the premises returned to a neat and clean condition.

Fire hydrants on or adjacent to the work shall be kept accessible to the fire-fighting apparatus at all times, and no material or obstruction shall be placed within 10 feet of any hydrant. Adjacent premises must be given access, as far as practicable, and obstruction of sewer inlets, gutters and ditches will not be permitted.

- 6.4 Safety and Protection of Work. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work.

The Contractor shall take all necessary precautions for the safety of employees on the work, and shall comply with all applicable provisions of Federal, State and Local safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the work is being performed. The Contractor shall comply with the

Department of Labor's Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) as amended and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54) as amended. Copies of these regulations may be obtained from the U.S. Government Printing Office, 275 Peachtree Street, N.E., Atlanta, Georgia 30303.

The Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the work, all necessary safeguards, including sufficient lights and danger signals on or near the work; he shall erect suitable railings, barricades, covers, or other protective devices about unfinished work, open trenches, holes, embankments or other hazards and obstructions; where hazards to workmen or the public exist. The Contractor shall provide, at all times, all necessary watchmen on the project, for the safety of employees, delivery personnel, and the general public, and to diligently guard and protect all work and materials, including Owner-furnished equipment. Construction equipment shall be suitably night-marked and lighted as necessary for safety considerations. No separate payment will be made for providing lights on vehicles and equipment, signs, barricades, lights, flags, watchmen and other protective devices, and the costs thereof shall be included in the Contract Price(s).

The Contractor shall comply with all applicable provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, and shall maintain an accurate record of all cases of death and all cases of occupational disease and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on the work under these Contract Documents.

The Contractor shall solely be responsible for the safety, efficiency and adequacy of his plant, appliances and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.

- 6.5 Public Safety and Convenience. The Contractor shall conduct his operations in a manner that will offer the least possible obstruction and inconvenience to the public and he shall not have under construction an amount of work greater than he can prosecute properly with due regard to the rights of the public.

Construction operations shall be conducted in a manner that will cause as little inconvenience as possible to abutting property owners. Convenient access to driveways, houses, buildings or other facilities in the vicinity of the work shall be maintained and temporary access facilities for public roadways shall be provided and maintained in satisfactory condition.

- 6.6 Maintenance of Existing Traffic. Satisfactory facilities shall be provided by the Contractor for maintaining public access and travel, and every effort shall be made to reduce any necessary inconveniences to a minimum.
- 6.7 Emergencies Affecting Property or Safety. In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or City, shall act to prevent threatened

damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from these Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the change and deviations involved.

- 6.8 Indemnification. It is understood and agreed that the Contractor shall be deemed and considered an independent contractor in respect to the work covered by these Contract Documents, and shall assume all risks and responsibility for casualties of every description in connection with the work, except that he shall not be held liable or responsible for delays or damage to work caused by acts of God, acts of public enemy, quarantine restrictions, general strikes throughout the trade, or freight embargoes not caused or participated in by the Contractor. The Contractor shall have charge and control of the entire work until completion and final acceptance of the work by the City. The Contractor shall be alone liable and responsible for, and shall pay, any and all loss and damages sustained by any person either during the performance or subsequent to the completion of the work these Contract Documents, by reason of injuries to person and damage to property, buildings and adjacent work, that occur either during the performance or subsequent to the completion of the work covered by these Contract Documents, or that may be sustained as a result or consequence thereof, irrespective of whether or not such injuries or damage be due to negligence or to the inherent nature of the work. The Contractor shall fully indemnify, protect, defend, save and hold harmless the City, the Engineer, and their agents and employees from any and all liability and from all suits and actions of every kind and description brought or which may be brought against them or any of them relative to the performance of the work or other responsibilities of the Contractor under these Contract Documents.
- 6.9 Claims for Labor and Materials. The Contractor shall indemnify and save harmless forever the City from all claims for labor, materials and services furnished under these Contract Documents. When requested by the City, the Contractor shall submit satisfactory evidence that all persons, firms, or corporations who have done work or furnished materials under these Contract Documents, for which the City may become legally liable, have been fully paid or satisfactorily secured. In case such evidence is not furnished or is not satisfactory, an amount will be retained from money due the Contractor which in addition to any other sums that may be retained will be sufficient, in the opinion of the City, to liquidate all such claims. Such sum will be retained until the claims as aforesaid are fully settled or satisfactorily secured.

Before final acceptance of the work by the City, the Contractor shall submit to the Engineer in duplicate a notarized affidavit stating that all subcontractors, vendors, persons, or firms who have furnished labor materials, or services for the work have been fully paid and that all taxes have been paid. A statement from the Surety shall also be submitted consenting to the making of the final payment.

- 6.10 Defense of Suits. In case any action in court is brought against the City or the Engineer, or any officer, agent or employee of any of them, for the failure, omission, or neglect of the Contractor to perform any of the covenants, acts, matters, or things by this contract undertaken; or for injury or damage caused by the alleged negligence of the Contractor or his subcontractors or his or their agents, or in connection with any claim based on lawful

demands of subcontractors, workmen, material-men, or suppliers, the Contractor shall indemnify, defend and save harmless the City and the Engineer and their officers, agents and employees, from all losses, damages, costs, expenses (including attorneys' fees), judgments, or decrees arising out of such action.

- 6.11 Familiarity with Laws. It is understood and agreed that the Contractor shall be familiar with and shall observe and comply with, all Federal, State, County, and City laws, codes, ordinances, regulations, orders, and decrees, including air and water pollution and noise abatement regulations, existing, or enacted subsequent to the execution of the Contract, that in any manner affect those engaged or employed in the work, or the materials or equipment used in the work, or which in any way affect the conduct of the work. The Contractor shall strictly observe all applicable laws and regulations as to public safety, health and sanitation. No pleas of misunderstanding or ignorance on the part of the Contractor will in any way serve to modify or mitigate the provisions of these Contract Documents. The Contractor and his Surety shall indemnify and save harmless the City and the Engineer and all their officers, agents, and servants against any claim or liability arising from, or based on the violation of, any such law, code, ordinance, regulation, order or decree, whether by himself, his agents or his employees.

The Contractor shall give all notices relating to all laws, codes, ordinances, regulations, orders and decrees bearing on the conduct of the work. If the Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Engineer, in writing, and any necessary changes shall be adjusted as provided in these Contract Documents for changes in the work. If the Contractor performs any work contrary to such laws, codes, ordinances, regulations, orders, and decrees, and without such notice to the Engineer, he shall bear all costs arising therefrom.

- 6.12 Taxes, Permits and Certification. The Contractor shall pay all applicable taxes levied by Federal, State, and Local Governments and obtain all permits on any part of the work as required by law in connection with the work. It is understood and agreed that the cost of said taxes is included in the Contract Price(s) for the work.

The Contractor shall procure all temporary and permanent permits and licenses, necessary and incidental to the due and lawful prosecution of the work, and shall pay all charges and fees, and all costs thereof shall be deemed to be included in the Contract Price(s) for the work.

- 6.13 Patents and Royalties. Royalties and fees for patents covering materials, articles, apparatus, devices, or equipment (as distinguished from processes) used in the work, shall be included in the Contract Price(s). The Contractor shall satisfy all demand that may be made at any time for such royalties or fees and he shall be liable for any damages or claims for patent infringements. The Contractor shall, at his own cost and expense, defend all suits or proceedings that may be instituted against the City for alleged infringement of any patents involved in the work and, in case of an award of damages, the Contractor shall pay such award. The Contractor, however, will not be held liable for the defense of any suit or other proceeding nor for the payment of any damages or other costs for the infringement of any patented process required by these Contract

Documents; except if the Contractor has information that the process so required is an infringement of a patent, the Contractor shall be liable for any damages or claims in connection therewith unless he promptly notifies the City and Engineer of such infringement.

6.14 Requirements for Insurance Coverage. The Contractor shall not commence work under these Contract Documents until he has obtained all insurance required herein, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until similar insurance required of the Subcontractor has been obtained by the Subcontractor. Insurance shall be placed by the Contractor with one or more insurance carriers licensed to do business in the State of Tennessee. Each insurance policy shall be renewed ten (10) days before the expiration date of the policy.

Certificates of insurance shall be filed with the City prior to commencement of the Work. These certificates shall contain a provision that coverage afforded under the policies will not be changed or canceled unless at least fifteen (15) days' written notice has been given to the City. The Contract shall not be binding upon the City until the insurance coverage required herein has been obtained and certificates have been filed with the City.

Adequate insurance coverage shall be maintained by the Contractor at all times. Failure to maintain adequate coverage shall not relieve the Contractor of any responsibilities or obligations under these Contract Documents. In the event any insurance coverage is canceled or allowed to lapse, the Contractor will not be permitted to prosecute the work until adequate and satisfactory insurance has been obtained and Certificates of Insurance furnished to the City. Failure to keep insurance policies in effect will not be cause for any claims for extension of time under these Contract Documents.

All such policies shall be subject to approval by the City Attorney. Should the City Attorney at any time in his sole discretion determine that the insurance policies and certificate provided may not be sufficient to protect the interests of the City because of the insolvency of the insurance company or otherwise, the Contractor shall replace such policies with policies meeting his approval.

The Contractor shall procure and maintain at his own expense, during the Contract Time, insurance as hereinafter specified:

6.14.1 Workmen's Compensation Insurance that shall protect the Contractor against all claims under applicable state workmen's compensation laws shall be maintained. The Contractor shall also be protected against claims for injury, disease or death of employees which, for any reason, may not fall within the provisions of a workman's compensation law. This policy shall also include an endorsement providing coverage in all states in which work is performed. The Contractor shall require all Subcontractors to provide similar Workmen's Compensation Insurance for all the Subcontractors' employees on the work unless such employees are covered by the protection afforded by the Contractor. The liability limits shall not be less than that required by statute.

6.14.2 General Public Liability and Property Damage Insurance that shall be written in comprehensive form and shall protect the Contractor against all claims arising from injuries including death, to members of the public or damage to property of others arising out of any act or omission of the Contractor or his agents, employees, or subcontractors. In addition, this policy shall specifically insure the contractual liability assumed by the successful bidder to defend and indemnify the City and Engineer against such claims or suits.

To the extent that the work may require blasting, explosive conditions, or underground operation, the comprehensive general public liability and property damage coverage shall contain no exclusion relative to blasting, explosion, collapse of buildings, or damage to underground property.

The comprehensive general public liability and property damage coverage shall also protect the Contractor against all claims resulting from damage to:

1. Private driveways, walks, shrubbery and plantings
2. Public utility facilities
3. U.S. Government monuments

The liability limits shall not be less than:

Bodily Injury	\$ 500,000 each person 1,000,000 each occurrence
Property Damage	\$ 500,000 each occurrence \$ 2,000,000 aggregate

The general public liability and property damage insurance shall carry an endorsement in form satisfactory to the City to the effect that the Contractor shall save harmless the City from any claims and damage whatsoever, including patent infringement. General public liability and property damage insurance shall be kept in force at all times during the course of the work until such time as the work covered by these Contract Documents has been completed and accepted by the City.

6.14.3 Comprehensive Motor Vehicle Liability and Property Damage Insurance that shall be written in comprehensive form and shall protect the Contractor against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operation on or off the site of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired.

The liability limits shall not be less than:

Bodily Injury	\$ 250,000 each person \$ 500,000 each occurrence
---------------	--

Property Damage \$ 100,000 each occurrence

6.14.4 Builder's Risk Insurance that shall be written in completed value form and shall protect the Contractor, the City, and the Engineer against risks of damage to buildings, structures, and materials and equipment not otherwise covered under installation floater insurance, from the perils of fire and lightning, the perils included in the standard extended coverage endorsement, and the perils of vandalism and malicious mischief. The amount of such insurance shall be not less than the insurable value of the work at completion less the value of the materials and equipment insured under installation floater insurance.

Equipment such as pumps, engine-generators, compressors, basin equipment, motors switch-gear, transformers, panel boards, control equipment and other similar equipment shall be insured under installation floater insurance when the aggregate value of the equipment exceeds \$10,000.

If the work does not include the construction of building structures, builder's risk insurance may be omitted providing the installation floater insurance fully covers the work.

Builder's risk insurance shall provide for losses to be payable to the Contractor and the City as their interests may appear and shall contain a waiver of subrogation rights against the insured parties.

6.14.5 Installation Floater Insurance that shall protect the Contractor, the City, and the Engineer from all insurable risks of physical loss or damage to materials, products and equipment not otherwise covered under builder's risk insurance, while in warehouses or storage areas, during installation, during testing, and after the work is completed. It shall be of the "all risks" type, with coverages designed for the circumstances which may occur in the particular work under these Contract Documents. The coverage shall be for an amount not less than the insurable value of the work at completion, less the value of the materials, products and equipment insured under builder's risk insurance. The value shall include the aggregate value of the City-furnished equipment, products and materials to be erected or installed by the Contractor not otherwise insured under builder's risk insurance.

Installation floater insurance shall provide for losses, to be payable to the Contractor and the City as their interests may appear and shall contain a waiver of subrogation rights against the insured parties.

If the aggregate value of the City-furnished and Contractor-furnished equipment is less than \$10,000, such equipment may be covered under builder's risk insurance, and if so covered, this installation floater insurance may be omitted.

Certificates of insurance covering installation floater insurance shall quote the insuring agreement and all exclusions as they appear in the policy; or in lieu of certificates, copies of the complete policy may be submitted.

- 6.15 Sanitary Conditions. The Contractor shall provide and maintain adequate and satisfactory sanitary facilities. All sanitary facilities shall conform to the requirements of the Tennessee Department of Public Health and the Chattanooga-Hamilton County Health Department.
- 6.16 Contract Provisions Required by Law. It is understood and agreed that each and every provision and clause required by Local, State and Federal laws and regulations to be inserted in these Contract Documents shall be deemed to be inserted herein in their entirety and the Contract Documents shall be read and enforced as though they were included herein. If through mistake or otherwise, any such provision or clause is not inserted, or is not correctly inserted, these Contract Documents shall forthwith be physically amended to make such insertion or correction upon the application of either party of the Contract.
- 6.17 Preservation of Monuments and Stakes. The Contractor shall carefully preserve all monuments, bench marks, property markers, reference points, and stakes. In case of his destruction thereof, the Contractor will be charged with the expense of replacement and shall be responsible for any mistake or loss of time that may be caused. Permanent monuments or bench marks which must be removed or disturbed shall be protected until properly referenced for relocation. The Contractor shall furnish materials and assistance for the proper replacement of such monuments or bench marks.

SECTION 7. PROSECUTION AND PROGRESS

- 7.1 Subcontracts. The Contractor shall give his personal attention to the fulfillment of the Contract and shall at all times keep the work under his control.

The Contractor may subcontract portions of the work; however, he shall not award any work to any Subcontractor without prior written approval of the City. The City's approval will not be given until the Contractor submits to the City a satisfactory statement concerning the proposed award to a Subcontractor. The Contractor shall perform with his own organization and employees not less than fifty (50%) percent of the labor costs of the project. The Contractor and each Subcontractor shall provide information to the City concerning labor costs and other employee information on forms provided by the City within one week following each payroll. These forms shall include information concerning total labor costs, job classifications, and the race and sex of each person directly employed on the project.

The Contractor shall be as fully responsible to the City for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for acts or omissions of persons directly employed by him. Nothing contained in these Contract Documents shall create any contractual relation between any Subcontractor and the City. All Subcontractors shall be deemed to be agents of the Contractor.

The approval of the City of any Subcontractor shall not, under any circumstances, operate to relieve the Contractor or his sureties of any of his or their obligations under these Contract Documents. It is understood and agreed that all subcontracts and approvals of Subcontractors shall be based upon the requisite of performance by the Subcontractor in accordance with these Contract Documents; and should any Subcontractor fail to perform his work to the satisfaction of the Engineer, the City shall have the absolute right to rescind his approval at once and to require the performance of such work by the Contractor entirely or in part through other approved subcontractors.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bid subcontractors to the Contractor by the terms of these Contract Documents insofar as applicable to the work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the City may exercise over the Contractor under any provisions of these Contract Documents.

The Contractor shall inspect all work performed by Subcontractors for compliance with these Contract Documents.

- 7.2 The Contractor shall not sell, transfer, assign or otherwise dispose of the Contract or any portion thereof, or of his right, title or interest therein, or his obligations thereunder, without written consent of the City.

The Contractor shall not assign any monies due or to become due to him under this Contract without the prior written consent of the City. In the event that the Contractor undertakes to assign all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a provision substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the work called for in these Contract Documents.

- 7.3 Beginning of Work. The Contractor shall begin the work within ten (10) days after receiving the Notice to Proceed and shall diligently prosecute the work to completion within the contract time. The Contractor shall notify the City and the Engineer two working (2) days in advance of the date he will begin operations.

- 7.4 Distribution of the Work. The Specifications and other Contract Documents may be arranged in Sections under general titles descriptive of the principal materials or trade practices as far as seems practical without unreasonable complicated or minute breakdown. Under many divisions it has seemed proper to include items of other trades or types of materials, the use or the installation of which is closely related to the principal subject of that division. Such arrangement shall not operate to make the Engineer or the City an arbitrator to establish subcontract limits between Contractor and Subcontractor.

The Contractor and all Subcontractors shall study the Drawings, Specifications and other Contract Documents in sufficient detail to assure that all required items are included. It

shall be the Contractor's responsibility to so arrange and distribute the work that all required items are provided by the proper trades and at the proper times, without controversy as to contract obligations, or as to jurisdiction, and he shall make all necessary adjustments to this end.

- 7.5 Supervision of Work by Contractor. The Contractor shall supervise and direct the work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor shall employ and maintain on the work a qualified supervisor or superintendent who shall have been designated in writing by the Contractor as the Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor, and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the work.

The Contractor shall be responsible for complete supervision and control of his Subcontractors as though they were his own forces. Notice to the Contractor shall be considered notice to all affected subcontractors.

- 7.6 Labor. The Contractor shall employ only workmen who are competent to perform the work assigned to them and, in the case of skilled labor, who are adequately trained and experienced in their respective trades and who do satisfactory work.

If any person employed by the Contractor on the work appears to the Engineer to be incompetent or to act in a disorderly or improper manner, the person shall be discharged immediately on the request of the Engineer, and such person shall not again be employed on the work.

All labor described in these Contract Documents or indicated on the Drawings and the work specified shall be executed in a thoroughly substantial and workmanlike manner by persons skilled in the applicable trade. All materials, fixtures and apparatus shall be installed in an undamaged condition.

The Contractor shall enforce strict discipline and good order among his employees. No intoxicating liquor or drugs will be allowed on the project.

The Contractor and all Subcontractors shall comply with all ordinances, laws and regulations applicable to the work regarding labor and mechanics.

- 7.7 Methods of Operation. The Contractor shall inform the Engineer in advance concerning his plans for carrying on each part of the work, but the Contractor alone shall be responsible for the safety, adequacy, and efficiency of his plant, equipment, and methods.

Any method of work suggested by the City or Engineer, but not specified, shall be used at the risk and responsibility of the Contractor; and the City and Engineer will assume no responsibility therefore.

Review by the City or Engineer of any plan or method of work proposed by the Contractor shall not relieve the Contractor of any responsibility therefor, and such review shall not be considered as an assumption of any risk or liability by the City or Engineer, or any officer, agent, or employee thereof. The Contractor shall have no claim on account of the failure or inefficiency of any plan or method so reviewed.

The sequence of the work performed under these Contract Documents will be left to the Contractor unless otherwise specified herein. Should the Engineer order the Contractor to increase his forces or working hours in order to maintain the progress of the work consistent with the required progress necessary for completion of the work within the Contract time, the Contractor shall comply with such order without additional cost to the City.

- 7.8 Lands and Right-of-Way. Prior to the issuance of the Notice to Proceed, the City will have obtained most of the land and rights-of-way, including easements, necessary for carrying out and for the completion of the work to be performed pursuant to these Contract Documents, unless mutually agreed or specified in the Specifications.

The City will provide to the Contractor information which delineates and describes the lands owned and rights-of-way, including easements, acquired.

The Contractor shall provide, at his own expense and without liability to the City, any additional land and access thereto that the Contractor may acquire for temporary construction facilities, or for storage of materials.

In the event all land and rights-of-way have not been obtained as herein contemplated before construction begins, the Contractor shall begin the work upon such land and rights-of-way as the City may have previously acquired, and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining land and rights-of-way. Should the City be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the work, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay, or to withdraw from the contract except by consent of the City; but time for completion of the work will be extended to such time as the City determines will compensate for the time lost by such delay, such determination to be set forth in writing.

- 7.9 No Waiver of Legal Rights. Neither the inspection by the City or Engineer or any of their officials, employees, or agents, nor any order by the City or Engineer for payment of money, or any payment for, or acceptance of, the whole or any part of the work by the City or Engineer, nor any extension of time, nor any possession taken by the City or its employees, shall operate as a waiver of any provision of these Contract Documents, or of any power herein reserved to the City, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

Any waiver of any provisions of these Contract Documents shall be specific, shall apply only to the specified item or matter concerned and shall not apply to other similar or dissimilar items or matters.

- 7.10 Project Record Documents. The Contractor shall prepare and maintain at the site of the work complete and detailed Project Record Documents of the completed work. Throughout the course of the work, the Contractor shall make all measurements and record the work as actually constructed on the Drawings and shall record on the record set of Specifications and other Contract Documents all materials or other items of construction actually used. The Project Record Documents shall represent the work as actually constructed. The Project Record Documents shall be submitted to and be acceptable to the Engineer before the final payment will be made to the Contractor.

The City will furnish the Contractor one set of reverse reading translucent matte finish mylar reproducible (ozalid process) copies of the contract drawings for the Contractor's use in preparing the record drawings.

- 7.11 Changes in the Work. The City reserves the right to make at any time, without prior notice to the Surety, such alterations in the drawings or in the character of the work as the City may consider necessary or desirable to complete the proposed work in a satisfactory manner and consistent with the intent of these Contract Documents. Notice of every such alteration or change shall be given in writing to the Contractor by the Engineer, and no such alteration or change shall be considered as constituting a waiver of any of the provisions of these Contract Documents, or as nullifying or invalidating any of such provisions. Should any such alteration or change result in an increase or decrease in the quantity or the cost of the work or materials described in these Contract Documents, the total amount payable under the Contract will be accordingly modified. If alterations or changes result in additional time being needed by the Contractor to complete the work, the Contract Time will be correspondingly modified, if the Contractor so requests, before commencing the work attributable to such alterations or changes.

- 7.12 Extra Work and Changes in Contract Price. The Contract Price may be changed only by a Change Order.

- 7.12.1 It is understood and agreed that the Contractor shall perform all extra work that may be ordered in writing by the Engineer acting on the specific authority of the City arising out of the modification of the specifications or drawings made or approved by the City. For this extra work, the Contractor shall be compensated as provided hereinafter and in the Change Order covering the extra work.

Extra work is defined as: (1) that additional work of a different character or function and for which no basis of payment is prescribed in these Contract Documents; or (2) that work involving revisions of the details of the work in such manner as to render inequitable payment under items upon which the Contractor bid; or (3) that additional work of a similar nature and character as that done under the unit prices named in these Contract Documents.

No claim for extra work will be considered unless said extra work was ordered in writing as aforesaid, and the claim presented in writing to the Engineer within 30 days after receipt by the Contractor of the written order to perform said extra work.

If the performance of the extra work results in additional time being required by the Contractor to complete the work covered by these Contract Documents, said Change Order will provide for an equitable extension in the Contract time.

7.12.2 The Contractor shall be compensated for said extra work in accordance with one of the following methods and as set forth in the Change Order:

7.12.2.1 At the unit prices bid for items of work of a similar nature and character as set forth in the Bid Schedule on the Bid Proposal of these Contract Documents or as set forth in a previous Change Order.

7.12.2.2 At new unit prices for new items of work as negotiated and mutually agreed upon by the City and the Contractor prior to proceeding with the extra work.

7.12.2.3 For the lump sum price for the complete extra work as negotiated and mutually agreed upon by the City and the Contractor prior to proceeding with the extra work.

7.12.2.4 At the actual cost for labor, direct overhead, materials, supplies, equipment and other services necessary to complete the extra work plus an amount to cover the cost of general overhead and profit negotiated and agreed upon by the City and the Contractor prior to proceeding with the extra work.

7.12.3 When compensation for extra work is provided under paragraph 7.12.2.4 above, the Contractor's representative and the Engineer shall compare records of extra work done at the end of each day. Such records shall be made in duplicate upon a form provided for such purpose by the Engineer and shall be signed by both the representatives referred to herein, one copy being submitted to the Engineer and the other being retained by the Contractor.

7.12.4 The compensation provided herein shall be received and accepted by the Contractor as payment in full for all extra work done.

7.13 Time for Completion. The date of beginning and the time for completion of the work are essential conditions of these Contract Documents, and the work embraced shall be commenced within 10 days of the date of the Notice to Proceed.

The Contractor will proceed with the work at such rate of progress to insure full completion within the Contract Time. It is understood and agreed that the contract time for the completion of the work described herein is a reasonable time, taking into

consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

7.14 Extensions of Time. Extensions of time will be granted to the Contractor upon receipt of written request for such extensions, provided that such delays were occasioned by the City or by causes judged by the Engineer, subject to the City's concurrence, to be entirely beyond the Contractor's control or anticipation. In the event additional time is earned by the Contractor under the terms of these Contract Documents, or is granted by the City, such fact shall not be interpreted as a waiver of the full obligation on the part of the Contractor to complete the work within the extended time. Requests for extension of time made after ten (10) days following the event occasioning the delay, will not be considered by the City.

7.15 Suspension of the Work. The Contractor shall not suspend the work and shall not remove any equipment, tools, supplies, materials, or other items without the written permission of the City.

The City shall have the authority to suspend the work wholly or in part, for such period as may be necessary, due to unsuitable weather, such other conditions as are considered unfavorable for the suitable prosecution of the work; or due to the failure on the part of the Contractor to carry out orders given, supply sufficient skilled workmen, supply suitable material, prosecute the work satisfactorily and in a workmanlike manner, make prompt payments to Subcontractors or for labor, materials, or equipment, or to perform any obligations or requirements of these Contract Documents. The Contractor shall immediately comply with the written order of the City to suspend the work wholly or in part. The suspended work shall be resumed when conditions are favorable and methods are corrected, as ordered or approved in writing by the City.

In the event that a suspension of the work is ordered by the City, the Contractor shall, at his expense, do all the work necessary to secure the work and the area affected by the work and to protect all previously completed work as specified herein or as directed by the City. The suspension of the work by the City shall not relieve the Contractor of any duties, obligations, or responsibilities set forth in these Contract Documents. In the event the Contractor fails to secure and protect the work and area as specified or as ordered, the City will perform, or cause to be performed, all work considered necessary, and the cost thereof will be deducted from monies due or to become due the Contractor under the terms of these Contract Documents.

7.16 Liquidated Damages for Delay in Completion of the Work. As time is of the essence in this Contract, should the Contractor fail to complete the work, or specified portion thereof, sufficient for acceptance as substantially complete by the City within the Contract Time and extensions thereof, it is understood and agreed that the Contractor shall pay the City, as acknowledged liquidated damages, an amount determined, affixed and agreed (as stipulated in the Contract hereof) per calendar day that he is delinquent. The amount of liquidated damages shall be reported by the Engineer and shall be paid by the Contractor to the City or shall be deducted and withheld by the City from the monies due or to become due the Contractor under the terms of these Contract Documents.

The number of days used in determining the amount of liquidated damages to be paid by the Contractor for delay in completing the work shall be determined by subtracting the Contract Time, and any time extensions thereof, from the time actually required for the completion of the work. The time actually required for the completion of the work is defined as the total number of calendar days from the date 10 days after the date of the Notice to Proceed to the date of substantial Completion.

This provision for liquidated damages shall be effective between the parties ipso facto without necessity for demand or putting in default by any notice or other means than by the terms of these Contract Documents, the Contractor hereby waiving any such other notice of default and acknowledging that the Contractor shall be deemed to be in default by the mere act of his failure to complete the work within the Contract Time, or within any valid extension of such time hereunder.

It is understood and agreed that these liquidated damages are not a penalty, but constitute liquidated damages for loss to the City because of increases in expenses for administration, legal counsel, accounting, engineering, construction supervision, inspection, and any other expenses incurred directly as a result of the delay of the Contractor in completing the work.

7.17 Liability for Failure to Satisfy Guarantees and Warranties. Should the Contractor fail to furnish equipment, materials, and products meeting the guarantees and warranties specified herein, the Contractor shall be in default under the Contract and subject to all of the remedies of the City, including payment to the City of the additional operation and/or construction costs resulting from the system's nonperformance in the amounts specified in these Contract Documents and recourse for such payments to the Performance Bond. It is understood and agreed that these payments are not a penalty, but constitute reimbursement for loss to the City because of increased expenses of operation and/or construction of the project as a result of the failure of the Contractor to furnish equipment, materials, and products in conformance with these Contract Documents.

7.18 Equipment and Construction Plant. All equipment and construction plant shall be suitable to produce the quality of work and materials required for the satisfactory completion of the work within the Contract Time and shall be satisfactory to the Engineer. The Contractor shall provide adequate and suitable equipment and construction plant to meet the requirements of the work as specified in these Contract Documents. The Contractor shall remove unsuitable equipment from the work and add to the construction plant when ordered to do so by the Engineer.

The Contractor shall obtain written permission from the City prior to constructing temporary buildings or other structures on land owned or leased by the City. If a permit is granted, said buildings or other structures shall comply with all applicable regulations regarding their construction and maintenance and shall be satisfactory to the City.

7.19 Relations with Other Contractors. The Contractor shall cooperate with all other contractors who may be performing work in behalf of the City and workmen who may be

employed by the City on any work in the vicinity of the work to be done under these Contract Documents, and he shall so conduct his operations as to interfere to the least possible extent with the work of such contractors or workmen. The Contractor shall promptly make good, at his own expense, any injury or damages that may be sustained by other contractors, the City or employees of the City at his hands. Any difference or conflict which may arise between the Contractor and other contractors or between the Contractor and workmen of the City in regard to their work shall be adjusted as determined by the Engineer. If the work of the Contractor is delayed because of any acts or omissions of any other contractor, the Contractor shall have no claim against the City on that account other than an extension of time.

Whenever there is interference with work under other contracts, the Engineer shall decide the manner in which the work shall proceed under each contract.

- 7.20 Unfavorable Construction Conditions. During unfavorable weather, wet ground, or other unsuitable construction conditions, the Contractor shall confine his operations to work which will not be affected adversely thereby. No portion of the work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the Contractor to perform the work in a proper and satisfactory manner.
- 7.21 Sunday, Holiday and Night Work. No work shall be done between 6:00 p.m. and 7:00 a.m. nor on Sundays or locally observed national holidays without the written permission of the Engineer. However, emergency work may be done without prior permission. Night work will not be established as a regular procedure, excluding emergencies, except with written permission. Such permission, if granted, shall be upon such terms and conditions deemed appropriate in the Engineer's sole discretion.
- 7.22 Sewage, Surface, Subsurface and Flood Flows. The Contractor shall furnish all necessary equipment, materials and labor, at his expense, for handling, passing and disposing of all sewage, seepage, surface, subsurface and flood flows encountered at any time during the prosecution of the work. It is understood and agreed that the Contractor shall bear all risks associated with said flows; shall indemnify the City and the Engineer from any liabilities resulting from said flows; and shall not make any claim for additional compensation for delays or damage resulting from said flows. The manner of providing for these flows shall be satisfactory to the Engineer and in conformance with all applicable laws and regulations.

SECTION 8. MEASUREMENT AND PAYMENT

- 8.1 Scope of Payment. The Contractor shall accept compensation provided in these Contract Documents as full payment for furnishing all labor, materials, supplies, tools, equipment, taxes, fees, contingencies, and other items necessary or convenient to the completed work and for performing all work contemplated and embraced in these Contract Documents; also for loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until the acceptance by the City and for all risks of

every description connected with the prosecution of the work; also for all expenses incurred in consequence of the suspension or discontinuance of the work as provided in these Contract Documents; and for completing the work in accordance with these Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material or of any provisions of these Contract Documents.

No compensation will be made in any case for loss of anticipated profits.

8.2 Basis of Payment. The basis of payment shall be the Contract Unit Prices and/or Contract Lump Sum Price(s) named in these Contract Documents.

8.3 Measurement of Quantities. The measurement of quantities shall be made by the Engineer in accordance with the Specifications and other Contract Documents.

If the Contract is based on a Unit Price Bid, the items of work to be measured and the units of measurement shall be as set forth in the Bid Proposal Form. Only net quantities of finished work will be measured. Any items of work not set forth in the Bid Proposal Form, but necessary or convenient for the satisfactory completion of the work under the terms of these Contract Documents, shall not be measured separately and shall be considered a part of said items of work set forth in the Bid Proposal Form.

If the Contract is based on a Lump Sum Bid, the measurement of quantities for progress estimates and progress payments requests will be made by the Contractor, subject to the Engineer's approval, and will be based on items of work and the value thereof contained in the Contractor's Schedule of Values. A final measurement of quantities will not be required.

8.4 Progress Payment Requests and Partial Payments. On the first day of each month the Contractor may submit to the Engineer, on forms furnished by the Engineer, a progress payment request for the amount of work accomplished, products finished, and products stored at the site (See 01630-1.02,B) during the previous month. Ten (10) signed copies of each request shall be furnished.

The progress payment request shall be signed by the Contractor and be supported by such data as the Engineer may reasonably require. If payment is requested for products not incorporated in the work but delivered and suitably stored at or near (See 01630 1.02,B) the site, the progress payment request shall also be accompanied by such supporting data, satisfactory to the City, as will establish the City's title to said products and protect its interest therein, including appropriate insurance. The Contractor shall furnish a proper and duly executed written authorization designating those persons who will be authorized to sign and/or certify progress payment requests for the Contractor.

The Engineer will, within ten (10) days after receipt of each progress payment request, either indicate in writing his approval of the progress payment request and present it to the City, or return the progress payment request to the Contractor, indicating in writing his reasons for refusing to approve it.

The City will, within thirty (30) days after receipt of the approved progress payment request, pay the Contractor a partial payment on the basis of the approved progress payment request, less the retainage and other deductions pursuant to the terms of these Contract Documents.

The City will retain five (5%) percent of the total amount of partial payments for the work covered by these Contract Documents until substantial completion. After the work is accepted as substantially complete, the City, at its sole discretion and with the full knowledge and consent of the Contractor's surety, may reduce the retainage to an amount sufficient, in the Engineer/Architect's opinion, to complete the work should the Contractor default. A cash bond or an irrevocable letter of credit, provided by the Contractor and satisfactory to the City Attorney, may be accepted by the City in lieu of all or part of the cash retainage specified herein.

It is understood and agreed that the approval of the progress payment request and the paying of a partial payment shall not be construed as acceptance of any work, materials, or products and shall not relieve the Contractor in any way from his responsibilities and obligations under these Contract Documents.

A partial payment will not be made when, in the judgment of the City or the Engineer, the work is not proceeding in accordance with any of the provisions of these Contract Documents.

- 8.5 Retainage Held as Security. Notwithstanding any other provision of this Contract to the contrary, in the event the City shall have reasonable grounds to suspect that:
- (a) The Contractor or associated person has breached the Affidavit of No Collusion contained in these Contract Documents or has breached such an affidavit in any other contract which Contractor may have with City; or
 - (b) The Contractor or associated person has violated or participated in a violation of the Sherman Act (15 U.S.C. Sec. 1-2), or the Racketeer Influenced and Corrupt Organizations Act (18 U.S.C. Sec. 1961-1968), or the Hobbs Act (18 U.S.C. Sec. 1951), or the mail or wire fraud statutes (18 U.S.C. Sec. 1341, 1343), the false statements statement (18 U.S.C. Sec. 1001), or other similar provision of Federal or State law in connection with this Contract or with any other contract which the Contractor or associated person has, had, or shall have with the City (including without limitation the submission of bids on such a contract); then the City shall have the right to withhold and retain any retainage described in this section as security for any damage claim arising from such action.

For purposes of this section, the term "associated person" shall include (a) in the case of a corporation: the corporation, its officers, directors, shareholders, employees and agents, and its parents, subsidiaries or affiliates, whether in existence at the time of the violation or subsequently formed or acquired; (b) in the case of a partnership or joint venture: the partnership or joint venture, its general or limited partners and joint venturers, its

officers, employees and agents; and (c) in the case of a sole proprietorship: the individual proprietor, and his employees and agents. Where a partner or joint venturer is a corporation, the partnership or joint venture shall have attributed to it the actions of persons attributable to the corporation under paragraph (a) of this subsection.

The City shall promptly notify the Contractor in writing of the exercise of its right to retain such amounts. In the event the work is more than fifty (50%) percent complete and the City has reduced its retainage to five (5%) percent, then following such notice the City shall thereafter retain ten (10%) percent from progress payments.

The City shall have the right to retain such funds until the City's damage claims are finally determined. The claim shall be "finally be determined" when a court of competent jurisdiction enters judgment on the merits of any claim made for damages by the City (unless City appeals that judgment, in which event, when the appeal is decided). In the event that City voluntarily waives his damage claim by written instrument signed on City's behalf, then such claim shall be "finally determined" at the time such waiver is effective. City covenants that it will commence an action for damages with respect to its damage claim as soon as practicable after it exercises its right for retaining such amounts for the causes set forth in this paragraph.

In the event such a claim is finally determined in favor of City, any amount of retainage for such claim shall be applied to satisfy the judgment. Any excess of retainage hereunder over the amount of such judgment, or in the event that a damage claim is finally determined in favor of Contractor or its associated person, the amount shall be promptly paid to Contractor, together with interest, at the applicable rate for post-judgment interest set forth in T.C.A. Sec. 47-14-121, provided that interest shall not be paid upon amounts which City could have otherwise properly retained under other provisions of this Contract.

Any claim, dispute, or other matter arising out of or relating to City's retention of payment for a damage claim under this section shall not be subject to arbitration. The City's failure to retain all or a portion of any payment due under this Contract pursuant to this section, even if grounds for such retention exists, shall not constitute a waiver of any of City's rights under this section.

- 8.6 Final Payment. Upon completion of the work and after final acceptance of the work by the City, the Engineer will be authorized to prepare a final estimate of the work performed by the Contractor under these Contract Documents and to prepare a final payment request. Preparation of the final estimate and final payment request will not be authorized until the affidavits, releases of liens, certificate of occupancy issued by City of East Ridge Inspection Department and other statements and certifications required of the Contractor under these Contract Documents have been received by the City. The Contractor shall also file the Notice of Completion with the appropriate office at the Hamilton County Tennessee Courthouse. The Engineer will submit to the City the final estimate and the final payment request, together with a certification stating that the work is complete and in substantial conformance with these Contract Documents. The entire balance found to be due the Contractor, including retained percentages, but except such

sums as may be retained under any provisions of these Contract Documents, will be paid to the Contractor.

Final payment to the Contractor by the City shall not serve to release the Contractor or his sureties from their obligations or responsibilities under or in connection with these Contract Documents.

8.7 Acceptance of Final Payment as Release. The acceptance by the Contractor of final payment shall be and shall operate as a release to the City of all claims and all liability to the Contractor other than claims in stated amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with the work under these Contract Documents and for every act and neglect of the City and others relating to or arising out of this work.

8.8 Contractor's Schedule of Values. If the Contract is based on a lump sum bid, or contains one or more lump sum items for which progress payments are desired, the Contractor shall prepare and submit to the Engineer a schedule of values covering each lump sum item. The schedule of values, showing the value of each kind of work, shall be acceptable to the Engineer before any progress payment estimate and progress payment request are prepared. Such items as bond premium, temporary construction facilities, and plant may be listed separately in the schedule of values, provided the costs can be substantiated.

The sum of the items listed in the schedule of values shall equal the contract lump sum price(s). Overhead and profit shall not be listed as separate item.

An unbalanced schedule of values providing for overpayment of the Contractor on items of work which would be performed first will not be accepted. The schedule of values shall be revised and resubmitted until acceptable to the Engineer.

8.9 Changes/Extra Work for Lump Sum Contracts. The basis for payment for alterations on additions or extra work or decrease in scope of work shall be based on the Schedule of Values provided by the Contractor under para. 8.8 (above) or may be based upon the latest publication "Bid Data on Current Municipal Works." The maximum payment shall not be greater than an average of Contractor's Schedule of Values and the publication's average of the lowest bids.

SECTION 9. MISCELLANEOUS SPECIAL PROVISIONS

9.1 Use of Work by City. Prior to substantial completion, the City may use any completed or substantially completed portions of the work, provided that such use will not substantially affect the Contractor's rights and obligations under the contract. It is understood and agreed that said use shall not constitute an acceptance of any such portions of the work.

The City, or another Contractor under contract to the City, shall have the right to enter the premises for the purpose of doing work not covered by these Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility

for the care and protection of the work, or the restoration of any damaged work except such as may be caused by agents, employees, or other contractors of the City.

- 9.2 Inspection by Public Agencies. Authorized representatives of the Environmental Protection Agency, Department of the Interior, Tennessee Department of Public Health, and other governmental agencies having jurisdiction over the work or any part thereof shall have access to the work and any records relevant to the prosecution and progress of the work. The Contractor shall provide proper facilities for such access and inspection.
- 9.3 Chemicals. All chemicals used during project construction, or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with the manufacturer's or Engineer's instructions.
- 9.4 Siltation and Bank Erosion. The Contractor shall take necessary steps to minimize siltation and soil erosion during construction to the satisfaction of the Engineer.
- 9.5 Contractor Licensing Act. The "Contractor Licensing Act of 1976," as amended, T.C.A. Sec. 62-6-101, et seq, in its entirety is to be considered a part of these Contract Documents and incorporated herein as though specifically set forth. Copies of this Act can be obtained from the Contractor's Licensing Board, Nashville, Tennessee. Among other provisions, this Act requires that any contractor undertaking to construct, erect, alter, or repair any structure or municipal work, including sewerage and drainage systems, highways, roads, bridges, and similar structures or projects where the cost of the completed work will be equal to or in excess of Fifty Thousand (\$50,000.00) Dollars shall be licensed as required by the Act. Subcontracts involving Fifty Thousand (\$50,000.00) Dollars or more of electrical work, plumbing work, masonry work, or heating, ventilating or air conditioning work must be done by licensed contractors. The Contractor is required to be a licensed general contractor, and where required by the Act, subcontractors must be licensed.
- 9.6 Hindrances and Delays. The Contractor expressly agrees that the construction period named in these Contract Documents includes allowance for all hindrances and delays incident to the work. It is understood and agreed that no claim shall be made by the Contractor for hindrances or delays from any cause during the progress of the work, except as provided otherwise under the terms of these Contract Documents.
- 9.7 Losses from Natural Causes. It is understood and agreed that all loss or damage arising out of the nature of the work, or from the action of the elements, or from floods or overflows, or from ground water, or from seepage, or from any unusual obstruction or difficulty, or from any other natural or existing circumstance either known or unforeseen, which may be encountered in the prosecution of the work, shall be sustained and borne by the Contractor at his own cost and expense.
- 9.8 New Job Opportunities. The Contractor shall, to the maximum extent practicable, follow hiring and employment practices that will insure the availability of new job opportunities

for unemployed and underemployed persons. The Contractor shall insert, or cause to be inserted, a similar provision in each contract with Subcontractors or Suppliers.

END OF DOCUMENT

EQUAL EMPLOYMENT OPPORTUNITIES SPECIFICATIONS

Following is the standard language which must be incorporated into all solicitations for offers and bids on all construction contracts or subcontracts in excess of \$10,000 to be performed in designated geographical areas:

"Minority" includes:

- a. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
- b. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
- c. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
- d. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

END OF DOCUMENT

EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

The City of East Ridge is an equal opportunity employer and during the performance of this contract, the Contractor agrees to abide by the equal opportunity goals of the City of East Ridge as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following:
Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. In all construction contracts or subcontracts in excess of \$10,000 to be performed for the City of East Ridge, any Contractor and/or subcontractor is further required to file in duplicate within ten (10) days of being notified that it is the lowest responsible bidder, an affirmative action plan with the EEO Director of the City of East Ridge. This plan shall state the Contractor's goals for minority and women utilization as a percentage of the work force on this project.
5. This Plan or any attachments thereto shall further provide a list of employees annotated by job function, race and sex who are expected to be utilized on this project. This plan or attachment thereto shall further describe the methods by which the Contractor or subcontractor will utilize to make good faith efforts at providing employment opportunities for minorities and women.
6. The Contractor will include the portion of the sentence immediately preceding Paragraph 1 and the provisions of Paragraphs 1 through 6 in every subcontract so that such provisions will be requested of each subcontractor. The Contractor agrees to notify the City of East Ridge of any subcontractor who refuses or fails to comply

with these equal opportunity provisions. Any failure or refusal to comply with these provisions by the Contractor and/or subcontractor shall be a breach of this contract.

END OF DOCUMENT

PROGRESS PAYMENT REQUEST

PAY ESTIMATE NUMBER: _____

PERIOD: FROM _____ **TO** _____

CONTRACT NUMBER: _____

P.O. NUMBER: _____

PROJECT NAME: _____

SUBMITTED BY: _____

According to the best of our knowledge and belief, we certify that all items and amounts shown on the face of this periodic estimate for partial payment are correct, that all work has been performed and/or materials supplied in full accordance with the requirements of the referenced contract, and/or duly authorized deviations, substitutions, alterations, and/or additions that the foregoing is a true and correct statement of the contract account up to and including the last day of the period covered by this periodic estimate and that no part of the Balance Due in this payment has been received.

As per contract specification requirements we understand and agree that the approval of this progress payment shall not be construed as acceptance of any work, material, or products and shall not relieve us in any way from our responsibilities and obligations under this contract, including but not limited to, a final reconciliation of quantities and related costs.

TOTAL INVOICE AMOUNT _____

RETAINAGE WITHOLDING _____

NET AMOUNT DUE _____

SIGNED BY _____

SIGNATURE _____

DATE: _____

TITLE _____

APPROVALS

I certify that the above process payment request appears to be accurate and is in general compliance with the amount of work completed during progress payment period.

REVIEWED BY _____
(Print Name)

(Print Name)

**SIGNATURE
& DATE**

TITLE _____
Inspector

Engineer

APPROVED FOR PAYMENT

BY: _____

DATE: _____

CITY OF EAST RIDGE

General Conditions

SECTION 01010
SUMMARY OF WORK

PART 1 – GENERAL

1.1 Section Includes

- A. Description of Work
- B. Items regulating the execution of the Work

1.2 Description of the Work

The scope of work shall consist of the following major elements including but not limited to the following:

Street Improvements Project: Furnishing all labor and material for asphaltic concrete surface overlay, milling and leveling, full depth pavement removal and replacement of various areas, prime coat and tack coat, sawcutting where required, asphalt curb, pavement markings, limited drainage repairs/replacements, and any incidentals required to complete construction.

- A. The City Engineer reserves the right to substitute, add, delete, increase, decrease in any form or fashion as necessary the scope of work under the provisions of this Contract, including the projects noted above.
- B. This project shall be assigned a unique project number by the Engineer. The Contractor shall execute this project in complete compliance with the requirements of this contract. All records of the Contractor shall conspicuously identify them to be associated with the unique project number assigned by the Engineer.
- C. The work covered under this project shall consist of furnishing all materials, equipment and labor for the full depth replacement of designated areas of streets including but not limited to mobilization, public notification, placement of traffic control devices per MUTCD, cleaning and conditioning of the roadways, repair of base failures as needed, the adjustment of sanitary manholes and other publicly owned structures as required, milling and resurfacing as directed, grading, compaction, saw cutting, and placement of temporary and permanent pavement markings as required.
- D. The Engineer shall provide a set of standard City details, as needed, which shall be applicable to this project. The Contractor shall be called in for a Pre-Construction meeting at which time the Engineer shall issue notice to proceed.

Unless otherwise agreed to, the Contractor shall have ten (10) days from the date of the Notice to Proceed to begin the work.

1.3 Items regulating the Execution of the Work.

A. Attention to Work

For this project, the Contractor shall give his personal attention to and shall supervise the work to the end that it shall be prosecuted faithfully; and, when he is not personally present on the work, he shall at all times be represented by a competent superintendent or foreman who shall be present at the work and who shall receive and obey all instruction or orders given under this Contract, and who shall have full authority to execute the same, and to supply materials, tools and labor without delay, and who shall be the legal representative of the Contractor. The Contractor shall be liable for the faithful observance of any instructions delivered to him or to his authorized representatives.

B. Access to Work

The Contractor shall at all times provide proper facilities for access and inspection of the work by representatives of the Owner and of such official Governmental agencies as may be designated by the Owner as having jurisdictional rights to inspect the work.

C. No Parking Signs

The Contractor shall place "NO PARKING" signs 48 hours prior to beginning work at a project location. The Contractor shall notify the City's designated Inspector/ Project Manager when the signs have been placed and if vehicles have not been moved at such time as work is scheduled to begin. No additional cost shall be paid to the Contractor while the Owner is making arrangements to get the vehicle moved or towed.

D. Work on State Highway

Where the work on this project encroaches upon the right-of-way of any State or Interstate Highway right-of-way, the owner will execute a contract with proper authorities for the proposed work.

The Contractor shall notify the proper authorities prior to entering upon such right-of-way and shall be responsible for all damage and for satisfying the requirements of these authorities.

E. Work on Private Property

Where the work on this project encroaches upon private property, the Owner shall provide easements and/or right-of-entry in or onto said property. Work performed in such easements is subject to the provisions of the easement agreement on file with the City of East Ridge.

The Contractor shall be responsible for obtaining any additional agreements which may be deemed necessary for the storage of equipment or materials

outside of public easements or rights of ways for this project. The Contractor shall obtain a written agreement between the Contractor and Land Owner and forward it to the Engineer prior to use of said property.

The Contractor shall be responsible for the preservation of and shall use every precaution to prevent damage to all trees, shrubbery, fences, culverts, mailboxes, bridges, pavements, driveways, sidewalks, houses or building and all water, sewer, gas, telephone and electric lines thereto and all other private and public property along or adjacent to the work.

Any damage that occurs will be restored to a like condition as existed prior to construction, in the Contract Documents, unless otherwise indicated or specified.

Forty-eight (48) hours prior to construction on any easement or streets the Contractor shall notify in writing the affected property owners in the area. This notification shall include the Contractor's name and the name and phone number of the contact person.

F. Weekly Job Site Meetings

Once a week, on a date mutually agreed upon by the Contractor and the Engineer, a job site meeting shall be held for review of the Project, including, but not limited to: The construction schedule, traffic control, pending submittals, and any other issues that may arise. This meeting shall be used to review the contractor's monthly applications for payment.

G. Contract Working Hours

All work shall be performed during regular working hours unless mutually agreed upon and approved in writing by the City Engineer. The Contractor will not permit overtime work or the performance of work on Sunday or any legal holiday without the Owner's written consent given after prior 24 hour written notice to the Engineer. Saturday work shall also require prior 24 hour written notice. Regular working hours are Monday through Saturday from 7:00 A.M. to 8:00 P.M. The actual costs of the Owner's and Engineer's inspection of the work performed outside of regular working hours will be billed to the Contractor and deducted from the Contractor's application for payment as they occur.

END OF DOCUMENT

SECTION 01025
UNIT PRICES

1.01 UNIT PRICES

- A. Unit Prices are a price per unit of measurement for complete work based on the units listed in each Unit Price description.
- B. Each Unit Price includes all labor, material, overhead, profit, all applicable taxes, waste and all other incidentals for all Contractors and Subcontractors involved in the Unit Price Work. Bid prices for each unit shown in the bid schedule shall include the cost of any and all incidental work for which unit prices are not otherwise provided for. This includes, but is not limited to, traffic control, replacement of traffic control markings, temporary construction signs and devices, utility ring and cover adjustments, saw cutting, removal and disposal of excavated materials.
- C. The Owner reserves the right to reject the Contractors measurements of work-in-place that involves use of established Unit Prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

END OF DOCUMENT

SECTION 01080
APPLICABLE CODES AND STANDARDS

1.01 GENERAL

A. All materials, equipment, fabrication, and installation practices shall comply with the following applicable codes and standards, except in those cases where the Contractor's quality standards establish more stringent quality requirements, as determined by the Engineer.

1. Pressure Piping and Tubing
ANSI (American National Standards Institute)
API (American Petroleum Institute)
ASME (American Society of Mechanical Engineers)
AWWA (American Water Works Association)
NSF (National Sanitation Foundation)
2. Materials
AASHTO (American Association of State Highway and
Transportation Officials)
ANSI (American National Standards Institute)
ASTM (American Society for Testing and Materials)
3. Painting and Surface Preparation
NACE (National Association of Corrosion Engineers)
SSPC (Steel Structures Painting Council)
4. Gear Reducers and Bearings
AFBMA (Anti-Friction Bearing Manufacturers Association)
AGMA (American Gear Manufacturers Association)
5. Ventilating Fans
AMCA (Air Moving and Conditioning Association)
PFMA (Power Fan Manufacturer Association)
6. Electrical and Instrumentation
EIA (Electronic Industries Association)
IEEE (Institute of Electronic Electrical Engineers)
IPC (Institute of Printed Circuits)
IPCEA (Insulated Power Cable Engineers Association)
ISA (Instrument Society of America)
NEMA (National Electrical Manufacturers Association)
NFPA (National Fire Protection Association)
UL (Underwriter's Laboratories)
7. Aluminum Structures
AA (Aluminum Association)

AAMA (Architectural Aluminum Manufacturer's Association)

8. Steel Structures
AISC (American Institute of Steel Construction)
9. Concrete Structures
ACI (American Concrete Institute)
10. Welding
ASME (American Society of Mechanical Engineers)
AWS (American Welding Society)
11. Safety
OSHA (Occupational Safety and Health Administration)
MUTCD (Manual on Uniform Traffic Control Devices)
12. General Building Construction
FM (Factory Mutual Fire Insurance Company)
NFPA (National Fire Protection Association)
SBC (Southern Building Code)
13. Subgrades and Pavement
SSRBC (Standard Specifications for Road and Bridge
Construction, Tennessee Department of Transportation)
14. Ductwork and Sheet Metal Work
SMACNA (Sheet Metal and Air Conditioning Contractors
National Association)
15. Plumbing
AGA (American Gas Association)
NSF (National Sanitation Foundation)
PDI (Plumbing Drainage Institute)
SPC (SBCC Standard Plumbing Code)
16. Refrigerating, Heating, and Air Conditioning
ARI (American Refrigeration Institute)
ASHRAE (American Society of Heating, Refrigeration, and
Air Conditioning Engineers)
17. Pressure Vessels
ASME (American Society of Mechanical ENGINEERS)

In addition, all work shall comply with the applicable requirements of local codes, utilities, and other authorities having jurisdiction.

- B. All material and equipment, for which a UL Standard, an AGA approval, or an

ASME requirement is established, shall be so approved and labeled or stamped. Label or stamp shall be conspicuous and not covered, painted, or otherwise obscured from visual inspection.

END OF DOCUMENT

SECTION 01090 ABBREVIATIONS

1.01 GENERAL

Wherever in these Specifications and Contract Documents the abbreviations, or pronouns in place of them are used, the intent and meaning shall be interpreted as specified herein.

1.02 ABBREVIATIONS

AA	- Aluminum Association
AAMA	- Architectural Aluminum Manufacturer's Association
AASHTO	- American Association of State Highway and Transportation Officials
ACI	- American Concrete Institute
ACPA	- American Concrete Pipe Association
AEIC	- Association of Edison Illuminating Companies
AFBMA	- Anti-Friction Bearing Manufacturers Association
AGA	- American Gas Association
AGMA	- American Gear Manufacturers Association
AIA	- American Institute of Architects
AIEE	- American Institute of Electrical Engineers
AISC	- American Institute of Steel Construction
AITC	- American Institute of Time Construction
ANSI	- American National Standards Institute
AMCA	- Air Moving and Conditioning Association
APA	- American Plywood Association
APHA	- American Public Health Association
API	- American Petroleum Institute
APWA	- American Public Works Administration
ARC	- Appalachian Regional Commission
AREA	- American Railroad Engineering Association
ASA	- American Standards Association
ASCE	- American Society of Civil Engineers
ASHRAE	- American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	- American Society of Mechanical Engineers
ASTM	- American Society for Testing and Materials
AWS	- American Welding Society
AWWA	- American Water Works Association
CFR	- Code of Federal Regulations
CRSI	- Concrete Reinforcing Steel Institute
CTI	- Cooling Tower Institute
DEMA	- Diesel Engine Manufacturers Association
EDA	- Economic Development Administration
EPA	- Environmental Protection Agency
FmHA	- Farmers Home Administration

FS	- Federal Specifications
HEI	- Heat Exchange Institute
IEEE	- Institute of Electronic and Electrical Engineers
IES	- Illuminating Engineering Society
IPCEA	- Insulated Power Cable Engineers Association
IPC	- Institute of Printed Circuits
ISA	- Instrument Society of America
MBMA	- Metal Building Manufacturers Association
MSS	- Manufacturers Standardization Society of the Valve and Fitting Industry
MUTCD	- Manual on Uniform Traffic Control Devices
NAAMM	- National Association of Architectural Metal Manufacturers
NACE	- National Association of Corrosion Engineers
NBFU	- National Board of Fire Underwriters
NBS	- National Bureau of Standards
NCPI	- National Clay Pipe Institute
NEC	- National Electric Code
NEMA	- National Electrical Manufacturers Association
NFPA	- National Fire Protection Association
NRMA	- National Ready-Mix Association
OSHA	- Occupational Safety and Health Administration
PCA	- Portland Cement Association
PCI	- Prestressed Concrete Institute
SBC	- Southern Building Code
SMACNA	- Sheet Metal and Air Conditioning Contractors National Association
SSPC	- Steel Structures Painting Council
TCA	- Tile Council of America
TDEC	- Tennessee Department of Environment and Conservation
TEMA	- Tubular Exchangers Manufacturers Association
UBC	- Uniform Building code
UL	- Underwriters Laboratories
USDC	- United States Department of Commerce
WBCF	- Water Pollution Control Federation

END OF DOCUMENT

SECTION 01300

SUBMITTALS

1.01 EQUIPMENT DELIVERY AND CONSTRUCTION SCHEDULE

No later than ten (10) consecutive calendar days after the issuance of the "Notice to Proceed," the Contractor shall submit to the ENGINEER for review a detailed schedule of major equipment delivery and installation and general construction operations, indicating the sequence of the work, the estimated dates of starting each task, and the estimated time of completion of each task. The form and content of the schedule shall be satisfactory to the ENGINEER.

1.02 SHOP DRAWINGS AND PRODUCT DATA

- A. The Contractor shall submit to the ENGINEER for review, for design concept, complete drawings and ENGINEERING data for all equipment, materials, and products to be incorporated into the work. Shop drawings and engineering data shall be provided and the ENGINEER'S review will be conducted in accordance with the requirements of the General Provisions. Shop drawings and/or engineering data, as appropriate, shall be submitted for the following items, including, but not limited to:
1. Miscellaneous iron castings and gratings, manhole frames and covers, curb inlets, manhole steps.
 2. All concrete and masonry accessories and steel reinforcement, including bending diagrams and bar schedules, ties, spreaders, chairs, inserts, form coatings, waterstops, curing and sealing compounds, and epoxy bonding agents.
 3. Premixed grouts and mortars.
 4. All paints and protective coatings.
 5. Portland Cement Concrete design mix for Class A and Class B Concrete.
 6. Paving mix design inclusive of sieve analysis and bituminous content.
- B. Shop drawings and engineering data for equipment supplied as a pre-engineered or pre-assembled system shall include complete shop drawings and engineering data on each component of that system. In all cases, the information provided shall be sufficient to determine if the material or product conforms with the requirements of the specifications.
- C. Shop drawings and engineering data shall be prepared by the original equipment vendors or fabricators, as applicable. Purchased specifications by the

Contractor or his Supplier shall not be acceptable as a substitute for actual vendor drawings and data.

- D. All shop drawings shall include a legend or other suitable means to identify all symbols and abbreviations used on the drawing. Where an accepted, industry-wide drafting symbol or standard has been established for a particular item, information depicted on the shop drawings shall conform to that standard.
- E. Shop drawings shall be dimensioned using the U.S. standard unit of measurement (feet and/or inches). Size of drawing shall not exceed 24 inches by 36 inches. All scaled drawings and details shall have the scale clearly noted on the drawing or detail. All information shall be clear and legible.
- F. Each shop drawing and each item of engineering data shall bear the Contractor's APPROVED stamp indicating that the Contractor has reviewed the drawing or data for conformance with the Contract Documents.
- G. All design calculations and drawings for foundation and footings, sheeting and shoring, and concrete formwork shall bear the signed and dated stamp of a licensed professional engineer.

1.03 SCHEDULE OF WORK

Contractor shall submit a SCHEDULE OF WORK in sequential order by dates in which he expects to perform the contract specifying the areas or locations in the order the work is anticipated beginning with work commencement date.

1.04 SAMPLES

At the ENGINEER'S request, the Contractor shall furnish certified samples of materials utilized in the fabrications or production of equipment, materials and products supplied under these Contract Documents. Cost of all such samples shall be borne by the Contractor. The samples will be tested by a qualified, independent, testing laboratory selected by the OWNER to determine if the mechanical and chemical properties of the materials supplied are in accordance with the requirements of these Specifications and Contract Documents. The OWNER shall pay for the laboratory testing of material samples provided by the Contractor. The Contractor shall pay for all retests made necessary by the failure of materials to conform to the requirements of these Specifications and Contract Documents.

1.05 SCHEDULES, REPORTS AND RECORDS

- A. The Contractor shall submit to the Engineer such schedule of quantities and costs, progress schedules, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the Work to be performed.

Prior to the first partial payment estimate, the Contractor shall submit construction schedules showing the order in which the Contractor proposes to carry on the Work, including dates, at which the various parts of the Work will be started, estimated date of completion of each part, and, as applicable:

1. The dates on which special detail drawings will be required. Submittal must allow sufficient time for review by the Engineer. Final approval must be obtained prior to commencement of construction of that portion of work to which they pertain.
 2. Respective dates for submission of shop drawings, the beginning of manufacture, the testing and the installation of materials, supplies, and equipment.
- B. The Contractor shall also submit a schedule of payments that the Contractor anticipates will be earned during the course of the Work.

END OF DOCUMENT

SECTION 01700

CLEANING

1.01 GENERAL

This section covers the general cleaning which the Contractor shall be required to perform during the construction process and a thorough cleaning before final acceptance of the project unless otherwise shown on the Drawings or specified elsewhere in these Specifications.

1.02 HAZARD CONTROL

- A. The Contractor shall store volatile wastes in covered metal containers and remove from premises daily.
- B. The Contractor shall prevent accumulation of wastes which create hazardous conditions.
- C. Burning or burying rubbish and waste materials on the site shall not be allowed.
- D. Disposal of volatile wastes into sanitary or storm sewers shall not be allowed.
- E. Contractors shall control dust on streets, and remove debris, dust and etc. from all properties during the construction process.

1.03 DISPOSAL OF SURPLUS MATERIALS

- A. Unless otherwise shown on the Drawings specified or directed, the Contractor shall dispose of all surplus excavated materials and materials and equipment from demolition, legally off the site, and shall provide his own suitable, off-site spoil area or on a site designated by the OWNER.
- B. The OWNER shall have the opportunity to inspect any equipment or materials removed prior to disposal by the Contractor. If said equipment and/or materials are determined to be salvageable by the OWNER, the Contractor shall transport said equipment and material to a building or area designated by the OWNER.

1.04 FINAL CLEANING

- A. Schedule cleaning operations so that dust and other contaminants resulting from the cleaning process will not fall on wet, newly painted surfaces.
- B. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as needed basis until building is ready for substantial completion or occupancy.

- C. Employ experienced workmen or professional cleaners for final cleaning.
- D. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces and of concealed spaces.
- E. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- F. Repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces.
- G. Broom clean paved surfaces; rake clean other surfaces of ground.
- H. Remove snow and ice for access to building.
- I. Replace air conditioning filters if units were operated during construction.
- J. Clean ducts, blowers, and coils if air conditioning units were operated without filters during construction.
- K. Maintain cleaning until project or portion thereof is occupied by OWNER.

END OF DOCUMENT

SECTION 01730

GUARANTEES AND WARRANTIES

1.01 GENERAL WARRANTY

- A. The Contractor shall warrant all equipment, materials, products, and workmanship provided by the Contractor under these Contract Documents for a period of twelve (12) months after the date of final acceptance of the work by the OWNER.
- B. If, during the warranty period (a) any equipment, materials or products furnished and/or installed by the Contractor are found to be defective in service by reason of the Contractor's faulty process, structural and/or mechanical design or specification, or (b) any equipment, materials, or products furnished and/or installed by the Contractor are found to be defective by reason of defects in material or workmanship, the Contractor shall, as soon as possible after receipt of written notice from the OWNER, repair or cause to be repaired such defective equipment, materials or products, or replace such defective equipment, materials, or products.
- C. In the event of multiple equipment failures of major consequence prior to the expiration of the one-year warranty described above the affected equipment shall be disassembled, inspected, and modified or replaced as necessary to prevent further occurrences. All related components which may have been damaged or rendered non-serviceable as a consequence of the equipment failure shall be replaced. A new twelve (12) month warranty against defective or deficient design, workmanship, and materials shall commence on the day that the item of equipment is reassembled and placed back into operation. As used herein, multiple equipment failures shall be interpreted to mean two (2) or more successive failures of the same kind in the same item of equipment or failures of the same kind in two (2) or more items of equipment. Major equipment failures may include, but are not limited to, cracked or broken housings, piping, or vessels, excessive deflections, bent or broken shafts or structural members, broken or chipped gear teeth overheating, premature bearing failure, excessive wear, or excessive leakage around the seals. Equipment failures which are directly and clearly traceable to operator abuse, such as substitution of unauthorized replacement parts, use of incorrect lubricants or chemicals, flagrant over or under lubrication and using maintenance procedures not conforming with published maintenance instructions, shall be exempted from the scope of the one-year warranty. Should multiple equipment failures occur in a given item or type of equipment, all equipment of the same size and type shall be disassembled, inspected, modified or replaced, as necessary, and re-warranted for one year.
- D. Neither the foregoing paragraphs nor any provision in the Contract Documents, nor any special guarantee time limit implies any limitation of the Contractor's liability with the law of the place of Construction.

E. Submit guarantees for manufactured materials or units used in this project.

Detailed Specifications

ITEM 12

ASPHALT PLANT MIX PAVEMENTS (HOT & WARM MIX ASPHALT)

12.01 DESCRIPTION

These Specifications include general requirements that are applicable to all types of asphalt pavements of the plant mix type irrespective of type and gradation of aggregate, type and amount of asphalt cement, and/or pavement use. Deviations from these general requirements shall be indicated in the specific requirements for each mix type.

This work shall consist of one or more courses of asphalt mixture constructed on the prepared foundation in accordance with these Specifications and the specific requirements of the mix type under contract, and in reasonably close conformity with the lines, grades, typical cross-sections, and application rate or thickness shown on the Plans or established by the Engineer.

Warm-Mix Asphalt (WMA) shall be the primary paving material. Conventional Hot-Mix Asphalt (HMA) may be an optional paving material for specific projects as directed by the Engineer.

WMA supplied for this project shall comply with the most current Tennessee Department of Transportation (TDOT) WMA specifications as described in the Section 400 and 900 series of specifications and applicable supplemental specifications. WMA may be produced by one or a combination of several technologies involving HMA plant foaming processes and equipment, mineral additives, or chemicals that allow the reduction of mix production temperatures to within 185°F to 275°F. (Note: The upper temperature range is appropriate for modified asphalt cements and WMA mixtures that include higher percentages of recycled asphalt pavement).

12.02 MATERIALS

The individual materials shall meet the applicable requirements in the following table, Item Required Contract Provision, or as described in these Specifications:

Material	TDOT Section
Prime Coat	402
Tack Coat	403
Aggregates	903
Mineral Filler	903
Asphalt Cement	904

The mineral aggregates [virgin and Recycled Asphalt Pavement (RAP)] shall be accepted for quality at the paving plant stockpile. The aggregates shall be accepted for gradation

immediately preceding addition of asphalt cement at the plant. This acceptance shall be based on periodic sampling of:

1. Aggregate taken as they are weighed from the bins,
2. Combined aggregate as it is fed to the plant, and/or
3. Batches to which the asphalt cement has not been added.

Performance Graded Asphalt Cement shall be approved from the source by submission of a Certification Letter that confirms the type and quality properties for each asphalt cement supplied for the project meet the minimum requirements set forth in ASTM D6373. The plant mixed material shall be accepted after blending and mixing at the plant.

12.03 COMPOSITION OF MIXTURES

The asphalt plant mix shall be composed of a mixture of aggregate (virgin and RAP), filler (if required), and asphalt cement. Prior to blending, RAP shall be fractionated in order to ensure proper asphalt mix gradation control and shall be limited to less than or equal to 40-percent ($\leq 40\%$) of the aggregate blend. The aggregate fractions shall be sized, uniformly graded, and blended in such proportions that the resulting mixture meets the grading requirements of the Job-Mix Formula (JMF). The asphalt cement shall meet the specifications for PG 64-22 (ASTM D6373) unless otherwise specified by the Engineer.

The Contractor shall submit for the Engineer's approval a JMF for each asphalt mixture to be supplied for the project. The asphalt mixtures shall be proportioned to meet the following:

Asphalt Mix Property	Compacted Asphalt Mat Thickness (inches)					
	0.5	1.0	1.5	2.0	2.5	3.0
Design Method	50-Blow Marshall Mix Design @ 4% Air Voids					
Maximum Nominal Aggregate Size (inches)*	3/8	3/8	1/2	1	1¼	1½
Minimum Voids in the Mineral Aggregate (%)	15	15	14	12	12	11
Marshall Stability (lbs)	2,000	2,100	2,100	2,100	2,100	2,100

* - Nominal Aggregate Size as "**one sieve size larger than the first sieve to retain more than 10 percent of the material**"

The JMF shall establish the following target values for each:

1. Aggregate percentage passing each required sieve size, including fractionated RAP, if used.
2. Residual asphalt percentage contributed by RAP, if used.
3. Asphalt cement percentage to be added to the aggregate.
4. Optimum temperature at which the mixture is to be discharged from the plant.

Once approved, JMFs shall be in effect until modified in writing by the Engineer. After the JMF is established, all mixtures furnished for the project shall conform within the following tolerance ranges:

- Aggregate passing 3/8-inch sieve and larger +/- 7 percent
- Aggregate passing No. 4 sieve +/- 5 percent
- Aggregate passing No. 8 to No. 50 sieves inclusive +/- 4 percent
- Aggregate passing No. 100 and No. 200 sieve +/- 2 percent
- Asphalt Cement +/- 0.4 percent
- Mix Temperature +/- 20 degrees F

Should a change in materials source be made, a new JMF shall be established before the new material is used. When unsatisfactory results or other conditions make it necessary, the JMF shall be adjusted to the satisfaction of the Engineer.

12.04 EQUIPMENT

12.04.01 ASPHALT MIXING PLANT

Sufficient storage space shall be provided for each aggregate size. The different sizes shall be kept separated until they have been delivered to the cold elevator or belt feeding the dryer. The storage yard shall be maintained neat and orderly, and the separate stockpiles shall be readily accessible for sampling.

Plants used for the preparation of asphalt mixtures shall conform to all requirements under 12.04.01 (a). In addition, batch mixing plants shall conform to the requirements under 12.04.01 (b), and continuous mixing plants shall conform to the requirements under 12.04.01 (c).

12.04.01(a) REQUIREMENTS FOR ALL PLANTS

Mixing plants shall be of sufficient capacity and so coordinated to adequately handle the proposed asphalt construction.

1. Equipment For Preparation Of Asphalt Material

Tanks for the storage of asphalt materials shall be equipped to heat and hold the material at the required temperatures. The heating shall be accomplished by approved means so that no flame shall be in contact with the tank. The circulating system for the asphalt material shall be designed to assure proper and continuous circulation during the operating period. Provisions shall be made for measuring and sampling the contents of storage tanks.

2. Feeders For Dryer

Separate feeders shall be provided for each size aggregate, and each size shall be fed onto the belt going to the dryer by mechanical feeders with separate adjustable gates. The feeders shall be capable of delivering the separate aggregates onto the belt in proper proportions and shall be provided with adjustment for total feed and proportional feed and be capable of being locked.

Adequate means shall be provided to assure a constant and uniform flow of material from each bin.

The Contractor shall not be permitted to blend or mix different aggregates or different sizes of the same aggregate with clam shells, bulldozers, high lifts or similar equipment.

The aggregate shall be fed uniformly into the dryer so that a uniform production and uniform temperature may be obtained.

3. Dryer

The plant shall include a dryer or dryers which agitate the aggregate continuously during the heating and drying process. It shall be capable of heating and drying all aggregates to the temperature required and shall be capable of supplying the mixing unit continuously at its operating capacity. Dryers shall be constructed and operated so that aggregates are not contaminated with unburned fuel.

4. Screens

Plant screens, capable of screening all aggregates to the specified sizes and proportions and having normal capacities in excess of full capacity of the mixer, shall be provided.

A consistent carry-over, but not to exceed 30 percent, shall be allowed on any screen. If any bin contains more than 20 percent of material which is undersized for that bin, the bin shall be drawn and correction of the cause for such condition shall be made.

5. Bins

The plant shall include storage bins of sufficient capacity to supply the mixer when it is operating at full capacity. Bins shall be arranged to assure separate and adequate storage of appropriate fractions of the mineral aggregates. Each bin shall be provided with overflow pipes of such size and at such location as to prevent backing up of material into other compartments or bins. Each compartment shall be provided with an outlet gate constructed so that when closed, there shall be no leakage. The gates shall cut off quickly and completely. The bins shall be constructed to provide adequate and convenient approved facilities for obtaining representative samples of aggregate from

the full flow of each compartment. When mineral filler is used, separate dry storage shall be provided, and the plant shall be equipped to feed the filler into the mixer.

6. Asphalt Control Unit

Satisfactory means, either by weighing or metering, shall be provided to obtain the proper amount of asphalt material in the mix within the tolerance specified. Means shall be provided for checking the quantity or rate of flow of asphalt material into the mixer.

7. Thermometric Equipment

An armored thermometer of adequate range in temperature reading shall be fixed in the asphalt feed line at a suitable location near the charging valve at the mixer unit. The plant shall also be equipped with an approved thermometric instrument so placed at the discharge chute of the dryer, as to register automatically or indicate the temperature of the heated aggregates.

If temperatures are not regulated satisfactorily, the Engineer may require the installation of an approved temperature recording and regulating apparatus for better control of the temperature of the aggregates.

8. Dust Collector

The plant shall be equipped with a dust collector constructed to waste or return uniformly to the hot elevator all or any part of the material collected, as directed.

9. Safety Requirements

Adequate and safe stairways to the mixer platform and sampling points shall be provided, and guarded ladders to other plant units shall be placed at all points where accessibility to plant operations is required. Accessibility to the top of truck bodies shall be provided by a platform or other suitable device to enable the Engineer to obtain samples and mixture temperature data. A hoist or pulley system shall be provided to raise scale calibration equipment, sampling equipment and other similar equipment from the ground to the mixer platform and return. All gears, pulleys, chains, sprockets, and other dangerous moving parts shall be thoroughly guarded and protected. Ample and unobstructed space shall be provided on the mixing platform. A clear and unobstructed passage shall be maintained at all times in and around the truck loading area. This area shall be kept free from drippings from the mixing platform.

12.04.02 (b) REQUIREMENTS FOR BATCHING PLANTS

1. Plant Scales

Dial scales shall be provided for weighing of all aggregates and mineral filler, in the suspended weigh box. Dial scales shall be of a standard make and of sufficient size that the numerals on the dial can be read at a distance of 25 feet. The dials shall be of the compounding type having a full complement of index pointers. The value of the gradation of scales used in weighing amounts of aggregates of less than 5,000 pounds shall not be greater than five pounds; amounts of aggregates from 5,000 to 10,000 pounds, not greater than 10 pounds; amounts of aggregates in excess of 10,000 pounds, not greater than 0.1 percent of the capacity of the scales. Pointers which give excessive parallax errors shall not be used. All dial scales shall be so located that they will be in plain view of the operator at all times. When asphalt material is measured by weight, the asphalt weigh bucket shall be equipped with a separate dial scale with a minimum gradation not greater than two pounds. All dial scales shall be accurate within a tolerance of 0.5 percent. Vibration shall be eliminated by setting the scales on a separate foundation, if required. Each installation of scales shall be provided with 10 standard 50-pound weights meeting the requirements of the U.S. Bureau of Standards for calibrating and testing weighing equipment. Scales shall be inspected as often as the Engineer may deem necessary to assure their continued accuracy.

The Contractor may provide an approved automatic printer system which will print the weights of the material delivered, provided the system is used in conjunction with an approved automatic batching and mixing control system. Such weights shall be evidenced by a weigh ticket for each load.

2. Weigh Box or Hopper

The equipment shall include a means for accurately weighing each size of aggregate and mineral filler in a weigh box or hopper suspended on scales and of ample size to hold a full batch without hand raking or running over. The gate shall close tightly so that no material is allowed to leak into the mixer while a batch is being weighed.

3. Asphalt Control

The asphalt material bucket shall be a non-tilting type. The length of the discharge opening or spray bar shall be not less than three-fourths the length of the mixer. The asphalt material bucket, its discharge valve or valves, and spray bar shall be adequately heated. Steam jackets, if used, shall be efficiently drainable and all connections shall be so constructed that they will not interfere with the efficient operation of the asphalt scales. The capacity of the asphalt material bucket shall be at least 15 percent in excess of the weight of asphalt material required in any batch. The plant shall have an adequately heated quick-acting, non-drip, charging valve located directly over the

asphalt material bucket. When the asphalt material is metered, the indicator dial shall have a capacity of at least 15 percent in excess of the quantity of asphalt material used in a batch. The meter indicator dial shall have a scale with divisions measuring in gallons equivalent to a weight sensitivity of 0.04 percent of the total batch weight. The meter shall be accurate within a tolerance of 0.5 percent. The controls shall be so constructed that they may be locked at any dial setting and will automatically reset to that reading after the addition of asphalt material to each batch. The dial shall be in full view of the mixer operator. The flow of asphalt material shall be automatically controlled so that it will begin when the dry-mixing period is over. All of the asphalt material required for one batch shall be discharged in not more than 15 seconds after the flow has started. The size and spacing of the spray bar openings shall provide a uniform application of asphalt material the full length of the mixer. The section of the asphalt line between the charging valve, and the spray bar shall be provided with a valve and outlet for checking the meter when a metering device is substituted for an asphalt material bucket.

4. Mixer

The batch mixer shall be an approved twin pugmill type, steam or hot oil jacketed, and shall be capable of producing a uniform mixture within the JMF tolerances. The mixer shall be so constructed as to prevent leakage of its contents. It shall be equipped with a sufficient number of paddles or blades set in the "run around" order and operated at such speed as to produce a properly and uniformly mixed batch. The depth of the material in the pugmill shall not be above the tops of the paddles. If not enclosed, the mixer box shall be equipped with a dust hood to prevent loss of dust.

The clearance of blades from all fixed and moving parts shall not exceed one inch unless the maximum diameter of the aggregate in the mix exceeds 1¼ inches, in which case the clearance shall not exceed 1½ inches.

5. Control of Mixing Time

The mixer shall be equipped with an accurate time lock to control the operations of a complete mixing cycle. It shall lock the weigh box gate after the charging of the mixer until the closing of the mixer gate at the completion of the cycle. It shall lock the asphalt material bucket throughout the dry-mixing period and shall lock the mixer gate through the dry- and wet-mixing periods. The dry-mixing period is defined as the interval of time between the opening of the weigh box gate and the start of introduction of asphalt material. The wet-mixing period is the interval of time between the start of introduction of asphalt material and the opening of the mixer gate. The control of the timing shall be flexible and capable of being set at intervals of five seconds or less throughout a total cycle of up to three minutes. A mechanical batch counter shall be installed as a part of the timing device and shall be so designed as to register only batches that have been mixed for the full time interval. The setting of time intervals shall be performed in the presence of and at the direction of the Engineer, who shall

then lock the case covering the timing device until such time as a change is to be made in the timing periods.

12.04.01(c) REQUIREMENTS FOR CONTINUOUS MIXING PLANTS

1. Aggregate Proportioning

The plant shall include means for accurately proportioning each size of aggregate.

The plant shall have a feeder mounted under each compartment bin. Each compartment bin shall have an accurately controlled individual gate to form an orifice for measuring volumetrically the material drawn from each compartment. Bins shall be equipped with adequate tell-tale devices to indicate the position of the aggregates in the bins at the lower quarter points.

The feeding orifice shall be rectangular with one dimension adjustable by positive mechanical means provided with a lock. Indicators shall be provided for each gate to show the respective gate opening in inches.

Mineral filler shall be fed into the mixer continuously and uniformly in the proportion set out in the JMF, and in a manner satisfactory to the Engineer.

2. Weight Calibration Of Aggregate Feed

The plant shall be equipped with an approved revolution counter in satisfactory working condition. The plant shall include a means for calibration of gate openings by weighing test samples. Provision shall be made so that materials fed out of individual orifices may be bypassed to individual test boxes. The plants shall be equipped to handle conveniently individual test samples weighing not less than 200 pounds. Accurate scales shall be provided by the Contractor to weigh such test samples.

3. Synchronization Of Aggregate Feed And Asphalt Material Feed

Satisfactory means shall be provided to afford positive interlocking control between the flow of aggregate from the bins and the flow of asphalt material from the meter or other proportioning device. This control shall be accomplished by interlocking mechanical means or by any other positive method satisfactory to the Engineer.

4. Mixer

The plant shall include a continuous mixer of an approved twin pugmill type, adequately heated and capable of producing a uniform mixture within the JMF tolerances. The paddles shall be adjustable for angular position on the shafts and reversible to retard the flow of the mix. The mixer shall have a manufacturer's plate giving the net

volumetric contents of the mixer at the several heights inscribed on a permanent gauge. Charts shall be provided showing the rate of feed of aggregate per minute for the aggregate being used. Mixing time shall be sufficient to ensure complete aggregate coating and shall be specified in the JMF.

5. Surge Hopper

The mixer shall be equipped with a discharge hopper with dump gates which will permit rapid and complete discharge of the mixture and of such size and design that no segregation of the mixture occurs.

6. Platform Truck Scales

Platform truck scales shall have a standard brand of scales and shall have a manufacturer's rated capacity equal to or greater than the maximum gross load being weighed. The scale shall be accurate within a tolerance of 0.5 percent, and the value of the minimum gradation on the scale shall not be greater than 50 pounds. When weighing a truck and trailer combination on a scale with a platform not large enough to weigh the entire hauling unit at one time, the approaches at both ends of the scale shall have a level grade at the same elevation as the scale platform for a distance of not less than 50 feet on each end of the scale. The truck and trailer shall be weighed with no brakes set on any wheel. The scale shall be set on concrete or other approved foundations. The recording mechanism of the platform scale shall be housed in a suitable shelter that shall be furnished with adequate light and heat for the convenience of the weigh man. The scale shall be provided, maintained, and repaired at the Contractor's expense.

Scale equipment shall be approved by submission and acceptance of a Certification Letter that documents the date and successful calibration for each applicable scale component to be used on this project. Equipment calibration shall be conducted annually.

12.05 HAULING EQUIPMENT

Trucks used for hauling asphalt mixtures shall have tight, clean, smooth metal beds which have been thinly coated with a minimum amount of paraffin oil lime solution or other approved material to prevent the mixture from adhering to the beds. Each truck shall have a cover of canvas or other suitable material of such size as to protect the mixture from the weather. When necessary, so that the mixture will be delivered on the road at the specified temperature, truck beds shall be insulated and covers shall be securely fastened.

12.06 ASPHALT PAVERS

Asphalt pavers shall be self-contained, power-propelled units, provided with an activated screed or strike-off assembly, equipped to be heated, and capable of spreading and finishing courses of asphalt plant mix material in land widths applicable to the specified typical section and thicknesses shown on the Plans. Materials for shoulders and similar construction shall be placed by means of approved mechanical spreading equipment.

The paver shall be equipped with a receiving hopper having sufficient capacity for a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed.

The screed or strike-off assembly shall produce effectively a finished surface of the required evenness and texture without tearing, shoving or gouging the mixture. The paver shall be equipped with adjustable hydraulic screed extensions.

When placing mixtures, the paver shall be capable of being operated at forward speeds consistent with satisfactory placement of the mixture.

All asphalt paving machines shall be equipped with automatic grade and slope controls. Both the grade and slope controls shall be in working order at all times, except that in the event of mechanical failure of the automatic controls, the Contractor shall be permitted to finish the day's work using manual controls but will not be allowed to resume work the following day until both the grade and slope controls are in first class working order.

12.07 ROLLERS

Rollers shall be of self-propelled steel-wheel and pneumatic-tire types and shall be in good condition, capable of reversing without backlash, and shall be operated at speeds slow enough to avoid displacement of the asphalt mixture. The rollers shall be of the number and weights required to compact the mixture to the specified density while it is still in a compactable condition. The use of equipment which results in excessive crushing of the aggregate will not be permitted.

12.08 SMALL TOOLS

The Contractor shall provide all necessary small tools and suitable means for keeping them clean and free from accumulations of asphalt materials.

12.09 CONSTRUCTION REQUIREMENTS

12.09.01 WEATHER LIMITATIONS

The subgrade and the surface upon which the asphalt plant mix is placed shall be free of excessive moisture and/or frost.

12.09.02 TEMPERATURE LIMITATIONS

Asphalt mixtures shall be placed only between March 1st and December 1st, unless otherwise permitted by the Engineer in writing.

The asphalt plant mix shall be placed in accordance with temperature limitations as set forth by the Engineer in writing.

Cool/cold weather paving may be authorized provided the Contractor can show that an adjustment to paving operation timing can be made to facilitate the required compaction. Computer modeling tools such as the following should be used to show the compaction time adjustment due to low air and substrate temperatures:

MultiCool

http://www.hotmix.org/index.php?option=com_content&task=view&id=178&Itemid=273)

PaveCool

<http://www.dot.state.mn.us/app/pavecool/index.html>)

12.10 CONDITIONING OF EXISTING SURFACE

Conditioning of an existing surface shall consist of minor grading, clipping edges of roadways, and other minor incidental construction, not itemized in these Specifications, and not involving hauling of excavated materials for the purpose of bringing the roadway to a uniform width and cross-section and blending the new pavement to the existing surface as directed by the Engineer.

12.11 PREPARATION OF ASPHALT CEMENT

The asphalt cement for asphalt mixes shall be heated to a temperature between 275° F and 325° F, in a manner that will avoid local overheating and provide a continuous supply of the asphalt material to the mixer at a uniform temperature at all times.

12.12 PREPARATION OF AGGREGATES

The aggregates for asphalt mixes shall be dried and heated to a uniform temperature between 225° F and 325° F. Flames used for drying and heating shall be properly adjusted to avoid damage to the aggregate and to avoid soot on the aggregate.

Immediately after heating and drying, the aggregates shall be screened into two or more fractions as specified and conveyed into separate compartments ready for batching and mixing with asphalt material.

12.13 MIXING

The dried aggregates shall be combined within the mixer in the amount of each fraction of aggregates required to meet the JMF. The asphalt cement shall be measured or gauged and introduced into the mixer in the amount specified by the JMF.

After the required amounts of aggregate and asphalt cement have been introduced into the mixer, the materials shall be mixed until a complete and uniform coating of the particles, and a thorough distribution of the asphalt cement throughout the aggregate is achieved. Wet-mixing time shall be included in the JMF and approved by the Engineer for each plant and for each JMF, but in no case shall the wet-mixing time be less than 25-seconds for batch mix plants and 40-seconds for continuous mix plants.

WMA may be produced by one or a combination of several technologies involving HMA plant foaming processes and equipment, mineral additives, or chemicals that allow the reduction of mix production temperatures to within 185°F to 275°F. (Note: The upper temperature range is appropriate for modified asphalt cements and WMA mixtures that include higher percentages of recycled asphalt pavement).

For HMA, the temperature of the completed mixture shall be not less than 275° F, except that the temperature of mixtures made with aggregates containing absorbed moisture that causes foaming or boiling in the completed mixtures at these higher temperatures shall be not less than 225° F.

The aggregate shall be introduced into the mixer within the temperature range specific to the asphalt mix process.

12.14 SPREADING AND FINISHING

Unless otherwise specified or permitted, asphalt mixtures shall be delivered and spread on the roadway in ample time to secure thorough compaction during daylight hours. Its temperature at the time of depositing in the paver hopper shall be not more than 25° F less than the temperature at which it is discharged from the mixer. The mixture shall be laid upon an approved surface, spread and struck off to the established line, grade, and elevation by means of approved asphalt paving machines in echelon or by one paver equipped with an approved type joint heater. Echelon paving shall not be permitted on two-lane projects where traffic is being maintained. Alignment of the outside edges of the pavement shall be controlled by present control string lines. Where multi-course pavements are placed, the longitudinal joint in one layer shall offset that in the preceding layer by approximately one foot; however, the joint

in the top layer shall be at the center line of the pavement if the roadway is more than two lanes in width.

Grade reference systems for automatic screed controls may be either the string line or ski type on all work. Pavement lanes previously placed with automatic controls or to form grade may serve as longitudinal control reference for laying adjacent lanes by utilizing a ski or joint matching shoe.

The Contractor shall furnish all materials, equipment, labor, and incidentals required to construct the pavement to the lines and grades as described in these contract documents and shall maintain same until its use is no longer required.

Automatic screed controls shall not be required on sections of projects where service connections and other conditions interfere with their efficient operation.

The cost of erecting and maintaining a string line reference system shall be included in the unit price bid for other Items of Construction. The Contractor shall be required to utilize a string line reference system only as directed on Plans or ordered in writing by the Engineer.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be taken from the hopper of the spreading machine or dumped on approved steel dump sheets outside of the area on which it is to be spread and shall be distributed immediately into place by means of suitable shovels and other tools and spread with rakes and lutes in a uniformly loose layer as such depth as will result in a completed course having the weight per square yard required.

Driveways, parking areas, and other such facilities shall be blended to the new surface within the right-of-way as directed by the Engineer. The price per ton for asphalt plant mix shall include this work. No extra payment shall be made for blending said facilities to the new surface.

12.15 COMPACTION

After the asphalt mixture has been spread, struck off and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling.

The surface shall be rolled immediately when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking or shoving.

Unless otherwise directed, rolling shall begin at the sides and proceed longitudinally parallel to the road center-line, each trip overlapping one-half the roller width, gradually progressing to the crown of the road. When paving in echelon or abutting a previously placed lane, the longitudinal joint shall be rolled first, followed by the regular rolling procedure. On super-

elevated curves or tilted pavements, the rolling shall begin at the low side and progress to the high side by overlapping of longitudinal trips parallel to the center-line.

Alternate trips of the roller shall be terminated in stops approximately 2-feet distant from any preceding stop. When paving in echelon, rollers shall not compact within 6-inches of an edge where an adjacent lane is to be placed.

Rollers shall move at a slow, but uniform speed with the drive wheels nearest the paver and shall be kept as nearly as practicable in continuous operation. Rolling shall continue until all roller marks are eliminated and until each of the placements have been compacted to a **minimum 91-percent of maximum theoretical density (MTD)**.

When surface courses are placed at a rate of ≤ 60 pounds per square yard, **the density requirements shall be waived**.

Any displacement occurring as the result of the reversing of the direction of a roller, or from other causes, shall be corrected at once by the use of rakes and addition of fresh mixture when required. Care shall be exercised in rolling so as not to displace the line and grade of the edges of the asphalt mixture.

To prevent adhesion of the mixture to the rollers, the wheels shall be kept properly moistened with water or water mixed with very small quantities of detergent or other approved material. Excessive liquid shall not be permitted.

Along forms, curbs, headers, walls and other places not accessible to the rollers, the mixture shall be compacted thoroughly with hot hand tampers, smoothing irons or with mechanical tampers. On depressed areas, a trench roller may be used or cleated compression strips may be used under the roller to transmit compression to the depressed areas.

Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective shall be removed and replaced with fresh hot mixture, which shall be compacted to conform to the surrounding area. Any area showing an excess or deficiency of asphalt material shall be removed and replaced.

12.16 JOINTS

Placing of asphalt pavement shall be as continuous as possible. Rollers shall not pass over the unprotected end of a freshly laid mixture unless authorized by the Engineer. Transverse joints shall be formed by cutting back a vertical face on the previous run to expose the full depth of the course. When directed by the Engineer, a tack coat shall be used on contact surfaces of transverse joints just before additional mixture is placed against the previously rolled material.

12.17 PAVEMENT SAMPLES

When directed, the Contractor shall cut samples from the compacted pavement for testing by the Engineer. Samples of the mixture shall be taken for the full depth of the course locations selected by the Engineer. The samples shall be cut with a power saw or core drill and shall have a top surface area of at least ten square inches.

Holes formed by taking samples shall be filled with a functionally equivalent or superior material to the asphalt mixture that was used to construct the sampled course, and compacted/cured to conform to the surrounding pavement. Cutting samples and repairing sample holes shall be at the Contractor's expense. Materials used to repair sample holes shall be measured for payment in accordance with the provisions of the Tennessee Department of Transportation Standard Specifications, Item 407.19.

12.18 SURFACE REQUIREMENTS

The surface shall be tested with a 12-foot straight edge applied parallel to the center-line of the pavement. The deviation of the surface from the testing edge of the straight edge shall not exceed that specified for the respective types of asphalt construction under the applicable Subsection of these Specifications.

The transverse slope of tilted pavements shall be tested with a string line and string level applied at right angles to the center-line of the pavement, and the percent of slope, when computed for the full width of the pavement, shall not deviate more than five-tenths of one percentage point from that specified on the plans.

The crown in crowned pavements shall be tested with a string line applied at right angles to the center-line of the pavement, and the crown shall not deviate more than one-half inch from that specified on the Plans. Deviations greater than the specified tolerances shall be corrected by methods best suited for the purpose. Pavement that cannot be corrected to comply with the specified tolerances shall be removed and replaced at the Contractor's expense.

12.19 COMPENSATION

12.19.01 METHOD OF MEASUREMENT (IF APPLICABLE)

Asphalt concrete plant mixes shall be measured by the unit(s) specified in the bid schedule and shall be weighed on batch plant scales meeting the requirements of Item 12.04 (b) (1). The transporting vehicles shall be numbered, and a record shall be maintained showing the mixture accepted and used each day. This record shall also show: rejected mixture; mixture used otherwise than indicated or directed; mixture used to replace defective or condemned construction; and mixture wasted after having been weighed.

No allowance will be made for unaccepted material, for material furnished or used in excess of the amount indicated or directed, for materials used in replacing defective or condemned construction, or for materials wasted in handling, hauling, or otherwise.

No allowance will be made for the partial or total removal and replacement of shoulder material as may be deemed necessary during construction to facilitate temporary drainage, etc.

12.19.02 BASIS OF PAYMENT (IF APPLICABLE)

Asphalt concrete plant mixes shall be paid for at the contract unit price specified in the bid schedule for the respective Items, complete-in-place, which price shall be full compensation for the construction of asphalt-concrete plant mixes including all aggregates, asphaltic cements, mineral fillers, chemical additives as directed, in accordance with the conditions, stipulations, provisions, and requirements contained herein; for completing all incidentals thereto; and for furnishing all materials, equipment, tools, labor and incidentals required to complete the item.

END OF DOCUMENT

ITEM 14

MINERAL AGGREGATE BASE

14.01 SCOPE OF WORK

This work shall consist of furnishing and placing one or more courses of aggregate, plus additives if required, on a prepared subgrade in accordance with these specifications and in reasonably close conformity with the lines, grades, thicknesses and typical cross-sections shown on the Plans or established by the Engineer.

Mineral aggregate base shall be Type A or Type B, whichever is shown on the Plans and called for in the Bid Schedule.

14.02 MATERIALS

(a) Aggregate

The mineral aggregate shall meet the requirements of Item 73.05 for Class A or Class B aggregate, depending upon whether Type A or Type B base is required in the construction. Type A Base will require the use of Class A aggregate, Grading D. Either Class A or Class B aggregate may be used for Type B Base.

When the stationary plant method for mixing is used, the aggregate will be accepted immediately following mixing or immediately prior to mixing, based on periodic samples taken from the pugmill output, or from the belt feeding the pugmill.

When two or more materials are blended on the road by means of mechanical mixers, the aggregate will be accepted after mixing and before compaction, based on samples taken from each layer of base material. Aggregate that does not require blending will be accepted at the aggregate production plant, based on samples taken from stockpiles or plant production immediately prior to delivery to the road.

(b) Calcium Chloride

Calcium chloride shall meet the requirements of Item 74.02 for Type 1 or Type 2, except that the requirements for "total alkali chlorides" and "impurities" shall not apply.

(c) Sodium Chloride

Sodium chloride shall meet the requirements of Item 74.03.

14.03 EQUIPMENT

All equipment necessary for satisfactory performance of this construction shall be on the project and approved before work will be permitted to begin. Such equipment shall include a stationary mixing plant or mechanical road mixers, whichever is applicable to the type of work to be performed, as specified under Item 14.04(b).

(a) Stationary Mixing Plant

The mixing unit shall be an approved twin-shaft pugmill capable of producing a constant, uniform mixture. The mixer shall be equipped with a suitable truck-loading hopper with gate which will prevent segregation of the material when dumped into the truck. A spray bar capable of assuring an even wetting of the aggregate shall be mounted at the entrance of or above the pug-mill. The flow of water through the spray bar shall be controlled by a meter, valve or other approved type of regulating device to maintain a uniform moisture content in the mixture. The mixing plant shall be equipped with adjustable feeders for each size material capable of regulating a constant, uniform flow of material.

(b) Mechanical Mixer (for Road Mixing)

The mechanical mixer shall be of the pugmill or rotary type capable of producing a uniform blend of all materials to the full depth of the course being placed. The mixer shall be either a self-propelled or trailer type.

14.04 CONSTRUCTION REQUIREMENTS

(a) General

1. Mineral aggregate base, Type A or Type B, shall be constructed in layers, the compacted thickness of which shall be as shown on the Plans.

2. The subgrade shall be checked and approved by the Engineer not more than five hundred feet (500') in advance of spreading any mineral aggregate. This distance may be shortened by the Engineer to as little as two hundred feet (200') between November first and April first or during periods of prolonged wet weather.

3. Mineral aggregate shall not be spread on a subgrade that is frozen or contains frost.

4. Hauling over material already placed will not be permitted until it has been spread, mixed, shaped and compacted.

(b) Mixing

1. Unless otherwise specified, Contractor shall mix the base course material, including an additive if required, on the Plans, by one of the following methods:

a. For mineral aggregate base, Type A, the stationary plant method will be required.

b. For mineral aggregate base, Type B, requiring the blending of two or more materials, either the stationary plant method or the road mix method (mechanical mixer) shall be used.

c. For mineral aggregate base, Type B, requiring additive, stationary plant mixing or mechanical road mixing shall be used.

d. For mineral aggregate base, Type B, requiring neither blending of materials nor additives, either stationary plant mixing, mechanical road mixing or mixing by motor grader on the road may be used.

2. Detailed requirements for the three types of mixing operation are as follows:

a. Stationary Plant Method

The base course material and water shall be mixed in an approved stationary mixing plant as described in Item 14.03(a). Water shall be added during the mixing operation in the amount necessary to provide a moisture content satisfactory for compacting. If combining materials is required to meet the grading requirements, the blending shall be performed as provided for in Item 73.05, prior to mixing.

b. Road Mix Method (Mechanical Mixer)

After the material for each layer of base course has been placed through an aggregate spreader or windrow-sizing device, the material shall be mixed by means of approved mechanical mixing machines as described in Item 14.03(b).

c. Road Mix Method (Motor Grader)

After material for each layer of base course has been deposited and spread uniformly, it shall be sprinkled with water in sufficient quantity to moisten all particles, but not in such quantity that segregation of sizes or softening of subgrade will occur. Immediately following the application of water, the material shall be thoroughly mixed by windrowing and spreading with motor graders until the mixture is uniform throughout.

(c) Spreading

1. Stationary Plant Mixing

After mixing, material for each layer of base shall be transported to the job site while it contains the proper moisture content, and shall be spread to the required thickness and cross-section by means of an approved mechanical spreader.

2. Road Mixing (Mechanical Mixer)

Material to be mixed by mixing method b shall be spread prior to mixing with an approved mechanical spreader. If the blending of two or more materials is to be performed on the road, each material shall be spread separately with an approved mechanical spreader capable of being adjusted to spread the materials in the proper proportions.

3. Road Mixing (Motor Grader)

a. After the aggregate and water have been thoroughly mixed, the base material shall be spread while at optimum moisture content in layers of specified thickness and cross-section by means of approved motor graders.

b. If the required compacted depth of base course exceeds six inches (6"), the base shall be constructed in two or more layers of approximate equal thickness. The maximum compacted thickness of any one layer shall not exceed six inches except when vibrating or other approved types of special compacting equipment are used, the compacted depth of a single layer of base course may be increased to eight inches upon approval of the Engineer.

c. In some cases, the plans show the base as extending for the full width of the roadbed. In other cases, the edges of the base are shown as coinciding with the inside edges of the shoulders. In the latter case, shoulder material shall be placed to a minimum width of three feet (3') prior to the spreading of each layer of base material in order to confine the base material and to permit proper compaction.

d. Any base material used for constructing detours, for maintenance of traffic, for backfilling rock cuts and capping rock fills may be spread and mixed using this method.

(d) Shaping and Compaction

1. Except where mechanical aggregate spreading equipment is used to place the base material, final shaping of each layer prior to compaction shall be accomplished by motor grader. In the event that mechanical spreading equipment fails to shape the base material properly, final shaping shall be done by motor grader or other approved means.

2. Immediately following spreading and final shaping, each successive layer shall be compacted with pneumatic-tire rollers described under Subsection 205.02 of Tennessee Department of Transportation Standard Specifications and any other types of compacting equipment, provided the required density and the required degree of uniformity and smoothness are attained. If the density requirement does not apply as provided for below, the base may be compacted with pneumatic-tire rollers meeting the requirements of Subsection 205.03 of Tennessee Department of Transportation Standard Specifications as directed by the Engineer. Compaction shall progress gradually from the edges of the base to the center, parallel with the center-line of the road, and shall continue until the base layer has been compacted to its full width. Where lifts of shoulder materials are placed to confine the base material, the initial pass of the compacting equipment shall overlap the shoulder to a width of not less than twelve inches (12").

3. Compaction of each layer shall continue until a density of not less than eighty-three percent (83%) of the solid volume has been achieved. The density determination will be based on the bulk specific gravity, AASHTO Designation T 84, "Standard Method of Test for Specific Gravity and Absorption of Fine Aggregate," and T 85, "Standard Method of Test for Specific Gravity and Absorption of Coarse Aggregate," and the dry weight of the aggregate. Unless otherwise specified, density requirements will not apply to base construction on projects that do not include the construction of a surface upon the base. The compaction of each layer shall be approved before material for the next successive layer is placed. Placing and compacting areas shall be kept separate.

4. The surface of each layer shall be so constructed that the aggregates become firmly keyed and a uniform texture produced and shall be maintained in that condition until covered by the following stage of construction or until final acceptance of the project. Any irregularities that develop shall be corrected by loosening the material at those places and adding or removing material as required.

5. Approved distributors shall be used to apply water uniformly over the base materials during compaction in sufficient quantity for proper compaction. Softening of the underlying subgrade resulting from the use of excess water is especially to be avoided.

(e) Maintenance

After construction of the base has been completed satisfactorily, it shall be maintained, under traffic if required, smooth and uniform until covered by the following stage of construction or until the project has been completed and accepted.

(f) Thickness Requirements

The thickness of the completed base shall be in reasonably close conformity to the thickness shown on the Plans. The thickness shall be measured at such frequency as established by the Engineer by means of test holes or other approved methods.

(g) Surface Requirements

The surface of the finished base shall be in reasonably close conformity to the lines, grades and cross-sections shown on the Plans or established by the Engineer and shall have a satisfactorily smooth riding quality.

14.05 COMPENSATION (IF APPLICABLE)

(a) Method of Measurement

Mineral aggregate base, unless otherwise stipulated, shall refer to Type A, Grading D mineral aggregate meeting the requirements of Item 73.05. Mineral aggregate base shall be measured by the unit(s) specified in the bid schedule.

(b) Basis of Payment

The accepted quantities of mineral aggregate base of the type specified will be paid for at the contract unit price specified in the bid schedule.

END OF DOCUMENT

ITEM 15

CONCRETE PAVEMENT REMOVAL

15.01 SCOPE OF WORK

(a) All pavement, base course, sidewalks, driveways, curbs, gutters, etc., which are constructed of Portland Cement Concrete, designated for removal, shall be disposed of as directed.

(b) Concrete pavement, parking strip, base with or without bituminous overlay, concrete curb and gutter, sidewalks, driveways, etc., which exist within the limits of construction and are not more than one-half foot (.5') below subgrade elevation shall be removed and disposed of.

15.02 METHOD OF MEASUREMENT

Pavement areas of any kind whatsoever, as named above, shall be considered uniform in depth and shall be measured in units of square feet.

15.03 BASIS OF PAYMENT

The accepted quantities of Pavement Removal will be paid for at the contract unit price bid. Said price shall be full compensation for removing and disposing of the designated materials in accordance with the contract.

END OF DOCUMENT

ITEM 21

PRIME COAT

21.01 SCOPE OF WORK

This work shall consist of an application of bituminous material, and cover material if required, on a designated base, in accordance with the requirements of these Specifications and in reasonably close conformity with the lines shown on the Plans or established by the Engineer.

21.02 MATERIALS

Materials shall meet the requirements of the following items of these Specifications:

- ITEM 67.02 CUT-BACK ASPHALT, GRADE RC-70 OR RC 250
- ITEM 67.03 EMULSIFIED ASPHALT, GRADE AE-P
- ITEM 67.05 TAR, GRADE RT-2 OR RT-3
- ITEM 73.12 AGGREGATE FOR COVER MATERIAL, SIZE 78 OR 8

When the particular type and grade of bituminous material to be used is not shown on the Plans or otherwise designated, the Contractor shall select the type and the Engineer will designate the grade. Bituminous material may be conditionally accepted at the source.

The ranges of application temperatures in degrees Fahrenheit shall be as follows:

RT-2 and RT-3 (60 -130)	RC 70 (80 -150)
RC 250 (100 -175)	AE-P (60 -140)

21.03 EQUIPMENT

All equipment necessary for the satisfactory performance of this construction shall be on hand and approved before Contractor will be permitted to begin work. The equipment shall include a power broom or other mechanical sweeping equipment, bituminous heating equipment, a pressure distributor, a water sprinkler and such other equipment and small tools as may be required to perform the work in a satisfactory manner.

21.04 LIMITATIONS

Bituminous material shall be applied only between March first and December first, and only when the air temperature in the shade, away from artificial heat, is above 60 degrees Fahrenheit. Bituminous material may be applied to a surface that is slightly damp, but never to a wet surface.

21.05 PREPARATION OF SURFACE

The surface to be primed shall be prepared in accordance with the provisions of Item 14.

When delays in the priming operation occur, the prepared surface shall be satisfactorily maintained or reworked to meet the requirements of Item 14 before the priming operation is resumed.

21.06 APPLICATION OF PRIME

All areas to be treated shall be approved by the Engineer before application of the treatment. Bituminous material shall be applied to the width of the section to be primed by means of a pressure distributor at a uniform, continuous spread. The Engineer will designate the rate of application within the extreme limits indicated on the Plans. Application temperatures shall be within the ranges specified under Item 21.02. Any areas containing an excess or deficiency of priming material shall be corrected by the addition of blotter material or bituminous material, as directed by the Engineer.

The Contractor shall protect all structures and concrete surfaces from the bituminous material during the construction.

21.07 APPLICATION OF COVER MATERIAL

All areas to be treated shall be approved by the Engineer before application of the treatment. Bituminous material shall be applied to the width of the section to be primed by means of a pressure distributor at a uniform, continuous spread. The Engineer will designate the rate of application within the extreme limits indicated on the Plans. Application temperatures shall be within the ranges specified under Item 21.02. Any areas containing an excess or deficiency of priming material shall be corrected by the addition of blotter material or bituminous material, as directed by the Engineer.

The Contractor shall protect all structures and concrete surfaces from the bituminous material during the construction.

21.08 APPLICATION OF COVER MATERIAL

If, after the bituminous material has been applied, it fails to penetrate before the time that the roadway must be used by traffic, dry cover material shall be spread at a rate established by the Engineer, between eight (8) and twelve (12) pounds per square yard, to prevent damage to the primed surface. An excess of cover material shall be avoided.

21.09 MAINTENANCE AND PROTECTION

(a) The Contractor shall maintain the prime coat and the surface intact until it has been covered by the wearing surface or until the project is completed. No succeeding stage of construction shall be placed upon the prime coat until it is properly cured.

(b) The Contractor shall clean out any spots where the prime coat may have failed due to disintegration of the underlying surface material or for any other reasons. The exposed areas so produced shall be lightly dampened, refilling with approved material and thoroughly compacted to conform with the surrounding surface, after which bituminous prime shall be applied thereto with a hand spray. If satisfactory repairs cannot be accomplished by the above method, the Contractor shall fill the depressions with approved mixtures of bituminous material and fine aggregate, and compact them to conform to the surrounding surface.

(c) Any mineral aggregate and bituminous material used for repairs will be paid for at their contract unit prices, providing the cause of repair is beyond the Contractor's control.

21.10 METHOD OF MEASUREMENT (IF APPLICABLE)

Bituminous prime coat will be measured by the units specified in the bid schedule of material used in the accepted work, as determined by the Engineer, at the temperature of application.

21.11 BASIS OF PAYMENT (IF APPLICABLE)

This item will be paid for at the contract unit price specified in the bid schedule for prime coat complete-in-place, which price shall be full compensation for all bituminous prime coat as indicated or directed and in accordance with the conditions, stipulations, provisions and requirements contained herein; for completing all incidentals thereto; and for furnishing all materials, equipment, tools, labor and incidentals required to complete the item.

END OF DOCUMENT

ITEM 22

TACK COAT

22.01 SCOPE OF WORK

This work shall consist of furnishing and applying bituminous material to a previously prepared base or surface, to provide bond for a superimposed course, in accordance with the requirements of these Specifications.

22.02 MATERIALS

- (a) Bituminous materials shall conform to the requirements of the following Items of these Specifications:

Materials

AC-20 Asphalt

When the particular type and grade of bituminous material to be used is not shown on the Plans or otherwise designated, the Contractor shall select the type and the Engineer will designate the grade. Bituminous material may be conditionally accepted at the source.

- (b) The ranges of application temperatures in degrees Fahrenheit shall be as follows:

AC-20 325° to 400°

22.03 EQUIPMENT

All equipment necessary for the satisfactory performance of this construction shall be on hand and approved before work will be permitted. The required equipment shall include a power broom, equipment for heating bituminous material, a pressure distributor meeting the requirements of Item 21.03, and such other equipment and small tools as may be required to perform the work in a satisfactory manner.

22.04 PREPARATION OF SURFACE

The designated surface shall be prepared in accordance with the applicable provisions of Item 12. The surface shall be dry at the time the tack coat is applied.

22.05 APPLICATION OF BITUMINOUS MATERIAL

- (a) Immediately after cleaning the surface, bituminous material shall be applied with the pressure distributor at a rate directed by the Engineer, but not to exceed 0.05 gallons of residual bitumen per square yard.
- (b) The surfaces of trees and structures adjacent to the areas being treated shall be protected in such a manner as to prevent their being spattered or marred.
- (c) The tacked surfaces shall be allowed to dry until it is in a proper condition to receive the surface course. Tack coat shall be applied only so far in advance of surface course placement as is necessary to obtain this proper condition of tackiness. The Contractor shall protect the tack coat from damage until the surface course is placed.

22.06 METHOD OF MEASUREMENT (IF APPLICABLE)

- (a) Bituminous tack coat will be measured by the units specified in the bid schedule of material used in the accepted work, as determined by the Engineer, at the temperature of application.

22.07 BASIS OF PAYMENT (IF APPLICABLE)

This item will be paid for at the contract unit price specified in the bid schedule for "Tack Coat" complete-in-place, which price shall be full compensation for all bituminous tack coat as indicated or directed and in accordance with the conditions, stipulations, provisions, and requirements contained herein for completing all incidentals thereto and for furnishing all materials, equipment, tools, labor and incidentals required to complete this item.

END OF DOCUMENT

ITEM 26

BITUMINOUS PLANT MIX BINDER (HOT MIX)

26.01 SCOPE OF WORK

This work shall consist of a foundation composed of a hot mixture of aggregate and asphalt prepared in a hot bituminous mixing plant. It shall be constructed in one or more layers, on a prepared subgrade, granular subbase, or base, in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses and typical cross-sections shown on the Plans or as directed by the Engineer. Each course shall have a thickness after compaction of not more than four inches. This construction shall include a leveling course if specified on the Plans.

The provisions of Item 12 of these Specifications shall apply to this construction unless otherwise stipulated.

26.02 MATERIALS

- (a) The materials used in this construction shall conform to the requirements of the following Items.

ITEM 67.01 ASPHALT CEMENT
PENETRATION GRADE 60-70, OR 85-100 OR AC20

ITEM 73.06 AGGREGATE FOR MIXTURE
GRADING A, B, C1 OR C2

ITEM 73.16 INSULATION COURSE MATERIAL

- (b) The specific grade of asphalt cement to be used will be decided by the Engineer. The specific grading of aggregate to be used will be specified in the Contract or shown on the Plans. Mineral aggregate, bituminous material and plant mix will be accepted as provided for in Item 12.02.

26.03 COMPOSITION OF MIXTURES

- (a) The specified mineral aggregate and asphalt cement shall be combined in such proportions as to produce mixtures within the following master composition limits:

**Proportion of Total
Mixture by Weight**

Pay Item Number	Description	Aggregate Gradation	Combined Mineral Aggregate	Asphalt Cement
26A	Binder Type "A"	A	94%-97.5%	2.5%-6%
26B	Binder Type "B"	B	94%-97.5%	2.5%-6%
26C1	Binder Type "C1"	C1	94%-97.5%	2.5%-6%
26C2	Binder Type "C2"	C2	94%-97.5%	2.5%-6%

- (b) The bituminous base and/or leveling course shall be composed of aggregate and bituminous materials. The hot plant mixes shall comply with the applicable requirements of Item 12.03.

26.04 EQUIPMENT

All equipment necessary for the satisfactory performance of this construction shall be on the project, and approved before work will be permitted to begin. The equipment shall meet the requirements of Item 12.04 through 12.17 of these Specifications.

26.05 GENERAL CONSTRUCTION REQUIREMENTS

The construction requirements shall be as prescribed in Item 12.11 through Item 12.17, Item 21.09, Item 26.06 and Item 26.07 of these Specifications.

26.06 PREPARATION OF SUBGRADE, SUBBASE, OR SURFACE

- (a) The Plans will indicate whether the plant-mixed base is to be constructed on a treated or untreated subgrade or subbase, on a granular base, or insulation course, or on an existing surface. Conditioning of existing surface, when called for on the Plans, shall be in accordance with the provisions of Item 12.10. Prime coat or tack coat, when specified on the Plans, shall be constructed in accordance with the provisions of Item 21 or Item 22, respectively.
- (b) Bituminous plant-mix base mixture shall be placed only upon a surface that is dry, and cleaned of loose particles and other undesirable materials.

26.07 THICKNESS AND SURFACE REQUIREMENTS

- (a) Thickness shall be controlled during the spreading operation by frequent measurements taken on the freshly spread mixture to establish the relationship between the uncompacted mixture and the completed course. Thickness or pounds per square yard shall be within reasonably close conformity with that specified on the Plans.

- (b) The surface of the bases shall meet the requirements specified under Item 12.18 and then tested in accordance with the provisions of that Item. The deviation of the surfaces from the testing edge of the straight-edge shall not exceed the amounts shown below for the several types of mixtures:

Grading A Mixture	1/2 Inch
Grading B Mixture	3/8 Inch
Grading C Mixture	3/8 Inch

26.08 METHOD OF MEASUREMENT (IF APPLICABLE)

- (a) "Bituminous Plant Mix Binder" -will be measured by the units specified in the bid schedule, accepted and placed as indicated on the Plans and/or Specifications or as directed by the Engineer.
- (b) No allowance will be made for unacceptable materials; for material furnished or used in excess of the amount indicated on the Plans and/or Specifications or as directed by the Engineer; no allowance will be made for material used in replacing defective or condemned construction; and no allowance will be made for material wasted in handling, hauling, or otherwise.

26.09 BASIS OF PAYMENT (IF APPLICABLE)

"Bituminous plant mix binder" shall be paid for at the contract unit price specified in the bid schedule for Binder Type "A", Binder Type "B", Binder Type "C1" or Binder Type "C2", complete-in-place, which price shall be full compensation for the construction of a bituminous plant mix binder, as indicated or directed, and indicated on the Plans and/or Specifications or as directed by the Engineer, and in accordance with the conditions, stipulations, provisions, and requirements contained herein; for completing all incidentals thereto; and for furnishing all materials, equipment, tools, labor, and incidentals required to complete this Item.

END OF DOCUMENT

ITEM 27

**ASPHALTIC CONCRETE SURFACE
(HOT MIX)**

27.01 SCOPE OF WORK

- (a) This work shall consist of an asphaltic concrete pavement composed of a mixture of coarse aggregate, fine aggregate, mineral filler if specified or required, and asphalt cement, constructed on a prepared roadbed in accordance with these Specifications and in reasonably close conformity with the lines, grades, typical cross-section and rate of application shown on the Plans, or established by the Engineer.
- (b) The provisions of Item 12 of these Specifications shall apply to his construction unless otherwise stipulated.

27.02 MATERIALS

- (a) Materials used in this construction shall meet the requirements of the following Items of these Specifications:
 - ITEM 14.09(b) CHEMICAL ADDITIVE
 - ITEM 67.01 ASPHALT CEMENT, VISCOSITY GRADE AC-20
 PENETRATION GRADE 60-70 OR 85-100
 - ITEM 73.11 MINERAL AGGREGATE
 - ITEM 73.17 MINERAL FILLER
- (b) Asphalt cement used with aggregate Gradings D and F in the preparation of asphaltic concrete surface mixtures shall be treated with an anti-stripping additive as specified in Item 74.09.

27.03 COMPOSITION OF MIXTURES

- (a) Composition of mixtures in this construction shall meet all applicable requirements of Item 12.03.
- (b) The specified mineral aggregate and asphalt cement shall be in such proportions as to produce mixtures within the following master composition ranges:

**Proportion of Total
Mixture by Weight**

Pay Item Number	Description	Aggregate Gradation	Combined Mineral Aggregate	Asphalt Cement
27D	Surface Course "D"	D	92.0%-95.0%	5.0%- 8.0%
27E	Surface Course "E"	E	92.0%-95.0%	5.0%- 8.0%
27F	Surface Course "F"	F	90.0%-93.0%	7.0%-10.0%

27.04 EQUIPMENT

The equipment used in this construction shall meet the requirements of Items 12.04 through 12.08. All equipment necessary for the satisfactory performance of this construction shall be on the project, and approved, before work will be permitted to begin.

27.05 CONSTRUCTION REQUIREMENTS

The construction requirements for this work shall be as prescribed in Item 12.09, Item 12.11, Item 12.12, Items 12.14 through 12.17, and Items 27.06 through 27.08.

27.06 PREPARING THE DESIGNATED SURFACE

Preparation of the designated surface upon which the material is to be placed shall be performed in accordance with the applicable provisions of these Specifications.

27.07 MIXING

Requirements for mixing shall be as prescribed in Item 12.13. In addition, the mixing cycle for surface course mixtures shall include a dry-mixing period of at least five seconds.

27.08 SURFACE REQUIREMENTS

The surface shall meet the requirements specified under Item 12.18, and when tested in accordance with the provisions of that Item, the deviation of the surface from the testing edge of the straightedge shall not exceed one-fourth inch (1/4").

27.09 COMPENSATION (IF APPLICABLE)

- (a) "Asphaltic Concrete Surface (Hot Mix)" will be measured by the units specified in the bid schedule, accepted and placed as indicated on the Plans and/or Specifications, or as directed by the Engineer.

- (b) No allowance will be made for: unacceptable materials; for materials furnished or used in excess of the amount indicated on the Plans and/or the Specifications, or as directed by the Engineer; for material used in replacing defective or condemned construction; or for material wasted in handling, hauling, or otherwise.

BASIS OF PAYMENT (IF APPLICABLE)

"Asphaltic Concrete Surface (Hot Mix)" shall be paid for at the contract price by the units specified in the bid schedule for Item 27D, Item 27E, or Item 27F, complete-in-place, which price shall be full compensation for the construction of an asphaltic concrete surface as indicated on the Plans or on the Specifications or as directed by the Engineer and in accordance with the conditions, stipulations, provisions, and requirements contained herein; for completing all incidentals thereto; and for furnishing all materials, equipment, tools, labor, and incidentals required to complete this Item.

END OF DOCUMENT

ITEM 33

ADJUSTING MANHOLE FRAMES AND COVERS INLETS, AND CATCH BASINS

33.01 SCOPE OF WORK

This item shall consist of reconstructing and/or adjusting manholes, inlets, or catch basins and furnishing all materials and labor necessary to bring them to the locations and grades as shown on the Plans or as designated by the Engineer. The Contractor shall be responsible for raising to grade all manholes, whether or not visible to the naked eye. Sewer Plans showing locations of manholes shall be made available to the Contractor as construction progresses for the purpose of locating manholes which are not visible at street level.

33.02 RESETTING

All manholes, covers, inlets, and catch basins shall be reset in accordance with these Specifications when the existing manholes, inlets, or catch basins are more than one-quarter inch (1/4") over or under the grade shown on the Plans for the finished pavement or construction. They shall be accurately set to line and grade by removing the frame and cover, and raising or lowering the masonry top of the structure and resetting on a cushion of cement mortar; or, in the case of manholes, American Highway Prod's manhole risers or equal shall be used when possible. Riser heights shall be in ¼ inch increments from 1 inch through 3 inches with turnbuckle or toggle linkage.

33.03 EXCAVATION

Excavation shall be performed wherever necessary to bring the manholes, inlets, and catch basins to grade as shown on the Plans and as designed by the Engineer.

33.04 MATERIALS

- (a) Building brick shall be number one, hard grade brick. These brick, when made from clay or shale, shall conform to AASHTO, "Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)," Serial Designation M114. When made of concrete, they shall conform to ASTM "Standard Specification for Concrete Building Brick," Serial Designation C 55.
- (b) Concrete shall be Class A concrete which meets all requirements of Section 604 of the Tennessee Department of Transportation Standard Specifications.

(c) Masonry Mortar

1. Mortar shall be composed of the following mixture: one part Portland Cement, two parts sand, hydrated lime not to exceed ten percent of the cement used. Water shall be added to the mixture in such quantity as to form a stiff paste.
2. The mortar shall be hand-mixed or machine-mixed. In the preparation of hand-mixed mortar, the sand, cement and hydrated lime shall be thoroughly mixed together in a clean, tight, mortar mix until the mixture is of uniform color, after which water shall be added. Machine-mixed mortar shall be prepared in an approved mixer, and shall be mixed not less than 1 1/2 minutes.
3. Mortar shall be used within thirty minutes after mixing. Re-tempering of mortar will not be permitted.
4. Materials used shall conform to the following Specifications:

a. Portland Cement, Type I	AASHTO M 85
b. Hydrated Lime	ASTM C 6
c. Sand	Item 73.02
d. Water	Item 74.01

(d) Backfill material shall conform to the existing material in the subgrade and base course, and thoroughly tamped in place until no further displacement occurs.

(e) Adjustable manhole frames shall consist of not less than four circular segments connected by diameter adjustment screws with locking apparatus. Each segment shall contain no less than two grade-adjustment set-screws with locking apparatus. The cover seat portion of the frame shall be covered with a plastic gasket. The frame shall be capable of being adjusted to fit the existing manhole frame in such a manner that no vibration or movement of the manhole cover will occur. Adjustable frames shall be approved by the Engineer prior to placement.

33.05 CLEANING

All manholes, inlets, and catch basins shall be thoroughly cleaned of all excess mortar and accumulations of silt, clay, debris, or foreign matter of any kind and shall be free from such at the time pavement is to be laid.

33.06 MEASUREMENT (IF APPLICABLE)

The number of manholes, inlets, and catch basins paid for will be the actual number of each type ordered, reset, completed and accepted by the Engineer, except that extra payment shall be made at a price per inch for adjustment in excess of four inches.

33.07 PAYMENT (IF APPLICABLE)

The accepted number of each manhole, inlet or catch basin adjusted by not more than four inches (4") will be paid for at the respective contract unit price bid for each type. Adjustment in excess of four inches (4") shall be paid for at the contract unit price per vertical inch for "Excess Manhole Adjustment." Payment shall be payment in full for furnishing all materials, excavation, form work when necessary, backfilling, disposal of surplus materials, and for all labor, equipment, tools, and incidentals necessary to complete the work herein specified.

END OF DOCUMENT

ITEM 67

BITUMINOUS MATERIALS

67.01-Asphalt Cement

Asphalt cement shall conform to the requirements of AASHTO MP-1 for PG 64-22. When asphalt cement PG 70-22 or PG 76-22 is specified, the asphalt cement shall conform to AASHTO MP-1. Modification of the asphalt shall be accomplished by properly blending styrene butadiene (SB), styrene butadiene styrene (SBS) or styrene butadiene rubber (SBR) to a PG 64-22 base asphalt.

In addition to the above requirements, the PG 70-22 and PG 76-22 shall meet the following:

	<u>PG 70-22</u>	<u>PG 76-22</u>
Ring & Ball Softening Point, degrees C (degrees F), minimum	53 (128)	57 (135)
Elastic Recovery by means of Ductilometer, % minimum	40	58
Screen Test	No lumps retained	

Test Procedures

Elastic Recovery by means of a Ductilometer

Condition the ductilometer and samples to be tested at the temperature prescribed for that material. Prepare the brass plate, mold, and briquet specimen in accordance with ASTM D 113, "Ductility of Bituminous Materials". Keep the specimen at the specified test temperature for 85- 90 minutes. Immediately after conditioning, place the specimen in the ductilometer and proceed to elongate the sample to 20 cm. The rate of pull shall be 5 cm/min. unless otherwise stated. After the 20 cm elongation has been reached, stop the ductilometer and hold the sample in its elongated position for 5 minutes. At this time, clip the sample approximately in half by means of scissors or other suitable cutting devices. Let the sample remain in the ductilometer in an undisturbed condition for one hour. At the end of this time period, retract the half sample specimen until the two broken ends touch. At this point note the elongation in cm.

Calculation - Calculate percent recovery by the following formula:

$$\% \text{ Recovery} = ((20 - X)/20) \times 100$$

X = observed elongation after rejoining the sample, cm

Screen Test

The procedure shall be to pour a 1000 gram sample heated to 135 degrees C (275 degrees

F) through a 2.0 millimeter (No. 10) sieve. There shall be no lumps or particles retained on the sieve.

Viscometer Test

In addition to the above, a rotational viscometer, meeting ASTM D4402 requirements with a thermostatically controlled cell will be required at all hot mix asphalt mix plants using modified liquid asphalt products. A minimum of one test per day shall be run on samples taken from the contractor's storage tank or from a sampling port after the material is in-line blended if the grade of the material is being changed at the hot-mix plant. Viscosity values shall be in the range from 650-3000 cP for PG 70-22, and, 1000 to 3000 cP for PG 76-22 at 275 degrees F.

Materials Certification

A certification shall be furnished to the Engineer on each project stating that the asphalt cement furnished meets the Department's specification. A complete series of tests shall be conducted biweekly on a sample from the storage tanks and after material is added to the storage tanks.

Where blending or modification occurs after the material has left the storage tanks. A complete series of tests shall be conducted on a sample taken on the first day's production and biweekly thereafter for each grade being produced. Brookfield viscosity and DSR original tests shall be performed daily at the point of blending or modification. The DSR value G^*/\sin_{θ} shall be ≥ 1.0 kPa at the high PG grade temperature (ie. 70 degrees C for PG 70-22).

In addition, the producer shall provide a temperature-viscosity curve with a recommended mixing temperature range. In order to develop a temperature-viscosity curve, it may be necessary to run the viscosity test at a higher temperature. This temperature would be dependent on the softening point of the modified asphalt cement.

If a SBR modifier is used, the SBR shall be pre-blended with the asphalt cement or added by means of an "in-line" motionless mixer. The "in-line" mixer shall be a Komax Model No. 30715A, Ross LPD Motionless mixer, Koch Static Mixer or other approved equal. The "in-line" motionless mixing unit shall provide a homogeneity value of 0.15 or less. The mixing unit shall be equipped with a port(s) for obtaining representative samples of the blended material in accordance with AASHTO T 40. The mixer shall be oil jacketed. The mixer shall have a minimum diameter of 13 millimeters (1/2 inch) larger than the asphalt supply line onto which it is installed. The manufacturer shall document to the Engineer that the above specifications will be obtained with the mixer furnished.

67.02-Cut-Back Asphalts. Cut-back asphalts shall conform to the requirements of AASHTO M 81 or M 82, for the type and grade specified.

67.03-Emulsified Asphalts. These specifications cover two kinds of emulsified asphalt, anionic and cationic.

The manufacturer shall furnish samples of base asphalt used in the manufacture of the asphalt emulsion, as directed by the Engineer.

All emulsified asphalts shall be homogeneous, and shall adhere firmly to the surface of the mineral aggregate. Failure of the emulsified asphalt to perform satisfactorily on the job shall be deemed cause for rejection, notwithstanding its ability to pass laboratory tests.

A. Anionic Emulsified Asphalts.

In general, anionic emulsified asphalts shall conform to all the requirements of AASHTO M 140, for the type and grade specified.

In addition to the classes provided for in AASHTO M 140, a special mixing material (AE-3) or a special priming material (AEP) may be specified. These special materials shall conform to the following requirements:

Type	Special Mixing		Special Prime		Special Tack	
	AE-3		AE-P		TST-1P	
Grade	Min.	Max.	Min.	Max.	Min.	Max.
Test Requirements:						
Viscosity, Saybolt-Furol, 25° C (77° F), Sec.	10	50		10	75	
Viscosity, Saybolt-Furol, 50° C (122° F), Sec.	50+	& Pumpable				
Settlement, 5 days, % 24 Hours		5		5		5 1.0
Sieve Test		.10		.10		
Stone Coating (% coated)	90					
Distillation to 260° C (500° F)						
Distillate, % by weight		30		55		
Oil portion of distillate, % by vol.		6		12		
Distillation to 205°C (400°F)						
Distillate, % by weight					55	60
Tests on residue from distillation						
(a) Float Test, 60° C (140° F), Sec.	200		20			
(b) Ductility, 25° C (77° F), cm	40					
(c) Ductility, 4°C					10	35
(d) Soluble in Trichloroethylene %	97.5		97.5			
(e) Ash, by ignition, %		2				
Demulsibility (.02 Normal/35mL)						+5
Elastic recovery@10°C(50°F)						25+
Pen					75	150

The test requirement for settlement may be waived when the emulsified asphalt (special tack coat excepted) is used in less than five days' time; or the Engineer may require that the settlement test be run from the time the sample is received until it is used, if the elapsed time is less than five days.

The AE-3 shall be of such stability that it will remain constant and uniform while being mixed with dry or approximately dry aggregate, and shall thoroughly and uniformly coat the entire surface of each fragment while being manipulated and incorporated into the work. The emulsified asphalt after being incorporated into the work shall show no signs of re-emulsifying.

These special materials shall be tested in accordance with AASHTO T 59, with the following modification and additions:

1. Stone coating test: AASHTO T 59, except that the mixture of stone and emulsified asphalt shall be mixed vigorously for five minutes and then immediately drenched with approximately twice its own volume of tap water at room temperature.
2. Float Test: AASHTO T 50, except
 - (a) Delete Section 3.2 and substitute Section 8.7 of AASHTO T 59 for preparation of test specimen.
3. Solubility in Trichloroethylene: AASHTO T 44.

B. Cationic Emulsified Asphalts.

Cationic emulsified asphalts shall conform to the requirements of AASHTO M 208, for the type and grade specified.

In addition to the classes provided in AASHTO M 208, a special priming material may be specified which is designated CAE-P. This material shall meet the requirements listed for AE-P except as follows:

- (1) The Float Test shall be deleted.
- (2) Penetration Test (25 degrees C ,77 degrees F) shall be a minimum of 300.
- (3) The particle charge shall be positive.

When approved by the Engineer, cationic emulsions may be substituted for anionic emulsions.

C. Emulsified Asphalts for Slurry Seal.

The emulsified asphalt for a Slow-Set Emulsified Asphalt Slurry Seal shall be Type CSS-1h meeting the requirements specified herein. The emulsified asphalt for a Quick-Set Emulsified Asphalt Slurry Seal and a Quick-Traffic Emulsified Asphalt Slurry Seal shall be Type CQS-1h meeting the requirements for Type CSS-1h with the following exceptions:

Residue, %	MIN. 60
Cement mixing test, %	(waived)

Unless otherwise specified on the Plans, a Quick-Set Emulsified Asphalt Slurry Seal shall be used.

The water shall meet the requirements of Subsection 918.01 of the TDOT Standard Specifications.

The latex modifier, when specified, shall be an unvulcanized styrene-butadiene rubber in liquid latex form. The cationic latex modifier shall conform to the following requirements:

Tests	Cationic Latex Modifier
Styrene/Butadiene Ratio, %	24/76 ± 1.5
Solids Content, %	60 Min.
ph	6.2 Max.
Kilograms per Liter (lbs. per gallon):	
Wet Basis @ 25° C	0.95 (7.9) Min.
Dry Basis @ 25° C	0.55 (4.5) Min.

The manufacturer of the latex shall provide written certification of the results of the above noted tests.

Latex modified CSS-1h shall meet the requirements of AASHTO M-208 modified as follows:

Residue Requirements

Penetration @ 25° C	30 Min.
Ductility @ 25° C	150 +
@ 4° C	100 +
Softening Point, Ring and Ball, degrees C	54 +

The latex shall be combined with the asphalt emulsion at the emulsion mill to produce a homogeneous mixture.

The latex modified emulsion upon standing undisturbed for a period of 24 hours shall show no color striations, but shall be a uniform color throughout.

The latex modified asphalt emulsion shall meet the requirements of the Stretch Test which will be conducted as follows:

Pour onto a liter (quart) friction can lid or similar container, enough of the emulsion to cover the surface to a depth of 1.5 to 3 millimeters (1/16 to 1/8-inch). Immediately, while the emulsion is still brown, embed with thumb pressure several stones or chips approximately 13 millimeters (1/2- inch) in size (10 to 16 millimeters, 3/8-inch to 5/8-inch) into the binder. Put the lid, or similar container containing the emulsion and aggregate into a 38 degrees C (100 degree F) oven and allow to cure for a minimum of eight hours. After the curing period, remove the lid and allow it to cool for one hour. Upon lifting a stone or chip from the binder, the asphaltic material must adhere to the aggregate and must elongate for a minimum distance of 75 millimeters (three inches) without loss of adhesion and without breaking.

D. Emulsified Asphalts for Micro-Surface.

The latex or polymer modifier and other emulsifiers shall be milled into the asphalt cement and shall show no separation after mixing. The latex or polymer modified emulsified asphalt shall have a minimum softening point (Ring and Ball) of 57 degrees C (135 degrees F) when tested in accordance with AASHTO T 53.

The blended asphalt mixture when combined with aggregate and mineral filler shall have the following characteristics:

1. Be capable of filling up to 13 millimeters (1/2 inch) wheel ruts in one pass.
2. Be capable of field regulation of the setting time.
3. Be suitable for nighttime placement.

The latex or polymer modified emulsified asphalt shall be accepted by certification from the manufacturer.

67.04-Asphalt for Underseals. Asphalt for underseals shall conform to the requirements of AASHTO M 238.

END OF DOCUMENT

ITEM 75 - COLD PLANING OF BITUMINOUS PLANT MIX PAVEMENTS

75.01-Description.

This work shall consist of cold planing an existing bituminous plant mix pavement in accordance with the requirements of these Specifications and in reasonably close conformity with the lines and grades shown on the Plans or established by the Engineer.

75.02-Equipment.

All equipment necessary for the satisfactory performance of this work shall be on hand and approved before work will be permitted to begin. The required equipment shall include a power broom, a water truck, and a planing machine. Equipment shall be furnished to remove the material planed from the pavement. The planing machine shall be a power operated, self-propelled milling machine or grinder capable of removing bituminous concrete to the required width, depth, profile, cross-slope and surface texture. The machine shall be capable of accurately establishing profile by referencing from either the existing pavement or from an independent grade control and shall have positive means for controlling cross-slope. The machine shall have a floating moldboard with sufficient down pressure to plane the milled surface. The machine shall have an effective means of removing cuttings from the pavement and for preventing dust from escaping into the air. When milling the Interstate or controlled access freeways, the planing machine shall be equipped with a cutter drum at least 12 feet wide and be capable of restoring pavement profile with either a contact or noncontact leveling system. A contact leveling system shall be a minimum of 40 feet in length and the non-contact leveling system shall have a minimum of 3 sensors dispersed the length of the machine.

The maximum spacing between teeth on the cutter drum shall not exceed 5/8 inch. Supplemental equipment shall be provided as necessary to remove material in areas that cannot be reached by the planing machine.

75.03-General Requirements.

The operations shall be so arranged that no vertical longitudinal faces exceed 1-1/4 inch in height in areas to be used by public traffic. Transverse faces shall be tapered in a manner approved by the Engineer to avoid creating a hazard for traffic. The Contractor shall be required to cold plane in the direction of traffic. The planing machine shall operate at a consistent forward speed to provide an acceptable surface texture. The maximum allowable forward speed shall be 60 ft/min when the teeth spacing is between 1/2 inch and 5/8 inch, and the maximum allowable forward speed shall be 80 feet/min when the teeth spacing is less than 1/2 inch.

After planing, the finished surface shall provide a smooth riding surface free from scallops, scabs, gouges, ridges, oil film, and other imperfections of workmanship, having a uniform texture, and true to the required grade and cross section. The elevation of the longitudinal edges of adjacent cuts shall not differ more than 1/8 inch.

Milling shall not commence unless the subsequent layer of pavement can be placed within limitation specified in **ITEM 12.09**.

The planed pavement shall be thoroughly swept immediately behind the machine and all materials swept up shall be loaded and hauled away. A water truck shall be furnished and used to control dust from the work, when deemed necessary by the Engineer.

Where sound pavement has been gouged, torn, or otherwise damaged during the milling operations, or damage is done to any other property of any kind including utility frames, grates, and covers, repairs shall be made by the Contractor at no cost to the Department. The Contractor shall take appropriate measures so that the cold planing operation does not trap water.

75.04-Surface Requirements.

Where the planed pavement is not to be resurfaced, the texture shall be uniform throughout the project and shall provide a satisfactory riding surface. The average texture depth shall be no less than 0.20 inch.

The finished surface shall be of uniform profile throughout, without any scabbing, scallops, gouges, ridges, or other imperfections resulting from worn cutter teeth, improper operating speeds, poor equipment maintenance, or other instances of poor workmanship. The cross-slope shall be as specified on the plans in the tangent, transition, and super-elevated curve sections. The finished surface after the final cut shall not show a deviation greater than 1/8 inch from a 10 ft. straightedge, and the crossslope shall not deviate more than 3/8 inch in 10 ft. All irregularities exceeding these limits shall be corrected. Approaches and tapers shall be acceptably textured when required by the Engineer. Length, width, and depth of cut on approaches and tapers will be as determined by the Engineer. The approaches and tapers shall match the finished cut on the main line and shall be transitioned to the existing surface to within $\pm 1/8$ inch.

When deemed necessary by the Engineer, private entrances shall be transitioned to provide a smooth approach to the roadway.

Unless otherwise specified on the plans, the cuttings shall become the property of the Contractor and be removed from the project.

75.05-Method of Measurement.

Cold Planing of Bituminous Pavement will be measured by the square yard of planed pavement. The method of measurement will depend upon the pay item designated in the proposal.

Unless otherwise specified, water used to control dust will not be measured for separate payment but will be considered incidental to the planing operation.

75.06-Basis of Payment.

The accepted quantity of Cold Planed Bituminous Pavement will be paid for at the contract unit price, which payment shall be full compensation for all labor, materials, equipment, hauling, and incidentals necessary to plane the pavement, control dust, and dispose of the cuttings.

END OF DOCUMENT

ITEM 717

MOBILIZATION OF FORCES, SUPPLIES, AND EQUIPMENT

717.01 Description

This work shall consist of the mobilization and demobilization of the prime Contractor's and all Subcontractors' work forces, supplies, equipment, and incidentals at the project site. It shall include all Contractor and Subcontractor costs associated with obtaining performance bonds, insurance required by railroads, and other preconstruction costs incurred after award of the contract which are necessary costs to the project and are of a general nature rather than directly attributable to other pay items. All necessary preconstruction costs not attributable to a specific pay item shall be included in the contract lump sum price for Mobilization and not in any other pay item.

717.02 Method of Measurement

Mobilization will be measured by the unit for the completion of the work as described above, and payment will be made on a lump sum basis.

717.03 Basis of Payment

Partial payment for mobilization will be determined as indicated below. Upon completion of all work on the project, payment will be made of any amount bid for mobilization in excess of the total limit for partial payment.

Partial Payment Schedule

Percent of Total Contract Amount of Progress Estimate Exclusive of Mobilization	Percent of Mobilization Allowed
Not Less Than	
2%	30%*
5%	50%*
10%	80%*
25%	100%*

* % of lump sum bid price for mobilization or of the total limit for partial payment whichever is less.

Payment for mobilization will be made in accordance with the provisions set out above, which price shall be full compensation for organizing and moving all forces, supplies, equipment, and incidentals to the project site, regardless of the number of times such moves are made and also for all preconstruction costs incurred after award of the contract.

END OF DOCUMENT

717-1

SECTION 02452
TRAFFIC SIGNS AND PAVEMENT MARKINGS

PART 1 GENERAL

1.1 STANDARD SPECIFICATIONS, TRAFFIC SIGNS

The Tennessee Department of Transportation (TDOT) Standard Specifications for Roads and Bridge Construction. March 1, 1995, Section 713, "Highway Signing," and Section 916, "Highway Signing Material," shall apply and are hereby amended as follows.

- A. Amend Section 713.04, "Construction Methods and Requirements," (b) – Post Supports for Ground Mounted Signs, by adding, "All ground mounted sign post shall be 2-pound-per-foot U-post painted with Jones/Blair two-part Pole Green, Item No. 4550. Acrylithane.C catalyst Item No. 99931 shall be used.
- B. Delete Section 713-06, "Method of Measurement."
- C. Delete Section 713-07, "Basis of Payment."

1.2 DRAWINGS, TRAFFIC SIGNS

The applicable Tennessee Department of Transportation Standard Details are listed below.

RD-A-1	12-18-99	STANDARD ABBREVIATIONS
T-S-10	05-27-03	STANDARD MOUNTING DETAILS FLAT SHEET SIGNS ALUMINUM – STEEL DESIGN
T-S-16	05-27-01	GROUND MOUNTED SIGN AND DETAILS
T-S-19	07-29-91	STANDARD MEMBERS BENDAWAY SIGN SUPPORTS STEEL DESIGN
T-S-20	05-27-01	SIGN DETAIL

1.3 STANDARD SPECIFICATIONS, PAVEMENT MARKINGS

The Tennessee Department of Transportation Standard Specifications for Roads and Bridge Construction. March 1, 1995, Section 716, "Pavement Markings," shall apply.

1.4 DRAWINGS, PAVEMENT MARKINGS

The applicable Tennessee Department of Transportation Standard Details are listed below.

RD-A-1	12-18-99	STANDARD ABBREVIATIONS
--------	----------	------------------------

T-M-1	04-15-04	DETAILS OF PAVEMENT MARKINGS FOR CONVENTIONAL ROADS AND MARKINGS ABBREVIATIONS
T-M-2	04-15-04	DETAILS OF PAVEMENT MARKINGS FOR CONVENTIONAL ROADS
T-M-3	09-19-91	MARKING STANDARDS FOR TRAFFIC ISLANDS, MEDIANS & PAVED SHOULDERS ON CONVENTIONAL ROADS
T-M-4	05-27-01	STANDARD INTERSECTION PAVEMENT MARKINGS

END OF DOCUMENT

Appendix A

Appendix B

Company Name	Total Base Bid

Company Name	Total Base Bid

Asa Engineering and Consulting, Inc.
714 Cherry Street
Chattanooga, TN 37402
423.805.3700
www.asaengineeringinc.com