

Contract Documents and Specifications

City of Knoxville, Tennessee

FOUNTAIN CITY LAKE PHASE II

SW-2017-002



CITY OF KNOXVILLE

Engineering Department

Knoxville, Tennessee



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CITY OF KNOXVILLE
INVITATION TO BID

Project No. SW-2017-002

Project: FOUNTAIN CITY LAKE PHASE II

Sealed bids will be received by the City of Knoxville, in Room 667-674, City County Building, 400 Main St., Knoxville, Tennessee, until 11:00 a.m., on May 3, 2017 for the Fountain City Lake Phase II Project. The work consists of constructing two wetlands that each incorporate a linear gabion retaining structure, rip rap stone base, gravel filtration layer, and specified wetland suitable soils and plans, and any other work needed to complete the project as directed by the Engineer.

Project plans, specifications, and bid packages may be obtained from the Engineering Department after completing the Bid Document Request Form available on the City of Knoxville's procurement website @ www.knoxvilletn.gov/purchasing. Completed Bid Document Request Forms shall be emailed to civilengineeringplans@knoxvilletn.gov. You will then receive a response email containing a link to download PDF files of the project plans, specifications, and bid packages.

Drawings, Specifications, and other Contract Documents may be examined at the Knoxville Builders Exchange, Urban League, Black Contractors Association, the Purchasing Division of the City of Knoxville, and can be reviewed online at the iSqFt website @ www.isqft.com.

All bidders must be licensed contractors and must have a BC Construction classification.

A Pre-Bid Conference will be held at the City County Building, Suite 453, 400 West Main Street, Knoxville, TN 37902 at 10:00 a.m. on April 18, 2017.

All interested potential bidders are strongly encouraged to view the "Invitation to Bid and Information for Bidders" on the City of Knoxville's procurement website @ www.knoxvilletn.gov/purchasing.

INFORMATION FOR BIDDERS

Bids will be received by the City of Knoxville, Tennessee (Herein called the "Owner") by the Purchasing Agent of the City of Knoxville, acting for the Mayor, in Room 667-674, City County Building, 400 Main Avenue, Knoxville, Tennessee, 37902 until 11:00 A.M. on May 3, 2017, and then at said office publicly opened and read aloud.

Each Bid must be submitted in a sealed envelope, addressed to the Purchasing Agent for the City of Knoxville; Room 667-674, City County Building; 400 Main Street; Knoxville, Tennessee 37902. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the Owner.

No bid will be received or accepted after the above-specified time for the opening of bids. Bids that arrive late due to the fault of U.S. Postal Service, United Parcel Services, DHL, FEDEX, any delivery/courier service, or any other carrier of any sort are still considered late and shall not be accepted by the City. Such bids shall remain unopened and will be returned to the submitting entity upon request.

All Bids must be made on the required bid form supplied with the Contract documents. All blank spaces for bid prices must be filled in, in ink or typewritten, and the bid form must be fully completed and executed when submitted. Only one copy of the bid form is required.

All Bidders must be licensed contractors as required by the Contractors Licensing Act of 1994, and all Acts amendatory thereof and must have a BC Construction classification. Bidder's name, address, license number, date of expiration of license, and that part of the license classification applying to the Bid must be placed on the sealed envelope containing the bid. Prior to submitting their bids, bidders are to be registered with the Purchasing Division by setting up a Vendor Self-Service Account. Instructions for registering on-line are available at www.knoxvilletn.gov/purchasing. **Bid submissions from un-registered bidders may be rejected.**

If applicable, sub-contractors for electrical work, plumbing work, and HVAC must be shown on the outside of the envelope along with their respective license numbers, expiration date, and classification; where the total cost of the masonry portion of the project exceeds \$100,000 in materials and labor, the license number, expiration date, and classification must be listed on the outside of the envelope for the masonry sub-contractor. The envelope must be plainly marked, "Bid on (project) to be opened on (date) at (time)," otherwise the bid cannot be opened or considered. Any bid envelope which contains the listing of more than one contractor in each classification shall be considered in violation and the bid shall not be opened or considered. These requirements are detailed in Tennessee Code Annotated § 62-6-119 (B), the State of Tennessee, Department of Commerce and Insurance Board for licensing contractors can provide additional information if required.

Attention is called to Chapter 2, Article VIII (Procurement Code) of the Knoxville City Code, which requires that prevailing wages shall be paid workmen on all buildings and construction projects wherein any City funds are expended for such purposes. The Contractor agrees to comply with and to post the prevailing wage laws as provided in the "Prevailing Wage Act of 1975," Tennessee Code Annotated § 12-4-401 et seq. For the purpose of this contract the prevailing wage rates shall be the wage rate incorporated in these documents. The City reserves the right to demand the payroll records of Contractor at any time to monitor compliance with the wage rate/discrimination clause(s). Failure by Contractor to provide City with said records within ten working days of the written notice shall constitute a breach of this agreement.

Any Bid may be withdrawn prior to the above scheduled time for the opening of the Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within ninety (90) days after the actual date of the opening thereof. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid Schedule by examination of the site and a review of the drawings and Specifications including addenda. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of work or of the nature of the work to be done. When discrepancies occur between unit prices and total prices on the Bid Schedule, the total price submitted for each pay item will be maintained and corrections will be made to the unit prices.

The Contract documents contain the provisions required for the construction of the project. Information obtained from an officer, agent, or employee of the Owner or any other person shall not affect the risks or obligations assumed by the Contractor or relieve him from fulfilling any of the conditions of the Contract.

Inquiries pertaining to this ITB shall be made in writing and be in the hands of the Purchasing Agent by the close of the business day on Wednesday, April 26, 2017. Questions can be submitted by letter, fax (865-215-2277), or email to the Purchasing Agent of the City of Knoxville (jmcclelland@knoxvilletn.gov); or City County Building; 400 Main Street; Room 667-674; P.O. Box 1631; Knoxville, TN 37901. The City is not responsible for oral interpretations given by any City employee, representative, or others; and no interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally. The issuance of written addenda is the only official method whereby interpretation, clarification, or additional information can be given. To be given consideration, such requests/questions must be received at least five (5) business 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 posted to the City's website at www.knoxvilletn.gov/purchasing. Submitting organizations are strongly encouraged to view this website often to see if addenda are posted. Failure of any bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

All Bids must be signed in full by the Bidder or Bidders in their business name or style and must show his or their complete address. If the Bidder be a firm or a corporation, the signature shall be a duly authorized member of the firm or officer of the corporation stating his official title or position with such firm or corporation, with the corporate seal attached, attested to by the proper officer. If the Bidder be a firm, the full names and addresses of all members of the firm must be shown. If the Bidder be a corporation, the name of the state under the laws of which it is incorporated must be shown. If the Bid is signed in the name of an agent, legal evidence of his authority to bind his principals must accompany the papers.

All Bids exceeding \$100,000 must be accompanied by a Bidder's Bond equal to 5 percent of the bid price, executed by the Bidder and a surety company authorized to transact business in the State of Tennessee or by a cashier's or certified check on a duly authorized bank made payable to the City of Knoxville, as a guarantee that, if the Bid is accepted, the required Contract will be executed and the required Performance and Payment Bonds furnished. As soon as the bid prices have been compared, the Owner will return the bonds of all except the three lowest responsible Bidders. When the Agreement is executed, the bonds of the two (2) remaining unsuccessful Bidders will be returned. The Bid Bond of the successful Bidder will be retained until the Payment Bond and Performance Bond have been executed and approved, after which it will be returned.

A Performance Bond and a Payment Bond, each in the amount of one hundred percent (100%) of the Contract price, with a corporate surety approved by the Owner, will be required for the faithful performance of the Contract.

Attorneys-in-fact who sign Bid Bonds and Performance Bonds must file with each bond a certified and effective dated copy of their power of attorney.

All bidders must submit with their bid a "Subcontractor/Consultant Statement" form as described in the General Conditions. Any bid not containing such documentation may be rejected.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the Performance Bond and Payment Bond within fifteen (15) days from the date when notice of award is delivered to the Bidder. The notice of award shall be accompanied by the necessary Agreement and bond forms. In case of failure of the Bidder to execute the Agreement, the Owner may at his option consider the Bidder in default, in which case the Bid Bond accompanying the proposal shall become the property of the Owner.

The Owner within ninety (90) calendar days of receipt of acceptable Performance Bond, Payment Bond, and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the Owner not execute the Agreement within such period, the Bidder may by written notice withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the Owner.

Notice to proceed shall be issued within ninety (90) days of the execution of the Agreement by the Owner. Should there be reasons why the notice to proceed cannot be issued within such period, the time may be extended by mutual agreement between the Owner and Contractor. If the Notice to Proceed has not been issued within the ninety (90) day period or within the period mutually agreed upon, the Contractor may terminate the Agreement without further liability on the part of either party.

The Owner may make such investigations as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the owner may request. The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the work contemplated therein.

Award will be made as a whole to one Bidder. By execution and delivery of a bid submission, the bidder agrees that any additional terms and conditions, whether submitted to the City purposely or inadvertently, shall have no force or effect.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout. Attention is called to Section 2-1016 et seq. of the Knoxville City Code, which requires that prevailing wages shall be paid workmen on all buildings and construction projects wherein any City funds are expended for such purposes. The Contractor agrees to comply with and to post the prevailing wage laws as provided in the "Prevailing Wage Act of 1975," Tennessee Code Annotated 12-4-401 et seq.

Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to his Bid.

Further, the Bidder agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the General Conditions. Attention is also called to Section 15-26 of the Knoxville City Code, requiring and defining a non-discrimination clause which shall be contained in all Contracts with the City of Knoxville wherein City funds are expended for the purpose of construction, alteration, repair or demolition of any building, street, alley or sewer, or for the providing of any services, and all leases, franchises or concession through which property of the City of Knoxville is to be used.

All bidders must comply with Title VI of the Civil Rights Act of 1964, as codified in 42 U.S.C. 2000 (d). The successful bidder must follow Title VI guidelines in all areas including hiring practices, operating facilities, insurance, and wages. The City of Knoxville reserves the right to review all compliance records by a contract compliance officer designated by the City. The Drug Free Workplace Affidavit form must be submitted with the bid.

The Drug Free Workplace Affidavit, and the Non-Collusion Affidavit, and the Iran Divestment Act Form, fully executed, must be submitted with the bid.

The Contractor shall maintain such insurance as detailed in the General Conditions section of this ITB as will protect him and/or the City from all claims including Workman's Compensation and will save harmless the City from all claims and damages which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Certificates of insurance acceptable to the City shall be filed with the City prior to commencement of the work.

The Contract will be awarded with reasonable promptness by written notice to the responsive and responsible Bidder whose Bid is determined to contain the lowest bid price or lowest evaluated bid price in accordance with Section 2-862 of the Knoxville City Code.

The City may waive technicalities concerning bid documents and may follow up with individual organizations after the bid opening to obtain such documents when it is in the best interests of the City. The City of Knoxville reserves the right to waive any informalities or to reject any or all bids, to evaluate bids, and to accept any bid which, in its opinion, may be in the best interest of the City.

BID PROPOSAL
CITY OF KNOXVILLE, TENNESSEE
FOUNTAIN CITY LAKE PHASE II
TO THE PURCHASING AGENT, CITY OF KNOXVILLE, TENNESSEE

_____ hereby propose(s) to furnish all material, labor, and appliances and do all work required to complete the Contract for the Fountain City Lake Rehabilitation Project, located in the City of Knoxville, Tennessee, in a workmanlike manner and in accordance with the plans and specifications herewith attached.

_____ further agree(s) that in case of failure on _____ part to sign this within fifteen (15) days, the certified check or bid bond accompanying this proposal and the proceeds thereof shall be the property of the City of Knoxville.

BID SCHEDULE (Sheet 1 of 1)

ITEM NO.	DESCRIPTION	UNITS	TOTAL QUANTITY	PRICE PER UNIT	TOTAL PRICE PER ITEM
TS-01.0	Mobilization	LS	1		
TS-02.0	Clearing and Grubbing	LS	1		
TS-03.0	Removal of Structures and Obstructions	LS	1		
TS-05.0	Mineral Aggregate Base	TON	10		
TS-13.0	Concrete Sidewalk Replacement	SF	225		
TS-31.0	Erosion and Pollution Control	LS	1		
TS-45	Gabion Retaining Structure	CY	150		
1150-1	Dewatering	LS	1		
1150-2	Unclassified Excavation	CY	5		
1150-3	Filter Stone	TON	700		
1150-4	Transition Aggregate	TON	800		
1150-5	Geotextile Fabrics				
	a. Filter Fabric	SY	850		
	b. Jute Fabric	SY	850		
1150-6	Wetland Planting Media	CY	400		
1150-7	Wetland Plants				
	a. 1 Gallon	EA	2500		
	b. 3 Gallon	EA	6		
				TOTAL BID:	_____

In submitting this bid it is understood that the right is reserved by the City of Knoxville to reject any and all bids. If written notice of the acceptance of this bid is mailed, telegraphed or delivered to the undersigned within ninety (90) days after the opening thereof, or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver a contract in the prescribed form and furnish the required bond within fifteen (15) days after the contract is presented to him for signature.

Security of the sum of _____ Dollars
(\$ _____), in the form of _____, is submitted herewith in accordance with the Specifications.

The bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting room, work areas, rest rooms and wash rooms, restaurants and other eating areas, time-clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The bidder agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the Project within one hundred twenty days (120) calendar days thereafter. Bidder further agrees to pay liquidated damages in the sum of two hundred dollars (\$200.00) for each consecutive calendar day thereafter as provided in the General Conditions.

Bidder acknowledges receipt of the following addendum:

The Bidder is prepared to submit a financial and experience statement upon request.

Attached hereto is an affidavit in proof that the undersigned has not entered into any collusion with any person in respect to this proposal or any other proposal. Also attached is a Statement of Bidder's Qualifications.

Date: _____, 20____ _____
Name of Bidder

State License No: _____ By

Tax ID Number: _____ Title

Official Address (including Zip Code):

Incorporated under the laws of the State of

BID BOND

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

As Principal, and

as Surety, are hereby held and firmly bound unto

_____ as Owner in the penal sum of

_____ 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.

Signed this _____ day of _____, 20_____.

The condition of the above obligation is such that whereas the Principal has submitted to

_____ a certain Bid, attached hereto and hereby made a part hereof to enter

into a contract in writing for the

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 extension.

IN WITNESS, THEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

SEAL

By _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____ hereinafter called Principal,
(Name of Contractor)
(Address of Contractor)
a _____ hereinafter called Principal,
(Corporation, Partnership, or Individual)
and _____
(Name of Surety)

(Address of Surety)
hereinafter called Surety, are held and firmly bound unto

(Name of Owner)
(Address of Owner)
hereinafter called Owner, in the penal sum of
_____ Dollars, \$(_____) in lawful money of the United States, for the payment of
which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and
severally, firmly by these presents.

THE CONDITIONS OF THIS OBLIGATION is such that whereas, the Principal entered into a
certain contract with the Owner, dated the _____ day of _____, 20 ____, a copy
of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the
undertakings, covenants, terms, conditions, and agreements of said contract during the original term
thereof, and any extensions thereof which may be granted by the Owner, with or without notice to
the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands
incurred under such contract, and shall fully indemnify and save harmless the owner from all costs
and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the
Owner all outlay and expense which the Owner may incur in making good any default, then this
obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to work to be performed thereunder to the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

In Witness Whereof, this instrument is executed in _____
(number)
counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

(Principal)

(Principal) Secretary
(SEAL)

By _____ (S)

(Witness as to Principal)

(Address)

(Address)

(Surety)

ATTEST:

(Surety) Secretary

(SEAL)

Witness as to Surety

By

Attorney-in-fact

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute Bond.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called
(Corporation, Partnership or Individual)

Principal, and _____

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

(Name of Owner)

(Address of Owner)

hereinafter called Owner, in the penal sum of _____ Dollars,
\$(_____) in lawful money of the United States, for the payment of which sum well and truly to be
made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain
contract with the Owner, dated the _____ day of _____ 20____, a copy of which is
hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms,
subcontractors, and corporations furnishing materials for or performing labor in the prosecution of
the work provided for in such contract, and any authorized extension or modification thereof,
including all amount due for materials, lubricants, oil, gasoline, coal and coke, repairs or machinery,
equipment and tools, consumed or used in connection with the construction of such work, and all
insurance premiums on said work, and for all labor, performed in such work whether by
subcontractor or otherwise, and all taxes, licenses, assessments, contributions, penalties, and interest
thereon, when and if the same may be lawfully due, then this obligation shall be void; otherwise to
remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise affect its obligation on this bond, and it does hereby waive notice to any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

Principal

(Principal) Secretary

(SEAL)

By _____(s)

(Address)

Witness as to Principal

(Address)

Surety

ATTEST:

BY _____
Attorney-in-fact

(Surety) Secretary

(SEAL)

Witness as to Surety

(Address)

(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all partners should execute bond.

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the
duly authorized and acting legal representative of

_____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Date:

NOTICE TO PROCEED

To: _____

Date: _____

Project: _____

Contract No: _____

You are hereby notified to commence work in accordance with Agreement dated _____, 20_____, on or before _____, 20_____, and you are to complete the WORK within _____ calendar days thereafter. The date of completion of all WORK is therefore _____, 20_____.

City of Knoxville
Owner

By _____

Title Engineering Planning Chief

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

by _____,

this the ____ day of _____,

20 ____ .

By

Title

- c: Contractor
- Law Department
- Finance Department
- Real Estate Management
- James R. Hagerman, P.E., Director of Engineering
- Stephen J. King, P.E., Deputy Director of Engineering
- Penny Owens, Contract Manager, Purchasing Department
- Natalie Reyes, Capital Projects Technician
- David McGinley, P.E., Stormwater Engineering Manager
- Project Inspector

CHANGE ORDER

Order No. _____

Date: _____

NAME OF PROJECT: _____

OWNER: _____ City of Knoxville, Tennessee _____

CONTRACTOR: _____

THE FOLLOWING CHANGES ARE HEREBY MADE TO THE CONTRACT DOCUMENTS:

JUSTIFICATION:

CHANGE TO CONTRACT PRICE:

Original Contract Price \$ _____.

Current Contract Price adjusted by previous Change Order \$ _____.

The Contract Price due to this Change Order will be (increased) (decreased) by: \$ _____.

The new Contract Price including this Change Order will be \$ _____.

CHANGE TO CONTRACT TIME:

The Contract Time will be (increased) (decreased) by _____ calendar days.

The date for completion of all work will be _____.

All other provisions of document number _____ shall remain in full force and effect.

Requested by (Engineering Planning Chief) _____

Accepted by (Contractor) _____

Approved by (Director of Engineering) _____

Approved by (Director of Finance) _____

Approved as to form (Director of Law) _____

Ordered by (Mayor) _____

STATEMENT OF BIDDER'S QUALIFICATIONS

(To be submitted by the Bidder only upon the specific request of the Local Public Agency.)

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.

1. Name of Bidder.
2. Permanent main office address, including City, State, and Zip Code.
3. When organized.
4. If a corporation, where incorporated.
5. Contracts on hand: (Schedule these, showing gross amount of each contract and the appropriate anticipated dates of completion.)
6. General character of work performed by your company.
7. Have you ever failed to complete any work awarded to you? If so, where and why?
8. Have you ever defaulted on a contract? If so, where and why?
9. List the more important contracts recently completed by you, stating approximate gross cost for each, and the month and year completed.
10. List your major equipment available for this contract.
11. Experience in reinforced concrete and masonry retaining walls, grading, paving, and other work similar in importance to this project.
12. Background and experience of the principal members of your organization including the officers.
13. Credit available: \$ _____.
14. Give bank reference.
15. Will you upon request, fill out a detailed financial statement and furnish any other information that may be required by the City of Knoxville?
16. (a) Have you ever been a party to or otherwise involved in any action or legal proceeding involving matters related to race, creed, nationality, sex, religion or nationality? If so, give full details.

(b) Have you ever been accused of discrimination based upon race, color, sex, nationality, or religion in any action or legal proceeding, including any proceeding related to any Federal Agency? If so, give full details.

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

Dated at _____ this _____ day of _____, 20____.

By

Title

State of _____)

)ss

County of _____)

_____ being duly sworn, deposed and

says that he is the _____ 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 _____, 20____.

Notary Public

My commission expires

CONTRACT AGREEMENT

THIS AGREEMENT made this _____ day of _____, by and between the CITY OF KNOXVILLE, a municipal corporation organized and existing under the laws of the State of Tennessee, and _____.

WHEREAS, the Purchasing Agent for the City of Knoxville advertised for competitive sealed bids for the “_____”, Project No. _____ and

WHEREAS, _____ submitted the lowest qualified (Unit Price Bid)(Lump Sum Bid) _____, which bid was approved by the Council of the City of Knoxville on _____, by Resolution _____.

NOW, THEREFORE, the CITY OF KNOXVILLE and

for the mutual considerations stated herein agree as follows:

1. STATEMENT OF WORK. _____

shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, and perform and complete all work required on the _____, and required supplemental work for the City of Knoxville, Tennessee, all in strict accordance with the contract documents for said project including all addenda thereto as prepared by the Engineering Department of the City of Knoxville and dated April 3, 2017.

II. CONTRACT PRICE. The City of Knoxville shall pay to _____
for the satisfactory performance of the contract in current funds, subject to additions and deductions
and in accordance with the (Unit Prices Bid)(Lump Sum Bid) as provided in the contract documents,
but not to exceed the sum of _____ unless modified by a Contract Change Order.

III. CONTRACT. The executed Contract Documents shall consist of the following:

- a. This contract
- b. Addenda
- c. Invitation for Bids
- d. Instructions to Bidders
- e. Signed copy of Bid and Proposal
- f. General Conditions
- g. Supplemental General Conditions
- h. Special Conditions
- i. Technical Specifications
- j. Drawings

This Agreement, together with other documents enumerated in this Article III, which said other documents are as fully a part of the contract as if hereto attached or herein repeated, forms an Agreement between the parties hereto.

IN WITNESS WHEREOF, the CITY OF KNOXVILLE and _____

have caused this Agreement to be executed in five copies on the day and year first written above.

CITY OF KNOXVILLE

By
MADELINE ROGERO
Mayor

APPROVED AS TO FORM
AND CORRECTNESS:

CHARLES SWANSON
Senior Law Director

By:

(Title)

(Business Address)

(Date)

DRUG-FREE WORKPLACE AFFIDAVIT

State of

County of

_____, being duly sworn, deposes, and says that:

- (1) He/She is a principal officer of _____, the firm that has submitted the attached Proposal, his or her title being _____ of the firm; and
- (2) He/She has personal knowledge of the policies of the above-named firm with respect to the maintenance of a drug-free workplace; and
- (3) He/She certifies that all provisions and requirements of the Tennessee Drug-Free Workplace Program, as established by Tenn. Code Ann. §§ 50-9-100 et. seq., have been met and implemented.

(Signed)

(Title)

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

Title

My Commission expires

IRAN DIVESTMENT ACT of 2014

Certification of Noninclusion

NOTICE: Pursuant to the Iran Divestment Act of 2014, Tenn. Code Ann. § 12-12-106 requires the State of Tennessee Chief Procurement Officer to publish, using creditable information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105. Inclusion on this list makes a person ineligible to contract with the state of Tennessee; if a person ceases its engagement in investment activities in Iran, it may be removed from the list. A list of entities ineligible to contract in the State of Tennessee Department of General Services or any political subdivision of the State may be found here:

[https://www.tn.gov/assets/entities/generalservices/cpo/attachments/List of persons pursuant to Tenn. Code Ann. 12-12-106, Iran Divestment Act-July.pdf](https://www.tn.gov/assets/entities/generalservices/cpo/attachments/List_of_persons_pursuant_to_Tenn._Code_Ann._12-12-106,_Iran_Divestment_Act-July.pdf)

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 T.C.A. § 12-12-106.

Vendor Name (Printed)	Address
By (Authorized Signature)	Date Executed
Printed Name and Title of Person Signing	

NOTARY PUBLIC:

Subscribed and sworn to before me this _____ day of _____, 2_____.

My commission expires: _____

GENERAL CONDITIONS

GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports, and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services and Facilities
7. Inspection and Testing
8. Substitutions
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10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
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21. Insurance Requirements for Contractors
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33. Work by Utilities
34. Maintenance
35. Estimate of Quantities
36. Air Pollution and Dust Control
37. Care of Work
38. Tennessee One Call
39. Notice of City Procurement Code Prohibitions
40. Prevailing Wages
41. Equal Business Opportunity Program
Forms

1. Definitions - Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:
 - 1.1 Abbreviations -

AASHTO	American Association of State Highway and Transportation Officials
ASTM	American Society for Testing and Materials
KUB	Knoxville Utilities Board
TDOTSS	Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction, 2015
 - 1.2 Approved (also "directed," "required," "permitted") shall mean as approved, directed, required or permitted by the Engineer, unless specified otherwise.
 - 1.3 Addenda - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawing, and Specifications, by additions, deletions, clarifications or corrections.
 - 1.4 Bid - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed. Included in the Bid Schedule which shall list all items to bid upon, and the total bid price for the Work.
 - 1.5 Bidder - Any person, firm, or corporation submitting a Bid for the Work.
 - 1.6 Bonds - Bid, Performance, and Payment Bonds and other instruments of security, furnished by the Contractor and his surety in accordance with the Contract Documents.
 - 1.7 Change Order - A written order to the Contractor authorizing an addition, deletion or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.
 - 1.8 Contract Documents - The Contract including Advertisement for bids, Information for Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Notice of Award, Notice to Proceed, Change Order, Drawings, Specifications, Addenda, General Conditions, Supplemental General Conditions, and Certificate of Owner's Attorney.
 - 1.9 Contract Price - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.
 - 1.10 Contract Time - The number of calendar days stated in the Contract Documents for the completion of the Work.
 - 1.11 Contractor - The person, firm, or corporation with whom the Owner has executed the Agreement.

- 1.12 Drawings - The part of the Contract Documents which show the characteristics and scope of the Work to be performed and which have been prepared or approved by the Engineer.
- 1.13 Engineer - The Director of Engineering or his duly authorized assistant or representative.
- 1.14 Field Order - A written order effecting a change in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Engineer to the Contractor during construction.
- 1.15 Notice of Award - The written notice of the acceptance of the Bid from the Owner to the successful Bidder.
- 1.16 Notice to Proceed - Written communication issued by the Owner to the Contractor authorizing him to proceed with the work and establishing the date of commencement of the Work.
- 1.17 Owner - City of Knoxville, Tennessee
- 1.18 Plans - The approved Plans, profiles, cross-sections, working drawings and supplemental drawings which show the location, character, dimensions, and details of the construction to be performed.
- 1.19 Project - The undertaking to be performed as provided in the Contract Documents.
- 1.20 Resident Project Representative - The authorized representative of the Director of Engineering who is assigned to the Project site or any part thereof.
- 1.21 Shop Drawings - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor, which illustrate how specific portions of the Work shall be fabricated or installed.
- 1.22 Specifications - A part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- 1.23 Subcontractor - An individual, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.
- 1.24 Substantial Completion - That date as certified by the Engineer when the construction of the Project or a specified part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it is intended.
- 1.25 Supplemental General Conditions - Modifications and Additions to General Conditions as deemed necessary by the Owner or Engineer prior to inclusion in the Contract Documents.

- 1.26 Suppliers - Any person, supplier, or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.
 - 1.27 Work - All labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in the Project.
 - 1.28 Written Notice - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at his last given address, or delivered in person to said party or his authorized representative on the Work.
2. Additional Instructions and Detail Drawings
 - 2.1 The Contractor may be furnished additional instructions and detail drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents.
 - 2.2 The additional drawings and instruction thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions.
3. Schedules, Reports, and Records
 - 3.1 The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data as the Owner may request concerning Work performed or to be performed.
 - 3.2 Prior to the first partial payment estimate, the Contractor shall submit schedules showing the order in which he proposes to carry on the Work, including dates at which we will start the various parts of the Work, estimated date of completion of each part and, as applicable:
 - 3.2.1 The dates at which special detail drawings will be required; and
 - 3.2.2 Respective dates for submission of Shop Drawings, the beginning of manufacture, the testing and the installation of materials, supplies and equipment. Each such schedule to be subject to change from time to time in accordance with the progress of the Work.
4. Drawings and Specifications
 - 4.1 The intent of the Drawings and Specifications is that the Contractor shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the Work in accordance with the Contract Documents and all incidental work necessary to complete the Project in an acceptable manner, ready for use, occupancy or operation by the Owner.
 - 4.2 In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed drawings shall govern over general drawings. Anything mentioned in the Specifications and not

shown on the Drawings or shown on the Drawings and not mentioned in the Specifications shall be of like effect as if shown or mentioned in both.

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

5. Shop Drawings

- 5.1 The Contractor shall provide Shop Drawings as may be necessary for the prosecution of the Work as required by the Contract Documents. The Engineer shall promptly review all Shop Drawings. The Engineer's approval of any Shop Drawing shall not release the Contractor from responsibility for deviations from the Contract Documents. The approval of any Shop Drawing which substantially deviates from the Requirement of the Contract Documents shall be evidenced by a Change Order.

- 5.2 When submitted for the Engineer's review, Shop Drawings shall bear the Contractor's certification that he has reviewed, checked and approved the Shop Drawings and that they conform to the requirements of the Contract Documents.

- 5.3 Portions of the Work requiring a Shop Drawing or sample submission shall not begin until the Shop Drawing or submission has been approved by the Engineer.

6. Materials, Services and Facilities

- 6.1 It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete and deliver the Work within the specified time.

- 6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection.

- 6.3 Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

- 6.4 Materials, supplies and equipment shall be in accordance with samples submitted by the Contractor and approved by the Engineer.

- 6.5 The Contractor warrants that he has good title to all materials, supplies, and equipment used by him in the work. Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or the Subcontractor subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

- 6.6 All materials required in the Work may be stored on the site subject to approval by the Engineer, but all such materials and machinery shall be neatly and compactly stored in such a manner as to cause the least inconvenience to property owners and traffic. All fire hydrants, water and gas shut-off boxes, and other underground utility accesses must be kept free and unobstructed at all times. Proper lighting and signing must be provided to warn the traffic of any obstructions caused by the storage of materials or equipment upon public thoroughfares.
- 6.7 The Contractor shall make his own arrangements for delivery and handling of equipment and materials as he may require for the prosecution of the Work. The location of all temporary lines, roadways and similar facilities shall be subject to the approval of the Engineer and these shall be located and operated so as not to interfere with other work carried on by the Owner or by other Contractors. These temporary power lines, roadways or other facilities which the Contractor furnishes, installs, maintains, and removes may be used by the Owner or other Contractors at such reasonable times as may be directed by the Engineer.
- 6.8 Adequate sanitary facilities shall be provided by the Contractor. All such sanitary facilities shall conform to the requirements of the Tennessee Department of Public Health and the Knoxville-Knox County Health Department.
7. Inspection and Testing
- 7.1 All materials and equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with accepted standards.
- 7.2 The Contractor shall provide at his expense the necessary testing and inspection services required by the Contract Documents, unless otherwise provided.
- 7.3 Where mill tests of materials are found necessary by the Engineer to be used for acceptance, the Contractor shall furnish certified copies of such mill tests.
- 7.4 Where shop equipment performance tests are specified, the Engineer shall be permitted to witness such tests. In the absence of a witnessed test, certified copies of shop tests shall be submitted at the discretion of the Engineer.
- 7.5 The Owner shall provide all other inspection and testing services not required by the Contract Documents. No payment will be made to the Contractor for samples taken for tests, such as concrete cylinders, etc.
- 7.6 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.
- 7.7 Neither observations by the Engineer nor inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

- 7.8 The Engineer and his representatives will at all times have access to the Work. In addition, authorized representatives and agents of any participating Federal or state agency shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection, or testing thereof.
- 7.9 If any Work is covered contrary to the written request of the Engineer, it must if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense.
- 7.10 If any Work has been covered which the Engineer has not specifically requested to observe prior to its being covered, or 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, testing and reconstruction and an appropriate Change Order shall be issued.
8. Substitutions
- 8.1 Whenever a material, article or piece of equipment is identified on the Drawings or Specifications by reference to brand name or catalogue number, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The Contractor may recommend the substitution of a material, article, or piece of equipment of equal substance and functions for those referred to in the Contract Documents by reference to brand name or catalogue number and if, in the opinion of the Engineer, such material, article, or piece of equipment is of equal substance and function to that specified, the Engineer may 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 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 will be made by the Contractor without a change in the Contract Price or Contract Time.
9. Patents
- 9.1 The Contractor shall pay all applicable royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and save the Owner harmless from loss on account thereof except that the Owner shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified, but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Engineer.
10. Survey, Permits, Regulations
- 10.1 The Owner shall furnish all land 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 as shown in the Contract Documents. Unless otherwise specified in the Contract Documents, the Contractor shall furnish all lines, profiles, grades and measurements necessary for proper construction of the project.

- 10.2 The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or negligent destruction by the Contractor, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.
- 10.3 Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. 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 Section 13, Changes in the Work.
- 10.4 Construction and demolition debris must be disposed of in a state permitted and approved construction and demolition landfill (TDEC Class I, III, or IV).
- 10.5 Debris shall be removed and transported in such a manner that prevents spillage on streets or adjacent areas. Federal, State and local regulations regarding hauling and disposal of waste shall apply.
11. Protection of Work, Property and Persons
 - 11.1 The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of Construction.
 - 11.2 The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, and not attributable directly or indirectly in whole or in part to the fault or negligence of the Contractor.
 - 11.3 In emergencies affecting the safety of persons or the Work or property at the side or adjacent

thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, 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 the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

- 11.4 In order to protect the lives and health of his employees under the Contract, the Contractor shall comply with all pertinent provisions of the "Manual of Accident Prevention in Construction" issued by the Associated General Contractors of America, Inc., and shall maintain an accurate record of all cases of death, occupational disease and injury requiring medical attention or causing loss of time from work, arising out of and in course of employment on work under the Contract.
- 11.5 The Contractor alone shall 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.
- 11.6 The Contractor shall, at his own expense, shore up and protect any buildings, bridges, or other public or private structures which may be encountered or endangered in the prosecution of the Work, and that may not be otherwise provided for, and he shall repair and make good any damages to such property by reason of his operations. All existing fences which due to prosecution of the Work that were removed shall be replaced by the Contractor. No extra payment will be made for said work or materials unless specified.
- 11.7 Contractor shall repair or replace at his own expense any property pins, bench marks, existing water pipes, sewers, drainage ditches and all plantings including grass that are damaged during construction. The site shall be left in its present condition after all clean up work has been done. Any damage to drainage or water pipes, local sewers, planting including grass, utilities, roads, parking space or other structures, shall be repaired and replaced immediately in the condition found. Such repairs and replacements shall be at the expense of the Contractor.
- 11.8 Contractor will be required, at his own expense, to do everything necessary to support, protect and sustain all sewer, water or gas pipes; service pipes; electric lights; power, telephone or telegraph poles; conduits; and other fixtures laid across or along the site of the Work. The Engineer, as well as the company or corporation owning said poles, pipes or conduits must be notified by the Contractor before any such fixtures are removed or molested. In case any of the said sewer, gas, or water pipes; service pipes; electric lights; power; telephone or telegraph poles; conduits; or other fixtures be damaged, they shall be repaired by the authorities having control of the same, and the expense of said repairs shall be deducted from the monies due or to become due the Contractor under this Contract.
- 11.9 Should it become necessary to temporarily change the position or remove poles, electric conduits, water pipes, gas pipes, or other pipes or wires, the Contractor shall notify the Engineer and company or the corporation owning the said poles, pipes or conduits of the location and circumstances, and shall cease work if necessary until satisfactory arrangements have been made by the owners of the said poles, pipes, conduits or wires to properly care for

the same. No claims for damages will be allowed on account of any delay occasioned thereby. The entire cost of such temporary changes or removal must be included in the unit or lump sum prices bid for the various items under this Contract.

11.10 Before, during and after installation, the Contractor shall furnish and maintain satisfactory protection to all equipment against injury by weather, flood or breakage, thereby permitting the Work to be left in a perfect condition at the completion of the Contract. No extra payment will be made for this work but the entire cost of the same shall be included in the price bid for the construction of the work done under this contract.

12. Supervision by Contractor

12.1 The Contractor will supervise and direct the Work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will 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.

13. Changes in the Work

13.1 The Owner may at any time, as the need arises, order changes within the scope of the Work without invalidating the Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the Work, an equitable adjustment shall be authorized by Change Order. All Change Orders must be approved by the Owner and the Engineer.

13.2 The Engineer, also, may at any time, by issuing a Field Order make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such Field Order entitles him to a change in Contract Price or Time, or both, in which event he shall give the Engineer Written Notice thereof within fifteen (15) days after the receipt of the ordered change, and the Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the Owner.

13.3 No claim for extra work or cost shall be allowed unless the same was done in pursuance of a written order of the Engineer approved by the Owner, and the claim presented with the first estimate after the change or extra work is done. When the Work is performed under the terms of Article 14 of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

14. Changes in Contract Price

14.1 The Contract Price may be changed only by a Change Order. The value of any Work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:

- (a) Unit prices previously approved.
- (b) An agreed lump sum.
- (c) The actual cost for labor, direct overhead, materials supplies, equipment, and other services necessary to complete the work. In addition there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the Work to cover the cost of general overhead and profit.

15. Time for Completion and Liquidated Damages

15.1 The date of beginning and the time for completion of the Work are essential conditions of the Contract Documents and the Work embraced shall be commenced on a date specified in the Notice to Proceed.

15.2 The Contractor will proceed with the Work at such rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration average climatic and economic conditions and other factors prevailing in the locality of the Work.

15.3 If a Contractor shall fail to complete the Work within the Contract Time, or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages as specified in the Bid for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

15.4 The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the Work is due to the following, and Contractor has promptly given Written Notice as such delay to the Owner or Engineer.

15.4.1 To any preference, priority or allocation order duly issued by the Owner.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

15.4.3 To any delays of Subcontractors occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

16. Correction of Work

16.1 The Contractor shall promptly remove from the premises all Work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the Work in accordance with

the Contract Documents and without expense to the Owner and shall bear the expense of making good all Work of other Contractors destroyed or damaged by such removal or replacement.

16.2 All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within ten (10) days after receipt of Written Notice, the Owner may remove such Work and store the materials at the expense of the Contractor.

16.3 If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the Work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgement of the Engineer shall be equitable.

17. Subsurface Conditions

17.1 The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by Written Notice of:

17.1.1 Subsurface or latent physical conditions at the site, differing materially from those indicated in the Contract Documents; or

17.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in Work of the character provided for in the Contract Documents.

17.2 The Owner shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the Work, and equitable adjustment shall be made and the Contract Documents shall be modified by a Charge Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required Written Notice; provided that the Owner may, if he determines the facts justify, consider and adjust any such claims asserted before the date of final payment.

17.3 If the Bidder wishes to make borings for his own use, the Owner will make the site of the Work available to the Bidder to do this exploratory work. Written permission must be obtained from the Engineer before the Bidder begins Work on the site. Cost of such borings shall be at the expense of the Bidder.

18. Suspension of Work, Termination and Delay

18.1 The Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the Contractor, by Written Notice to the Contractor and the Engineer on which Notice shall fix the date on which Work shall be resumed. The Contractor will resume that Work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.

- 18.2 If the Contractor is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to Subcontractors or for labor, materials or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the Work or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and his surety a minimum of ten (10) days from delivery of a Written Notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the Work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.
- 18.3 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.
- 18.4 After ten (10) days from delivery of a Written Notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Contract. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable profit.
- 18.5 If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety (90) days by the Owner or under an order of court or other public authority, or the Engineer fails to act on any request for payment within thirty (30) days after it is submitted, or the Owner fails to pay the Contractor substantially the sum approved by the Engineer or awarded by arbitrators within thirty (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a Written Notice to the Owner and the Engineer, terminate the Contract and recover from the Owner payment for all Work executed and all expenses sustained. In addition and in lieu of terminating the Contract, if the Engineer has failed to act on a request for payment or if the Owner has failed to make any payment as aforesaid, the Contractor may upon ten (10) days notice to the Owner and the Engineer stop the Work until he has been paid all amounts then due, in which event and upon resumption of the Work, Change Orders shall be issued for adjusting the Contract Price or extending the Contract Time or both to compensate for the costs and delays attributable to the stoppage of the Work.
- 18.6 If the performance of all or any portion of the Work is suspended, delayed, or interrupted as a result of a failure of the Owner or Engineer to act within the time specified in the Contract

Documents, or if no time is specified, within a reasonable time, an adjustment in the Contract Price or an extension of the Contract Time, or both, shall be made by Change Order to compensate the Contractor for the costs and delays necessarily caused by the failure of the Owner or Engineer.

- 18.7 The Owner may terminate this Agreement at any time, with or without cause, by written notice of termination to the Contractor. If the Owner terminates this Agreement, and such termination is not a result of a default by the Contractor, the Contractor shall be entitled to receive as its sole and exclusive remedy the following amount from the Owner, and the Owner shall have no further or other obligations to the Contractor: The amount due to the Contractor for work executed through the date of termination, not including any future costs, profits, or other compensation or payments which the Contractor would have been entitled to receive if the Agreement had not been terminated.
19. Payments to Contractor
- 19.1 Payment by the Owner to the contractor will be made on a monthly basis. Work performed during the month will be submitted by the Engineer for payment on or before the 10th day of the following month. Payment will then be made by the City of Knoxville Finance Department to the Contractor. The Owner shall retain five (5%) percent of all work covered by the Contract Documents.
- 19.2 The Contractor may request partial payment for materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site. Such a request shall be accompanied by supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment and protect his interest therein, including applicable insurance.
- 19.3 All Work covered by payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work upon which payments have been made or the restoration of any damage Work, or as a waiver of the right of the Owner to require the fulfillment of all terms of the Contract Documents.
- 19.4 Upon completion and acceptance of the Work, the Engineer shall issue a certificate attached to the final payment request that the Work has been accepted by him under conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the Owner, shall be paid to the Contractor within thirty (30) days of completion and acceptance of the Work.
- 19.5 The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the Work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been

fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

19.6 No separate payment will be made for any items specified in the General Conditions, Supplementary General Conditions or the General Provision, Payments for such items shall be included in the unit price and lump sum prices bid by the Contractor for items listed in the Bid Schedule.

20. Acceptance of Final Payment as Release

20.1 The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor other than claims in state amounts as may be specifically excepted by the Contractor for all things done or furnished in connection with this Work and for every act and neglect of the Owner and others relating to or arising out of this Work. Any payment, however, final or otherwise, shall not release the Contractor or his sureties from any obligations under the Contract Documents or the Performance Bond and Payment Bonds.

21. Insurance Requirements for Contractors

21.1 Contractor shall at its sole expense obtain and maintain in full force and effect for the duration of the Agreement and any extension hereof at least the following types and amounts of insurance for claims which may arise from or in connection with this Agreement. All insurance must be underwritten by insurers with an A.M. Best rating of A-VIII or better.

21.2 *Commercial General and Umbrella Liability Insurance:* occurrence version commercial general liability insurance, and if necessary umbrella liability insurance, with a limit of not less than \$2,000,000 each occurrence for bodily injury, personal injury, property damage, and products and completed operations. If such insurance contains a general aggregate limit, it shall apply separately to the work/location in this Agreement or be no less than \$3,000,000.

Such insurance shall:

- a. Contain or be endorsed to contain a provision that includes the City, its officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations. The coverage shall contain no special limitations on the scope of its protection afforded to the above-listed insureds. Proof of additional insured status up to and including copies of endorsements and/or policy wording will be required.
- b. For any claims related to this project, Contractor's insurance coverage shall be primary insurance as respects the City, its officers, officials, employees, and

volunteers. Any insurance or self-insurance programs covering the City, its officials, officers, employees, and volunteers shall be excess of Contractor's insurance and shall not contribute with it.

- c. At the sole discretion of the City, dedicated limits of liability for this specific project may be required.

21.3 *Automobile Liability Insurance:* including vehicles owned, hired, and non-owned, with a combined single limit of not less than \$1,000,000 each accident. Such insurance shall include coverage for loading and unloading hazards. Insurance shall contain or be endorsed to contain a provision that includes the City, its officials, officers, employees, and volunteers as additional insureds with respect to liability arising out of automobiles owned, leased, hired, or borrowed by or on behalf of Contractor.

21.4 *Workers' Compensation Insurance.* Contractor shall maintain workers' compensation insurance with statutory limits as required by the State of Tennessee or other applicable laws and employers' liability insurance with limits of not less than \$500,000. Contractor shall require each of its subcontractors to provide Workers' Compensation for all of the latter's employees to be engaged in such work unless such employees are covered by Contractor's workers' compensation insurance coverage. Such insurance shall include a waiver of subrogation in favor of the City. Proof of waiver of subrogation up to and including copies of endorsements and/or policy wording will be required.

21.5 *Other Insurance Requirements.* Contractor shall:

- a. Prior to commencement of services, furnish the City with original certificates and amendatory endorsements effecting coverage required by this section and provide that such insurance shall not be cancelled, allowed to expire, or be materially reduced in coverage except on 30 days' prior written notice to the City Attorney of Knoxville, P.O. Box 1631, Knoxville, Tennessee 37901. Proof of policy provisions regarding notice of cancellation will be required.
- b. Upon the City's request, provide certified copies of endorsements and policies in lieu of or in addition to certificates of insurance. Copies of policies will only be requested when contracts are deemed to be extremely or uniquely hazardous, include a dollar amount that is significant to the overall budget of the City or a City Department, or the coverage(s) may not follow standard insurance forms. A policy will only be requested after the City's Risk Manager has reviewed the contract and proof of coverage has been provided. Should the certificate of insurance refer to specific coverage wording or endorsement(s), proof of such policy wording or endorsement(s) will be required.
- c. Replace certificates, policies, and endorsements for any such insurance expiring prior to completion of services.
- d. Maintain such insurance from the time services commence until services are completed. Failure to maintain or renew coverage or to provide evidence of renewal may be treated by the City as a material breach of contract.

- e. If Contractor cannot procure insurance through an insurer having an A.M. Best rating of A-VIII, Contractor may, in the alternative, place such insurance with insurer licensed to do business in Tennessee and having A.M. Best Company ratings of no less than A. Modification of this standard may be considered upon appeal to the City Law Director.
- f. Require all subcontractors to maintain during the term of the Agreement Commercial General Liability insurance, Business Automobile Liability insurance, and Workers' Compensation/Employer's Liability insurance (unless subcontractor's employees are covered by Contractor's insurance) in the same manner as specified for Contractor. Contractor shall furnish subcontractors' certificates of insurance to the City without expense immediately upon request.

Any deductibles and/or self-insured retentions greater than \$50,000 must be disclosed to and approved by the City of Knoxville prior to the commencement of services. Use of large deductibles and/or self-insured retentions will require proof of financial ability as determined by the City.

The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, and employees for losses arising from work performed by Contractor for the City. Proof of waiver of subrogation up to and including copies of endorsements and/or policy wording will be required.

All general liability policies must be written on an occurrence basis unless the Risk Manager determines that a claims made basis is reasonable in the specific circumstance. Use of policies written on a claims made basis must be approved by the Risk Manager and retroactive dates and/or continuation dates must be provided to the City prior to commencement of any work performed. Professional Liability and Environmental Liability (Pollution Coverage) are most commonly written on a claims made basis and are generally acceptable in that form.

- 21.6 Excess Liability Insurance: Contractor shall maintain excess liability insurance in addition to the insurance specified above with a limit of not less than \$2,000,000.00, each occurrence. This coverage shall be on a follow form basis.
- 21.7 Builders' Risk Insurance. Contractor shall procure and shall maintain or shall cause to be procured and maintained Builders' Risk Insurance on a replacement cost basis during the construction of the project. Insurance is to be on an "all risks" basis and shall insure against the perils of fire and extended coverage and physical loss or damage including, but not limited to, theft, vandalism, malicious mischief, collapse, temporary building and debris removal including demolition occasioned by enforcement of any applicable legal requirements and shall cover reasonable compensation for architect's services and expenses required as a result of such insured loss. Insurance is to cover all property of Contractor (and its subcontractors) and the City of Knoxville at the construction site. Coverage shall cover the completed value of the construction including without limitation, slab on grade, excavations, foundations, caissons, tenant finish work, and retaining walls around the perimeter of the project. Any exclusion of so-called underground damage to pipes, collapse

of structure, or damage resulting from explosion or blasting shall be deleted. This coverage shall be issued on a completed value form basis for 100% of the insurable replacement value of the project. Such policy shall provide that any loss thereunder shall be payable to Contractor, the City of Knoxville, and others as their interests may appear and shall also have a replacement cost endorsement. The insurer shall waive all rights of subrogation against the City. Partial occupancy or use shall not commence until the insurance company or companies providing the insurance have consented to such partial occupancy or use by endorsement or otherwise. Contractor shall be responsible for the deductible in the event of a loss.

22. Contract Security

22.1 The Contractor shall within fifteen (15) days after the receipt of the Notice of Award furnish the Owner with a Performance Bond and Payment Bond in penal sums equal to the amount of the Contract Price, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions and agreements of the Contract Documents, and upon the prompt payment by the Contractor to all persons supplying labor and materials in the prosecution of the Work provided by the Contract Documents. Such Bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the state in which the Work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these Bonds shall be borne by the Contractor. If at any time a surety on any such Bond is declared a bankrupt or loses its right to do business in the state in which the Work is to be performed or is removed from the list of Surety Companies accepted on Federal Bonds, Contractor shall within ten (10) days after notice from the Owner to do so, substitute an acceptable Bond (or Bonds) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on such Bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable Bond to the Owner.

23. Assignments

23.1 Neither the Contractor nor the Owner shall 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 other party.

23.2 In case the Contractor assigns all or any part of any monies due or to become due under this contract, the instrument of assignment shall contain a clause 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 call for in this contract.

24. Indemnification Clause

24.1 Contractor shall defend, indemnify and hold harmless the City, its officers, employees and agents from any and all liabilities which may accrue against the City, its officers, employees and agents or any third party for any and all lawsuits, claims, demands, losses or damages

alleged to have arisen from an act or omission of Contractor in performance of this Agreement or from Contractor's failure to perform this Agreement using ordinary care and skill, except where such injury, damage, or loss was caused by the sole negligence of the City, its agents or employees.

- 24.2 Contractor shall save, indemnify and hold the City harmless from the cost of the defense of any claim, demand, suit or cause of action made or brought against the City alleging liability referenced above, including, but not limited to, costs, fees, attorney fees, and other expenses of any kind whatsoever arising in connection with the defense of the City; and Contractor shall assume and take over the defense of the City in any such claim, demand, suit, or cause of action upon written notice and demand for same by the City. Contractor will have the right to defend the City with counsel of its choice that is satisfactory to the City, and the City will provide reasonable cooperation in the defense as Contractor may request. Contractor will not consent to the entry of any judgment or enter into any settlement with respect to an indemnified claim without the prior written consent of the City, such consent not to be unreasonably withheld or delayed. The City shall have the right to participate in the defense against the indemnified claims with counsel of its choice at its own expense.
- 24.3 Contractor shall save, indemnify and hold City harmless and pay judgments that shall be rendered in any such actions, suits, claims or demands against City alleging liability referenced above.
- 24.4 The indemnification and hold harmless provisions of this Agreement shall survive termination of the Agreement.
25. Separate Contracts
- 25.1 The Owner reserves the right to let other contracts in connection with this Project. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their Work, and shall properly connect and coordinate his Work with theirs. If the proper execution or results of any part of the Contractor's Work depends upon the Work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such Work that render it unsuitable for such proper execution and results.
- 25.2 The Owner may perform additional Work related to the Project by himself, or he may let other contracts containing provisions similar to these. The Contractor will afford the other Contractors who are parties to such Contracts (Or the Owner, if he is performing the additional work himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of Work, and shall properly connect and coordinate his Work with theirs.
- 25.3 If the performance of additional Work by other Contractors or the Owner is not noted in the Contract Documents prior to the execution of the Contract, written notice thereof shall be given to the Contractor prior to starting any such additional Work. If the Contractor believes that the performance of such additional Work by the Owner or others involves in additional expense or entitles him to an extension of the Contract Time, he may make claim therefore as provided in Sections 14 and 15.

26. Subcontracting

- 26.1 The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty Subcontractors. Work shall not be awarded to the Subcontractor without prior approval of the Owner.
- 26.2 The Contractor shall not award Work to Subcontractor(s), in excess of fifty (50%) percent of the Contract Price, without prior written approval of the Owner.
- 26.3 The Contractor shall be fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- 26.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.
- 26.5 Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

27. Engineer's Authority

- 27.1 The Engineer shall act as the Owner's representative during the construction period. He shall decide questions which may arise as to quality and acceptability of materials furnished and Work performed. He shall interpret the intent of the Contract Documents in a fair and unbiased manner. The Engineer will make visits to the site and determine if the Work is proceeding in accordance with the Contract Documents.
- 27.2 The Contractor will be held strictly to the intent of the Contract Documents in regard to the quality of materials, workmanship and execution of the Work. Inspections may be made at the factory of fabrication plant of the source of material supply.
- 27.3 The Engineer will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.
- 27.4 The Engineer shall promptly make decisions relative to interpretation of the Contract Documents.
- 27.5 The Engineer may appoint inspectors as he desires. An inspector is placed on the Work to keep the Engineer informed as to the progress and manner in which construction is being done, and to assure adherence by the Contractor to the Drawings and Specifications. The inspector will have the authority to reject defective materials and to suspend any construction that is being improperly done, subject to final decision of the Engineer. The inspector will not have the authority to revoke, alter, enlarge or relax the provisions of these conditions, or to issue instructions contrary to Drawings and Specifications.

28. Land and Rights-of-Way

28.1 Prior to issuance of Notice to Proceed, the Owner shall obtain all land and rights-of-way necessary for carrying out and for the completion of the Work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

28.2 The Owner shall provide to the Contractor information which delineates and describes the lands owned and rights-of-way acquired.

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

29. Guaranty

29.1 The Contractor shall guarantee all materials and equipment furnished and Work performed for a period of one (1) year from the date of Substantial Completion.

30. Taxes

30.1 The Contractor will pay all sales, consumer, use and other similar taxes required by the law of the place where the Work is performed.

31. Traffic Control

31.1 The Contractor shall submit to the City of Knoxville Traffic Engineer a traffic control plan for the roadways within the project area. The Contractor shall not begin construction until the traffic control plan has been approved by the Traffic Engineer. Flagmen, barricades, signs and traffic control furnished by the Contractor shall conform to the standards established in the latest edition of the "Manual on Uniform Traffic Control Devices," published by the U.S. Department of Transportation.

32. Job Offices and other Temporary Buildings

32.1 The Contractor shall furnish office space for the Resident Engineer. Space shall be at least 150 square feet in area and shall be located conveniently to the Work. Office shall be furnished with a desk, drafting table, applicable chairs, drawing rack, surveying instrument storage, telephone service, lights, heat, air conditioning, windows and one door with cylinder lock.

32.2 No shanties, camps or buildings for the housing of men employed on the Work shall be erected on land owned or leased by the Owner unless a permit, in writing, is secured from the Engineer allowing their construction. Should permission be asked and granted, the Contractor must comply with all regulations regarding the construction and maintenance of such buildings.

33. Work by Utilities

- 33.1 During the life of the contract, the Knoxville Utility Board Bureau of Water, Bureau of Gas and Bureau of Electricity; BellSouth Telephone Company, Scripps-Howard Cable Television, Traffic Engineering Department, and Service Department may install or adjust their respective utilities in the project area and work shall be performed by the Contractor in cooperation with the Utilities. The Contractor shall be responsible for the coordination of his work with the respective Utility Owner.
- 33.2 Any costs for relocation of the Utility during construction such as power poles, etc. to facilitate the work of the Contractor for the convenience of the Contractor shall be borne by the Contractor.
34. Maintenance
- 34.1 The Contractor shall undertake to provide reasonable maintenance for those items listed below and cost of said work shall be included in the unit or lump sum prices bid for the various items of Work under this Contract, and the manner of providing for this work shall meet with the approval of the Engineer:
- 34.1.1 The Contractor shall make ample provisions for both vehicular and pedestrian traffic on any public road. Effort must be made to minimize by-passing traffic during construction.
- 34.1.2 The Contractor shall furnish all the necessary equipment, shall take all necessary precautions and shall assume the entire cost of handling any sewage, seepage, storm, surface and flood flows which may be encountered at any time during the construction of the Work.
- 34.1.3 The Contractor shall lay and maintain temporary driveways, culverts, and crossings, such as in the opinion of the Engineer are necessary to reasonably accommodate the public.
- 34.1.4 The Contractor will minimize siltation and bank erosion during construction.
- 34.2 The contractor will be required to restore all street surfaces and utilities damaged by his operations to as good condition as they were previous to the work. He will be required to maintain all improvements, constructed by him, in good condition until they are accepted by the Engineer.
35. Estimate of Quantities
- 35.1 Wherever the estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of the Contract Documents including the proposal, they are given for use in comparing Bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the Work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

36. Air Pollution and Dust Control

36.1 The contractor shall comply with all air pollution control rules, regulations, ordinances, and statues which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statues, specified in the Tennessee Department of Public Health's, "Air Pollution Control Regulations" or any municipal regulations pertaining to air pollution.

36.2 All available precautions shall be taken to control dust. When the Engineer judges dust to be a problem, the Contractor shall control the dust by sprinkling, by applying calcium chloride, or by other methods as directed. Payment for dust control will be made at the applicable contract unit prices for the various items used and said contract unit prices will be full compensation for furnishing all materials, equipment, tools, labor and incidentals required to control dust. No additional compensation will be allowed for any costs incurred due to delays caused by necessary dust control operations.

37. Care of Work

37.1 The Contractor expressly undertakes at his own expense:

a. To clean up frequently all refuse, rubbish, scrap materials and debris caused by his operations, to the end that at all times the site of the Work shall present a neat, orderly and workmanlike appearance;

b. Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat, orderly condition;

37.2 The Owner expressly disclaims any responsibility for the accuracy or completeness of the information given on the Drawings with regard to existing structures and pipelines and the Contractor will not be entitled to any extra compensation on account of inaccuracy or incompleteness of such information, said structures and pipelines being shown only for the convenience of the Contractor who must verify the information to his own satisfaction. The giving of this information upon the Drawings will not relieve the Contractor of his obligations to support and protect all pipelines and other structures which may be encountered during the construction of the Work and to make good all damages done to such pipelines and structures.

38. Tennessee One Call

38.1 The Contractor shall notify Tennessee One Call (1-800-351-1111) 3 working days prior to any excavation in public street right-of-way. This is a requirement of Tennessee state law to protect facilities located within the right-of-way.

39. Notice of City Procurement Code Prohibitions

39.1 It shall be unlawful for any employee of the City to participate, directly or indirectly, through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or purchase standard, rendering of advice, investigation, auditing or otherwise, in any proceeding or application, request for ruling or other determination, claim or controversy or other matter pertaining to any contract or subcontract and any solicitation or proposal therefore, where to the employee's knowledge there is a financial interest possessed by:

- (1) The employee or the employee's immediate family;
- (2) A business other than a public agency in which the employee or a member of the employee's immediate family serves as an officer, director, trustee, partner or employee; or
- (3) Any other person or business with whom the employee or a member of the employee's immediate family is negotiating or has an arrangement concerning prospective employment.

39.2 It shall be unlawful for any member of council, member of the board of education, officer or employee of the city to have or hold any interest in the profits or emoluments of any contract, job, work or service, either by himself or by another, directly or indirectly. Any such contract for a job, work or service for the City in which any member of council, member of the board of education, officer or employee has or holds any such interest is void.

39.3 It is unlawful for any person to offer, give or agree to give to any person, while a city employee, or for any person, while a city employee, to solicit, demand, accept or agree to accept from other person, anything of a pecuniary value for or because of:

- (1) Any official action taken, or to be taken, or which could be taken;
- (2) A legal duty performed, or to be performed, or which could be performed; or
- (3) A legal duty violated, or to be violated, or which could be violated by such person while a City employee.

Anything of nominal value shall be presumed not to constitute a gratuity under this section. It is unlawful for any payment, gratuity or benefit to be made by or on behalf of a subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

40. Prevailing Wages

- 40.1 Contractor shall at all times in performing the work under this contract comply with the City's policy on payment of prevailing wages as set forth in the Knoxville Municipal Code sections 2-1016 et seq. More specifically, but without limiting the scope of these ordinances, Contractor shall pay not less than the prevailing wage rates for all types and classifications of the Contractor's employees as determined by the City Purchasing Department under section 2-1018 of the Knoxville Municipal Code. Contractor shall furnish to the City any forms, papers, payroll copies or other information that may be required by the City and the City shall have the right to audit Contractor's books to verify that the Contractor is in compliance with the provisions cited above.

DIVERSITY BUSINESS ENTERPRISE (DBE) PROGRAM

The City of Knoxville strongly encourages prime contractors to employ diverse businesses in the fulfillment of contracts/projects for the City of Knoxville.

The City of Knoxville's Fiscal Year 2017 goal is to conduct 3.33% of its business with minority-owned businesses, 9.21% of its business with women-owned businesses, and 45.5% with small businesses.

While the City cannot engage (pursuant to state law), in preferential bidding practices, the city does **strongly encourage** prime contractors to seek out and hire diverse businesses in order to help the city meet its goals as stated above. As such, the City encourages prime contractors to seek out and consider competitive sub-bids and quotations from diverse businesses.

For DBE tracking purposes, the City requests that prime contractors who are bidding, proposing, or submitting statements of qualifications record whether or not they plan to employ DBE's as sub-contractors or consultants. With that in mind, please fill out, sign and submit (with your bid/proposal) the following sub-contractor/consultant statement.

Subcontractor/Consultant Statement
(TO BE SUBMITTED IN THE BID/PROPOSAL ENVELOPE)

We _____ do certify that on the
(Bidder/Proposer Company Name)

_____ (Project Name)
(\$ _____)
(Amount of Bid)

Please select one:

Option A: Intent to subcontract using Diverse Businesses

A Diversity business will be employed as subcontractor(s), vendor(s), supplier(s), or professional service(s). The estimated **dollar value** of the amount that we plan to pay is:

\$ _____
Estimated Amount of Subcontracted Service

Diversity Business Enterprise Utilization			
Description of Work/Project	Amount	Diverse Classification (MOB, WOB, SB, SDOV)	Name of Diverse Business

Option B: Intent to perform work “without” using Diverse Businesses

We hereby certify that it is our intent to perform 100 % of the work required for the contract, work will be completed without subcontracting, or we plan to subcontract with non-Diverse companies.

DATE: _____ COMPANY NAME: _____

SUBMITTED BY: _____ TITLE: _____
(Authorized Representative)

ADDRESS: _____

CITY/STATE/ZIP CODE: _____

TELEPHONE NO: _____

CITY OF KNOXVILLE DIVERSITY BUSINESS DEFINITIONS

Diversity Business Enterprise (DBE's) are minority-owned (MOB), women-owned (WOB), service-disabled veteran-owned (SDVO), and small businesses (SB), who are impeded from normal entry into the economic mainstream because of past practices of discrimination based on race or ethnic background. These persons must own at least 51% of the entity and operate or control the business on a daily basis.

Minority: A person who is a citizen or lawful admitted permanent resident of the United States and who is a member of one (1) of the following groups:

- a. African American, persons having origins in any of the Black racial groups of Africa;
- b. Hispanic American, persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race;
- c. Native American, persons who have origin in any of the original peoples of North America ;
- d. Asian American, person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

Minority-owned business (MOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more minority individuals.

Woman-owned business (WOB) is a continuing, independent, for profit business that performs a commercially useful function, and is at least fifty-one percent (51%) owned and controlled by one (1) or more women.

Service Disabled Veteran-owned business (SDOV) is a continuing, independent, for profit business that performs a commercially useful function, owned by any person who served honorably on active duty in the armed forces of the United States with at least a twenty percent (20%) disability that is service connected. Meaning such disability was incurred or aggravated in the line of duty in the active military, naval or air service, and is at least fifty-one percent (51%) owned and controlled by one (1) or more service disabled veteran.

Small Business (SB) is a continuing, independent, for profit business which performs a commercially useful function and has total gross receipts of not more than ten million dollars (\$10,000,000) average over a three-year period or employs no more than ninety-nine (99) persons on a full-time basis.

SPECIAL CONDITIONS

SPECIAL CONDITIONS

General

All bidders must submit with their bid a non-collusion affidavit as contained in these documents.

Where there appears to be a discrepancy between the Special Conditions and any other part of the Contract documents and Specifications these Special Conditions shall govern.

The Contractors attention is called to the fact that in some instances reference may be made in the Technical Specifications to the 2006 edition of the Tennessee Department of Highway Standard Specifications for Road and Bridge Construction. This reference, if made, is amended to refer to the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction (TDOTSS) dated January 1, 2015, and any current revisions and special provision thereto.

The City of Knoxville reserves the right to increase or decrease quantities for the items listed in the Bid Proposal and also add or delete from the proposed construction.

Materials Testing and Sampling:

Materials for construction shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended. All testing, sampling, and inspection of materials, as described below, shall be provided and paid for by the Contractor. All materials testing shall utilize methods as detailed in the technical specifications or as approved by the Engineer. Personnel performing materials testing shall be properly certified and approved by the Engineer. It is the Contractor's responsibility to take said samples to an approved independent laboratory and obtain test results. A minimum of three copies of all test results shall be provided to the Engineer to verify conformance to contract specifications.

The materials testing required by the Contractor shall be as described below:

Grading:

Borrow excavation shall be tested to determine maximum density and optimum moisture content in accordance with AASHTO Designation T 99, Method C. The Engineer will determine the density of the soil in place in accordance with an approved AASHTO method.

Concrete:

Concrete shall be tested for slump, air entrainment, temperature and compressive strength for the first load of concrete delivered on the project. If the first load of concrete does not meet specifications, then each load delivered thereafter will be tested for slump, air entrainment and temperature until the concrete meets specifications. Once the concrete meets

specifications, then it shall be tested for slump, air entrainment, temperature and compressive strength a minimum of every fifth load of concrete delivered or as directed by the Engineer. Compressive strength testing shall consist of four (4) cylinders and tests performed at ages of 7, 28, 28 days and one reserve cylinder. Compressive strength tests shall be in accordance with AASHTO Designation T 22 and T 23. Air entrainment testing shall be in accordance with AASHTO Designation T 152. Slump testing shall be in accordance with AASHTO Designation T 119.

Core Drilling

The City of Knoxville reserves the right to core drill any pavement section and have the core evaluated for compliance with the appropriate specifications. The cost of such coring and testing shall be borne by the Contractor. These costs to the City of Knoxville shall be deducted from monies earned or to be earned by the Contractor.

Measurement

The Contractor will reconcile each day with the City of Knoxville Project Representative, materials incorporated into construction during that day, or materials shipped to the project and adequately stored and protected for which the Contractor requests payment.

The Contractors attention is specifically directed to Tennessee Code Annotated 47-26-101 Et seq. governing certification and bond of scale operators. The provisions of this code as well as all other Federal, State and City of Knoxville laws, ordinances, rules and regulations that are applicable to the construction of the project shall apply throughout the construction of the project. The City of Knoxville reserves the right to direct the contractors hauling units to a state, city or commercially owned scale to verify weights provided by the Contractor.

Tennessee One Call

Contractor shall notify Tennessee One Call prior to excavation on street right-of-way according to Tennessee State Law (1-800-351-1111).

Title VI Compliance

All bidders must comply with Title VI of the Civil Rights Act of 1964, as codified in 42 U.S.C. 2000d. The successful bidder must follow Title VI guidelines in all areas including hiring practices, open facilities, insurance, and wages. The City of Knoxville reserves the right to review all compliance records by a contract compliance officer designated by the City.

Prevailing Wage Rate

The attached wage rates are included herein and made a part of this contract in accordance with Chapter 2, Article VIII, "Procurement Code," of the City of Knoxville Code. The attached wage rates must be displayed at the job site. The Contractor agrees to comply with and to post the

prevailing wage laws as provided in the “Prevailing Wage Act of 1975,” Tennessee Code Annotated 12-4-401 et seq. Highway classification descriptions are found in the State of Tennessee Department of Labor & Workforce Development’s document “Classification of Workers Under Tennessee’s Prevailing Wage Law – Highway Construction Crafts.” This document can be found at <http://www.state.tn.us/labor-wfd/ClassificationHighway9-13-2006.htm> .

Certified Payrolls

The Contractor and subcontractors shall submit certified payrolls to the Engineer each week in which any work is performed. During construction, if the work of the Contractor or subcontractor will be interrupted for a week or more, the following statement shall be placed on the signature sheet of the payroll for the last week in which work was performed: “No additional work will be performed until further notice.”

In the event a work stoppage of a week or more occurs which is not anticipated, the Engineer shall be furnished the following statement on the signature sheet of the payroll form for the week immediately after the week in which work was interrupted: “No work performed, and no work will be performed until further notice.”

When work has ceased in either case as stipulated above, the Contractor or subcontractor shall note the following statement on the payroll for the week on which work is resumed: “Last previous work was performed the week ending _____.”

SUPPLEMENTAL SPECIAL CONDITIONS

I. PERMITS, LICENSES, EASEMENTS, AND REGULATIONS

A. GENERAL

1. Permits and licenses shall be obtained from the appropriate authorities having jurisdiction prior to beginning any Work on the project.
2. Contractor shall have copies of each specific permit and license at the job site prior to initiating construction of Work associated with the permit or license.
3. Copies of all permits and licenses obtained by the Contractor shall be supplied to the Owner prior to beginning any Work on the project.
4. Copies of permits and easements obtained by the Owner shall be supplied to the Contractor prior to beginning any Work on the project.
5. Contractor shall strictly adhere to all requirements, stipulations and conditions of each permit, license and/or easement.
6. Contractor shall comply with all permits, regulations and ordinances governing employee safety and health, hazardous materials and environmental protection.
7. Any problem noted in compliance with the permits, license and/or easement, or any proposed amendments by the Contractor shall be reported to the Engineer in writing before initiating or continuing with the Work.

B. REGULATIONS AND ORDINANCES

1. Contractor shall strictly adhere to all regulations and ordinances governing Work included in the construction of this Project, employee safety and health, hazardous materials and environmental protection for all activities associated with the project.
2. The enclosed list of applicable regulations and ordinances is included for general reference and should not be considered complete until verified by the Contractor to assure strict compliance.
3. The regulations and ordinances governing this Project shall include, but not necessarily be limited to:
 - a. Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Stormwater Regulations;
 - b. Tennessee Department of Environment and Conservation, Division of Solid Waste Management, all solid waste and hazardous materials regulations;
 - c. Tennessee Occupational Safety and Health Act, (TOSHA), Regulations; and
 - d. The Resident County, City and/or Utility District for the Project, regulations and ordinances governing Stormwater, Solid Waste, Employee Safety and Health, Hazardous Materials and Environmental Protection.

- C. PERMITS AND EASEMENTS SECURED BY THE OWNER** (Only permits specifically applicable to the project will be supplied)
1. Tennessee Department of Environment and Conservation - Stormwater Construction Permit;
 2. Tennessee Department of Environment and Conservation – Aquatic Resource Alteration Permit (ARAP);
 3. Resident County, City and/or Utility District Permits governing Construction, Stormwater and Erosion Control, Solid Waste, and Roadways;
 4. Other Permits and Easements specifically required and listed for this Project.
- D. PERMITS AND LICENSES TO BE SECURED AND PAID FOR BY THE CONTRACTOR** (Only Permits specifically applicable to the Project are required)
1. Tennessee Department of Commerce and Insurance Licenses for working as a Contractor in the State with applicable classification(s) for the specific work task(s) associated with this Project;
 2. Resident County, City and/or Utility District, Business and/or Contractors Licenses;
 3. U.S. Government; State of Tennessee; Resident County, City and/or Utility District Permit to transport or dispose of solid waste;
 4. State of Tennessee; Resident County, City and/or Utility District Permits and Licenses for Contractor's job site office, yard and utilities;
 5. Easements and other Agreements between the Contractor and other parties for use of property or utilities for the job site office, yard and other materials or equipment lay down or storage areas;
 6. Labor Unions, all applicable agreements;
 7. Tennessee Department of Transportation Permits and Licenses to transport materials and equipment to and from the job site(s); and
 8. Any and all other permits and/or licenses required of the Contractor for the complete and successful construction of the Project.

**STATE OF TENNESSEE TENNESSEE DEPARTMENT
OF TRANSPORTATION
2017 MINIMUM WAGE SCALES FOR STATE FUNDED CONSTRUCTION**

January 1, 2017

Tenn. DOL Decision No. T-40189

CLASSIFICATION (ENGLISH)	CLASSIFICATION (SPANISH)	Basic Hourly Rates	Craft No.
Bricklayer	Ladrillero	14.84	01
Carpenter / Leadsperson	Carpintero o Lider	18.23	02
Class "A" Operators	Operador Clase A	19.92	03
Class "B" Operators	Operador Clase B	17.77	04
Class "C" Operators	Operador Clase C	18.47	05
Class "D" Operators	Operador Clase D	17.15	06
Concrete Finisher	Terminador de Cemento	16.18	07
Drill Operator (Caisson)	Operador de Perfordora	26.28	08
Electrician	Electricista	25.06	09
Farm Tractor Operator (Power Broom)	Operador de Tractor de Rancho	14.05	10
Ironworkers (Reinforcing)	Herrero	16.95	11
Ironworkers (Structural)	Herrero de Estructura	17.58	12
Mechanic (Class I) Heavy Duty	Mecanico Clase 1	22.34	13
Mechanic (Class II) Light Duty	Mecanico Clase 2	20.32	14
Painter / Sandblaster	Pintor o Lajador	27.43	15
Powder Person / Blaster	Proveedor de Explosivos	20.58	16
Skilled Laborer	Obrero Diestro	15.89	17
Survey Instrument Operator	Operador de Agrimensor	20.45	18
Sweeping Machine (Vacuum) Operator	Operador de Barredora	16.20	19
Truck Driver (2 axles)	Camionero (2 ejes)	15.98	20
Truck Driver (3/4 axles)	Camionero (3 o 4 ejes)	15.46	21
Truck Driver (5 or more axles)	Camionero (5 o más ejes)	16.93	22
Laborer /Unskilled	Obrero no Diestro	13.64	23
Worksite Traffic Coordinator	Coordinar de Trafico en el Lugarde Trabajo	19.82	24
Crane Operator	Operador de la Grúa	21.27	25

CLASSIFICATION

CRAFT NO.

SKILLED LABORER:

17

Air Tool Operator, Asphalt Raker, Chain Saw Operator, Concrete Mixer Operator (less than 1 yard), Concrete Rubber/Edger, Fence Erector, Form Setter (Steel Road), Guardrail Erector, Mechanic's Helper (Tire Changer or Oiler), Mortar Mixer, Nozzelman or Gun Operator (Gunite), *Pipelayer, Sign Erector

CLASS "A" OPERATORS:

03

Backhoe/Hydraulic Excavator (3/4 yard and over), Crane (less than 20 tons see Crane Operator below), End Loader (3 yards and over), Motor Patrol (Finish), Pile Driver, Dragline

CLASS "B" OPERATORS:

04

Backhoe/Hydraulic Excavator (less than 3/4 yard), Bull Dozer or Push Dozer, End Loader (less than 3 yards), Motor Patrol (Rough), Tractor (Crawler/Utility), Scraper, Shovel, Trenching Machine

CLASS "C" OPERATORS:

05

Asphalt Paver, Concrete Finishing Machine, Concrete Paver, Scale, Spreader (Self-Propelled), Concrete Grinder, Asphalt Milling Machine, Boring Machine Operator (Horizontal)

CLASS "D" OPERATORS:

06

Bobcat, Central Mixing Plant, Concrete Pump, Concrete Saw, Curb Machine (Automatic or Manual), Dozer or Loader (Stockpile), Drill (Piling), Mulcher or Seeder, Rock Drill (Truck Mounted), Roller (Asphalt), Roller (Compaction Self-Propelled), Soil Stabilization Machine, Tractor (Boom & Hoist), Bituminous Distributor Machine, Pump, Track Drill, Striping Machine Operator, Ditch Paving Machine

CRANE OPERATOR:

25

Means one who operates boom-type equipment equal to or greater than 20 tons to hoist and move materials, raise and lower heavy weights and perform other related operations; may oil, grease or otherwise service and make necessary adjustments to equipment as needed; and may perform other related duties. (Note: The equipment is used for such work as pouring concrete and setting steel. This work is subject to strict inspection and must conform closely to specifications. The equipment may also be used for other miscellaneous tasks for which crane or stick-type equipment is required which may include hoist operations and pile driving operations.)

***Skilled Laborer - Pipelayer Classification**

For any work where prevailing wage rates apply which is located five feet or more outside the actual building if building construction is involved:

AND

(a) Which consists of the building, rebuilding, locating, relocating or repairing any street, highway, bridges, water lines, sewer lines, gas lines, force mains or other related utilities

OR

(b) Which involves the construction or upgrading of industrial parks or sites and is located outside the five foot limitation.

The classification of pipelayer shall be applicable and the description of work under this classification shall be as follows:

Lays, connects, inspects and tests water lines, force mains, gas lines, sanitary or storm sewers and drains, underground telephone and electric ducts or other utilities manufactured from clay, concrete, steel, plastic, cast iron pipe or other similar materials.

May smooth bottom of trench to proper elevation by scooping with a shovel; receives pipe lowered from top of trench; inserts spigot end of pipe into bell end of last laid pipe; adjusts pipe to line and grades, caulks and seals joint with cement or other sealing compound; may connect threaded or flanged joint pipe; may assemble and place corrugated metal or plastic pipe and performs other related duties.

Additional Information :

Wage Rates: <http://www.tennessee.gov/labor-wfd/prevail.html>

Poster Page: <http://www.state.tn.us/labor-wfd/poster.htm>

Note: Adobe Acrobat Reader is required in order to download & print. If you do not have this software a link is provided at the bottom of the Poster Page for a free download.

Tenn. Dept. of Labor & Workforce Development (Labor Standards Division) : (615)

741-2858. APPRENTICESHIP REGULATIONS:

Under T.C.A., §12-449, the Prevailing Wage Commission has promulgated Rule 0800-3-2-.04 which provides that: "Apprentices shall mean those persons registered individually under a bona fide apprenticeship program registered with the Bureau of Apprentiship and Training in the United States Department of Labor. The state agency contracting officer shall require the contractor or sub-contractor using the apprentice to submit evidence of his indenture and/or apprenticeship registration when the apprentice's name first appears on a submitting payroll."

AUTHORITY: T.C.A., §12-449. Administrative History: Original Rule filed June 4, 1976.
Effective: July 14, 1976.

TECHNICAL SPECIFICATIONS

Contract Documents and Specifications

City of Knoxville, Tennessee

FOUNTAIN CITY LAKE PHASE II



CITY OF KNOXVILLE

Knoxville, Tennessee

TECHNICAL SPECIFICATIONS

CITY OF KNOXVILLE
FOUNTAIN CITY LAKE PHASE II
TECHNICAL SPECIFICATIONS
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TECHNICAL SPECIFICATIONS
FOR
MOBILIZATION OF FORCES, SUPPLIES, AND EQUIPMENT

1. Description

This work shall consist of the mobilization of forces, supplies, equipment and incidentals at the project site. It shall include all 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.

2. 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.

<u>% of Total Contract Amount on Estimate</u>	<u>% Allowed This Item</u>
Not less than	
5%	40%
10%	70%
25%	100%

<u>Amount of Contract</u>	<u>Maximum Amount Allowed</u>
0 - \$100,000	8% of Contract Amount
\$100,000 - \$500,000	\$4,000 + 3% of Contract Amount
\$500,000 or greater	\$14,000 + 1% of Contract Amount

3. Basis of Payment

Partial payments for Mobilization will be made on the basis of a percentage of the lump sum price bid or of the current maximum allowable as indicated in the Payment Schedule above, whichever is smaller. Full payment for Mobilization will be made in accordance with the provisions set out in the Payment Schedule above, which price shall be full compensation for organizing the 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.



TECHNICAL SPECIFICATIONS
FOR
CLEARING AND GRUBBING

1. Description

This work shall consist of clearing, grubbing, removal, and satisfactory disposal of all materials within the project limits, except those items designated to remain, or to be removed in accordance with other sections of these Specifications.

2. Construction Methods

- (a) The project area shall be cleared of all dead trees, stumps, brush, hedges, weeds, logs and other objectionable material and vegetation within 6" of the ground surface.
- (b) In areas where excavation is to be made and 5 feet beyond the excavation limits, all trees, stumps, roots, brush, hedge, heavy growth of vegetation, etc., shall be cleared and grubbed.
- (c) In areas where embankments are to be constructed, all trees, stumps, roots, brush, hedge, heavy growth of vegetation, etc., shall be cleared and grubbed to a point 5 feet beyond slope intercepts. All depressions made below the ground surface shall be refilled with suitable material and compacted before the embankment is started. Unsatisfactory material such as brush, hedge, roots, stump, branches and logs of trees, heavy vegetation, etc. shall not be embedded or buried within the embankment.
- (d) This work shall include the preservation from injury of all trees and other vegetation that are not within designated areas of clearing and grubbing, unless marked for removal by the Engineer.
- (e) Branches of trees extending over the roadway shall be trimmed symmetrically to provide a clear height of twenty feet above the finished roadway elevation.
- (f) All slopes of cuts, embankments, ditches, channels, waterways and all structures, both old and new, shall be cleared and cleaned of all brush, hedges, weeds, heavy vegetation, obstruction, rubbish and other objectionable material or growth; and shall be maintained in a neat, serviceable and satisfactory condition until the project is accepted.
- (g) Borrow pits and other material pits shall be cleared and grubbed of all trees, stumps, roots, brush, hedge, and other heavy growths of vegetation, and in addition shall be stripped of overburden laying above the material to be obtained. This work is to be completed before any excavation is made in the pit area.
- (h) All clearing and grubbing shall be completed a satisfactory distance ahead of the construction operations before construction stakes are set.

- (i) All materials and debris from the clearing and grubbing operation shall be burned, completely destroyed, or otherwise disposed of from the project limits by the Contractor in a satisfactory manner. The Contractor must obtain written permission from any property owner if private property is used for disposal, and furnish a copy to the Engineer. All Federal, State, County and City laws, regulations and ordinances related to burning or disposal shall be observed.

3. Method of Measurement

- (a) Clearing and Grubbing shall be of all areas indicated in the Contract Documents and paid for as a lump sum. No measurement of area will be made.
- (b) When changes in the Contract Documents affect the area to be cleared and grubbed, a proportionate adjustment for increased or decreased area will be made.

4. Basis of Payment

- (a) This item will be paid for at the Contract unit price per lump sum for Clearing and Grubbing. This price will be full compensation for completing the Clearing and Grubbing as outlined in the Plans and these Specifications including all labor, materials, and equipment necessary to complete the work.
- (b) When proportionate payments are made, they will be based on the completed percentage of the total clearing and grubbing specified.

TECHNICAL SPECIFICATIONS
FOR
REMOVAL OF STRUCTURES AND OBSTRUCTIONS

1. Descriptions

This work shall consist of the removal, wholly or in part, and satisfactory disposal of all structures, old pavements, and other designated obstructions not designated to be removed and disposed of under other items in the Contract.

2. Construction Requirements

(a) General - The Contractor shall raze, remove, and dispose of all buildings and foundations, structures, culvert pipes, pavements, sidewalks, curb and gutter, fences, and other obstructions, any portions of which are on the right-of-way, except utilities and those for which other provisions have been made for removal.

(b) Removal of Foundations & Structures - Foundations of buildings and structures shall be removed to a depth of not less than two feet below subgrade elevation, or two feet below original ground in areas outside the roadway slope intercepts. Basement floors and other large slabs shall be broken up to prevent holding of water. Cavities left by structure removal shall be filled to the level of surrounding ground, and within the slope intercepts and below subgrade elevation shall be compacted in accordance with the provisions for embankment fills.

(c) Removal of Bridges and Culverts - Bridges, culverts and other drainage structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate traffic.

Substructure of bridges shall be removed to 1 foot below adjacent ground level or natural stream bottom for such portions located in the stream. Blasting or other operations, which may damage new construction, shall be completed prior to placing new work, or adequate precautions shall be taken to prevent damage.

(d) Removal of Pipes - All designated pipe (existing pipe that is to be replaced by new pipe or determined not to be necessary due to new construction) shall be removed and disposed of by the Contractor. All existing pipe (within the roadway or within 5 feet of the outside edge of the roadway) which is removed and not necessary due to new construction shall be backfilled with mineral aggregate base as described in Section 5 of these Specifications and compacted as described in Section 5 of these Specifications. Pipe not designated to be removed shall be protected by the Contractor and if damaged replaced at the Contractor's expense.

- (e) Removal of Concrete Pavement –
 - 1) All concrete pavement, including driveways, sidewalks, and curb and gutter, that exist outside of the proposed slope intercepts and becomes abandoned because of new construction shall, if so designated on the plans or by the Engineer, be completely removed and disposed of as directed. Grading and seeding shall follow according to Plans and Specifications.
 - 2) All concrete pavement, including driveways, sidewalks, curb and gutter, that exist within the slope intercepts of the project and are at an elevation higher than two feet below subgrade elevation shall be removed and disposed of as directed.
 - 3) All concrete pavement, including driveways, sidewalks, and curb and gutter that exist within the slope intercepts of the project and are more than two feet below subgrade elevation, shall be broken into size not to exceed two feet in maximum dimension and remain in place.
- (f) Removal of Bituminous Pavement -
 - 1) All bituminous pavement outside of the proposed slope intercepts shall be removed and paid for as common excavation. All bituminous pavement within the slope intercepts, at an elevation higher than two feet below subgrade elevation, shall be removed and paid for as common excavation.
 - 2) All bituminous pavement within the slope intercepts and more than two feet below subgrade shall be broken into size not to exceed two feet in maximum dimension and remain in place.
- (g) All material obtained from the removal of structures, obstructions, etc. that may be satisfactorily incorporated into the embankments in the opinion of the Engineer, may be disposed of in the embankments where directed, provided that the material is broken into sizes no larger than one cubic foot and with a maximum dimension of one foot and provided that the material will be covered with at least two feet of earth embankment. The Contractor shall remove all other salvageable or discarded material, rubbish or debris from the project area and dispose of the same.

3. Method of Measurement

When the Bid Schedule stipulates that payment will be made for removal of structures and obstructions on a lump sum basis, the pay item, Removal of Structures and Obstructions, will include all structures and obstructions encountered within the rights-of-way in accordance with the provisions of this Section. Where the Bid Schedule stipulates that payment will be made for the removal of specific items on a unit basis, measurement will be made by the unit stipulated.

4. Basis of Payment

- (a) The accepted quantities of Removal of Structures and Obstructions will be paid for at the Contract lump sum price bid, which price shall be full compensation for removing and disposing of obstructions in accordance with the Plans and Specifications including all labor, materials, and equipment necessary to complete the work.

- (b) Specific obstruction items such as bridges and culverts, pipes, concrete pavement, and other structures, stipulated for removal and disposal under unit price pay items will be paid for at the Contract unit price bid per unit specified in the proposal, which price shall be full compensation for removal, disposal (and backfill where required) of materials, and equipment necessary to complete the work.

TECHNICAL SPECIFICATIONS
FOR
MINERAL AGGREGATE BASE

1. Description

This work shall consist of furnishing and placing one or more courses of aggregates and 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-section shown on the Plans or established by the Engineer. This work also includes furnishing and placing Maintenance Stone and Backfill Stone in accordance with these Specifications and the Plans.

2. Materials

All materials used in this construction, in addition to the general requirements of these Specifications, unless otherwise stipulated, shall conform to the following:

- (a) Mineral Aggregate Base shall be crushed stone, Class A Aggregate Grading D, as specified in Subsection 903.05 of the TDOTSS, January 1, 2015, and all Special Provisions pertaining thereto through the date of advertisement for this Contract.

<u>Sieve Size</u>	<u>Total Percentage by Weight Passing Sieves</u>
1-1/2 inch	100
1 inch	85 - 100
3/4 inch	60 - 95
3/8 inch	50 - 80
No. 4	40 - 65
No. 16	20 - 40
No. 100	9 - 18

- (b) Calcium Chloride shall meet the requirements of the AASHTO Specification for Calcium Chloride, Designation M-144 and shall be Type 2.
- (c) Maintenance Stone and Backfill Stone shall be of quality and gradation as specified in Subsection 2(a) above. The backfill stone in the roadway or less than 5 feet from the outside edge of the roadway, curbs, gutters and sidewalks shall be compacted to 100% of the Standard Proctor Density at 2% less than the optimum moisture content as determined by AASHTO T99 Method D.

3. Equipment & Construction Requirements

- (a) Equipment and Construction Requirements shall conform to Subsections 303.05 to 303.12 of the TDOTSS, January 1, 2015, and all Special Provisions Pertaining thereto through the date of advertisement of this Contract. In addition, the following compaction, will be required: Mineral Aggregate Base shall be compacted to 100% of the Standard Proctor Density at 2% less than the optimum moisture content as determined by AASHTO T99 Method D.
- (b) The maximum speed of trucks hauling or traveling over any part of the project under construction shall be 20 mph.

4. Method of Measurement

- (a) Mineral Aggregate Base, Maintenance Stone, and Backfill Stone will be measured by the ton in place, as by the actual scale weight.
- (b) All moisture in the Aggregate at the time of weighing in excess of eight percent will be deducted from the weight of the Aggregate.
- (c) Any water added on the road will be at the Contractor's expense.

5. Basis of Payment

- (a) The accepted quantities of Mineral Aggregate Base, Maintenance Stone, and Backfill Stone of the type specified will be paid for at the Contract unit price per ton, complete in place. This price shall be full compensation for all work, materials, including calcium chloride where specified and water; labor and other incidentals required to complete the work in accordance with the Plans and Specifications.
- (b) Payment will be made under the following bid item as set forth in the Bid Schedule:
 - Mineral Aggregate Base
 - Mineral Aggregate Base with Calcium Chloride
 - Maintenance Stone

TECHNICAL SPECIFICATIONS
FOR
CONCRETE SIDEWALKS, DRIVEWAYS, AND MEDIAN STRIP

1. Description

- (a) This work shall consist of constructing sidewalks, driveways and median strip, except sidewalk driveways and median strip that is integrally a part of a structure, constructed of portland cement concrete, at the locations and to the dimensions, lines, grades, and cross section indicated on the Plans or as directed by the Engineer, and in conformity with the provisions and requirements set out in these Specifications.
- (b) Concrete sidewalk, driveway, and median strip shall include all the necessary excavation, unless otherwise indicated; the subgrade and subbase preparation; the backfilling; the final clearing up; and completing all incidentals thereto; as indicated on the Plans or as directed by the Engineer.

2. Materials

- (a) Materials shall meet the applicable requirements of Section 15, City of Knoxville Standard Specification for Concrete Structures together with Section 701 of the TDOTSS, January 1, 2015, and all Special Provisions thereto dated prior to the advertisement of the Contract.
- (b) Sampling and testing Cement Aggregates shall be performed as specified in Section 15 - 2(b) of these Specifications.

3. Equipment and Construction Requirements

Equipment and construction shall meet the requirements of Subsection 701.03 and 701.05 through 701.12 TDOTSS, January 1, 2015.

4. Method of Measurement

- (a) Concrete sidewalks, driveways, and medians will be measured for payment per square foot, complete in place.
- (b) The area shall be obtained from surface measurements. The area measured shall not exceed standard widths indicated on the plans, unless otherwise directed in writing by the Engineer.
- (c) Concrete sidewalks, driveways, and medians will be measured separately.
- (d) No measurement for payment will be made for excavation, subgrade preparation, jointing, jointing materials, or for backfill materials, unless the otherwise indicated on the Plans, as these are a necessary part of the construction and a responsibility to be assumed by the Contractor.

5. Basis of Payment

This item will be paid for at the Contract unit price per square foot for concrete sidewalk, driveway, and median, complete in place. The price shall be full compensation for all work, materials, labor and incidentals required to complete this item in accordance with the Plans and Specifications.

TECHNICAL SPECIFICATIONS
FOR
EROSION PREVENTION AND SEDIMENT CONTROL

1. Description

This work shall consist of temporary control measures as shown on the plans or as ordered by the Engineer during the life of the Contract to control soil erosion and water pollution. Such measures shall include, but are not limited to, the use of silt barriers, fiber mats, netting, mulches, grasses, slope drains, and other control devices. Erosion prevention and sediment control (EPSC) measures as described herein shall be applied to any erodible material exposed by any activity within the project limits.

2. Materials

- (a) Seeding – Seed, mulches, fertilizer, agricultural limestone and other materials for seeding shall conform to ES-08 of the City of Knoxville’s BMP Manual.
- (b) Sodding – Sod, fertilizer, agricultural limestone and other materials for sodding shall conform to the ES-09 of the City of Knoxville’s BMP Manual.
- (c) Temporary Slope Drains – Slope drains may be constructed of pipe, fiber mats, rubble, Portland cement concrete, bituminous concrete, sod or other materials acceptable to the Engineer that will adequately deter erosion. Must be installed and maintained as per ES-21 of the City of Knoxville’s BMP Manual.
- (d) Silt Barriers
 - 1) Silt barriers may be brush or rock filter berms, baled straw barriers, or silt fences.
 - a. Brush or rock filter berms shall consist of brush, trees and trimmings, shrubs, plants and other approved refuse from the clearing and grubbing operation. Must be installed and maintained as per ES-17 of the City of Knoxville’s BMP Manual.
 - b. Baled straw barriers shall consist of two rows of tightly baled straw, plastic or wire binding preferred to twine, firmly anchored to the ground with steel drift pins or wooden stakes. Must be installed and maintained as per ES-15 of the City of Knoxville’s BMP Manual.

- c. Silt fences shall consist of an approved fabric filter, Mirafi 140 or equivalent, suitable supported by a woven wire fence. Must be installed and maintained as per ES-14 of the City of Knoxville's BMP Manual.

3. Construction Methods

(a) General

- 1) Prior to or simultaneously with the clearing and grubbing operations, the Contractor shall install EPSC devices in accordance with the approved erosion control plan. Such work may involve the construction of temporary berms, dikes, dams, silt fences, sediment basins, lined channels, permanent cut-off ditches, slope drains or other control devices as necessary to prevent erosion and control sediment. Water from cofferdams is not to be pumped directly into streams, but is to be pumped into sediment ponds or traps. No grading shall be performed until the EPSC devices are in place to the satisfaction of the Engineer. Areas to be graded shall not be cleared and grubbed more than 14 calendar days prior to beginning grading operations in such areas, without temporary stabilization. Areas to be graded that are steeper than 3:1 shall not be cleared and grubbed more than 7 calendar days prior to beginning grading operations in such areas, without temporary stabilization. Stockpiled topsoil or fill material is to be treated so the sediment runoff will not contaminate surrounding areas or enter nearby streams. In order to reduce sediment in runoff, EPSC measures shall be installed promptly during all construction phases.

The Contractor's operations shall be staged so that graded or otherwise disturbed erodible surfaces are protected as the work progresses. Once the Contractor begins grading for a roadway cut or embankment, he shall maintain a continuous, viable operation to complete the cut or embankment to subgrade elevation, unless otherwise approved in writing by the Engineer. Exposed erodible cut or embankment slopes shall be final dressed, topsoiled and protected with permanent seeding or sodding in vertical increments not exceeding 25 feet as the work progresses; and no portion of these slopes shall remain unprotected for more than 14 calendar days (7 days when slopes are steeper than 3:1). Temporary erosion control measures shall be implemented as required in the SWPPP or other EPSC plan or as directed by the Engineer.

Seeding or sodding operations shall be initiated within 48 hours after any one of the following conditions occurs:

- a. Each 25 foot vertical increment is graded, or
- b. Upon suspension or completion of grading operations in a specific area.

The above requirements for progressive EPSC also apply to graded areas off

the rights-of-way such as waste area, borrow areas and haul roads.

The Contractor shall incorporate all permanent EPSC measures into the project at the earliest practicable time. Temporary EPSC measures shall be used to control erosive conditions that warrant protection prior to installation of permanent control features or that are needed to temporarily control erosion or siltation that develops during construction but which is not associated with permanent control features on the Project.

- 2) In the event of conflict between these requirements and EPSC laws, rules, or regulations of other Federal or State or local agencies, the more restrictive laws, rules or regulations shall apply.
 - 3) The temporary EPSC measures installed by the Contractor shall be appropriately maintained by the Contractor until the completion of the Project, and he shall remove such installation if ordered by the Engineer. Any materials removed shall become the property of the Contractor.
 - 4) In case of repeated failure on the part of the Contractor to control erosion, pollution and siltation, the Engineer reserves the right to employ outside assistance or to use his own forces to provide the necessary corrective measures. Such incurred direct costs plus project engineering costs will be charged to the Contractor and appropriated deductions made from the Contractor's monthly progress estimate.
- (b) Seeding – Temporary seeding shall conform to the standard Specifications for Seeding except agricultural limestone need not be applied.
- (c) Sodding – Sodding shall conform to the Standard Specifications for Sodding. Care must be taken to properly anchor the sod to prevent any washouts. Seeding – Temporary seeding shall conform to the standard Specifications for Seeding except agricultural limestone need not be applied.
- (d) Temporary Slope Drains

Temporary slope drains shall consist of metal pipe, plastic pipe, flexible rubber pipe, or other materials which can be used as temporary measures to carry water accumulating in the cuts and on the fills down the slopes prior to installation of permanent facilities or growth of adequate ground cover on the slopes.

All temporary slope drains shall be adequately anchored to the slope to prevent disruption by the force of the water flowing in the drains. The base for temporary slope drain shall be compacted and concavely formed to channel the water or hold the slope drain in place. The inlet end shall be properly constructed to channel water into the temporary slope drain. Energy dissipaters, sediment basins or other approved devices shall be constructed at the outlet end of the slope drains to reduce erosion downstream. An ideal dissipater would be dumped rock or a small sediment basin which would slow the water as well as pick up some sediment. All temporary

slope drains shall be removed when no longer necessary and the site restored to match the surroundings.

(e) **Silt Barriers** – Silt barriers shall be constructed by one of the methods listed below. It shall be the Contractor's choice of which barrier to use unless the silt barrier type is specified in the plans.

- 1) **Brush or rock filter berms** shall consist of brush, trees and trimmings, shrubs, plants and other approved refuse from the clearing and grubbing operations. The brush barriers shall be constructed approximately parallel to original ground contour, placed at the bottom of fill slopes to trap and retain sediment. The top of the brush barrier shall be at least five (5) feet below finished roadway grade. The brush barrier shall be compressed to an approximate height of three (3) to five (5) feet and an approximate width of five (5) to ten (10) feet. The embankment shall not be supported by the construction of brush barriers.
- 2) **Baled Hay or Straw Erosion Checks** – Hay or straw erosion checks shall be embedded in the ground a minimum of 4 inches to prevent water flowing under them. The bales shall also be anchored securely to the ground by wooden stakes driven through the bales into the ground. Bales can remain in place until they rot, or be removed after they have served their purpose, as determined by the Engineer. The Contractor shall keep the checks in good condition by replacing broken or damage bales immediately after damage occurs. Normal debris clean-out will be considered routine maintenance.
- 3) **Silt fences** shall consist of an approved fabric filter, Mirafi 140 or equivalent, suitable supported by a woven wire fence, and are located at the bottom of fill slopes to trap and retain sediment. Fence posts may be wood or metal securely anchored to the ground on centers not to exceed twelve (12) feet. The woven wire fence shall be from two (2) to four (4) feet in height as required, and the mesh openings shall be 4" x 4".

The Contractor shall be required to maintain the silt fence and filter barriers in a satisfactory condition for the duration of the Project or until its removal is requested by the Engineer. The silt accumulation at the fence may be left in place and seeded, removed, etc. as directed by the Engineer. Unless otherwise directed by the Engineer, all silt fence or filter barrier shall be removed prior to completion of the Project and shall become the property of the Contractor.

The Contractor shall install and maintain all temporary EPSC measures until no longer needed or permanent control measures are installed. Any materials removed shall become the property of the Contractor. In order to insure EPSC measures work properly, it is imperative the sediment be removed; therefore, inspection and maintenance of EPSC measures is to be performed on a regular basis. During sediment removal, the Contractor shall take care to insure that structural components of EPSC measures are not damaged and

thus made ineffective. If damage does occur, the Contractor shall repair the EPSC measure at his own expense. Upon complete removal of sediment traps, special ditches, etc., the area where they were constructed is to be topsoiled, seeded and mulched.

In the event that temporary EPSC measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of work as scheduled, and are ordered by the Engineer, such work shall be performed by the Contractor at his own expense.

(f) Sediment Structures

- 1) Sediment structures can be utilized in many locations to control sediment; at the foot of embankments where slope drains outlet; at the bottom as well as in the ditch lines atop waste sites; in the ditch lines on borrow pits. Sediment structures may be used in most drainage situations to prevent excessive siltation of pipe structures. All sediment structures must be installed and maintained as per the City of Knoxville's BMP Manual.
- 2) When use of temporary sediment structures is to be discontinued, all sediment accumulation shall be removed, all excavation backfilled and properly compacted and the existing ground restored to its natural or intended conditions.

4. Method of Measurement

EPSC 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.

<u>% of Total Contract Amount on Estimate</u>	<u>% Allowed This Item</u>
Not Less Than	
10%	50%
50%	75%
100%	100%

5. Basis of Payment

Partial payments for EPSC measures will be made on the basis of a percentage of the lump sum payment line item for EPSC as indicated above. Full payment for EPSC will be made in accordance with the provisions set out in the payment schedule above, which price shall be full compensation for the installation, maintenance, repair of EPSC measures as per the SWPPP, and any and all additional EPSC measures necessary to comply with all City of Knoxville and TDEC water quality and EPSC regulations, regardless of the number of times such items need to be installed, maintained, or repaired.

TECHNICAL SPECIFICATIONS
FOR
CONSTRUCTION AREA TRAFFIC CONTROL

1. Contractor Responsibility and General Provisions

- (a) The Contractor shall provide, erect, and maintain all traffic control devices necessary to preserve the safe and orderly movement of traffic. All operations shall be scheduled and conducted in such a manner and sequence as to cause the least practicable interference with the traveling public, fire protection, and public utility service.
- (b) Payment for materials and labor associated with the required construction area traffic control shall normally be included in the pay item(s) provided by the Contract. In the event that no such pay item(s) are included, the Contractor shall include such costs in the prices bid for other appropriate Contract items.
- (c) All necessary protective devices and operations shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), published by the Federal Highway Administration. A Traffic Control Plan is included with many projects to define specific or typical traffic control needs. However, the Contractor may request a revision or addition to these plans of operation by making a written request in advance to the Director of Engineering.
- (d) A project safety officer or other similarly responsible individual shall be made known to the Director of the Engineering Division prior to the commencement of construction. This notification shall include a telephone number or numbers where the individual(s) may be reached on a 7 day, 24 hour basis.
- (e) Except as otherwise noted in the "Special Conditions," total road closures are not permitted. However, if the Contractor determines in his opinion that one is required, a written request shall be made at least 72 hours in advance to the Director of the Engineering Division for his consideration. This request shall state the reason for the closure, estimated duration of the closure, proposed traffic control devices, and the routing of detours, if necessary.
- (f) Except as otherwise noted in the project "Special Conditions," the Contractor shall provide one adequate traffic lane, minimum of 10' in width, in each direction during the hours of 7:00 A.M. - 9:00 A.M. and 3:00 P.M. - 6:00 P.M.

During hours when work is not in progress, the Contractor shall also maintain one similarly adequate traffic lane in each direction. Exceptions to the above must be approved by the Director of Engineering.
- (g) The Contractors attention is called to the *City of Knoxville Policy on Work Zone Traffic Control* (a copy of which is included at the end of this Specification following Section 6).

2. Installation and Maintenance of Traffic Control Devices

- (a) The Contractor shall be fully responsible for the supplying, erection, and maintenance of all traffic control devices. These functions shall occur in a workmanlike manner such that all supports are vertical, sign panels generally perpendicular to the travelway and legends horizontal so that they effectively convey the intended message. Signs shall be mounted on stationary or portable supports dependent on the type work being performed. In general, work being performed at spot locations and of short duration will necessitate the use of portable supports properly weighted for stability.
- (b) All existing traffic signs within the limits of this project shall also be the maintenance responsibility of the contractor for the duration of construction. This includes STOP and street name signs on side streets which intersect within the project limits. This responsibility shall include temporary sign relocations caused by construction activities.

The Contractor shall provide continuous and expeditious maintenance of all required traffic control devices. This shall include replacement of sign panel, barricades, and other devices which in the opinion of the Engineering Division are damaged or deteriorated beyond continued use, replacement of broken supports, plumbing of leaning signs, cleaning of dirty signs, barricades and other devices, repair of defaced sheeting and legends, replacement of stolen items, etc. All items used for traffic control shall be generally maintained in their original placement condition and such maintenance will be considered a part of the original installation cost. Failure to maintain all traffic control devices in such a manner as to provide continuous safety to the public will be cause for suspension of construction operations until proper traffic control is re-established.

- (c) In the event that the Contractor, in the opinion of the Director of Engineering, has failed to provide or maintain adequate traffic control devices, the City of Knoxville shall have the right to provide the necessary items and deduct the expense of same from payments due the Contractor.

3. Application and Use of Traffic Control Devices

- (a) Cones are not permissible as channelizing devices during hours of darkness. Standard barricades, drums or vertical panels are permissible, but where used to delineate vehicle paths during hours of darkness, they must be accompanied by steady-burn lights.
- (b) Except as otherwise directed by the Director of Engineering or his representative, the Contractor shall maintain centerline striping throughout the duration of this project. Where a newly asphalted section of roadway is to be maintained overnight, temporary centerline and lane line stripes shall be provided by the Contractor at the conclusion of each work day. These stripes shall be a temporary reflective tape or paints with four-inch wide line segments. The segments shall be two feet long with thirty-eight foot gaps. Skip lines shall not be used for lane lines separating a turn lane from a through lane or for edge lines.
- (c) All conflicting and confusing pavement marking shall be removed or obliterated in a fashion consistent with MUTCD, Section 6D-1. Painting over existing

striping is not considered to meet the requirements for removal or obliteration. The methods listed below are considered acceptable:

- 1) Sand blasting using air or water
- 2) High pressure water
- 3) Steam or super-heated water
- 4) Mechanical devices such as grinders, sanders, scrapers, scarifiers, and wire brushes
- 5) Solvents and chemicals
- 6) Burning

Any damage to the pavement or surfacing caused by the Contractor's pavement marking removal shall be repaired by the Contractor at his expense and by methods and materials acceptable to the Engineering Department.

- (d) Short term operations will be permissible which conflict with existing pavement markings, but proper vehicle path must be ensured through the appropriate use of warning signs, flagmen and/or channelizing devices.
- (e) Mesh or other fabric type signs are not considered acceptable for use during hours of darkness.
- (f) Except in operations of short duration, where good sight distance is available, "Flagger Ahead" signs shall be installed where flaggers are required. Flaggers shall utilize STOP/SLOW paddles and proper attire, including a reflectorized orange vest.

Flagmen will be considered a general requirement of traffic control and no direct payment will be made for such.

- (g) During periods of non-use, warning signs and other devices shall be promptly removed from the work area, covered or otherwise positioned so they do not convey their message to the traveling public. If covered, the covering material shall be maintained in a neat and workmanlike manner.
- (h) The official maximum speed limit is to be used for determining taper lengths, device spacing, sign placement and other pertinent details unless otherwise notified.

4. Materials

Materials for all traffic control and marking devices shall be in accordance with the provisions of the current edition of the MUTCD. Exceptions are listed below with reference to the appropriate subsections of the TDOTSS, January 1, 2015.

<u>Material</u>	<u>Subsection</u>
Signs:	
Aluminum	916.02 (a)
Reflective Sheeting	916.06, Type III
Paint	916.09
Cold Rolled Carbon Steel-16 gal.	ASTM A366
Drums and Barricades:	
Reflective Sheeting	916.06, Type I

Temporary Pavement Marking Material:

The material for temporary traffic centerline and lane line marking shall be a pressure-sensitive, adhesive backed, reflective pavement marking tape, or reflectorized paint.

Cones:

Cones shall be a minimum of 28 inches high and weighted at the base.

In addition to the materials certifications required above, the Contractor shall submit a signed, notarized statement that the materials to be used for temporary traffic control comply with the above provisions. This statement shall be submitted prior to the beginning of the work.

5. Method of Measurement:

When the Bid Schedule stipulates that payment will be made for Construction Area Traffic Control on a Lump Sum basis, the pay item Construction Area Traffic Control will include all sign, barricades, lights, flag persons, temporary pavement markings and all incidentals required by this specification, the Traffic Control Plan included in the Contract Drawings, if any, and the Manual on Uniform Traffic Control Devices for Streets and Highways. Where the Bid Schedule stipulates that payment will be made for Specific Items on a unit basis, measurement will be made by the unit stipulated. Where the Special Conditions and/or notes on the construction drawings stipulate that the cost of Construction Area Traffic Control will be included in other Items Bid, no measurement will be made.

6. Basis of Payment

The accepted quantity of Construction Area Traffic Control will be paid for at the lump sum price bid, which price shall be full compensation for providing Construction Area Traffic Control for the duration of the project in accordance with the Traffic Control Plan provided with the construction drawings and/or submitted by the Contractor and these Specifications. This compensation shall include all labor, materials, equipment and incidentals necessary to complete the work.

The compensation shall be paid in accordance with the following schedule.

Percent of Total Contract on Partial Pay Estimate	Total Percent Allowed for Compensation for Lump Sum Item
5% -----	30%
50% -----	50%
75% -----	75%
100%-----	100%

POLICY ON WORK ZONE TRAFFIC CONTROL
CITY OF KNOXVILLE, TENNESSEE
February 10, 2009

I. Introduction

- A. The proper use of warning devices in roadway construction and maintenance work areas must be planned in advance to meet the individual requirements of the job site. The objective of this policy is to provide maximum protection to employees, plant, equipment, and to the public while causing minimum interference to vehicular and pedestrian traffic.
- B. When guarding work areas, always provide more protection than may appear necessary rather than under-protecting. Inadequate protection may promote accidents by presenting the driver or pedestrian with a false impression of the extent of the work area and the deviations that he must take from his route in order to safely pass the work area.
- C. Early project planning for traffic control in construction and maintenance areas and implementation and surveillance of these controls during construction are very important.

II. Need for Standards

- A. Problems of traffic control occur when traffic must be moved through, around, or adjacent to road or street construction, maintenance operations, and utility work. No one standard sequence of signs or other control devices can be set up as an inflexible arrangement for all situations due to the variety of conditions encountered.
- B. The Manual on Uniform Traffic Control Devices (MUTCD) has been adopted as Federal and Tennessee Law. The MUTCD established principles to be observed in the design, installation, and maintenance of traffic control devices.
- C. These principles and standards are directed to the safe and expeditious movement of traffic through work areas and to the safety of the work force performing those operations.

III. Responsibility

- A. Adequate public protection shall be provided by contractors, public utility companies, railroads, State and City agencies performing any work on roadways or so closely adjacent as to create hazards or to restrict pedestrian or vehicular flow.
- B. It is important that the authorities having jurisdiction be able to require proper protection, that responsibility be clearly assigned, adequate training of personnel be provided, and that there be adherence to the provisions of the MUTCD.
- C. A temporary traffic control plan (TTCP) should include, but not be limited to such items as signing, application and removal of pavement and markings; construction; scheduling; methods and devices for delineation and channelization; placement and maintenance of devices; roadway lighting; traffic regulations; and surveillance and inspection.

- D. A TTCP and permit form should be completed in detail to the complexity of the work project and noting the date of planned beginning of construction and duration shall be prepared by the contractor, public utility company, State or City agency proposing to do work on or adjacent to the roadway.
- E. The TTCP shall be reviewed and approved by the Director of Engineering or his designee. Although every effort will be made to review the TTCP immediately upon submittal, a minimum of 48 hours should be allowed for review of the TTCP. The TTCP is to be approved by the Permitting Office at the City of Knoxville Engineering Department, 3131 Morris Avenue, Telephone 215-6100.
- F. When the TTCP and permit are approved, the City of Knoxville Engineering Department will fax the information to the following agencies:

AGENCY	PHONE	FAX
*E-911 - (Amy)	215-1141	215-1103
Knoxville Police Department - (Bryan Bates)	215-8622	215-7000
*Knoxville Area Transit (R. Boone)	215-7820	215-7800
Tennessee Dept. of Transportation (M. Dykes)	594-5626	594-4512
*Knoxville Fire Department (Steve Sherrod)	595-4482	595-4474

*(Total road closures only.)

- G. When construction is required that will block one or more lanes of principal collector or arterial roadways or close any principal collector or arterial roadway, the responsible work authority shall notify the public. This is currently best handled by notifying the Permitting Office at the City of Knoxville Engineering Department, telephone 215-6100. The deadline for media notification is 2:00 P.M. for the next day release to radio.
- H. Construction on or adjacent to local streets (traffic volumes of less than 1,000 vehicles-per-day) requiring one lane closures will only require implementation of adequate work zone traffic control procedures as outlined in the MUTCD.

IV. Road Closures

- A. Total Road Closures for construction and maintenance activities are typically not permitted on principal collector or arterial roadways. Total road closures on secondary collectors and local streets will be considered on a case-by-case basis. Traffic control plans for total road closures must be sealed by a Professional Engineer registered in the State of Tennessee.
- B. In the event of an emergency and there is no alternative but to close the roadway, adequate work zone traffic control procedures as outlined in the MUTCD shall be implemented. Notification of proper authorities must be made as soon as possible by contacting the E-911 Dispatcher at 215-4010.

V. Hours of Work

- A. When construction is required that will block one or more lanes of a principal collector or arterial roadway, the hours of work shall be limited on weekdays to avoid conflict with peak hour traffic movement. Work on weekdays is permitted before 6:00 A.M., from 9:00 A.M. to 3:00 P.M., and after 6:30 P.M. Work is

permitted during off peak conditions and on weekends (except for unusual circumstances, i.e. parades, U.T. football games, etc.). More liberal hours are typically allowed on local streets. Work during peak hours in the off peak travel direction is often permitted. Other arrangements may be approved on a case-by-case basis.

- B. When an emergency occurs that requires total road closure on a principal collector or arterial roadway, every effort should be made to make the repairs as soon as possible. Notification of proper authorities must be made as soon as possible by contacting the E-911 Dispatcher at 215-4010. Overtime should be authorized for evening and weekend work.

VI. Street Cut Permits

- A. When the work requires that city streets be cut, a permit shall be required from the Permitting Office at the City of Knoxville Engineering Department, 3131 Morris Avenue. On an emergency basis, these permits may be obtained by notifying the City of Knoxville Engineering Department at 215-6100 and then following up with a written request as soon thereafter as practical. In routine situations, a written request outlining the need for cutting the street, the proposed location, the proposed date of work and the contractor involved shall be supplied in writing to the individuals at the City of Knoxville Engineering Department at 3131 Morris Avenue, preferably 48 hours in advance of the cut.
- B. Construction standards are available at the City of Knoxville Engineering Division offices at 3131 Morris Avenue and on the City's website: <http://www.cityofknoxville.org>.

VII. Principal Collector and Arterial Roadways

For purposes of this policy, the following shall be defined as principal collector or arterial roadways. Time restrictions apply. See Sec. V. A., Hours of Work.

- A. All streets in the Central Business Improvement District (CBID). See map on page TS-34.0-13.
- B. Principal collectors, arterials and selected minor collectors:
 - Adair Drive, Bruhin Road to Sanders Drive
 - Ailor Avenue, Western Avenue to 21st Street
 - Alcoa Highway
 - Amherst Road, Middlebrook Pike to McKamey Road
 - Anita Drive, Sevier Avenue to Hillwood Drive
 - Asheville Highway
 - Atlantic Avenue, Central Street to Broadway
 - Ault Road, Buffat Mill Road to Hillview Avenue

 - Ball Camp Pike, Western Avenue to John May Road
 - Baxter Avenue, Beaumont Avenue to Central Street
 - Beaumont Avenue, Baxter Avenue to Keith Avenue
 - Bennington Drive, Corteland Drive to Vanosdale Road
 - Bernard Avenue, Elm Street to Central Avenue
 - Beverly Road, Tazewell Pike to Greenway Drive
 - Blount Avenue, Gay Street to Maryville Pike

Boyds Bridge Pike, Brooks Avenue to Holston River Bridge
 Bradshaw Garden Drive, Pleasant Ridge Road to Clinton Highway
 Bradshaw Road, Ball Camp Pike to Pleasant Ridge Road
 Bridgewater Road, Cross Park Drive to Kingston Pike
 Broadway
 Brooks Avenue, Dandridge Avenue to Boyds Bridge Pike
 Broome Road, N. Gallaher View Road to Middlebrook Pike
 Bruhin Road, Inskip Drive to Heiskell Avenue
 Buckingham Road, Kingston Pike to Vanosdale Road
 Buffat Mill Road, Whittle Springs Road to Loves Creek Road

 Cecil Avenue, Broadway to Cherry Street
 Cedar Bluff Road, Kingston Pike to Cross Park Drive
 Cedar Lane, Central Avenue Pike to Broadway
 Central Avenue Pike, Murray Drive to Bruhin Road
 Central Street, Bruhin Road to Neyland Drive
 Chapman Highway
 Cherokee Boulevard, Scenic Drive to Kingston Pike
 Cherokee Trail, Alcoa Highway to Scottish Pike
 Cherry Street, Cecil Avenue to Magnolia Avenue
 Chilhowee Drive, Rutledge Pike to Holston Hills Drive
 Clancy Avenue, Blount Avenue to Scottish Pike
 Clinch Avenue, 22nd Street to 11th Street
 Clinton Highway
 Coleman Road, Lonas Drive to Papermill Drive
 Concord Street, Kingston Pike to Sutherland Avenue
 Copper Kettle Street, Western Avenue to Ed Shouse Drive
 Cross Park Drive, Cedar Bluff Road to Bridgewater Road
 Cumberland Avenue

 Dale Avenue, 21st Street to Western Avenue
 Dandridge Avenue, Hill Avenue to Brooks Avenue
 Dandridge Avenue, Brooks Avenue to Riverside Drive
 Davenport Road, Sevier Avenue to Moody Avenue
 Deane Hill Drive, Morrell Road to Kingston Pike
 Delrose Avenue, Dandridge Avenue to Boyds Bridge Pike
 Downtown West Boulevard, Kingston Pike to Gleason Road
 Dry Gap Pike, Central Avenue Pike to Rifle Range Road
 Dutch Valley Drive, Bruhin Road to Old Broadway

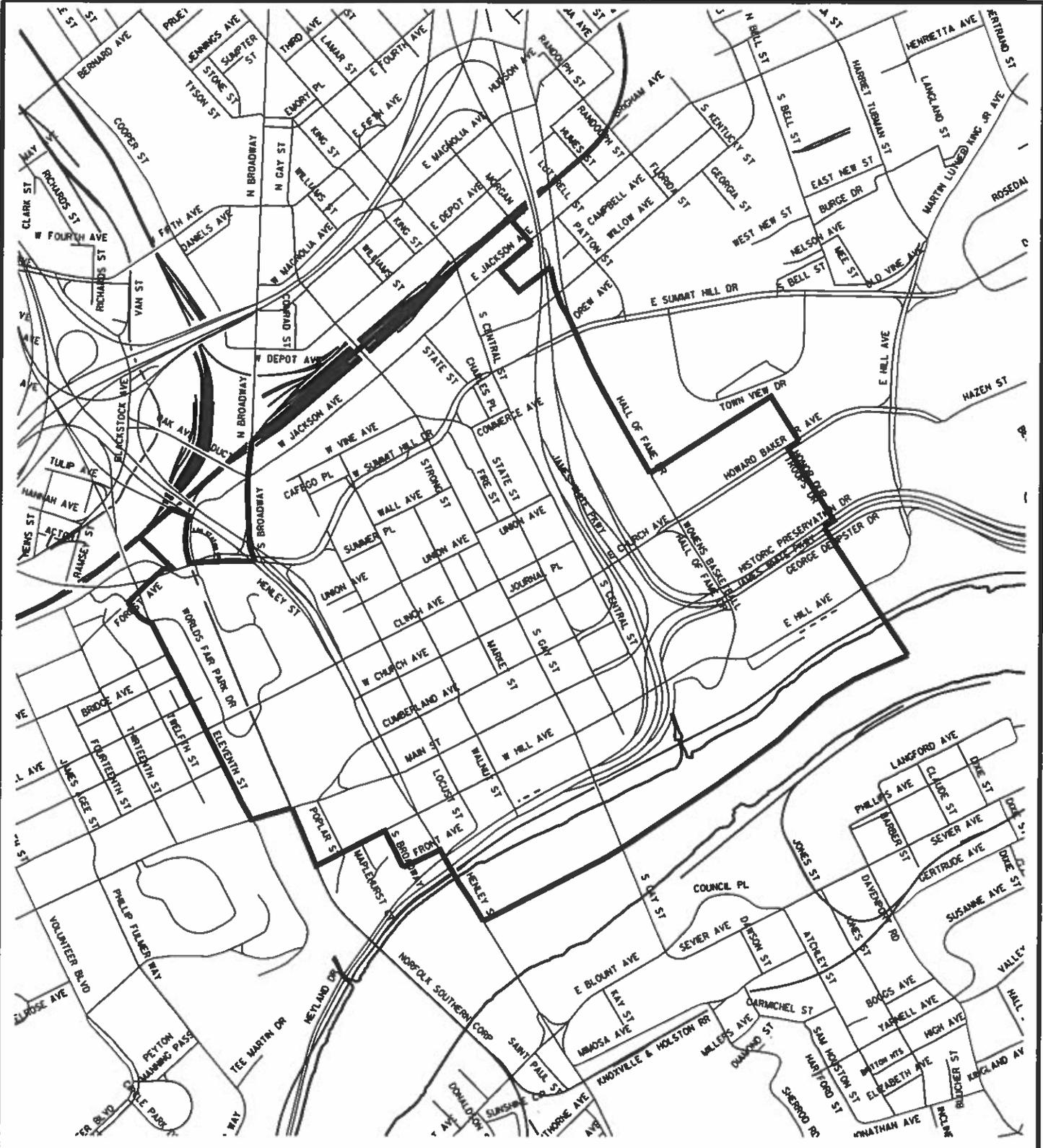
 Ed Shouse Drive, Western Avenue to Middlebrook Pike
 11th Street, Western Avenue to Cumberland Avenue
 Elm Street, Oldham Avenue to Bernard Avenue
 Emory Road
 Essary Drive, Broadway to Briarcliff Road

 Fairmont Boulevard, Broadway to Whittle Springs Road
 5th Avenue, University Avenue to Winona Street
 Forest Glen Drive, Tobler Lane to Kingston Pike
 Forest Park Boulevard, Sutherland Avenue to Kingston Pike
 Fairway Road, Valley View Road to Washington Pike

Francis Road, Middlebrook Pike to Amherst Road
Gallaher View Road, Middlebrook Pike to Gleason Drive
Gap Road, I-640 to Wilson Road
Gleason Drive, Morrell Road to Gallaher View Road
Gov. John Sevier Highway
Greenway Drive, Broadway to Washington Pike
Hall of Fame Drive, E. Hill Avenue to Broadway
Haynes Sterchi Road, Dry Gap Pike to Cedar Lane
Heiskell Avenue, Texas Avenue to Central Street
Henley Street
Highland Avenue, 22nd Street to 16th Street
Highland Drive, Inskip Road to Broadway
Hillview Avenue, Ault Road to Rutledge Pike
Hinton Road, Third Creek Road to Western Avenue
Hollywood Drive, Lonas Drive to Sutherland Avenue
Hotel Road, Broadway to Holbrook Drive
Inskip Drive, Clinton Highway to Bruhin Road
Inskip Road, Cedar Lane to Adair Drive
Island Home Avenue, Sevier Avenue to Island Home Pike
Island Home Pike, Island Home Avenue to Sevierville Pike
Jacksboro Pike, Tazewell Pike to Broadway
Jackson Road, Amherst Road to Cecil Johnson Road
James White Parkway
Johnston Street, Heiskell Avenue to Tennessee Avenue
Keith Avenue, Beaumont Avenue to Sanderson Road
Kingston Pike
Knott Road, Middlebrook Pike to Tenwood Drive
Lake Loudoun Boulevard, Volunteer Boulevard to Neyland Drive
Liberty Street, Keith Avenue to Sutherland Avenue
Lonas Drive, Weisgarber Road to Middlebrook Pike
Loves Creek Road, Millertown Pike to Rutledge Pike
Lyons Bend Road, Northshore Drive to Glen Cove Drive
Lyons View Pike, Northshore Drive to Kingston Pike
Mabry Hood Road, Pellissippi Parkway to Kingston Pike
Magnolia Avenue
Mall Road N, Millertown Pike to Washington Pike
Mall Road S, Washington Pike to Millertown Pike
Martin Luther King, Jr. Avenue, Dandridge Avenue to Holston Drive
Martin Mill Pike, Chapman Highway to Ogle Avenue
Maryville Pike, Ogle Avenue to Caleb Avenue
McCalla Avenue, Jessamine Street to Martin Luther King, Jr. Avenue
McDonald Road, Boyds Bridge Pike to Sunset Road
McKamey Road, Amherst Road to Western Avenue
Merchant Drive, Pleasant Ridge Road to Central Avenue Pike
Middlebrook Pike
Millertown Pike, Washington Pike to Mill Road

Mineral Springs Road, Broadway to Whittle Springs Road
Montvue Road, Kingston Pike to Gleason Road
Moody Avenue, Chapman Highway to South Knoxville Boulevard
Morrell Road, Kingston Pike to Northshore Drive
Murray Drive, Pleasant Ridge Road to Central Avenue Pike
Neubert Springs Road, Martin Mill Pike to W. Ford Valley Road
Neyland Drive
Northshore Drive
Ogle Avenue, Maryville Pike to Martin Mill Pike
Oglewood Avenue, Harvey Street to Broadway
Old Broadway, Broadway to Mineral Springs Road
Palmetto Road, Western Avenue to Sullivan Road
Papermill Drive, Kingston Pike to Liberty Street
Parkdale Road, Rifle Range Road to Cedar Lane
Parkside Drive, City Limit to beginning of N. Peters Road
Pellissippi Parkway
N. Peters Road, Kingston Pike to beginning of Parkside Drive
Pleasant Ridge Road, Western Avenue to City Limit (N. of Murray Drive)
Proctor Street, Middlebrook Pike to Western Avenue
Prosser Road, Buffat Mill Road to Magnolia Avenue
Ray Mears Boulevard, Downtown West Boulevard to Montvue Road
Riverside Drive, South Knoxville Boulevard to Delrose Drive
Riverside Drive, Delrose Drive to Holston Hills Road
Rutledge Pike
Sanders Drive, Adair Drive to Jacksboro Pike
Sanderson Road, Pleasant Ridge Road to Keith Avenue
Scenic Drive, Kingston Pike to Southgate
17th Street, Western Avenue to Cumberland Avenue
Sevier Avenue, Gay Street to Island Home Avenue
Sevier Avenue, Island Home Pike to Sevierville Pike
Sevierville Pike, Sevier Avenue to City Limit (E. of E. Ford Valley Road)
Shea Street, Western Avenue to College Street
Sisk Road, Hazelwood Road to Pleasant Ridge Road
South Knoxville Boulevard
Strawberry Plains Pike, Bell Lane to Huckleberry Springs Road
Stone Road, Chapman Highway to Magazine Road
Sullivan Road, Western Avenue to Pleasant Ridge Road
Sutherland Avenue, University Avenue to Westwood Drive
Tazewell Pike
Tennessee Avenue, Western Avenue to Johnston Street
Texas Avenue, Western Avenue to Heiskell Avenue
Third Creek Road, Hinton Road to Middlebrook Pike
Tillery Road, Wilson Road to Central Avenue Pike
Tobler Lane, Sutherland Avenue to Forest Glen Drive
21st Street, Dale Avenue to Leslie Avenue
University Avenue, Western Avenue to Bernard Avenue

Valley View Drive, Whittle Springs Road to Washington Pike
Vanosdale Road, Buckingham Road to Middlebrook Pike
Volunteer Boulevard, Cumberland Avenue to Cumberland Avenue
Walker Springs Road, Walbrook Drive to Kingston Pike
Walnoaks Road, Sullivan Road to Pleasant Ridge Road
Washington Pike, Broadway to Murphy Road
Weisgarber Road, Middlebrook Pike to Papermill Drive
Western Avenue
Westland Drive, Northshore Drive to Morrell Road
Westwood Drive, Sutherland Avenue to Papermill Drive
Whittle Springs Road, Mineral Springs Avenue to Cecil Avenue
Wilson Road, Pleasant Ridge Road to Clinton Highway
Winston Road, Kingston Pike to Corteland Drive
Woodland Avenue, I-75 to Broadway
Woodlawn Pike, Chapman Highway to Chapman Highway
Young High Pike, Martin Mill Pike to Woodlawn Pike



CITY OF KNOXVILLE
CENTRAL BUSINESS
IMPROVEMENT DISTRICT
(CBID)

STANDARD SPECIFICATIONS
FOR
GABION

1. Description

This work shall consist of the installation of gabions. This installation shall include the placing of filter fabric and the assembly, rock fill and placing of the gabions.

2. Materials

- (a) Gabions shall be a rectangular basket manufactured from heavily zinc coated steel wire of double twist hexagon weave, having a nominal mesh opening of 3 1/4" x 4 1/2". The steel wire shall be heavily galvanized with zinc coating exceeding Federal Specification requirements (QQW-461H, Class 3). The mesh steel wire diameter shall be no less than 0.1181". The mesh edge wire and selvedge wire diameter shall be no less than 0.1535". The lacing steel wire for binding gabion units together shall be no less than 0.0866".
- (b) The limestone contents of the gabions shall consist of "surge" stone 6" to 14" with no more than 20% being 10" to 14".
- (c) Phillip Fibers Corporation Supac 8 NP non woven geotextile fabric or equal shall be installed under gabions as directed by the manufacturer or as directed by the Engineer.
- (d) Backfill and bedding shall be No. 57 stone per Section 903, TDOTSS, January 1, 2015, or as directed by the Engineer.

3. Construction Requirements

All gabion assembly, filling and installation shall conform to the manufacturers recommendation or to the Engineer's direction.

All geotextile fabric installation shall conform to the manufacturer's recommendations or to the Engineer's direction.

Minimum thickness of layers for crushed aggregate bedding and backfill shall be as shown on the Plans.

4. Method of Measurement

- (a) Gabions shall be measured per cubic yard.
- (b) No separate payment will be made for the clean "surge" stone fill for the gabions. The cost of stone is to be included in the bid price per cubic yard of the gabions.
- (c) No separate payment will be made for the non-woven geotextile fabric. The cost of the fabric is to be included in the bid price per cubic yard of the gabions.
- (d) No separate payment will be made for the No. 57 stone backfill behind the gabions. The cost of the No. 57 backfill stone is to be included in the bid price per cubic yard of the gabions.

5. Basis of Payment

This item will be paid for at the Contract unit price per cubic yard of gabions, complete in place, which price shall fully compensate for all work, materials, labor, maintenance and other incidentals necessary to complete the item, in accordance with the Plans and Specifications.

SECTION 01010
SUMMARY OF WORK

PART 1 – GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work covered by this Contract comprises the Fountain City Lake Phase II Wetland Project to be constructed for the City of Knoxville. Work includes, but may not be limited to, the following major components:
1. Mobilization, demobilization, traffic control plan and implementation, temporary construction fencing, and coordination of work with the City of Knoxville and Fountain City Lions Club.
 2. Excavation and removal of sediments as needed to accomplish the work.
 3. Placement of Gabion Retaining structure as shown on the drawings.
 4. Excavation and relocation of suitable wetland soils.
 5. Placements and grading of wetland medias including, but not limited to base stone, filter aggregate, soils, planting SOXX, etc.
 6. Placement of plants, shrubs, and trees as shown on the drawings.
 7. Grading, drainage, and installation of erosion and sediment control devices as shown or as necessary.
 8. Final paving, backfill, and concrete sidewalk restoration where required.
 9. Maintenance and restoration of site during construction including erosion and sediment controls, cleanup, and seeding.
 10. Bypass pumping operations of water within Fountain City Lake as required to accomplish the work.
 11. Any necessary supporting work for the above to create a complete, functional wetland environment.
- B. All regulations and requirements of the City of Knoxville, the Tennessee Department of Environment and Conservation, and any other governments or agencies pertaining to the work to be done must be followed in construction of the various components of the project.

1.2 RELATED REQUIREMENTS

- A. General Conditions
- B. Supplementary Conditions.
- C. Supplemental Special Conditions.
- D. Section 01150: Measurement and Payment.
- E. Section 01310: Construction Schedules.

1.3 CONTRACTS

- A. Construct the Work under a unit price contract as shown on the Bid Form.

1.4 WORK BY OTHERS

- A. The work for this project will be performed under a single Unit Price Contract, with unit prices as shown on the Bid Form.

1.5 WORK SEQUENCE

- A. Contractor shall be responsible for notifying all individual(s) affected by the work prior to construction (contact the City of Knoxville for acceptable methods of notification). Contractor shall also be responsible for addressing the comments and concerns from the individual(s) affected by the work. It is recommended that any agreements between the Contractor and individual(s) be recorded in writing. Contractor shall provide Owner with documentation about individual contact(s). Contractor shall provide a phone number for property or business owners to call to obtain additional information on scheduling of Contractor's activities regarding the Work.
- B. Prior to the beginning of any work, the contractor shall take video recordings and photographs of project work area in accordance with Section 01320.
- C. Coordinate all Work with the Owner and Engineer to ensure a successful Project. The schedule and actual construction operations must be approved by the Owner as described in, and/or referenced to Section 01310, including:
 - 1. Coordinate all construction, bypass pumping, abandonment/demolition, and erosion control with the City of Knoxville.
 - 2. Coordinate all operations in/and near active streets and roads.
 - 3. Rigidly adhere to Project Schedule.
- D. Execute Construction schedules to minimize disruption to the Owner's facilities, the public convenience and safety, and to maximize Project construction efficiency.
- E. Construct the work in stages to provide for public convenience.
- F. When lines are to be flushed, cleaned and/or tested, the use of water shall be coordinated with the Owner.
- G. Initial restoration for all surface disturbances shall take place **IMMEDIATELY** and shall include **ALL** of the following:
 - 1. Rough grading and removal of surplus soil as specified in Section 02260.
 - 2. Re-vegetation of all disturbed areas in accordance with Section 02486.

- H. Contractor shall closely coordinate with project stakeholders and schedule work at the site in order to minimize conflicts in the construction process and scheduling issues. Regularly scheduled progress meetings will be held as needed to discuss scheduling, use of project work areas, and other potential issues.

1.6 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit his use of the premises for Work and for storage, to areas allow for: Public Use, and other Contractors.
- B. Coordinate use of premises under direction of Owner.
- C. Assume full responsibility for the protection and safekeeping of products under this Contract, stored on the site.
- D. Move any stored Products, under Contractor's control, which interfere with operations of the Owner or separate Contractor.
- E. Obtain and pay for the use of additional storage or work areas needed for operations.
- F. Coordinate closely with the Owner's personnel.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

END OF SECTION

**SECTION 01045
CUTTING AND PATCHING**

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Contractor shall be responsible for all cutting, fitting, and patching, including attendant excavation and backfill required to complete the Work or to:
1. Make its several parts fit together properly.
 2. Uncover portions of the Work to provide for installation and ill-timed work.
 3. Remove and replace defective work.
 4. Remove and replace work not conforming to requirements of Contract Documents.
 5. Remove samples of installed work as specified for testing.
 6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

1.2 RELATED DOCUMENTS

- A. Section 01010: Summary of Work
- B. Section 02210: Site Grading and Filling

1.3 SUBMITTALS

- A. Submit a written request to Engineer well in advance of executing any cutting or alteration which affects:
1. Work of the Owner or any separate contractor.
 2. Structural value or integrity of any element of the Project.
 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 4. Efficiency, operational life, maintenance, or safety of operational elements.
 5. Visual qualities of sight-exposed elements.
- B. Request shall include:
1. Identification of the Project.
 2. Description of affected work.
 3. Necessity of cutting, alteration, or excavation.
 4. Effect on work of Owner or any separate contractor, or on structural or weatherproof integrity of Project.
 5. Description of proposed work.
 - a. Scope of cutting, patching, alteration, or excavation.
 - b. Trades who will execute the work.

- c. Products proposed to be used.
 - d. Extent of refinishing to be done.
 - 6. Alternatives to cutting and patching.
 - 7. Cost proposal, when applicable.
 - 8. Written permission of any separate contractor whose work will be affected.
- C. Should conditions of Work or the schedule indicate a change of products from original installation, Contractor shall submit request for substitution.
- D. Submit written notice to Engineer designating the date and the time the work will be uncovered.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Comply with specifications and standards for each specific product involved.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of Products, or performance of work.
- C. Report unsatisfactory or questionable conditions to Engineer in writing; do not proceed with work until Engineer has provided further instructions.

3.2 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of Project from damage.
- C. Provide protection from elements for the portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.

3.3 PERFORMANCE

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute cutting and backfilling by methods which will prevent settlement or damage to other work.

- C. Employ original Installer or Fabricator, to perform cutting and patching for:
 - 1. Weather-exposed or moisture-resistant elements.
 - 2. Sight-exposed finished surfaces.
- D. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
- E. Restore work which has been cut or removed; install new products to provide complete Work in accord with requirements of Contract Documents.
- F. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish entire unit.

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1-GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Provide and pay for field engineering services required for the Project.
 - 1. Survey work required in execution of Project.
 - 2. Civil, structural, or other professional Engineering services specified, or required to execute contractor's construction methods.
- B. Owner's Representative will identify existing control points and property line corner stakes indicated on the drawings, as required.

1.2 RELATED REQUIREMENTS

- A. General Conditions
- B. Supplementary Conditions
- C. Section 01010: Summary of Work
- D. Section 01720: Project Record Documents

1.3 QUALIFICATIONS OF SURVEYOR OR ENGINEER

- A. Qualified Engineer or registered land surveyor, acceptable to Contractor and Owner.
- B. Registered Professional Engineer of the discipline required for the specific service on the Project, if required, licensed in the State in which the project is located.

1.4 SURVEY REFERENCE POINTS

- A. Existing basic horizontal and vertical control points for the Project are those designated on drawings.
- B. Locate and protect control points prior to starting site work, and reserve all permanent reference points during construction.
 - 1. Make no changes or relocations without proper written notice to Engineer.

2. Report to Engineer when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
3. Require surveyor to replace project control points which may be lost or destroyed. Establish replacements based on original survey control.

1.5 PROJECT SURVEY REQUIREMENTS

- A. Establish a minimum of two (2) permanent benchmarks on site, when not present, referenced to data established by survey control points.
 1. Record locations with horizontal and vertical data, on Project Record Documents.
- B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:
 1. Site improvements;
 - a. Stakes for grading, fill and topsoil placement.
 - b. Utility slopes and invert elevations.
 2. Batter boards for structures.
- C. From time to time, verify layouts by same methods.

1.6 RECORDS

- A. Maintain a complete, accurate log of all control and survey work, if required, as it progresses.

1.7 SUBMITTALS

- A. Submit name and address of Surveyor and Professional Engineer to Engineer.
- B. On request of Engineer, submit documentation to verify accuracy of field Engineer work.
- C. Submit certificate signed by Registered Engineer or Surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

01050-2

SECTION 01090

REFERENCE STANDARDS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Abbreviations and acronyms used in Contract Documents to identify reference standards.

1.2 QUALITY ASSURANCE

- A. Application: When a standard is specified by reference, comply with requirements and recommendations stated in that standard, except when requirements are modified by the Contract Documents, or applicable codes establish stricter standards.
- B. Publication Date: The publication in effect on the date of issue of Contract Documents, except when a specific publication date is specified.

1.3 ABBREVIATIONS, NAMES, AND ADDRESSES OF ORGANIZATIONS

- A. Obtain copies of referenced standard direct from publication source, when needed for proper performance of Work, or when required for submittal by Contract Documents.

AASHTO
American Association of State Highway
and Transportation Officials
444 North Capital Street,
Northwest Washington, DC
20001

ACI
American Concrete
Institute Post Office Box
19150 Detroit, MI 48219
(313) 523-2600

ANSI, APS
American National Standards Institute, Inc.
10E 40th Street
New York, NY 10018

AREA
American Railroad Engineering Association 200
“L” Street, Northwest
Washington, DC 20036

ASCE
American Society of Civil Engineers 345
East 47th Street
New York, NY 10017

ASME
American Society of Mechanical Engineers 385 E.
47th Street
New York, NY 10017

ASTM
American Society for Testing and Materials 1916
Race Street
Philadelphia, PA 19103

AWWA
American Water Works Association 6666
West Quincy Avenue
Denver, CO 80235

CRSI
Concrete Reinforcing Steel Institute 933 No.
Plumb Grove Road Schaumburg, IL 60173-
4758

FHWA
Federal Highway Administration Federal
Building, U.S. Courthouses Nashville, TN
37202

FS
Federal Specification Superintendent of
Documents Government Printing Office
Washington, DC 20234

FSS
Federal Specification and Standards General
Services Administration
Specifications and Consumer Information Distribution Section (WFSIS)
Washington Navy Yard, Building 197
Washington, DC 20407
TDOT

Tennessee Department of Transportation James
K Polk Building
505 Deaderick Street
Nashville, TN 37219

TDEC
Division of Water Supply 401
Church Street
L & C Tower – 6th Floor
Nashville, TN 37243-1549

WEF
601 Wythe Street
Alexandria, VA 22314-1994

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01150

MEASUREMENT AND PAYMENT

PART 1-GENERAL

- A. For the information and guidance of bidders, the following explanation of the Fountain City Lake Rehabilitation and Wetland Project Bid Form items is made. The omission of reference to any item in this description shall not, however, alter the intent of the Bid Form nor relieve the Contractor of the necessity of furnishing such as part of the Contract. The quantities set forth in the Bid Form are approximate and are given to establish a uniform basis for the comparison of bids. The Owner reserves the right to increase or decrease the quantity of any class or portion of the work during the progress of construction in accordance with the terms of the Contract. Unit prices are used as a means of computing the final figures for Bid and Contract purposes, for periodic payments for work performed, for determining value of additions or deletions and wherever else as is reasonable.
- B. Payment will be made on the basis of work actually performed completing each item in the contract proposal, such work including, but not limited to, the furnishing of all necessary labor, materials, equipment, transportation, clean up, and all other appurtenances to complete the construction and installation of the work to the configuration and extent as shown on the drawings and as described in the specifications.
- C. CLEAN UP AND SEEDING
1. Contractor shall cleanup, fine grade and seed all disturbed areas with seeding types as listed in the specifications for the areas and seasons as appropriate as the work progresses.
 2. This work is considered incidental to the construction of the project, and no separate payment will be made for the initial or any necessary follow up fine grading or seeding required to properly restore all disturbed areas of this project.
- D. Periodic payments shall be determined based on the quantity of work completed for the period in accordance with the provisions of the Contract.

PART 2 – PAY ITEMS

I. DEWATERING – ITEM 1150-1

- A. Payment for dewatering shall be a lump sum pay item for all dewatering activities required to complete the project. This includes all material, equipment, labor, installation, monitoring, and maintenance.
- B. Payment shall be made as equal percentages of the lump sum total during the construction period.

II. UNCLASSIFIED EXCAVATION– ITEM 1150-2

- A. Payment for unclassified excavation shall be at the Contract Unit Price per cubic yard for the removal of existing sediment and rip rap required for the proper and effective placement of gabion structures
- B. Payment shall be compensation for removing, hauling, disposing of and all other costs associated with preparing an earthen and rock foundation for proper and effective placement of gabion structures.
- C. Measurement for this item will be to the nearest cubic yard of the material removed.
- D. Measurement for this item will be to the nearest cubic yard of the material relocated to the stock pile site.

III. FILTER STONE – ITEM 1150-3

- A. Payment for filter stone shall be made at the Contract Unit Price per ton for furnishing and placement of filter stone in the wetland areas.
- B. Payment shall be compensation for material, proper placement, hauling, and all other costs associated with obtaining and placing the filter stone as shown in the contract documents and/or as directed by the Owner's representative.
- C. Measurement of filter stone shall be based on weigh tickets to be submitted to the Owner's representative at the time of delivery to the site.

IV. TRANSITION AGGREGATE– ITEM 1150-4

- A. Payment for transition aggregate shall be made at the Contract Unit Price per ton for furnishing and placement of the transition aggregate in the wetland areas.

- B. Payment shall be compensation for material, proper placement, hauling, and all other costs associated with obtaining and placing the transition aggregate as shown in the contract documents and/or as directed by the Owner's Representative.
- C. Measurement of transition aggregate shall be based on weigh tickets to be submitted to the Owner's Representative at the time of delivery to the site.

V. GEOTEXTILE FABRICS – ITEMS 1150-5a & b

- A. Payment for geotextile fabrics shall be made at the Contract Unit Price per square yard for furnishing and placement of the geotextile fabrics in the wetland areas.
- B. Payment shall be compensation for material, proper placement, and all other costs associated with obtaining and placing the geotextile fabrics as shown in the contract documents and/or as directed by the Owner's representative.
- C. Measurement of geotextile fabrics shall be based on the nearest square yard of material used in the wetland areas.

VI. WETLAND PLANTING MEDIA – ITEM 1150-6

- A. Payment for wetland planting media shall be made at the Contract Unit Price per cubic yard for furnishing, sterilizing, placing, grading, and installing the wetland planting media including Filtrexx SOXX in the wetland planting areas.
- B. Payment shall be compensation for material, proper placement, hauling, and all other costs associated with providing all sterilized planting media, filling, placing, and securing Filtrexx SOXX, as shown in the contract documents and/or as directed by the Owner's representative.
- C. Measurement of wetland planting media will be based on the nearest cubic yard of media used in the wetland planting areas.

VII. WETLAND PLANTS – ITEMS 1150-7a & b

- A. Payment for wetland plants shall be made at the Contract Unit Price per plant container size for furnishing and installing the wetland plants in the wetland planting areas.
- B. Payment shall be compensation for material, proper placement and care, and all other costs associated with providing and installing all plant stock as shown in the contract documents and/or as directed by the Owner's representative.

- C. Measurement of wetland plants shall be as agreed on by the Contractor and the Owner's Representative in the field.

PART 3 – EXECUTION

(Not used)

END OF SECTION

SECTION 01152

APPLICATIONS FOR PAYMENT

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Submit Applications for Payment to Engineer in accordance with the schedule established by Conditions of the Contract and Agreement Between Owner and Contractor.

1.2 RELATED REQUIREMENTS

- A. Standard Form of Agreement Between Owner and Contractor on the Basis of a Stipulated Price
- B. Standard General Conditions of the Construction Contract
- C. Section 01700: Contract Closeout

1.3 FORMAT AND DATA REQUIRED

- A. Submit applications typed on the Application for Payment Form included herein, with itemized data typed on 8-1/2" x 11" white paper continuation sheets.
- B. Provide itemized data on continuation sheet:
 1. Format, schedules, line items, and values: Those of the Schedule of Values accepted by Engineer.

1.4 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
 3. Execute certification with signature of a responsible officer of contract firm.
- B. Continuation Sheets:
 1. Fill in total list of all scheduled component items of Work, with item number and schedule dollar value for each item.
 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
 - a. Round off values to nearest dollar, or as specified for Schedule of Values.

3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
 - a. List by Change Order Number, and description, as for an original component item of work.

1.5 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the Owner or the Engineer requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:
 1. Project
 2. Application number and date
 3. Detailed list of enclosures
 4. For stored products:
 - a. Item number and identification as shown on application.
 - b. Description of specific material.
- B. Submit one (1) copy of data and cover letter for each copy of application.

1.6 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application Form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 – Contract Closeout.

1.7 SUBMITTAL PROCEDURE

- A. Submit Application for Payment to Engineer at the times stipulated in the Agreement.
- B. Number: Five (5) copies of each Application.
- C. When Engineer finds Application properly completed and correct, he will transmit certificate for payment to Owner, with copy to Contractor.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01153

CHANGE ORDER PROCEDURES

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Promptly implement change order procedures:
 - 1. Provide full written data required to evaluate changes.
 - 2. Maintain detailed records of work done on a time-and-material/force account basis.
 - 3. Provide full documentation at Engineer's request.
- B. Designate in writing the member of Contractor's organization:
 - 1. Who is authorized to accept changes in the Work.
 - 2. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the Work.
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

1.2 RELATED REQUIREMENTS

- A. Agreement: The amounts of established unit prices.
- B. Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and materials basis.
 - 2. Contractor's claims for additional costs.
- C. Section 01152: Applications for Payment
- D. Section 01720: Project Record Documents

1.3 DEFINITIONS

- A. Change Order: See General Conditions
- B. Engineer's Supplemental Instructions: A written order, instructions, or interpretations, signed by Engineer making minor changes in the Work not involving a change in Contract Sum or Contract Time.

1.4 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate changes by submitting a Proposal Request to Contractor. Request will include:
 - 1. Detailed description of the Change, Products, and location of the change in the Project.
 - 2. Supplementary or revised Drawings and Specifications.
 - 3. The projected time span for making the change, and a specific statement as to whether overtime work is, or is not authorized.
 - 4. A specific period of time during which the requested price will be considered valid.
 - 5. Such request is for information only, and is not an instruction to execute the changes, nor to stop Work in progress.

- B. Contractor may initiate changes by submitting a written notice to Engineer containing:
 - 1. Description of the proposed changes.
 - 2. Statement of the reason for making the changes.
 - 3. Statement of the effect on the Contract Sum and the Contract Time.
 - 4. Statement of the effect on work of separate contractors.
 - 5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.5 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump-sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow Engineer to evaluate the quotation.

- B. On request, provide additional data to support time and cost computations:
 - 1. Labor required.
 - 2. Equipment required.
 - 3. Products required.
 - a. Recommended source of purchase and unit cost.
 - b. Quantities required.
 - 4. Taxes, insurance, and bonds.
 - 5. Credit for work deleted from contract, similarly documented.
 - 6. Overhead and profit.
 - 7. Justification for any change in Contract Time.

- C. Support each claim for additional costs, and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal, plus additional information:
 - 1. Name of the Owner's authorized agent who ordered the work, and date of the order.
 - 2. Dates and times work was performed, and by whom.

3. Time record, summary of hours worked, and hourly rates paid.
4. Receipts and invoices for:
 - a. Equipment used, listing dates, and times of use.
 - b. Products used, listing of quantities.
 - c. Subcontracts.

1.6 PREPARATION OF CHANGE ORDERS

- A. Engineer will prepare each Change Order.
- B. Form: Contract Change Order Form included herein.
- C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.7 LUMP-SUM/FIXED PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 1. Engineer's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
 2. Contractor's Proposal for a change, as recommended by Engineer.
- B. Owner and Engineer will sign and date the Change Order as authorization for the contractor to proceed with the changes.
- C. Contractor may sign and date the Change Order to indicate agreement with the terms therein.

1.8 UNIT PRICE CHANGE ORDER

- A. Content of Change Orders will be based on, either:
 1. Engineer's definition of the scope of the required changes.
 2. Contractor's Proposal for a change, as recommended by Engineer.
 3. Survey of completed work.
- B. The amounts of the unit prices to be:
 1. Those stated in the Agreement.
 2. Those mutually agreed upon between Owner and Contractor.
- C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
 1. Owner and Engineer will sign and date the Change Order as authorization for Contractor to proceed with the changes.
 2. Contractor may sign and date the Change Order to indicate agreement with the terms therein.

- D. When quantities of the items cannot be determined prior to start of the work:
1. Engineer or Owner will issue a construction change authorization directing Contractor to proceed with the change on the basis of unit prices, and will cite the applicable unit price.
 2. At completion of the change, Engineer will determine the cost of such work based on the unit prices and quantities used:
 - a. Contractor shall submit documentation to establish the number of units of each time and any claims for a change in Contract Time.
 3. Engineer will sign and date the Change Order to indicate his agreement with the terms therein.
 4. Order to indicate their agreement with the terms therein.

1.9 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A. Periodically revise Request for Payment forms to record each change as a separate item of Work and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Within twenty (20) days after the delivery of the executed Agreement and prior to commencing work on the project, the Contractor shall meet with the Engineer and the Owner for a Pre-construction Conference. The Engineer shall designate the time and place.
- B. As he sees fit, the Engineer may periodically request that the Contractor meet with the Owner and the Engineer to discuss the progress of the Work. The Contractor shall attend such meetings.

1.2 RELATED REQUIREMENTS

- A. Conditions of the Contract
- B. Notice of Award
- C. Section 01310: Construction Schedules

1.3 RECORD OF DISCUSSION

- A. The Engineer shall prepare a written record of the discussions conducted during such meetings and shall distribute a copy to each party in attendance or affected by the discussions.
- B. Any party whose understanding of a discussion or action differs from that presented by the Engineer in the written record shall promptly notify the Engineer of the difference.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01310

CONSTRUCTION SCHEDULES

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Within ten (10) days after delivery of the Notice to Proceed, prepare and submit to Engineer estimated construction progress schedules for the Work, with sub-schedules of related activities which are essential to its progress.
- B. Submit revised progress schedules periodically.

1.2 RELATED REQUIREMENTS

- A. General Conditions
- B. Summary of Work
- C. Section 01200: Project Meetings
- D. Section 01340: Shop Drawings, Product Data, and Samples

1.3 FORM OF SCHEDULES

- A. Prepare schedules in the form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Horizontal time scale: identify the first work day of each week.
 - 3. Scale and spacing: to allow space for notations and future revision.
 - 4. Minimum sheet size: 8-1/2" x 11".
- B. Format of listings: the chronological order of the start of each item of work.
- C. Identification of listings: by major specification section numbers.

1.4 CONTENT OF SCHEDULES

- A. Construction Progress Schedule:
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning and completion of each major element of construction. Where applicable, specifically list:
 - a. Site clearing
 - b. Site utilities
 - c. Foundation work
 - d. Structural framing

- e. Subcontractor work
 - f. Equipment installations
 - g. Finishings
- 3. Show projected percentage of completion for each item, as of the first day of each month.
- B. Submittals Schedule for Shop Drawings, Product Data Samples. Show:
 - 1. the dates for Contractor's submittals, and
 - 2. the dates approved submittals will be required from the Engineer. Allow a minimum of three (3) weeks.
- C. Prepare and submit sub schedules for each separate stage of work specified in Section 01010.
- D. Provide sub schedules to define critical portions of prime schedules.

1.5 PROGRESS REVISIONS

- A. Indicate progress of each activity to date of submission.
- B. Show changes occurring since previous submission of schedule:
 - 1. Major changes in scope.
 - 2. Activities modified since previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended, and its effect.
 - 3. The effect of changes on schedules of other prime contractors.

1.6 SUBMISSIONS

- A. Submit initial schedules within ten (10) days after Notice to Proceed.
 - 1. Engineer will review schedules and return review copy within fourteen (14) days after receipt.
 - 2. If required, resubmit within seven (7) days after return of review copy.
- B. Submit revised progress schedules with each application for payment.
- C. Submit the number of opaque reproductions which the contractor requires, plus three (3) copies which the Engineer will retain.

1.7 DISTRIBUTION

- A. Distribute copies of the reviewed schedules to:
 - 1. Job site files.

2. Subcontractors
3. Other concerned parties.

B. Instruct recipients to report promptly to the contractor, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01320

PRE AND POST CONSTRUCTION VIDEO AND PHOTOGRAPHIC RECORDS

PART 1 – GENERAL

1.1 SCOPE

- A. The Contractor shall furnish all equipment, labor, and materials required to provide the Owner with construction videos and photographs of the Project.
- B. Original documents and negatives respectively shall become the property of the Owner and none of the videos and photographs herein shall be published without express permission of the Owner.

1.2 PRE AND POST CONSTRUCTION PHOTOGRAPHS

- A. Prior to the beginning of any work, the Contractor shall take video recordings of the entire project work area and project photographs of any existing conditions that appear to be of special interest.
- B. Following completion of the work, another recording shall be made showing the same areas and features as in the pre-construction videos and photographs.
- C. All conditions which might later be subject to disagreement shall be shown in sufficient detail to provide a basis for decisions.
- D. The pre-construction videos and photographs shall be submitted to the Engineer within twenty-five (25) calendar days after the date of receipt by the Contractor of Notice to Proceed. Post-construction videos and photographs shall be provided prior to final acceptance of the project.

1.3 SUBMITTALS

- A. Photographs shall be submitted in digital format (.jpeg) on compact discs.
- B. Video recordings shall be DVD format.

PART 2 – PRODUCTS

(Not used)

PART 3 – EXECUTION

(Not used)

END OF SECTION

SECTION 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Submit Shop Drawings, Product Data, and Samples required by Contract Documents.

1.2 RELATED REQUIREMENTS

- A. Bid Proposal
- B. General Conditions
- C. Section 01310: Construction Schedules
- D. Section 01720: Project Record Documents
- E. Designate in the construction schedule, or in a separate coordinated schedule, the dates for submission and the dates that reviewed Shop Drawings, Product Data, and Samples will be needed.

1.3 SHOP DRAWINGS

- A. Drawings shall be presented in a clear and thorough manner.
 - 1. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Contract Drawings.
- B. Minimum Sheet size: 8-1/2" x 11"

1.4 PRODUCT DATA

- A. Preparation:
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics and capacities.
 - 3. Show dimensions and clearances required.
 - 4. Show wiring or piping diagrams and controls.
- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams to delete information that is not applicable to the work.
 - 2. Supplement standard information to provide information specifically applicable to the Work.

1.5 SAMPLES

- A. Office samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture, and pattern.

1.6 CONTRACTOR RESPONSIBILITIES

- A. Review Shop Drawings, Product Data, and Samples prior to submission.
- B. Determine and verify:
 - 1. Field measurements,
 - 2. Field construction criteria,
 - 3. Catalog numbers and similar data, and
 - 4. Conformance with specifications.
- C. Coordinate each submittal with requirements of the Work and of the Contract Documents.
- D. Notify the Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.
- E. Begin no fabrication or work which requires submittals until return of submittals with Engineer approval.

1.7 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the work, or in the work of any other contractor.
- B. Number of submittals required:
 - 1. Shop Drawings: Submit the number of opaque reproductions which the contractor requires, plus four (4) copies which will be retained by the Engineer.
 - 2. Product Data: Submit the number of copies which the Contractor requires, plus four (4) which will be retained by the Engineer.
 - 3. Samples: Submit the number stated in each specification section.
 - 4. **The preference is for shop drawings to be submitted in electronic (color .pdf format) either by electronic mail or on cd.**
- C. Submittals shall contain:
 - 1. The date of submission and the dates of any previous submissions.
 - 2. The project title and number.
 - 3. Contract identification.

4. The names of:
 - a. Contractor
 - b. Supplier
 - c. Manufacturer
5. Identification of the project, with the specification section number.
6. Field dimensions, clearly identified as such.
7. Relation to adjacent or critical features of Work or materials.
8. Applicable standards, such as ASTM or Federal Specification numbers.
9. Identification of deviations from Contract Documents.
10. Identification of revisions on resubmittals.
11. An 8" x 3" blank space for Contractor and Engineer stamps.
12. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work.

1.8 RESUBMISSION REQUIREMENTS

- A. Make any corrections or changes in the submittals required by the Engineer and resubmit until approved.
- B. Shop Drawings and Product Data:
 1. Revise initial drawings or data, and resubmit as specified for the initial submittal.
 2. Indicate any changes which have been made other than those requested by the Engineer.
- C. Samples: Submit new samples as required for initial submittal.

1.9 DISTRIBUTION

- A. Distribute reproductions of Shop Drawings and copies of Product Data which carry the Engineer stamp of approval to:
 1. Job site file
 2. Record documents file
 3. Other affected contractors
 4. Subcontractors
 5. Supplier or fabricator
- B. Distribute samples which carry the Engineer stamp of approval as directed by Engineer.

1.10 Engineer DUTIES

- A. Review submittals with reasonable promptness and in accordance with schedule.

- B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or approval of submittal.
- C. Return submittals to Contractor for distribution, or for resubmission.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01520

CONSTRUCTION AIDS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Furnish, install, and maintain required construction aids, remove on completion of Work.

1.2 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work

PART 2 – PRODUCTS

2.1 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.2 CONSTRUCTION AIDS

- A. Provide construction aids and equipment required by personnel and to facilitate execution of the Work; scaffolds, staging, ladders, stairs, ramps, runway, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Consult with Engineer, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of Work.

3.2 GENERAL

- A. Comply with applicable requirements specified in sections of Divisions 2-16.
- B. Relocate construction aids as required by progress of construction, by storage or work requirements, and to accommodate legitimate requirements of Owner and other contractors employed at the site.

3.3 REMOVAL

- A. Completely remove temporary materials, equipment, and services:
 - 1. When construction needs can be met by use of permanent construction.
 - 2. At completion of Project.

- B. Clean and repair damage caused by installation or by use of temporary facilities.
 - 1. Remove foundations and underground installations for construction aids.
 - 2. Grade areas of site affected by temporary installations to required elevations and slopes, and clean the area.

- C. Restore existing facilities used for temporary purposes to specified or to original condition.

- D. Restore permanent facilities, if any, used for temporary purposes to specified condition.

END OF SECTION

SECTION 01530

BARRIERS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Furnish, install, and maintain suitable barriers as required to prevent public entry, and to protect the Work, existing facilities, trees, and plants from construction operations; remove when no longer needed, or at completion of the Work.

1.2 RELATED REQUIREMENTS

- A. Section 01010: Summary of Work
- B. Section 01520: Construction Aids

PART 2 – PRODUCTS

2.1 MATERIALS, GENERAL

- A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.2 FENCING

- A. Materials to Contractor's option, minimum fence height six (6') feet.

2.3 BARRIERS

- A. Materials to Contractor's option, as appropriate to serve required purpose.

PART 3 – EXECUTION

3.1 GENERAL

- A. Install facilities of a neat and reasonably uniform appearance, structurally adequate for required purposes.
- B. Maintain barriers during entire construction period.
- C. Relocate barriers as required by progress of construction.

3.2 FENCES

- A. Prior to start of work at the Project site, install enclosure fence with suitably locked entrance gates.
 - 1. Locate as shown on drawings.

3.3 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.
- B. Consult with Engineer and remove agreed-on roots and branches which interfere with construction.
 - 1. Employ qualified tree surgeon to remove, and to treat cuts.
- C. Provide temporary barriers to a height of six (6') feet, around each, or around each group of trees and plants.
- D. Protect root zones of trees and plants:
 - 1. Do not allow vehicular traffic or parking.
 - 2. Do not store materials or products.
 - 3. Prevent dumping refuse or chemically injurious materials or liquids.
 - 4. Prevent puddling or continuous running water.
- E. Carefully supervise excavating, grading, filling, and subsequent construction operations to prevent damage.
- F. Replace, or suitably repair, trees, and plants designated to remain which are damaged or destroyed due to construction operations.

3.4 REMOVAL

- A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed and when approved by the Engineer.
- B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

END OF SECTION

SECTION 01540

SECURITY

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Provide a Project security program, to:
 - 1. Protect Work stored products and construction equipment from theft and vandalism.
 - 2. Protect premises from entry by unauthorized persons.
- B. Comply with local security requirements.

1.2 RELATED REQUIREMENTS

- A. Section 01530: Barriers

1.3 MAINTENANCE OF SECURITY

- A. Initiate security program in compliance with Owner's system, prior to job mobilization.
- B. Maintain security program throughout construction period, until Owner occupancy or Owner acceptance precludes the need for Contractor security.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01560

TEMPORARY CONTROLS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at the construction site and related areas under Contractor's control; remove physical evidence of temporary facilities at completion of work.

1.2 RELATED REQUIREMENTS

- A. Section 01570: Traffic Regulations
- B. Section 01710: Cleaning

1.3 DUST CONTROL

- A. Provide positive methods and apply dust control materials to minimize raising dust from construction operation, and provide positive means to prevent airborne dust from dispersing into the atmosphere.

1.4 WATER CONTROL

- A. Provide methods to control surface water to prevent damage to the Project, the site, or adjoining properties.
 - 1. Control fill, grading, and ditching to direct surface drainage away from excavations, pits, tunnels, and other construction areas; and to direct drainage to proper runoff.
- B. Provide, operate, and maintain hydraulic equipment of adequate capacity to control surface and groundwater.
- C. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the site, or to adjoining areas.

1.5 DEBRIS CONTROL

- A. Maintain all areas under contractor's control free of extraneous debris.
- B. Initiate and maintain a specific program to prevent accumulation of debris at construction site, storage and parking areas, or along access roads and haul routes.

1. Provide containers for deposit of debris as specified in Section 01710 – Cleaning.
 2. Prohibit overloading of trucks to prevent spillages on access and haul routes.
 - a. Provide periodic inspection of traffic areas to enforce requirements.
- C. Schedule periodic collection and disposal of debris as specified in Section 01710 – Cleaning.

1.6 POLLUTION CONTROL

- A. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere by discharge of noxious substances from construction operations.
- B. Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
 1. Excavate and dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.
- C. Take special measures to prevent harmful substances from entering public waters.
 1. Prevent disposal of wastes, effluents, chemicals, or other such substances adjacent to streams, or in sanitary or stormsewers.
- D. Provide systems for control of atmospheric pollutants.
 1. Prevent toxic concentrations of chemicals.
 2. Prevent harmful dispersal of pollutants into the atmosphere.

1.7 EROSION CONTROL

- A. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
 1. Hold the areas of bare soil exposed at one time to a minimum.
 2. Provide temporary control measures such as berms, dikes, and drains.
- B. Construct fills and waste areas by selective placement to eliminate surface silts or clays which will erode.
- C. Periodically inspect earthwork to detect any evidence of the start of erosion, apply corrective measures as required to control erosion.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01570

TRAFFIC REGULATIONS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Provide, operate, and maintain equipment, services, and personnel, with traffic control and protective devices, as required to expedite vehicular traffic flow on haul routes, at site entrances, on-site access roads, and parking areas.
- B. Remove temporary equipment and facilities when no longer required, restore grounds to original, or to specified conditions.
- C. Where required, submit a Traffic Control Plan prepared by an Engineer licensed in the state the work is being performed, to the Engineer and Owner. Address any comments or concerns prior to implementing plan.

1.2 RELATED REQUIREMENTS

- A. Section 01530: Barriers
- B. Section 01560: Temporary Controls

1.3 TRAFFIC SIGNALS AND SIGNS

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control, or affected by Contractor's operations in accordance with Owner requirements and the Manual of Uniform Traffic Control Devices.
- B. Provide traffic control, directional signs, and warning signs mounted on barricades or standard posts:
 - 1. At each change of direction of a roadway and at each crossroads.
 - 2. At detours.
 - 3. At parking areas.
 - 4. Well in advance of the work area toward oncoming traffic.

1.4 FLAGMEN

- A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic.

1.5 FLARES AND LIGHTS

- A. Provide flares and lights during periods of low visibility:
 - 1. To clearly delineate traffic lanes and to guide traffic.
 - 2. For use by flagmen in directing traffic.
- B. Provide illumination of critical traffic and parking areas.

1.6 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. Monitor parking of construction personnel's private vehicles.
 - 1. Maintain free vehicular access to and through parking areas.
 - 2. Prohibit parking on or adjacent to access roads, or in non-designated areas.

1.7 HAUL ROUTES

- A. Consult with governing authorities and establish public thoroughfares which will be used as haul routes and site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to expedite traffic flow to minimize interference with normal public traffic.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Material and equipment incorporated into Work:
 - 1. Conform to applicable specifications and standards.
 - 2. Comply with size, make, type, and quality specified, or as specifically approved in writing by the Engineer.
 - 3. Manufactured and Fabricated Products:
 - a. Design, fabricate, and assemble in accordance with the best Engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Two (2) or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes, and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 - 4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.2 RELATED REQUIREMENTS

- A. Conditions of the Contract
- B. Bid Proposal
- C. Section 01010: Summary of Work
- D. Section 01340: Shop Drawings, Product Data, and Samples
- E. Section 01710: Cleaning

1.3 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, materials and equipment removed from the existing structure, if any, shall not be used in the completed work.

- B. For material and equipment specifically indicated or specified to be used in the Work:
 - 1. Use special care in removal, handling, storage, and reinstallation, to assure proper function in the completed Work.
 - 2. Arrange for transportation, storage, and handling of products which require off-site storage, restoration, or renovation. Pay all costs for such work.

1.4 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two (2) copies to Engineer.
 - 1. Maintain one (1) set of complete instructions at the job site during installation and until completion.
- B. Handle, install, connect, clean, condition, and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
 - 2. Do not proceed with work without clear instructions.
- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.5 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of Product in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.
- B. Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

1.6 STORAGE AND PROTECTION

- A. Store Products in accordance with manufacturer's instructions with seals and labels intact and legible.

1. Store Products subject to damage by the elements in weather-tight enclosures.
 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
- B. Exterior Storage:
1. Store fabricated Products above the ground, on blocking or skids, prevent soiling or staining. Cover Products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
- D. Protection after Installation:
1. Provide substantial coverings as necessary to protect installed Products from damage from traffic and subsequent construction operations. Remove when no longer needed.

1.7 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. Products List:
1. Within ten (10) days after contract Date, submit to Engineer a complete list of major Products proposed to be used, with the name of the manufacturer and the installing subcontractor.
- B. Contractor's Options:
1. For Products specified only by reference standard, select any Product meeting that standard.
 2. For Products specified by naming several Products or manufacturers, select any one (1) of the Products or manufacturers named, which complies with the specifications.
 3. For Products specified by naming one (1) or more Products or manufacturers and stating "or equal," Contractor must submit a request for substitutions for any Product or manufacturer not specifically named.
 4. For Products specified by naming only one (1) Product and manufacturer, there is no option.
- C. Substitutions:
1. Major Equipment Items
 - a. For a period of fourteen (14) days after the Bid opening, Engineer will consider written requests from Contractor for substitutions identified in the major equipment Schedule of the Bid Form.

2. Other Products
 - a. For a period of thirty (30) days after Contract Date, Engineer will consider written requests from Contractor for substitutions on Products.
 3. Submit a separate request for each Product, supported with complete data, with drawings and samples as appropriate, including:
 - a. Comparison of qualities of the proposed substitution with that specified.
 - b. Changes required in other elements of the work because of the substitution.
 - c. Effect on the construction schedule.
 - d. Cost data comparing the proposed substitution with the Product specified.
 - e. Any required license fees or royalties.
 - f. Availability of maintenance service, and source of replacement materials.
 4. Engineer shall be the judge of the acceptability of the proposed substitution.
- D. Contractor's Representation:
1. The request for a substitution constitutes a representation that contractor:
 - a. Has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified.
 - b. Will provide the same warranties or bonds for the substitution as for the Product specified.
 - c. Will coordinate the installation of an accepted substitution into the work, and make such other changes as may be required to make the work complete in all respects.
 - d. Waives all claims for additional costs, under this responsibility, which may subsequently become apparent.
- E. Engineer will review requests for substitutions with reasonable promptness, and notify Contractor, in writing, of the decision to accept or reject the requested substitution.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

01600-4

SECTION 01700

CONTRACT CLOSEOUT

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.2 RELATED REQUIREMENTS

- A. Conditions of the contract: Fiscal provisions, legal submittals and additional administrative requirements:
- B. Section 01710: Cleaning
- C. Section 01720: Project Record Documents
- D. The respective sections of Specifications: Closeout Submittals Required of Trades.

1.3 SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work is substantially complete, he shall submit to Engineer:
 - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, Engineer will make an inspection to determine the status of completion.
- C. Should Engineer determine that the Work is not substantially complete:
 - 1. Engineer will promptly notify the Contractor in writing, giving the reasons for Work not being substantially complete.
 - 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.
 - 3. Engineer will re-inspect the Work.
- D. When the Engineer finds that the Work is substantially complete, he will:
 - 1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion of NSPE Form 1910-8-D with a tentative list of items to be completed or corrected before final payment.

2. After consideration of any objections made by the Owner as provided in Conditions of the Contract, and when Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.4 FINAL INSPECTION

- A. When Contractor considers the Work is complete, he shall submit written certification that:
 1. Contract Documents have been reviewed.
 2. Work has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
 5. Work is complete and ready for final inspection.
- B. Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Engineer consider that Work is incomplete or defective:
 1. Engineer will promptly notify the Contractor in writing, listing the incomplete or defective Work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies in the Work and send a second written certification to the Engineer that the Work is complete.
 3. Engineer will re-inspect the Work.
- D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.5 REINSPECTION FEES

- A. Should Engineer perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:
 1. Owner will compensate Engineer for such additional services.
 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.6 CONTRACTOR'S CLOSEOUT SUBMITTALS TO Engineer

- A. Evidence of compliance with requirements of governing authorities.
- B. Project Record Documents: to requirements of Section 01720
- C. Evidence of Payment and Release of Liens: to requirements of General and Supplementary Conditions.

D. Certificate of Insurance for Products and Completed Operations, as applicable.

1.7 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to Engineer.

B. Statement shall reflect all adjustments to the Contract Sum:

1. The original Contract Sum.
2. Additions and deductions resulting from:
 - a. Previous Change Orders
 - b. Allowances
 - c. Unit Prices
 - d. Deductions for uncorrected work
 - e. Penalties and Bonuses
 - f. Deductions for liquidated damages
 - g. Deductions for re-inspection payments
 - h. Other adjustments
3. Total Contract Sum, as adjusted
4. Previous payments
5. Sum remaining due

C. Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.8 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the conditions of the Contract.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01710

CLEANING

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Execute cleaning, during progress of the Work, and at completion of the Work, as required by General Conditions.

1.2 RELATED REQUIREMENTS

- A. Conditions of the Contract
- B. Section 01560: Temporary Controls
- C. Each Specification Section: Cleaning for specific Products or Work.

1.3 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 – EXECUTION

3.1 DURING CONSTRUCTION

- A. Execute periodic cleaning to keep the Work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris, resulting from construction operations.
- B. Provide on-site containers for the collection of waste materials, debris, and rubbish.

- C. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas away from the site.

3.2 DUST CONTROL

- A. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- B. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.3 FINAL CLEANING

- A. Employ skilled workmen for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
- D. Prior to final completion, or Owner occupancy, Contractor shall conduct an inspection of sight-exposed surfaces, and all work areas, to verify that the entire Work is clean.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Maintain at the site for the Owner one (1) record copy of:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and other Modifications to the Contract
 - 5. Engineer Field Orders or written instructions
 - 6. Approved Shop Drawings, Product Data and Samples
 - 7. Field test records

1.2 RELATED REQUIREMENTS

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

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI/CSC format.
- C. Maintain documents in a clean, dry legible condition and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by Engineer.

1.4 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by Engineer.

1.5 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.

- B. Record information concurrently with construction progress.
 - 1. Do not conceal any Work until required information is recorded.

1.6 SUBMITTAL

- A. At Contract closeout, deliver Record Documents to Engineer for the Owner.
- B. Accompany submittal with transmittal letter in duplicate, containing:
 - 1. Date
 - 2. Project title and number
 - 3. Contractor's name and address
 - 4. Title and number of each Record Document
 - 5. Signature of Contractor or his authorized representative

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 02210

SITE GRADING AND FILLING

PART 1 – GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE:

- A. Section 01150: Measurement and Payment
- B. Section 01710: Cleaning
- C. Section 01720: Project Record Documents

1.2 QUALITY ASSURANCE (see Clearing and Grubbing for more specifications)

- A. Requirements of Regulatory Agencies:
 - 1. Comply with requirements of the authority having jurisdiction for work done on controlled property.
 - 2. Obtain permits and notices, as required, for removal of walks and drives on controlled property.

1.3 PROTECTION (see Clearing and Grubbing for more specifications)

- A. Protect excavations and grounds from water ponding and water damage. Construct and maintain temporary drainage. Pump, if required, to keep excavations free of water. Maintain site in well drained condition at all times.
- B. Protect, maintain, and restore benchmarks, monuments, and other reference points affected by this work. If benchmarks, monuments, or other permanent reference points are displaced or destroyed, points shall be re-established and markers reset under supervision of a licensed surveyor who shall furnish Engineer with certification of his work.
- C. Protect Utilities and other construction designated to remain in place.
- D. Protect trees to remain in place.

1.4 LINES AND GRADES

- A. It is imperative that lines and grades established on drawings, except for allowance for installation of fill aggregate, concrete, and topsoil established below, be met when this work is completed.

1.5 SUBMITTALS TO Engineer

- A. Submit one (1) copy of permits and notices obtained from authority having jurisdiction before commencing work.
- B. At Owners discretion, obtain and submit certification of adequacy of site grading and filling from Testing Laboratory, signed and sealed by a qualified Geotechnical Engineer, stating that work is in accordance with Contract Documents, and that soils are capable of supporting the structure to be constructed under the Contract.
- C. If benchmarks and other permanent reference points are displaced, obtain and submit certification, signed and sealed by a licensed surveyor, of proper re-establishment of benchmarks and reference points.

PART 2 – PRODUCTS

2.1 GRANULAR FILL

- A. Machined Rip-Rap (Class A-1) shall vary in size from 2 inches to 1.25 feet with no more than 20% by weight being less than 4 inches.
- B. Machined Rip-Rap (Class A-3) shall vary in size from 2 inches to 6 inches with no more than 20% by weight being less than 4 inches.
- C. Crushed or natural stone conforming to ASTM D448, Size 57, or well graded, dense mineral aggregated meeting Tennessee D.O.T. Specification 303 Class A, Grading E.

2.2 WETLAND PLANTING MEDIA

- A. Fertile, friable soil containing less than 5% total volume of the combination of subsoil, refuse, roots larger than 1 inch diameter, heavy, sticky or stiff clay, stones larger than 2 inches in diameter, noxious seeds, sticks, brush, litter, or any substances deleterious to plant growth. The percent (%) of the above objects shall be controlled by source selection not by screening the soil. Soil shall be suitable for the germination of seeds and the support of vegetative growth. Imported soil shall not contain weed seeds in quantities that cause noticeable weed infestations in the final planting beds. Imported soil shall meet the following physical and chemical criteria:
 - 1. Soil texture: USDA loam, sandy clay loam or sandy loam with clay content between 15 and 25%. And a combined clay/silt content of no more than 55%.
 - 2. Ph value shall be between 5.5 and 7.0.
 - 3. Percent organic matter (OM): 2.0-5.0%, by dry weight.
 - 4. Soluble salt level: Less than 2 mmho/cm.

- 5. Soil chemistry suitable for growing the plants specified.
- B. On-site earth removed during cutting operations may be used if it meets the above requirements.

2.3 WETLAND EROSION CONTROL BLANKET

- A. The wetland erosion control blanket shall be GEOCOIR / DeKoWe 900 Coir fiber blanket or approved equal. Material shall be installed according to manufacturer specifications.

2.4 FILER FABRIC

- A. A non-woven, 8-10 ounce geotextile shall be placed on top of the #57 stone transition aggregate prior to placement of wetland planting media. Material shall be installed according to manufacturer specifications.

2.5 OFF-SITE BORROW

- A. Off-site borrow for wetland soil shall be utilized provided the Owners Representative approves its use.

PART 3 – EXECUTION

3.1 REMOVAL OF OBSTRUCTIONS

- A. Clean out cellars, wells, cisterns, septic tanks and drain fields, cesspools, catch basins, manholes, and similar items to solid subgrade and break up masonry and/or concrete bottoms so that no pieces remain which are over twelve (12”) inches in their largest dimension. Break out masonry and concrete sides of such construction to a depth of at least two (2’) feet below bottoms of footings to be installed as part of this project or subgrade, as applicable.
- B. Fill basements, cellars, walls, and other items enumerated above with specified granular fill and compact to 100 percent Standard Proctor Density.

3.2 DISPOSITION OF ABANDONED UTILITIES

- A. If abandoned underground utility lines and electric conduit are uncovered in the course of grading, then that part uncovered shall be removed and capped off at points of removal as well as at property lines.

3.3 REMOVAL AND STORAGE OF TOPSOIL

- A. Remove topsoil to its entire depth from areas within building lines and for a distance of ten (10') feet beyond, under pavements, or other areas to be excavated, filled, or graded.
- B. Mow grass, weeds and other annual-type growth, and brush close to ground.
- C. Scrape or rake area to remove brush, roots, loose grass, weeds, and rocks before stripping topsoil.
- D. Topsoil to be stored for reuse shall meet requirements established above.
- E. Store topsoil in area designated by Architect. Store so as to prevent erosion and mixture with debris and other materials.

3.4 GENERAL SITE WORK

- A. Before depositing fill material, remove vegetation and other unsuitable materials. Do not place fill on a subgrade that contains frost, is muddy or frozen.
- B. Fill and grade to attain elevations indicated +/- 0.1' less allowance for placement of aggregate, concrete, walks, drives and parking areas, and topsoil.
- C. Inside of building lines, fill with specified earth fill and allow for placement of four (4") inches of granular fill and four (4") inches of concrete, unless noted otherwise on the Contract Documents.
- D. Outside of building, in areas designated to receive topsoil, grade, or fill and compact specified earth, to bring areas to finished grade +/- 0.1' less eighteen (18") inches for placing wetland soil.
- E. Where exterior walks are indicated, allow for placement of four (4") inches of granular fill and four (4") inches of concrete and finish +/- 0.1'.
- F. Where drives are indicated to join the building, allow for placement of six (6") inches of aggregated base and two (2") inches of asphalt.

3.5 GRADING

- A. Grade to uniform levels and slopes, without abrupt changes. Make transitions from levels to slopes smooth and with large radius cuts.
- B. Finish areas to a reasonably true and even plane at required elevations, less allowances for items specified above.

- C. Along the lines indicating the limits of work, taper finish grade to the existing grade at a slope matching the natural contour. Perform all of this work within the limit lines.

3.6 FILLING

- A. Within the building lines and for a distance of ten (10') feet outside of building lines, place specified earth fill in loose lifts not to exceed eight (8") inches and thoroughly compact each lift before placing succeeding lifts.
- B. When foundation walls have been constructed to a point above the surface which will contain granular fill, foundation backfilling inside the building has been placed, and utility lines have been placed and backfilled, place granular fill base for concrete slabs. Roll and tamp granular fill to thoroughly compact it. Coordinate this work with concrete trade so that concrete can be placed before rain, if a sand base is used.
- C. Outside of building in areas to be paved or covered by construction, fill as specified above for fill within building lines.
- D. Outside of building in areas where no construction or paving will be placed, place specified earth fill in loose lifts of twelve (12") inches and thoroughly compact.

3.7 COMPACTION DENSITIES

- A. For all compaction, outside wetland area:
 - 1. If earth is used for filling, compact to a density of 98 percent at optimum moisture condition ASTM D698-78 Standard Proctor.
 - 2. If granular fill is utilized, compact to a density of 98 percent at optimum moisture condition ASTM D698-78 Standard Proctor.
- B. For areas where no construction will be placed, compact to a density of 90 percent at optimum moisture condition ASTM D698-78 Standard Proctor.

3.8 COMPACTION TESTING

- A. While filling and compacting operations are in progress, at Owners discretion, Geotechnical Engineer will make density tests at random depths and at random locations to determine adequacy of compaction. If compaction tests do not meet specified densities, action shall be taken to compact to required densities and retested to score compaction densities at the expense of the contractor.

3.9 CLEAN-UP

- A. After all other work of this section is completed, leave area clean and free of any debris.

END OF SECTION

SECTION 02260

FINISH GRADING

PART 1 – GENERAL

1.1 RELATED WORK

- A. Section 02210: Site Grading

1.2 QUALITY ASSURANCE

- A. All work included in this section shall conform to the minimum standards of the local codes and authorities having jurisdiction over the project area.

1.3 SITE COMPACTION TESTING

- A. Testing of compacted fill materials shall be performed by an independent testing laboratory appointed and paid for in accordance with Section 01410.
- B. When work of this section or portions of work are completed, notify the testing laboratory to perform density tests. Do not proceed with additional portions of work until results have been verified by Engineer, Owner, or Owner's representative.
- C. While filling and compacting operations are in progress, at Owner's discretion, Geotechnical Engineer will make density tests at random depths and at random locations to determine adequacy of compaction. If compaction tests do not meet specified densities, action shall be taken to compact to required densities and retested to score compaction densities at the expense of the contractor.

1.4 SAMPLES

- A. Submit minimum ten (10 lb.) pound samples of each type of excavated fill material to be used. Forward samples to testing laboratory, packed tightly in containers to prevent contamination.
- B. If recent test results are available for fill materials to be used, disregard sample submission and submit such test results to the testing laboratory for approval. Such test results are to clearly indicate types of materials and composition, hardness, compactability, and suitability for proposed usage.

1.2 PROTECTION (see Clearing and Grubbing for more Protection specifications)

- A. Prevent damage to existing fencing, trees, landscaping, natural features, benchmarks, pavement, utility lines, and structures. Correct damage at no cost to the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS (OUTSIDE WETLAND AREA)

- A. Topsoil must consist of friable loam free from subsoil, roots, grass, excessive amount of weeds, stones and foreign matter; acidity range (pH) of 5.5 to 7.5; containing a minimum of four (4%) percent and a maximum of twenty-five (25%) percent organic matter.

PART 3 - EXECUTION

3.1 SUB-SOIL PREPARATION (OUTSIDE WETLAND AREA)

- A. Rough grade sub-soil systematically to allow for a maximum amount of natural settlement and compaction. Eliminate uneven areas and low spots. Remove debris, roots, branches, stones, and etc., in excess of three (3") inches in size. Remove sub-soil which has been contaminated with petroleum products.
- B. Cut out areas, to sub-grade elevation, which has been contaminated with petroleum products.
- C. Bring sub-soil to required levels, profiles, and contours. Make changes in grade gradual. Blend slopes into level areas.
- D. Slope grade away from building minimum two (2") inches in ten (10') feet unless indicated otherwise on drawings.
- E. Cultivate sub-grade to a depth of three (3") inches where topsoil is to be placed. Repeat cultivation in areas where equipment used for hauling and spreading topsoil has compacted sub-soil.
- F. Compact sub-soil to the following:
 - 1. Under Topsoil: 90 percent modified Proctor, ASTM D1557.
 - 2. Under Streets, Drives, and Parking Areas: 98 percent modified Proctor ASTM D1557.
 - 3. Under Walks: 98 percent modified Proctor, ASTM D1557.

3.2 PLACING TOPSOIL

- A. Place topsoil in areas where seeding and planting is to be performed. Place to the following minimum depths, up to finished grade elevations.
 - 1. Six (6") inches for seeded areas.
 - 2. Twenty-four (24") inches for shrub beds.
- B. Use topsoil in relatively dry state. Place during dry weather.

- C. Fine grade topsoil eliminating rough and low areas to ensure positive drainage. Maintain levels, profiles, and contours of sub-grades.
- D. Break down clods and lumps to provide a uniformly textured soil.
- E. Remove stone, roots, grass, weeds, debris, and other foreign material while spreading.
- F. Manually spread topsoil around trees, plants, and buildings to prevent damage which may be caused by grading equipment.
- G. Lightly compact placed topsoil.

3.3 SURPLUS MATERIAL

- A. Remove surplus sub-soil and topsoil from site.
- B. Leave stockpile areas and entire job site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 02486

PLANTING

PART 1-GENERAL

1.1 RELATED WORK

- A. Section 31.0: Erosion Prevention and Sediment Control
- B. Section 02210: Site Grading and Filling
- C. Section 02220: Finish Grading

1.2 QUALITY ASSURANCE

- A. The plant supplier, for all plant stock, shall be approved in writing by the Owner.
- B. The plant supplier, for all plant stock, shall certify that all plant stock was produced from a USDA Hardiness Zone 6 and shall be approved in writing by the Engineer.
- C. All proposed species substitutions, changes in percent composition of species, and/or USDA Hardiness Zone changes must be approved by the Engineer, in writing, prior to purchase and planting.
- D. Only specified plant species will be accepted
 - 1. Plant stock collected from "the wild" is prohibited
 - 2. Cultivated varieties (cultivars) will be rejected

1.3 DELIVERY

- A. Plant stock shall be protected during delivery to prevent desiccation and damage to branches, trunk, roots, and earth ball.
- B. Plant stock shall be inspected upon delivery to the project site for conformity to species and quality.
 - 1. Plant shall be well wrapped, vigorous and healthy with a root system free from:
 - a. Disease
 - b. Harmful insects, insect eggs or larvae
 - c. Sun-scald injury
 - d. Disfigurement
 - e. Abrasions
 - f. Mishandling
 - g. Poor pruning
 - 2. Plants shall not be unauthorized substitution
 - 3. Plants shall be certified:
 - a. Nursery-Grown
 - b. Produced in USDA Hardiness Zone 6
 - 4. Container grown plants shall have:

- a. New fibrous roots
- b. Root mass that maintains shape when removed from container
- 5. Plants may be rejected if unauthorized substitution or shows signs of:
 - a. Desecration
 - b. Abrasion
 - c. Sun-scald injury'
 - d. Disfigurement
 - e. Broken or cracked rootball
 - f. Broken container
 - g. Dormant bare root plants
 - h. Stress
 - i. Disease
 - j. Dieback
 - k. Mishandling

1.4 STORAGE

- A. Plants not installed on the day of delivery at the site shall be stored and protected in areas approved by the Engineer, not to exceed thirty (30) days.
 - 1. Plants in storage areas shall be:
 - a. Protected from direct exposure to natural elements
 - b. Kept in moist conditions by:
 - 1) Watering base of each container plant
 - 2) Covering bare roots with water

PART 2 - PRODUCTS

2.1 PLANT STOCK

- A. Plant Stock shall be:
 - 1. Trees and shrubs specified by planting Plans or as directed by the Engineer
 - 2. Healthy, vigorous, and free from damage and disease (Reference Section 1.04)
 - 3. Healthy representatives typical of their species or variety and exhibit a normal habit of growth

2.2 STAKING

- A. Bracing Stakes shall be:
 - 1. Of the hardwood or fir species
 - 2. Free from knots, rot, cross grain, or defects impairing their strength
 - 3. Minimum of two (2) inch by two (2) inch square
 - 4. Minimum eight (8) feet long with a point at one (1) end
- B. Ground Stakes shall be:
 - 1. Of the hardwood or fir species
 - 2. Free from knots, rot, cross grain, or defects impairing their strength
 - 3. Minimum of two (2) inch by two (2) inch square
 - 4. Minimum three (3) feet long with a point at one (1) end

- C. Metal Guying Material shall be:
 - 1. Minimum 12-gauge wire
 - 2. Multi-strand cable to be woven wire
 - 3. Tensile strength must conform to the size of tree to be held firmly in place
 - 4. Covered by a rubber chafing guard
- D. Rubber Chafing Guards shall be:
 - 1. One and one half (1.5) times the plant trunk circumference
 - 2. Made of recycled material
 - 3. One (1) standard color for the scope of the project

PART 3 - EXECUTION

3.1 SCHEDULE AND CONDITIONS

- A. Planting operations shall be performed when beneficial results can be obtained:
 - 1. March 1 to May 31 for spring establishment
 - 2. September 1 to October 31 for fall establishment
- B. Planting operations shall NOT be performed during:
 - 1. Drought
 - 2. Excessive moisture
 - 3. Frozen ground
 - 4. Other unsatisfactory conditions prevail
- C. When special conditions warrant a variance to planting operations, proposed planting times shall be submitted for approval by the Engineer.

3.2 PREPARATION

- A. The site must be prepared as directed on plans, specifications, or by the Engineer
- B. Plant locations and bed outlines shall be staked on the project site prior to any excavation
- C. Planting locations may be adjusted to meet field conditions following approval by the Engineer.

PART 4 - INSTALLATION

4.1 CONTAINER TREES AND SHRUBS

- A. Excavate planting holes:
 - 1. At least one and one half (1.5) times the width of the root mass of the plant to be installed.
 - 2. Such that the top of the root mass is flush with the existing grade after the soil in the bottom of the pit is tamped.
- B. Planting
 - 1. Burlap container plants – remove burlap from the top one-third (1/3) of the root mass.

2. Other container plants – remove the plant by inverting the container and pushing on the container bottom.
 3. Massage the root mass.
 4. Place plant in the center of the planting hole, carrying the plant by the root mass.
 5. Backfill the planting hole with native soil to fully cover the root ball.
 6. Tamp soil around the root ball.
- C. Staking and Bracing Material
1. Bracing stakes and guying material shall be installed according to plans and specification, or by direction of the Engineer.
 2. Bracing stakes shall be set so not to damage the root system.
 3. Rubber chafing guards shall be used to protect the trunk of the plant.
- D. Watering
1. The Contractor shall water trees and shrubs, thoroughly, immediately after planting.
 2. Additional watering shall be at the discretion of the Engineer.

4.2 BARE-ROOT TREES AND SHRUBS

- E. Planting Holes
1. A planting bar or other appropriate tool shall be used to produce a planting hole
 2. Planting holes shall be excavated to a depth that allows:
 - a. The root mass NOT to bend, twist, or break.
 - b. The root collars to be two to three (2-3) inches below existing grade.
- F. Planting
1. Gently spread roots in the hole.
 2. Gradually backfill the planting hole with native soil while ensuring that the plant remains straight and upright.
 3. Tamp soil around the plant roots.
 4. Avoid breaking the roots.
- G. Watering
1. The Contractor shall water trees and shrubs, thoroughly, immediately after planting.
 2. Additional watering shall be at the discretion of the Engineer.

END OF SECTION