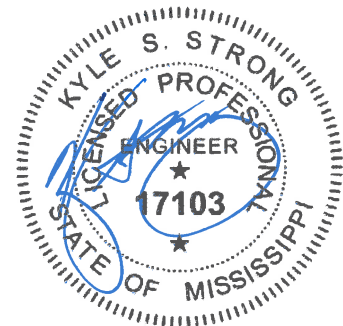




**SPECIFICATIONS
AND
EXECUTED CONTRACT DOCUMENTS
FOR
SAND CREEK BANK STABILIZATION
FOR
CITY OF TUPELO
LEE COUNTY, MISSISSIPPI**



CCE 3-09634, BID 2020-005PW

APRIL 2020

**SPECIFICATIONS
AND
CONTRACT DOCUMENTS
FOR
SAND CREEK BANK STABILIZATION
FOR
CITY OF TUPELO
LEE COUNTY, MISSISSIPPI**

MUNICIPAL OFFICIALS

MAYOR

Jason Shelton

CHIEF FINANCIAL OFFICER

Kim Hanna

CITY ATTORNEY

Ben Logan

DIRECTOR OF WATER & LIGHT DEPT.

Johnny Timmons

ALDERMAN

Markel Whittington

Lynn Bryan

Travis Beard

Nettie Davis

Buddy Palmer

Mike Bryan

Willie Jennings

SUPERINTENDENT OF WATER & SEWER

David Cole

COOK COGGIN ENGINEERS, INC.
703 Crossover Road
Tupelo Mississippi 38801

ASSEMBLY OF SPECIFICATIONS AND CONTRACT DOCUMENTS
SAND CREEK BANK STABILIZATION
CITY OF TUPELO
LEE COUNTY, MISSISSIPPI

	CSI No.
Advertisement for Bids.....	00 11 13
Instructions for Bidders.....	00 21 13
Bid Form.....	00 41 43
Bid Bond (Security Form).....	00 43 13
EEV Certification	00 45 00
Notice of Award.....	00 51 00
Contract Agreement.....	00 52 13
Notice to Proceed.....	00 55 00
Performance Bond.....	00 61 13.13
Payment Bond.....	00 61 13.16
Certificate of Owner’s Attorney.....	00 62 00
Certificate of Liability Insurance (Sample Form).....	00 71 99
General Conditions.....	00 72 00
Mobilization.....	01 71 14
Concrete Removal.....	02 42 01
Concrete and Reinforcing.....	03 20 02
Clearing and Grubbing.....	31 11 01
Site Earthwork.....	31 23 03
Erosion Control.....	31 25 13
Geotextile Fabric.....	31 32 19.16
Grout for Stone Riprap.....	31 33 20
Stone Riprap.....	31 37 16.13
Granular Materials.....	32 05 16.5
Granular Materials Base.....	32 11 23.85
Concrete Pavement.....	32 13 13.1
Minor Structures.....	32 16 08
Gabion Structures.....	35 42 37



ADVERTISEMENT FOR BIDS

Separate sealed bids or electronic bids for the construction of **SAND CREEK BANK STABILIZATION , BID 2020-005PW** will be received by the **CITY OF TUPELO**, until **10:00 A.M., LOCAL TIME, ON TUESDAY THE 26TH DAY OF MAY, 2020** and then publicly opened and read aloud. Sealed bids will be received until the designated date and time at **TUPELO CITY HALL, TAX OFFICE, ATTENTION: TRACI DILLARD, 71 EAST TROY STREET, TUPELO, MS 38804**. Electronic bids will be received until the designated date and time via electronic online bid submission through www.centralbidding.com.

The Project consists of the following approximate quantities:

Mobilization	1	LS
Clearing & Grubbing	1	LS
Excess Excavation, PM	289	CuYd
Selected Borrow Material, PM	259	CuYd
Drainage Backfill, PM	50	CuYd
Removal of Concrete	90	SqYd
Concrete Pavement	90	SqYd
Crushed Limestone	15	CuYd
Minor Structure Concrete	1	CuYd
15" Concrete Flared End Section	1	Ea
Gabion Wall, 3 x 3	8,850	CuFt
Geotextile Fabric	210	SqYd
Stone Riprap, 300 Lb	160	Tons
Grout for Stone Riprap	35	CuYd
Solid Sodding	200	SqYd
Turbidity Curtain	300	LinFt

The Contract Documents may be examined at the following locations: **CITY OF TUPELO, AT CITY HALL, 71 EAST TROY STREET, TUPELO, MS 38804** and Cook Coggin Engineers, Inc., 703 Crossover Road, Tupelo, Mississippi 38801.

Contract Documents are issued to potential Bidders from Plan House Printing and Graphics, 607 West Main Street, Tupelo, MS 38804. The non-refundable cost of the Bid Documents is \$200.00. Bidders may opt to purchase Contract Documents online at www.cceplanroom.com. All payments for Bid Documents shall be made payable to Plan House Printing and Graphics, 607 West Main Street, Tupelo, MS 38804.

Registering for a free account at www.cceplanroom.com will enable bidders to view and/or order Contract Documents online and/or complete the electronic bidding process. The only requirement for account registration is a valid email address. Questions regarding website registration, online orders and/or electronic bidding shall be directed to Plan House Printing at (662) 407-0193.

Electronic download may be purchased online from Central Bidding at www.centralbidding.com. Electronic Bids can **ONLY** be submitted at www.centralbidding.com. For any questions relating to the electronic bidding process, please call Central Bidding at 225-810-4814.

Bids will be accepted only under the name of the Bidder to whom contract documents have been issued by Plan House Printing, on behalf of the Engineer, and whose name appears on the official list of Planholders maintained by Plan House Printing.

The contract will be awarded as an entire job and individual items will not be let for separate work.

Each bidder must deposit with this bid, security in the amount, form and subject to the conditions provided in the Information for Bidders. For Bidders submitting bids electronically, the bond submitted must be either a bond issued by the Surety in electronic format or the original hard copy of the bid bond must be submitted to the **CITY OF TUPELO, TAX OFFICE, ATTENTION: TRACI DILLARD, 71 EAST TROY STREET, TUPELO, MISSISSIPPI 38804**, prior to bid opening in order for the bid to be valid.

No Bidder may withdraw his bid within 90 days after the actual date of the opening thereof.

Simultaneously with his delivery of the executed contract, the Contractor shall furnish surety bonds subject to the conditions provided in the Information for Bidders.

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.

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 this Bid.

A conditional or qualified Bid will not be accepted. Award will be made to the lowest responsible, responsive Bidder.

The Owner reserves the right to waive any informality or to reject any or all Bids.

**MAYOR JASON SHELTON
CITY OF TUPELO**

Publish: April 21, 28, 2020

INSTRUCTIONS FOR BIDDERS

Bids will be received by the Owner at the time and place designated in the Advertisement for Bids, and then at said office publicly opened and read aloud.

BIDDING

As a condition precedent to the opening of a Bid, Bids, when submitted as a paper version shall be sealed in a plain envelope with the following listed information plainly written on the outside or face of the envelope.

- (1) Addressee: Name of the Owner
- (2) For: Name of the project and contract designation for which the Bid is submitted.
- (3) Bid of: Name of Person or Firm submitting the Bid.
- (4) Permanent Address of the Bidder: Post Office Box Number, or Street Address, and the City and State of the Bidder.
- (5) Certification: Certificate of Responsibility Number as issued by the Mississippi State Board of Public Contractors or a statement signifying the Bid is not in excess of \$50,000.00.

If a Bid is delivered by mail or commercial courier, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed as above.

As a condition precedent to the opening of a Bid, Bids submitted electronically shall meet the same functional and documentary requirements (Bid Form, Bid Bond, documents, certifications, attachments, etc.) as above for Bids submitted in paper form. Unless provided for otherwise, Bids submitted electronically shall be scanned images of completely executed bid documents delivered to the Owner in Portable Document Format (PDF). Bids may be submitted electronically either as an assembly in a single bookmarked PDF file or as an ordered series of multiple PDF files. The first page of the PDF assembly, or the first PDF file in an ordered series of multiple file Bids, shall display the same information that is required to be written on the outside or face of the envelope for Bids submitted in paper form. An original paper copy of any Bids submitted electronically shall be delivered to the Owner before close of business not more than 3 business days following the opening of the bids. Bids submitted electronically that are corrupt or have corrupted attachments will not be considered.

The Bidder's contract designation as issued by the Mississippi State Board of Contractors must coincide with the type of project he is bidding.

Bids will be accepted only under the name of the Bidder to whom contract documents have been issued by the plan house designated on the advertisement for bids, on behalf of the Engineer, and whose name appears on the official list of Planholders maintained by the Owner.

No Bid will be opened, considered or accepted unless the above information is given as specified. Sufficient evidence that said Certificate of Responsibility has been issued and is in effect at the time receiving Bids must be submitted when required by the Owner.

All Bids must be made on the required Bid Form with all Addenda acknowledged. 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.

When a non-resident contractor submits a Bid for a Mississippi public project, he shall submit with the Bid a copy of his resident State's current law pertaining to such State's treatment of non-resident contractors as required by House Bill Number 850, Chapter Number 527, Laws of 1988. Bidders residing in the states having no contractor preference law shall so state in a letter on contractor's letterhead submitted with his Bid.

The Owner may waive any informalities or minor defects or reject any and all Bids. Any Bid may be withdrawn prior to the above scheduled time for the opening of 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 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.

Each Bidder is responsible for inspecting the site and 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 this Bid. Bidders must satisfy themselves of the accuracy of any estimated quantities on the Bid Form 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.

The Owner shall provide to Bidders prior to Bidding, information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

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.

Each Bid must be accompanied by a Bid Bond payable to the Owner for five percent of the total amount of the Bid and have as a surety thereon a Surety company currently authorized and licensed in good standing to conduct business within the State. Bid Bonds shall be executed by a Mississippi agent or a qualified nonresident agent. The Mississippi agent or qualified nonresident agent shall be in good standing and currently licensed by the Insurance Commissioner of the State to represent Surety companies. A certified check may be used in lieu of a Bid Bond.

A conditional or qualified Bid will not be accepted.

AWARD If, at the time this contract is to be awarded, the lowest Bid submitted by a responsive Bidder does not exceed the amount of funds then estimated by the Owner as available to finance the contract, the contract will be awarded. If such Bid exceeds such amounts, the Owner may reject all Bids.

The award will be made based on the lowest and best bid for the base bid or for the base bid and any combination of alternate bids, as the Owner chooses.

The responsiveness of the Bidder will be determined by the completeness and regularity of the Bid, without excisions or special conditions and having no alternative Bids for any items unless provided for on the Bid Form. The responsibility of the Bidder will be determined by whether or not he maintains a permanent place of business, has adequate plant equipment to do the work properly and within the time limit that is established and has adequate financial status to meet his obligations contingent to the work.

A PERFORMANCE BOND and a PAYMENT BOND, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety listed on the Treasury Department's most current list (Circular 570 as amended), approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or PAYMENT BONDS and PERFORMANCE BONDS must file with each BOND a certified and effective dated copy of their Power of Attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain and submit the PERFORMANCE BOND, PAYMENT BOND and CERTIFICATES OF INSURANCE within ten (10) calendar 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 and submit the Agreement, the PERFORMANCE BOND, the PAYMENT BOND and CERTIFICATES OF INSURANCE the OWNER may at his option determine the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) calendar days of receipt of acceptable PERFORMANCE BOND, PAYMENT BOND, CERTIFICATES OF INSURANCE 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, and issue a NOTICE TO PROCEED. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement without further liability on the part of either party. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER. Should there be reason(s) 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 ten (10) calendar 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.

THE CONTRACT

Where all or part of the work is to be unit price work, the estimated item quantities set out in the Bid form are not guaranteed and are solely for the purpose of comparison of Bids; payment will be made on the actual quantity of each item installed and accepted. It is understood that the quantities of items may be increased and decreased for which payment will be made at the unit price Bid. It is also understood that the location of some work items may be changed from that shown on the drawings and such change in location shall be made at the unit price Bid for the various items of work involved.

Included in these documents is the "Prime Consultant/Contractors EEV Certification and Agreement". This document must be executed and made part of the contract after award. It does not have to be executed at the time of the bidding.

INTERPRETATIONS AND ADDENDA

Should a Bidder find discrepancies in, or omissions from the specifications or other contract documents, or should he be in doubt as to the meaning of any part thereof, he should at once submit to COOK COGGIN ENGINEERS, INC., P.O. Box 1526, Tupelo, Mississippi 38802, a written request for an interpretation. No oral interpretation will be made to any Bidder as to the meaning of any of the Contract Documents, or no oral interpretation shall be effective to modify any of the provisions of the contract documents. The Engineers will make interpretations by duly issued Addenda which will be mailed or delivered to Bidders of record receiving copies of the Contract Documents; and neither the Owner nor the Engineers will be responsible for any other explanation or interpretation of the documents.

STORM WATER POLLUTION PREVENTION

The Mississippi Department of Environmental Quality (MDEQ) is the National Pollutant Discharge Elimination System (NPDES) permit authority for the State of Mississippi. Current regulations require NPDES stormwater construction discharge permit coverage for construction activities which disturb one or more acres of land, or less than one acre if part of a larger common plan of development or sale.

BID PROPOSAL

Proposal of ENSCOR, LLC

(hereinafter called "Bidder"), organized and existing under the laws of the State of

TENNESSEE, doing business as LIMITED LIABILITY COMPANY

_____ * to **CITY OF TUPELO** (hereinafter called "Owner").

In compliance with your Advertisement for Bids, Bidder hereby proposes to perform all work for **SAND CREEK BANK STABILIZATION**, in strict accordance with the Contract Documents, within the time set forth herein, and at the prices stated below.

By submission of this Bid, each Bidder certifies, and in the case of a joint bid, each party thereto certifies as to his own organization that this Bid has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

Bidder hereby agrees to commence work under this contract on the date to be specified in the Notice to Proceed and to fully complete the project within 50 working days. Bidder further agrees to pay as liquidated damages, the sum of \$500.00 for each consecutive calendar day thereafter as provided in Article 14 of the General Conditions, said amount to cover the cost of additional resident inspection.

Bidder acknowledges receipt of the following addendum:

N/A

*Insert "a corporation", "a partnership", or "an individual" as applicable.

Bidder agrees to perform all work described in the Contract Documents for the following unit prices or lump sum:

BID SCHEDULE

Each bid item unit price shall include all applicable taxes and fees.

Write/Type unit prices and bid prices, as clearly as possible, in number format.

Item No.	Item Description	Estimated Quantity	Unit	Bid Unit Price	Bid Price
SAND CREEK BANK STABILIZATION					
1	Mobilization	1	LS	\$ 14000.00	\$ 14000.00
2	Clearing & Grubbing	1	LS	\$ 5000.00	\$ 5000.00
3	Excess Excavation, PM	289	CuYd	\$ 10.00	\$ 2890.00
4	Selected Borrow Material, PM	259	CuYd	\$ 20.00	\$ 5180.00
5	Drainage Backfill, PM	50	CuYd	\$ 70.00	\$ 3500.00
6	Removal of Concrete	90	SqYd	\$ 10.00	\$ 900.00
7	Concrete Pavement	90	SqYd	\$ 135.00	\$ 12150.00
8	Crushed Limestone	15	CuYd	\$ 70.00	\$ 1050.00
9	Minor Structure Concrete	1	CuYd	\$ 1000.00	\$ 1000.00
10	15" Concrete Flared End Section	1	Ea	\$ 1000.00	\$ 1000.00
11	Gabion Wall, 3 x 3	8,850	CuFt	\$ 5.74	\$ 50799.00
12	Geotextile Fabric	210	SqYd	\$ 3.50	\$ 735.00
13	Stone Riprap, 300 Lb	160	Tons	\$ 60.00	\$ 9600.00
14	Grout for Stone Riprap	35	CuYd	\$ 400.00	\$ 14000.00
15	Solid Sodding	200	SqYd	\$ 5.00	\$ 1000.00
16	Turbidity Curtain	300	LinFt	\$ 5.00	\$ 1500.00
TOTAL BASE BID PRICE					\$ 124,304.00

PROPOSED SUBCONTRACTORS

In accordance with General Condition 6.15.4, the Contractor shall not award to Subcontractors in excess of fifty (50%) percent of the contract value, without prior approval of the Owner.

Subcontractor	Address	Work to be Subcontracted	Amount
<i>NONE</i>			

All of the above prices shall include all labor, materials, taxes, overhead, profit, bonds, insurance, and other costs necessary to cover the finished work of the several kinds called for.

Bidder acknowledges that (1) each unit price provided includes an amount considered by the Bidder to be adequate to cover the Contractor's overhead and profit for each separately identified item, (2) estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, (3) up to a ten percent reduction in the quantities for unit priced items may be applied to establish a construction contract amount that is within the funds available for construction and (4) final payment for all unit priced bid items will be based on actual quantities, determined as set forth in the Contract Documents.

IT IS UNDERSTOOD THAT THE CONTRACT WILL BE AWARDED BASED ON THE TOTAL BASE BID OR ON THE BASE BID AND ANY COMBINATION OF ALTERNATE BIDS AS THE OWNER CHOOSES.

UNIT PRICED ITEMS INCLUDED IN ANY ALTERNATE BIDS THAT HAVE THE SAME ITEM NUMBER AND ITEM DESCRIPTION AS FOR THE BASE BID SHALL BE OFFERED AT THE SAME UNIT PRICE IN ANY ALTERNATE BID AS OFFERED IN THE BASE BID.

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

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this Bid, Bidder will execute the formal contract attached within 10 calendar days and deliver a Surety Bond or Bonds as required by Article 5 of the General Conditions. The bid security attached in the sum of

50% of Bid Amount Dollars,

(\$ _____) (5% of the Total Bid) is to become the property of the Owner in the event the contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Bidder hereby certifies that he is a:

_____ Resident Contractor
(See Information for Bidders)

Non-Resident Contractor

Respectfully submitted this the 26th day of MAY, 2020.

By [Signature] Title OWNER

Company ENSCOR, LLC

Address 5564 COMMANDER DR.

Phone 901-867-2297

Employer Identification No. 58-2498523

SEAL (If bid is by a corporation).

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, ENSCOR, LLC
as Principal, and Travelers Casualty and Surety Company of America
as Surety, are hereby held and firmly bound unto CITY OF TUPELO as owner in the penal
sum of Five Percent of amount bid (5%)

_____ 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 26th day of May, 2020.

The condition of the above obligation is such that whereas the Principal has submitted to
CITY OF TUPELO a certain Bid, attached hereto and hereby made a part hereof to enter
into contract in writing, for the SAND CREEK BANK STABILIZATION.

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

The Surety, for value received, hereby stipulates and agrees that the obligations of said

Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and 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.

ENSCOR, LLC

By:  (L.S.)

Principal

Travelers Casualty and Surety Company of America

Surety

SEAL

By: 
Joseph Madden III, Attorney-in-Fact

COUNTERSIGNED

BY: 
Tona J. Hunter Mississippi Resident Agent



**Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company**

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Joseph Madden, III of Memphis, Tennessee** their true and lawful Attorney-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **3rd** day of **February, 2017**.



State of Connecticut
City of Hartford ss.

By: *Robert L. Raney*
Robert L. Raney, Senior Vice President

On this the **3rd** day of **February, 2017**, before me personally appeared **Robert L. Raney**, who acknowledged himself to be the Senior Vice President of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2021**



Marie C. Tetreault
Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this 26th day of May, 2020



Kevin E. Hughes
Kevin E. Hughes, Assistant Secretary

**To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney-in-Fact and the details of the bond to which the power is attached.**

ENSCOR, LLC

"Sitework Solutions"

12-4-802. Allowance of bidding preferences — Reciprocity. —

Whenever the lowest responsible and responsive bidder on a public construction project in this state is a resident of another state which is contiguous to Tennessee and which allows a preference to a resident contractor of that state, a like reciprocal preference is allowed to the lowest responsible and responsive bidder on such project who is either a resident of this state or is a resident of another state which does not allow for a preference to a resident contractor of that state.

[Acts 1990, ch. 1062, § 3.]

PRIME CONSULTANT / CONTRACTOR EEV CERTIFICATION AND AGREEMENT

Project No: SAND CREEK BANK STABILIZATION
Termini: CITY OF TUPELO
Prime Consultant: ENSCOR, LLC

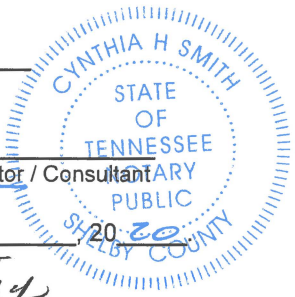
By executing this Certification and Agreement, the undersigned verifies its compliance with the Mississippi Employment Protection Act, Section 71-11-3 of the Mississippi Code of 1972, as amended, and any rules or regulations promulgated by Mississippi Transportation Commission [MTC], Department of Employment Security, State Tax Commission, Secretary of State, Department of Human Services in accordance with the Mississippi Administrative Procedures Law (Section 25-43-1 et seq., Mississippi Code of 1972, as amended), stating affirmatively that the individual, firm, or corporation which is contracting with MTC has registered with and is participating in a federal work authorization program* operated by the United States Department of Homeland Security to electronically verify information of newly hired employees pursuant to the Immigration Reform and Control Act of 1986, Pub.L. 99-603, 100 Stat 3359, as amended. The undersigned agrees to inform the MTC if the undersigned is no longer registered or participating in the program.

The undersigned agrees that, should it employ or contract with any subconsultant(s) and/or subcontractor(s) in connection with the performance of this Contract, the undersigned will secure from such subconsultant(s) and/or subcontractor(s) verification of compliance with the Mississippi Employment Protection Act. The undersigned further agrees to maintain records of such compliance and provide a copy of each such verification to MTC, if requested, for the benefit of the MTC or this Contract.

58-2498528
EEV* Company Identification Number [Required]

The undersigned certifies that the above information is complete, true and correct to the best of my knowledge and belief. The undersigned acknowledges that any violation may be subject to the cancellation of the contract, ineligibility for any state or public contract for up to three (3) years, the loss of any license, permit, certificate or other document granted by any agency, department or government entity for the right to do business in Mississippi for up to one (1) year, or both, any and all additional costs incurred because of the contract cancellation or the loss of any license or permit, and may be subject to additional felony prosecution for knowingly or recklessly accepting employment for compensation from an unauthorized alien as defined by 8 U.S.C §1324a(h)(3), said action punishable by imprisonment for not less than one (1) year nor more than five (5) years, a fine of not less than One Thousand Dollars (\$1,000.00) nor more than Ten Thousand Dollars (\$10,000.00), or both, in addition to such prosecution and penalties as provided by Federal law.

BY: [Signature] 5/24/2020
Authorized Officer or Agent Date
JEFF SMITH OWANEN
Printed Name of Authorized Officer or Agent Title of Authorized Officer or Agent of Contractor / Consultant



SWORN TO AND SUBSCRIBED before me on this the 26 day of MAY, 2020
Cynthia H. Smith
NOTARY PUBLIC
My Commission Expires: Feb 28, 2023

* As of the effective date of the Mississippi Employment Protection Act, the applicable federal work authorization program is E-Verify™ operated by the U. S. Citizenship and Immigration Services of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration.

NOTICE OF AWARD

DATE: June 9, 2020

TO: ENSCOR, LLC
5566 COMMANDER DRIVE
ARLINGTON, TN 38002

PROJECT DESCRIPTION: SAND CREEK BANK STABILIZATION

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated May 26, 2020.

You are hereby notified that your BID has been accepted for items in the amount of \$ 124,304.00.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR'S Performance Bond, Payment Bond, and Certificates of Insurance within ten (10) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within ten (10) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER. Dated this 9th day of June 2020.

CITY OF TUPELO
Owner

By _____
Title Mayor Jason Shelton



ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

By ENSCOR, LLC

this 9th day of June, 2020.

By _____

Title Jeff Smith, Owner

CONTRACT AGREEMENT

This Agreement, made this the 9th day of June, 2020, by and between ENSCOR, LLC, hereinafter called the Contractor, and the CITY OF TUPELO, hereinafter called the Owner.

WITNESSETH:

That the Contractor and Owner for the consideration hereinafter named agree as follows:

Article 1 SCOPE OF WORK

The Contractor shall furnish all materials for the construction of SAND CREEK BANK STABILIZATION for the Owner, all in the manner provided for in the Specifications and Contract Documents, dated APRIL 2020 and Construction Plans entitled SAND CREEK BANK STABILIZATION Sheets 1 through 19, dated APRIL 2020, which are fully incorporated herein as if hereto attached or herein repeated.

Article 2 THE CONTRACT SUM

The Owner shall pay the Contractor for the complete performance of this Contract a total amount of One Hundred and Twenty-Four Thousand, Three Hundred and Four 00/100 Dollars (\$124,304.00) being the amount of the accepted proposal for SAND CREEK BANK STABILIZATION subject to proper additions and/or deductions at the lump sum and/or unit price as stated in the proposal or otherwise provided for by Modification, the corrected amount referred to being full compensation for furnishing, installing and connecting all of the items of materials, labor and equipment necessary for the Work and the completion of the Project in full accordance with the Plans and Specifications and Contract Documents.

Payment therefore to be made in accordance with applicable specifications, provided: That the Engineers have certified to the Owner that all of the work has been completed and that payment is due therefore and provided further that the Contractor has submitted evidence satisfactory to the Owner and all payrolls, materials bills and other indebtedness, labor and materials liens connected with the work have been paid.

Article 3 TIME OF COMPLETION

The Contractor shall commence work at the time stated in the Notice to Proceed issued by the Owner and shall complete the work within 50 working days from and including the starting date stated in said notice unless this period is extended by Modification by the Owner and the Engineers, due to delays beyond the control of the Contractor and/or extensions to the Contract.

It is mutually agreed between the parties hereto that time is the essence of this contract; and in the event construction of the work is not completed within the time specified herein, it is agreed that from the compensation otherwise to be paid to the Contractor, the Owner may retain the sum of \$500.00 per day for each calendar day thereafter that the work remains uncompleted, which sum shall represent the actual damages which the Owner will have sustained per day by failure of the Contractor to complete the work within the time stipulated; and this sum is not a penalty, being the stipulated damage the Owner will have sustained in event of such default by the Contractor.

Article 4. ADDITIONAL SURETY

It is further mutually agreed between the parties hereto that if, at any time after the execution of this agreement and the Surety Bond hereto attached for its faithful performance, the Owner shall deem the surety or sureties upon such bond to be unsatisfactory, or if for any reason such bond, in the opinion of the Owner, ceases to be adequate to cover the performance of the work, the Contractor, at his expense, within five days after receipt of the notice from the Owner to do so, shall furnish additional bond or bonds in such form and amount, not in excess of the original amount, and with surety or sureties as shall be satisfactory to the Owner.

Article 5 ROYALTIES AND PATENTS

It is further mutually agreed between the parties hereto that the contract price of the Contractor shall include payment by the Contractor of all royalties and license fees, if any; and the Contractor shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof.

Article 6 DAMAGE TO PERSONS AND PROPERTY

It is further mutually agreed that the Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against any and all liability of every nature, kind and character which may be incurred in connection with the performance or fulfillment of the Work or such other liability resulting from negligence or otherwise on the part of the Contractor, including but not limited to injury to persons and damage to properties, and the structures and improvements thereon, adjacent to the Project, and shall indemnify and hold harmless the Owner from all costs and damages, including attorney's fees, which may be suffered by reason of the failure to fully and completely perform under the Contract Documents and shall fully reimburse Owner for all expenditures of every kind, character and description, including attorney's fees, which may be incurred by Owner in making good any and every default which may exist on the part of the Contractor in connection with its performance under the Contract Documents.

Article 7. GENERAL CONDITIONS

The Contractor has read, understands and accepts the General Conditions and Special Conditions as set forth in the Specifications and Contract Documents.

In witness whereof, the parties hereto have executed this Agreement on the day and year first mentioned in 4 counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original contract.

OWNER: CITY OF TUPELO

CONTRACTOR: ENSCOR, LLC

By _____

By  _____

Title Mayor Jason Shelton

Title Jeff Smith, Owner

ATTEST: _____

ATTEST:  _____

Title Kim Hanna, Chief Financial Officer

Title CFO

NOTICE TO PROCEED

TO: ENSCOR, LLC DATE: _____
5566 COMMANDER DRIVE, ARLINGTON, TN 38002

Project: SAND CREEK BANK STABILIZATION

You are hereby notified to commence WORK in accordance with the Agreement dated June 9, 2020, on or before _____, 20____, and you are to complete the WORK within 50 working days thereafter. The anticipated date of completion of all WORK is therefore _____, 20____.

*Please do not
Date. We
will Date at
the Pre-Conf.*

CITY OF TUPELO
Owner

By _____

Title Mayor Jason Shelton



ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged

By ENSCOR, LLC

this _____ day of _____, 20____.

By 

Title Jeff Smith, Owner

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

ENSCOR, LLC

(Name of Contractor)

5566 COMMANDER DRIVE, ARLINGTON, TN 38002

(Address of Contractor)

a Limited Liability Company

, hereinafter called (Corporation, Partnership, or Individual)

Principal, and Travelers Casualty and Surety Company of America

(Name of Surety)

One Tower Square, Hartford, CT 06183

(Address of Surety)

hereinafter called Surety, and held and firmly bound unto

CITY OF TUPELO

(Name of Owner)

71 EAST TROY STREET, TUPELO, MS 38804

(Address of Owner)

hereinafter called OWNER, in the penal sum of One Hundred and Twenty-Four Thousand, Three Hundred and Four 00/100----- Dollars

(\$ 124,304.00-----) 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 9th day of June, 2020, a copy of which is hereto attached and made a part hereof for the construction of:

SAND CREEK BANK STABILIZATION

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due to materials, lubricants, oil, gasoline, coal and coke, repairs on 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, 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 there under or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on the 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 4 counterparts, each (Number) one of which shall be deemed an original, this the 9th day of June, 2020.

ATTEST:

Cynthia H. Adams
(Principal) ~~Secretary~~

(SEAL) _____

ENSCOR, LLC
Principal
BY Jeff Smith
Jeff Smith, Owner

5566 COMMANDER DRIVE
(Address) ARLINGTON, TN 38002

Travelers Casualty and Surety Company of America
(Surety)

ATTEST:

(SEAL)
Janice McLoey
(Witness to Surety)

P0 Box 381708
(Address)
Memphis, TN 38183-1708

BY Joseph Madden III
Attorney-in-Fact Joseph Madden III

P0 Box 381708
(Address)
Memphis, TN 38183-1708

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

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

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

ENSCOR, LLC
(Name of Contractor)

5566 COMMANDER DRIVE, ARLINGTON, TN 38002
(Address of Contractor)

a Limited Liability Company
, hereinafter called (Corporation, Partnership, or Individual)

Principal, and Travelers Casualty and Surety Company of America
(Name of Surety)
One Tower Square, Hartford, CT 06183
(Address of Surety)

hereinafter called Surety, and held and firmly bound unto

CITY OF TUPELO
(Name of Owner)

71 EAST TROY STREET, TUPELO, MS 38804
(Address of Owner)

hereinafter called OWNER, in the penal sum of One Hundred and Twenty-Four Thousand, Three Hundred and Four 00/100 Dollars (\$124,304.00) 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 9th day of June, 2020, a copy of which is hereto attached and made a part hereof for the construction of:

SAND CREEK BANK STABILIZATION

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due to materials, lubricants, oil, gasoline, coal and coke, repairs on 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, 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 there under or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on the 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 4 counterparts, each (Number) one of which shall be deemed an original, this the 9th day of June, 2020.

ATTEST:

[Signature]
(Principal) ~~SECRET~~

ENSCOR, LLC
Principal
BY [Signature]
Jeff Smith, Owner

(SEAL) _____

5566 COMMANDER DRIVE
(Address) ARLINGTON, TN 38002

Travelers Casualty and Surety Company of America
(Surety)

ATTEST:

(SEAL)

[Signature]
(Witness to Surety)

BY [Signature]
Attorney-in-Fact Joseph Madden III

PO Box 381708
(Address)

PO Box 381708
(Address)

Memphis, TN 38183-1708

Memphis, TN 38183-1708

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

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

BY: [Signature]
Tona J. Hunter Mississippi Resident Agent

TRAVELERS 

**Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company**

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Joseph Madden, III** of Memphis, Tennessee their true and lawful Attorney-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **3rd** day of **February**, 2017.



State of Connecticut

City of Hartford ss.

By: 
Robert L. Raney, Senior Vice President

On this the **3rd** day of **February**, 2017, before me personally appeared **Robert L. Raney**, who acknowledged himself to be the Senior Vice President of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June**, 2021




Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this **9th** day of **June**, 2020




Kevin E. Hughes, Assistant Secretary

**To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney-in-Fact and the details of the bond to which the power is attached.**



ENSCLLC-CL

LMAXWELL

CERTIFICATE OF LIABILITY INSURANCEDATE (MM/DD/YYYY)
6/11/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Harris, Madden, Powell, Stallings & Brown, Inc. PO Box 381708 Memphis, TN 38183-1708	CONTACT NAME: Lucy Maxwell PHONE (A/C, No, Ext): (901) 316-1031 E-MAIL ADDRESS: lmaxwell@hmpins.com	FAX (A/C, No): (901) 853-9943
	INSURER(S) AFFORDING COVERAGE	
INSURED ENSCOR, LLC 5566 Commander Drive Arlington, TN 38002	INSURER A: Union Insurance Company NAIC # 25844	
	INSURER B: Accident Fund General 12304	
	INSURER C: Berkley National Insurance Company 38911	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES**CERTIFICATE NUMBER:****REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	X	X	CNA4421564-41	11/10/2019	11/10/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY	X	X	CNA4421564-41	11/10/2019	11/10/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0	X	X	CNA4421564-41	11/10/2019	11/10/2020	EACH OCCURRENCE \$ 2,000,000 AGGREGATE \$ Aggregate \$ 2,000,000
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory In NH) <input type="checkbox"/> If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	WCV6153196	11/10/2019	11/10/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
C	Installation Floater			MNP102341650	11/10/2019	11/10/2020	Deductible-\$5,000 \$ 3,200,000
A	OCP			BINDER	6/11/2020	6/11/2021	Occur/Aggregate \$1M \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project: Sand Creek Bank Stabilization
 City of Tupelo & Cook Coggin Engineer, Inc. are additional Insured in regards to General Liability, Automobile Liability and Umbrella Liability as required by written contract. Waiver of Subrogation in favor of City of Tupelo & Cook Coggin Engineer, Inc. in regards to General Liability, Automobile Liability, Workers' Compensation and Umbrella Liability as required by written contract.

CERTIFICATE HOLDER**CANCELLATION**

City of Tupelo
 71 East Troy Street
 Tupelo, MS 38801

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, **BEN LOGAN**, the duly authorized and acting legal representative of the **CITY OF TUPELO**, do hereby certify as follows:

I have examined the attached contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements are adequate and have 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: _____



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
	PHONE (A/C, No. Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
INSURER(S) AFFORDING COVERAGE		
INSURED	INSURER A :	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	<input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	<input type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS						BODILY INJURY (Per accident) \$
	<input type="checkbox"/> HIRED AUTOS						PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS						\$
	<input type="checkbox"/> NON-OWNED AUTOS						
	UMBRELLA LIAB						EACH OCCURRENCE \$
	<input type="checkbox"/> OCCUR						AGGREGATE \$
	EXCESS LIAB						\$
	<input type="checkbox"/> CLAIMS-MADE						
	DED						RETENTION \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATU-TORY LIMITS
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						OTH-ER
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. EACH ACCIDENT \$
							E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

INDEX TO GENERAL CONDITIONS

<u>Article</u>	<u>Title</u>
1	Definitions
2	Preliminary Matters
3	Correlation, Interpretation and Intent of Contract Documents
4	Availability of Lands and Subsurface Conditions
5	Bonds and Insurance
6	Contractor's Responsibilities
7	Work by Others
8	Owner's Responsibilities
9	Engineer's Status During Construction
10	Changes in the Work
11	Change of Contract Price
12	Change of the Contract Time
13	Guaranty
14	Payments and Completion
15	Suspension of Work and Termination
16	Miscellaneous
17	Arbitration

GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

Acceptance: Acceptance by the Engineer of the Work as being in substantial conformance with the Contract Documents and recommendation to the Owner for final inspection.

Final Acceptance: Acceptance by the Owner of the Work as being fully complete in accordance with the Contract Documents (subject to waiver of claims) and final payment made.

Agreement: The written agreement between the Owner and the Contractor covering the Work to be performed; the Contract Documents are attached to and made a part of the Agreement. Also designated as the Contract.

Addenda: Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.

Application for Payment: The form furnished by the Engineer which is to be used by the Contractor in requesting progress payments and an affidavit of the Contractor that progress payments heretofore received from the Owner on account of the Work have been applied by the Contractor to discharge in full all of the Contractor's obligations stated in prior Applications for Payment.

Bid: The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder: Any person, firm or corporation submitting a Bid for the Work.

Bonds: Bid, Performance and Payment bonds and other instruments of security, furnished by the Contractor and his surety in accordance with the Contract Documents and in accordance with the law of the place of the project.

Change Order: A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after execution of the Agreement.

Contract Documents: The Contract Agreement, Addenda, Information for Bidders, Bid, Bonds, Notice of Award, these General Conditions, Supplementary General Conditions, Specifications, Drawings and Modifications, and Notice to Proceed.

Contract Price: The total moneys payable to the Contractor under the Contract Documents.

Contract Time: The number of calendar or working days stated in the Agreement for the completion of the Work.

Contracting Officer: The individual who is authorized to sign the Contract Documents on behalf of the Owner's governing body.

Contractor: The person, firm or corporation with whom the Owner has executed the Agreement.

Day: A calendar day of twenty-four hours measured from midnight to the next midnight.

Drawings: The construction plans which show the character and scope of the Work to be performed and which have been prepared or approved by the Engineer and are referred to in the Contract Documents.

Engineer: The person, firm or corporation named as such in the Contract Documents.

Modification: (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order, (c) a written clarification or interpretation issued by the Engineer in accordance with paragraph 9.3 or (d) a written order for a minor change or alteration in the Work issued by the Engineer pursuant to paragraph 10.2. A Modification may only be issued after execution of the Agreement.

Notice to Proceed: A written notice given by Owner to Contractor (with a copy to Engineer) fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform his obligations under the Contract Documents.

Owner: The public body or authority, corporation, association, partnership, or individual for whom the Work is to be performed.

Project: The entire construction to be performed as provided in the Contract Documents.

Project Representative: An authorized representative of the Engineer assigned to observe the Work performed and materials furnished by the Contractor or such other person as may be appointed by the Owner as his representative.

Samples: Physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

Shop Drawings: All drawings, diagrams, illustrations, brochures, performance charts, schedules and other data which are prepared by the Contractor, a Subcontractor, manufacturer, supplier or distributor and which illustrate the equipment, material or some portion of the Work and as required by the Contract Documents.

Specifications: Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work. This will include general specifications and item (technical) specifications.

Standards: The following words, symbols, letters, or abbreviations shall be deemed to have the following meaning and shall refer to the latest current revision of said standard or specification applicable in effect of the date of opening bids:

- AASHTO - American Association of State Highway and Transportation Officials
- ACI - American Concrete Institute
- AIA - American Insurance Association (formerly National Board of Fire Underwriters)
- ANSI - American National Standards Institute
- ASME - American Society of Mechanical Engineers
- ASTM - American Society for Testing Materials
- AWWA - American Water Works Association
- NEMA - National Electrical Manufacturer's Association
- NEC - National Electrical Code

Subcontractor: An individual, firm or corporation having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the site.

Substantial Completion: The date as certified by written notice by the Engineer at which time the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purpose for which it is intended; or if there be no such certification, the date when final payment is due in accordance with paragraph 14.9. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion.

Supplier: Any person 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.

Surety: The corporate body which is bound with the Contractor and which engages to be responsible for the Contractor and his acceptable performance of the Work.

Work: Any and all obligations, duties and responsibilities necessary to the successful completion of the Project assigned to or undertaken by Contractor under the Contract Documents, including all labor, materials, equipment and other incidentals, and the furnishing thereof.

Written Notice: The term "Notice" as used herein shall mean and include all written notice required to obtain compliance with Contract requirements. Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm

or to an officer of the corporation for whom it is intended, or to an authorized representative of such individual, firm or corporation, or if delivered at or sent by mail to the last business address known to him who gives the notice. Unless otherwise stated in writing, any notice to or demand upon the Owner under this Contract shall be delivered to the Owner through the Engineer.

ARTICLE 2 - PRELIMINARY MATTERS

Award:

2.1 The award of the Contract, if it is awarded, will be to the lowest responsible, responsive Bidder. No Notice of Award will be given until the Owner has concluded such investigations as he deems necessary to establish the responsibility, qualifications and financial ability of the Bidders to do the Work in accordance with the Contract Documents to the satisfaction of the Owner within the time prescribed. The Owner reserves the right to reject the Bid of any Bidder who does not pass such investigation to the Owner's satisfaction. In analyzing Bids, the Owner may take into consideration alternates and unit prices, if requested by the Bid forms.

Execution of Agreement:

2.2 At least three counterparts of the Agreement and such other Contract Documents as practicable will be executed and delivered by Contractor to the Owner within 15 days of receipt by the Contractor.

Forfeiture of Bid Security:

2.3 Failure of the successful Bidder to execute and deliver the Agreement and deliver the required Bonds as stipulated in paragraph 2.2 shall be just cause for the Owner to annul the Notice of Award and declare the Bid and any security therefore forfeited.

Contractor's Pre-Start Representations:

2.4 Contractor represents that he has familiarized himself with, and assumes full responsibility for having familiarized himself with, the nature and extent of the Contract Documents, Work, locality, easements and rights-of-way obtained, adjacent properties upon which easements have not been obtained, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that may in any manner affect performance of the Work, and represents that he has correlated his study and observations with the requirements of the Contract Documents. Contractor also represents that he has studied the Drawings and Specifications and made such additional surveys and investigations as he deems necessary for the performance of the Work at the Contract Price in accordance with

the requirements of the Contract Documents and that he has correlated the results of all such data with the requirements of the Contract Documents.

Commencement of Contract Time:

2.5 The Contract Time will commence to run on the date stated in the Notice to Proceed.

Starting the Project:

2.6 Contractor shall start to perform his obligations under the Contract Documents on the date when the Contract Time commences to run.

Before Starting Construction:

2.7 Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. He shall at once report in writing to Engineer any conflict, error or discrepancy which he may discover.

Schedule of Completion:

2.8 Within 10 days after delivery of the Notice to Proceed by Owner to Contractor, Contractor shall submit to Engineer for review, an estimated progress schedule with earnings indicating the starting and completion dates of the various stages of the Work, and a preliminary schedule of Shop Drawing submissions. The Engineer shall approve this schedule or require revisions thereto within 14 days of its submittal.

2.9 After delivery of the executed Agreement by Owner to Contractor, but before starting the Work at the site, a preconstruction conference may be held to review the above schedules, to establish procedures for handling Shop Drawings and other submissions and for processing Applications for Payment, and to establish a working understanding between the parties as to the Project. Present at the conference will be the Owner or his representative, Engineer, Project Representatives, Contractor and his superintendent.

Qualification of Subcontractors Materialmen and Suppliers:

2.10 Within 14 days after award of Contract, the Contractor will submit to the Owner and the Engineer for acceptance a list of the names of Subcontractors and such other persons and organizations (including those who are to furnish principal items of materials or equipment) proposed for those portions of the Work as to which the identity of the Subcontractors and other persons and organizations must be submitted as specified in the Contract Documents. Within 30 days after receiving the list, the Engineer will notify the Contractor in writing if either the Owner or the Engineer, after due investigation, has reasonable objection to any Subcontractor,

person or organization on such list. The failure of the Owner or the Engineer to make objection to any Subcontractor, person or organization on the list within thirty days of receipt shall constitute an acceptance of such Subcontractor, person or organization. Acceptance of any such Subcontractor, person or organization shall not constitute a waiver of any right of the Owner or the Engineer to reject defective Work, material or equipment, or Work, material or equipment not in conformance with the requirements of the Contract Documents.

2.11 If, prior to the Notice of Award, the Owner or the Engineer has reasonable objection to and refuses to accept any Subcontractor, person or organization listed, the apparent low Bidder may, prior to Notice of Award may submit an acceptable substitute without an increase in his Bid price.

ARTICLE 3: CORRELATION, INTERPRETATION AND INTENT OF CONTRACT DOCUMENTS

3.1 It is the intent of the Engineer and Owner through the Specifications and Drawings to describe a complete Project to be constructed in accordance with the Contract Documents. The Contract Documents comprise the entire Agreement between the Owner and the Contractor. They may be altered only by a Modification.

3.2 The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If Contractor finds a conflict, error or discrepancy in the Contract Documents, he shall call it to Engineer's attention in writing at once and before proceeding with the Work affected thereby. The various Contract Documents shall be given precedence, in case of conflict, error or discrepancy, as follows: Addenda, General Specifications, Item (Technical) Specifications, Drawings, Information for Bidders, Supplemental General Conditions, and General Conditions.

3.3 The words "furnish", "furnish and install", "install", and "provide" or words with similar meaning shall be interpreted, unless otherwise specifically stated, to mean "furnish and install complete in place and ready for service".

3.4 Miscellaneous items and accessories which are not mentioned, but which are essential to produce a complete and properly operating installation, or usable structure or plant, providing the indicated function, shall be furnished and installed without change in the Contract Price. Such miscellaneous items and accessories shall be of the same quality standards, including material, style, finish, strength, class, weight and other applicable characteristics, as specified for the major component of which the miscellaneous item or accessory is an essential part, and shall be approved by the Engineer before installation. The above requirement is not intended to include major components not covered by or inferable from the Drawings and Specifications.

3.5 The specifications division are not delineated by trade or by subcontract. Items specified under one division of the specifications shall be furnished, installed and connected as though recited in each division of the specifications.

3.6 The Work of all trades under this Contract shall be coordinated by the Contractor in such a manner as to obtain the best workmanship possible for the entire Project, and all components of the Work shall be installed or erected in accordance with the best practices of the particular trade.

3.7 The Contractor shall be responsible for making the construction of habitable structures under this Contract rainproof, and for making equipment and utility installations properly perform the specified function.

3.8 Manufacturer's literature, when referenced, shall be dated and numbered and is intended to establish the minimum requirements acceptable. Whenever reference is given to codes, or standard specifications or other data published by regulating agencies or accepted organizations, including but not limited to National Electrical Code, applicable State Building Code, Federal Specifications, ASTM Specifications, various institute specifications, and the like, it shall be understood that such reference is to the latest edition including addenda in effect on the date of Bid.

3.9 Brand names where used in the technical specifications, are intended to denote the standard of quality required for the particular material or product. The term "equal" or "equivalent", when used in connection with brand names, shall be interpreted to mean a material or product that is similar and equal in type, quality, size, capacity, composition, finish, color and other applicable characteristics to the material or product specified by trade name, and that is suitable for the same use and capable of performing the same function, in the opinion of the Engineer, as the material or product so specified. Proposed equivalent items must be approved by Engineer before they are purchased or incorporated in the Work. (When a brand name, catalog number, model number, or other identification, is used without the phrase "or equal", or "or equivalent", the Contractor shall use the brand specified.)

ARTICLE 4 - AVAILABILITY OF LANDS AND SUBSURFACE CONDITIONS

Availability of Lands:

4.1 The Owner will furnish, as indicated in Contract Documents, the lands upon which the Work is to be done and such other lands which are designated for the use of the Contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the Owner, unless otherwise specified in the Contract Documents. Other access to such lands or rights-of-way for the Contractor's convenience other than as set forth in easements obtained by the Owner shall be the responsibility of the Contractor. The Contractor will provide for

additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 The Owner will, upon request, furnish to the BIDDERS copies of all available boundary surveys.

Subsurface Conditions:

4.3 The Contractor acknowledges that he has investigated prior to bidding and satisfied himself as to the conditions affecting the Work, including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, tides, water tables or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during prosecution of the Work. The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered from an investigation of the site. Failure by the Contractor to acquaint himself with the project site will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work.

ARTICLE 5 - BONDS AND INSURANCE

Bonds:

5.1 The Contractor shall within 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. 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, the Contractor shall, within 15 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 of the Contract price shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond to the Owner.

Contractor's Liability Insurance:

5.2 At all times applicable to this Agreement, Contractor shall procure and maintain, at it's sole expense as a minimum the insurance as listed in 5.5 below. Owner does not represent that insurance coverage and limits listed will be adequate to protect Contractor or Contractor's interests. Insurance shall be obtained from companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. The Contractor shall submit to the Owner, prior to the commencement of the Work, a completed, duly executed and authorized Certificate of Insurance as evidence that the insurance requirements set forth are in full force and effect. Policies providing such coverage shall contain provisions that no cancellation or material changes in the policies shall become effective except on 15 days' advance written notice thereof to the Owner.

5.3 Contractor agrees to require that all policies of insurance which are in any way related to the Work and that are secured and maintained by Contractor or any Subcontractor or Sub-subcontractor will include clauses providing that each underwriter shall waive all of its rights of recovery, under subrogation or otherwise, against owner. Furthermore, Contractor waives and shall cause any Subcontractor or Sub-subcontractor to waive all rights of recovery against Owner, which Contractor or any Subcontractor or Sub-subcontractor may have or acquire because of deductible clauses in, or inadequacy of, limits of any policies of insurance maintained by Contractor. All such policies except for the Worker's Compensation and Employer's Liability insurance, and the Professional/Errors and Omissions coverage insurance, shall designate Owner and Engineer as additional insured/certificate holder.

5.4 Contractor shall cause any Subcontractor or Sub-subcontractor to obtain and maintain insurance consistent with the provisions of this Article and submit an appropriate Certificate of Insurance prior to commencement of any Work.

5.5 SCHEDULE OF INSURANCE

5.5.1 COMMERCIAL GENERAL LIABILITY INSURANCE

Commercial General Liability Insurance, endorsed to provide coverage for: Contractual Liability, particularly the applicable provisions of the indemnity sections of this Agreement; explosion, collapse or structural injury to property of others including underground utility facilities; and Contractor's Protective Liability (if subcontracting is authorized), and Products and Completed Operations (for a minimum of three years discovery period after acceptance of the Work.)

Each Occurrence	\$1,000,000
General Aggregate	\$1,000,000

5.5.2 COMMERCIAL AUTOMOBILE LIABILITY INSURANCE

Commercial Automobile Insurance which shall include coverage for all owned, non-owned and hired vehicles.

Combined Single Limit \$1,000,000 Each Accident

5.5.3 UMBRELLA LIABILITY INSURANCE

Umbrella Liability Insurance with limits of at least \$1,000,000 per occurrence for bodily injury or property damage in excess of the limits afforded for Commercial General Liability, Commercial Automobile Liability and Employer’s Liability.

5.5.4 WORKER’S COMPENSATION AND EMPLOYER’S LIABILITY INSURANCE

Contractor agrees to comply with Worker’s Compensation laws of the state where the Work is performed and maintain a Worker’s Compensation and Employer’s Liability policy which shall cover all of Contractor’s employees engaged in the Work. This policy shall be endorsed to provide: Other states endorsement, voluntary compensation coverage and occupational disease. If the Work is to be performed on or near navigable waters, the policy shall include United States Longshoreman’s and Harbor Workers coverage.

Worker’s Compensation – Statutory
Employer’s Liability – \$1,000,000 Each Accident
 \$1,000,000 Disease – Each Employee
 \$1,000,000 Disease – Policy Limit

5.5.5 BUILDERS RISK INSURANCE

The Contractor shall maintain property insurance to fully cover the insurable portion of the project for the benefit of the Owner.

5.5.6 PROFESSIONAL/ERRORS AND OMISSIONS COVERAGE

If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

Insurance shall provide a minimum of \$1,000,000 of coverage per claim.

5.5.7 OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY (OCP)

The Contractor shall maintain an OCP policy with the Owner as Named Insured, with the Engineer named as Additional Insured and Certificate Holder, in a combined single limit of not less than \$1,000,000. This policy is to remain in effect until completion and acceptance of the entire project.

Cancellation

5.6 If any insurance should be cancelled or changed by the insurance company or should any insurance expire during the period of this Contract, the Contractor shall be responsible for securing other acceptable insurance to provide the coverage specified in this section to maintain continuous coverage during the life of this Contract.

Please refer to the "SAMPLE" CERTIFICATE OF LIABILITY INSURANCE form that precedes this section.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

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

Labor, Materials and Equipment:

6.2 The Contractor will provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. He will at all times maintain good discipline and order at the site.

6.3 The Contractor will furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, local telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the Work.

6.4 All materials and equipment will be new, except as otherwise provided in the Contract Documents. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or approved, such materials

shall be delivered to the site in their original packages or container with seals unbroken and labels intact.

6.5 All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise provided in the Contract Documents.

6.6 Stored 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.

6.7 Inspection and testing of all materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the Contract Documents.

6.7.1 The Owner shall provide all inspection and testing services not required by the Contract Documents. The Contractor shall provide at his expense the testing and inspection services required by the Contract Documents.

6.7.2 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 them timely notice of readiness. The Contractor will then furnish the Engineer the required certificates of inspection, testing or approval.

6.7.3 Inspections, tests or approvals by the Engineer or others shall not relieve the Contractor from his obligations to perform the work in accordance with the requirements of the Contract Documents.

6.8 Plans are drawn and the Specifications are written naming certain brands of specialized equipment or products. Brand names so cited are cited for the purpose of establishing the quality desired.

6.8.1 The brands of items of equipment listed in these specifications are hereby designated to be the basic brands. Bidders shall submit a price for furnishing and installing the lowest quoted basic brand or approved alternate brand of each major product or equipment items in the base bid.

6.8.2 As the Owner is interested in obtaining the lowest practical cost and encouraging competition, a price may be offered based on any alternate brand which the bidder determines to be equal to the basic brand. Bidder shall clearly identify the alternate brand for each item proposed as an equal for the basic brand item on the Bid Form. The Owner will approve alternate brands offered by the Bidder provided the alternate item is determined by the Owner to be equal to the

basic item specified. If no basic or alternate brands are identified then the bid is presumed to be based on the basic brands.

Owner will evaluate alternate brands offered and may accept any, all or none of the items prior to executing the contract agreement.

6.8.3 A complete set of supporting data shall be submitted with the bid for each alternate item to support the claim that it is equal to basic brand. Sufficient data, including horsepower or energy requirements, performance, operation and maintenance, manpower and supply requirements shall be submitted in order for the Owner to evaluate the equality of the offered product or equipment. Any variance with the specifications shall be listed and failure to do so may be grounds for rejection of the alternate item. Bids submitted based on incorporating alternative products or equipment without providing the supporting data as set out will be deemed non-responsive.

6.8.4 Submittals shall include complete design calculations including the effect substituted equipment or materials will have on all affected system processes. If the proposed substituted equipment or materials will require a change in any buildings, structures, piping, controls, work, etc., the submittal shall include detailed sketches and specifications of the necessary changes. Submittals shall also include an up-to-date list of at least five present users of the proposed items including names, addresses, and present municipal users of the proposed items including names, addresses and telephone numbers. The submission of insufficient data to determine equality as set out herein shall be sufficient grounds for rejection of the alternate item and the bid being deemed non-responsive.

6.8.5 The cost of any change in structure, locations, connections, etc., necessary for any alternate brand accepted shall be borne by the Contractor, as well as the cost of revision of the Drawings and Specifications.

6.8.6 No alternate equipment or materials will be considered unless the Manufacturer offers documented proof that the alternate items have been in general usage in similar applications for at least the two preceding years.

6.8.7 Submittals will be compared for equality by evaluating the life cycle cost including cost of modifications and redesign, the compatibility of the item offered with other items, the service experience record of the manufacturers or suppliers in attending to requests for repairs/parts by Owner and reliability of offered items in performing intended functions. Where the offeror does not have a two year experience record, substitute items may be considered provided the offeror furnishes a five year bond which guarantees replacement of the item in the event of failure as judged by the Engineer, in an amount equal to purchase price plus the actual cost of removal and re-installation.

6.8.8 The determination as to whether or not such alternates are acceptable shall rest solely with the Owner.

6.8.9 Approval by the Owner of alternate equipment or materials shall in no way serve as a guarantee that the equipment or materials will meet the performance and construction requirements as specified herein, and shall not relieve the Contractor from any responsibility or requirements under the contract. It shall be the Contractor's responsibility to produce an efficient product.

6.8.10 Delay caused by obtaining approvals for alternate products, materials or equipment will not be considered justifiable grounds for an extension of Contract Time.

6.8.11 Should any work or materials, equipment or products not conform with requirements of the Contract Documents or become damaged during the progress of the Work, such Work or materials shall be removed and replaced, together with any work disarranged by such alterations, at any time before completion and acceptance of the Project. All such work shall be done at the expense of the Contractor.

6.8.12 No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the Seller. The Contractor warrants that he has good title to all materials and supplies used by him in the Work.

Materials, Equipment, Products, and Substitutions:

6.9 Materials, equipment and products incorporated in the Work must be approved for use before being purchased by the Contractor. The Contractor shall submit to the Engineer a list of proposed materials, equipment or products, together with such samples as may be necessary for the Engineer to determine their acceptability and obtain the Engineer's approval. No request for payment for substitute materials, equipment or product will be approved until this list has been received and approved by the Owner.

Concerning Subcontractors:

6.10 The Contractor will not employ any Subcontractor, other person or organization of the types referred to in paragraph 2.11 (whether initially or as a substitute) against whom the Owner or the Engineer may have reasonable objection, nor will the Contractor be required to employ any Subcontractor against whom he has reasonable objection. The Contractor will not make any substitution for any Subcontractor who has been accepted by the Owner and the Engineer, unless the Engineer determines that there is good cause for doing so.

6.11 The Contractor shall be fully responsible for all acts and omissions of his Subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between Owner or Engineer and any Subcontractor or other person or organization having a direct contract with Contractor, nor shall it create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any Subcontractor or other person or organization, except as may otherwise be required by law. Owner or Engineer may furnish to any Subcontractor or other person or organization, to the extent practicable, evidence of amounts paid to Contractor on account of specific Work done in accordance with the Application of Payment.

6.12 The divisions and sections of the Specifications and the identifications of any Drawings shall not control the Contractor in dividing the Work among Subcontractors or delineating the Work to be performed by any specific trade.

6.13 The Contractor agrees to bind specifically every Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the Owner.

6.14 All Work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor and the Subcontractor.

6.15 The Contractor shall be responsible for the coordination of the trades, Subcontractors and materialmen engaged upon his Work.

6.15.1 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 these General Conditions and other 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 provisions of the Contract Documents.

6.15.2 The Owner or Engineer will not undertake to settle any differences between the Contractor and his Subcontractors or between Subcontractors.

6.15.3 Notwithstanding 6.15.2 above, if in the opinion of the Engineer, any Subcontractor on the Project proves to be incompetent or otherwise unsatisfactory, he shall be replaced if and when directed in writing.

6.15.4 The Contractor shall not award work to Subcontractors in excess of fifty (50%) percent of the contract value, without prior approval of the Owner.

Patent Fees and Royalties:

6.16 The Contractor will pay all license fees and royalties and assume all costs incident to the use of any invention, design, process or device which is the subject of patent rights or copyrights held by others. He will indemnify and hold harmless the Owner and the Engineer and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of such rights during or after completion of the Work, and shall defend all such claims in connection with any alleged infringement of such rights.

6.17 The Contractor shall be responsible for determining the application of patent rights and royalties on materials, appliances, articles or systems prior to bidding. However, the Contractor shall not be responsible for such determination on systems which do not involve purchase by him of materials, appliances and articles.

Permits:

6.18 The Contractor will secure and pay for all construction permits and licenses and will pay all governmental charges and inspection fees necessary for the prosecution of the Work. The Owner shall assist the Contractor, when necessary, in obtaining such permits and licenses.

Electric Power and Lighting:

6.19 Electrical power as required during construction shall be provided by the Contractor at the Contractor's expense. Lighting shall be provided by the Contractor in all spaces at all times where necessary for good and proper workmanship, for inspection or for safety. No temporary power shall be used off temporary lighting lines without specific approval of the Owner. The Contractor will also pay all public utility charges.

Laws and Regulations:

6.20 The Contractor will give all notices and comply with all laws, ordinances, rules and regulations applicable to the WORK. If the Contractor observes that the Specifications or Drawings are at variance therewith, the Contractor will give the Engineer prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate Modification. If the Contractor performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Engineer, the Contractor will bear all costs arising therefrom; however, it shall not be the Contractor's primary responsibility to make certain that the Drawings and Specifications are in accordance with such laws, ordinances, rules and regulations.

Taxes:

6.21 Cost of all sales and other taxes for which the Contractor is liable under the Contract shall be included in the Contract Price stated by the Contractor.

Record Drawings:

6.22 The Contractor will keep one record copy of all Specifications, Drawings, Addenda, Modifications, and Shop Drawings at the site.

6.22.1 The Engineer shall furnish the Contractor a set of Drawings and Specifications for the Contractor to record the details of and changes to the Work as the work progresses. The Contractor shall keep the Record Drawings current and shall not cover or conceal any Work until the required information has been recorded. Record Drawings are considered an integral part of the Work and the Work will not be deemed to be complete, on schedule or satisfactory until the Record Drawings are provided. The Contractor shall furnish Record Drawings to the Engineer prior to the submission of the final application for payment.

6.22.2 In addition to the location and limits of all unit priced and lump sum pay items, the following items shall be recorded on the Record Drawings:

1. Depths of various elements in relation to datum.
2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
3. Location of internal appurtenances concealed in construction with reference to visible and accessible features of the work.
4. Field changes of dimension and detail.
5. Changes made by Modification.
6. Details not on original Contract Drawings.
7. Locations of plugged openings for future connections.

6.22.3 Specifications and Addenda shall be legibly marked up to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
2. Changes made by Modification.
3. Other pertinent matters not originally specified.

Safety and Protection:

6.23 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:

6.23.1 All employees on the Work and other persons who may be affected thereby,

6.23.2 All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

6.23.3 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.

6.24 The Contractor will designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner.

Emergencies:

6.25 In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. He will give the Engineer written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, within two days of the occurrence, and a Change Order may thereupon be issued covering the changes and deviations involved.

Shop Drawings, Samples and Other Submittals:

6.26 The Contractor shall submit to the Engineers, prior to the start of construction, detailed shop drawings and/or layouts of all manufactured or shop fabricated equipment, product samples and related information that he contemplates to furnish under this contract.

6.27 Shop Drawing / Sample Submittal Requirements

6.27.1 Shop drawings submitted to the Engineer shall bear the Contractor's stamp of approval certifying that they have been checked for conformance with the requirements of the contract documents. The Engineer will return any shop drawings submitted without this certification for re-submission. Shop drawings bearing the Contractor's certification which, in the Engineer's opinion are incomplete, contain numerous errors, have not been checked or only checked superficially, will be also be returned by the Engineer for re-submission.

6.27.2 Shop Drawings /Submittals must be complete, properly identified with the name of the project, dated, and each lot submitted must be accompanied by a letter of transmittal referring to the name of the project and to the specification division and/or page number and referenced to the construction drawing number or sheet for identification of each item. Shop drawings for

each type of work shall be numbered consecutively and the numbering system shall be retained throughout all revisions. The sequential numbering system shall be used as the basis for maintaining a log suitable to tracking the submittal process.

6.27.3 Shop Drawings/Submittals shall be provided both printed on paper and in digital format (PDF) on CD.

6.27.4 Paper for printed copies shall be on standard paper. Text shall be on 8-1/2 inches x 11-inches. Drawings shall not be larger than 11-inches x 17-inches and shall be neatly folded to standard size. Printed copies shall be organized with a table of contents and bound in sections as appropriate and the sections shall be identified using indexed tabs. Provide seven (7) printed copies of each. The Engineer will retain three (3) copies, two (2) copies for the Engineer's use in the field and one (1) copy for the Owner's use. The balance of the copies provided will be returned to the Contractor.

6.27.5 Digital files shall be in Portable Document Format (PDF) and provided on CD. Filenames for PDFs shall be numbered sequentially as above for the submittal tracking process. Text shall be formatted for printing on 8-1/2 inches x 11-inches. Drawings shall be formatted for printing on 11-inches x 17-inches sheets. PDFs shall include a table of contents and be bookmarked the same as for indexed printed copies. Provide two (2) CDs of each.

6.27.6 With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

6.28 Shop Drawings shall consist of drawings, diagrams, illustrations, schedules, performances charts, brochures and other data, prepared for a portion of the work. Shop Drawings shall indicate the model numbers, options, type, size, quantity, arrangement, location, mode of operation, component materials and/or material certification, utility connections, wiring and control diagrams, anchorages, supports, performance and test data, factory-applied coatings, and any other information necessary to insure satisfactory fabrication, installation and operation of the completed project. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.

6.29 The Contractor will also submit to the Engineer for review, with such promptness as to cause no delay in Work, Samples required by the Contract Documents. Samples will have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

6.30 The Contractor shall thoroughly check all shop drawings for completeness and for compliance with the Contract Documents and shall verify all dimensions and field conditions and shall coordinate the shop drawings with the requirements of all other work related thereto, as required thereto, as required for proper and complete installation of the work. At the time of each submission, the Contractor will in writing state that the shop drawings are in conformance with the Drawings and Specifications or will call the Engineer's attention to any deviations that the Shop Drawings or Sample may have from the requirements of the Contract Documents.

6.31 Where a shop drawing as submitted by the Contractor indicates a departure from the Contract which the Engineer deems to be a minor adjustment in the interest of the Owner not involving a change in contract price or extension of time, the Engineer may review and return the drawing but the Engineer's review will be made with the understanding that it does not involve any change in the contract price or time and that it is subject generally to all contract stipulations and covenants.

6.32 The Engineer will review with reasonable promptness Shop Drawings and Samples, but his review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate review of the assembly in which the item functions. The Contractor will make any corrections required by the Engineer and will return the required number of corrected copies of Shop Drawings and resubmit new Samples until the review is satisfactory to the Engineer. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the Engineer on previous submissions. The Contractor's stamp of approval on any Shop Drawing or Sample shall constitute a representation to the Owner and the Engineer that the Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalogue numbers and similar data or he assumes full responsibility for doing so, and that he has reviewed or coordinated each Shop Drawing or Sample with the requirements of the Work and the Contract Documents.

6.33 In the event a third submittal of Shop Drawings is required, due to previous submittals of incomplete or incorrect Shop Drawings not in accordance with the Drawings and Specifications, the Contractor will be charged the cost incurred by the Engineer for the review of the third and all subsequent submittal reviews. The Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

6.34 If a shop drawing involves a change in structures, connections, etc., then the cost of changing structures, connections, etc., as well as plans and specifications to accommodate the item shall be borne by the Contractor. The Owner will impose a set-off against payments due to Contractor to secure reimbursement for such charges unless the need for such change is beyond the control of Contractor.

6.35 No work requiring Shop Drawing or Sample submission shall be commenced until the submission has been reviewed by the Engineer. A copy of each Shop Drawing and each Sample shall be kept in good order by the Contractor at the site and shall be available to the Engineer.

6.36 The Engineer's review of Shop Drawings or Samples shall not relieve the Contractor from his responsibility for any deviations from the requirements of the Contract Documents nor shall any review by the Engineer relieve the Contractor from responsibility for errors or omissions in the Shop Drawings.

Cleaning Up:

6.37 Site. The Contractor shall clean up behind the Work as much as is reasonably possible as the Work progresses. Upon completion of the Work, and before acceptance of and final payment for the Project by the Owner, the Contractor shall remove all surplus and discarded materials, excavated material and rubbish from the roadways, sidewalks, parking areas, lawns and all adjacent property; shall clean his portion of Work involved in any building under this Contract, so that no further cleaning by the Owner is necessary prior to his occupancy; shall restore all property, both public and private, which has been disturbed or damaged during the prosecution of the Work to substantially the same condition as existed prior to the work; and shall leave the whole in a neat and presentable condition.

6.38 Structures. Clean-up operations shall consistently be carried on by the Contractor at all times to keep the premises free from accumulation of waste materials and rubbish. Upon completion of the Work he shall remove all rubbish, tools, scaffolding, surplus materials, etc., from the structure and shall leave his work "broom clean", or its equivalent, unless more exactly specified elsewhere in the Contract. The Contractor shall do the following special cleaning for all trades upon completion of the Work:

6.38.1 Remove putty stains and paint from and wash and polish all glass.

6.38.2 Remove all marks, stains, and other soil and dirt from finished concrete, painted, stained and decorated work.

6.38.3 Remove all temporary protections and clean and polish floors in buildings.

6.38.4 Clean and polish all hardware.

6.39 Withholding Payment. Cleaning up is considered to be an integral, important and necessary function of each item of work. Where work on unit price items are substantially complete but lack clean-up and/or corrections ordered by the Engineer, amounts shall be deducted from unit prices in partial payment estimates to amply cover such clean-up and corrections. When the clean-up and/or corrections are performed, payment shall be made for amounts withheld.

6.40 General. In case of dispute, the Owner may remove the rubbish and charge the cost to the Contractor.

Public Convenience and Safety:

6.41 The Contractor shall, at all times, conduct the Work in such a manner as to insure the least practicable obstruction to public travel. The convenience of the general public and of the residents along and adjacent to the area of the Work shall be provided for in a satisfactory manner, consistent with the operation and local conditions. "Street Closed" signs shall be placed immediately adjacent to the Work, in a conspicuous position, at such locations as traffic demands. At any time that streets are required to be closed, the Contractor shall notify law enforcement agencies, fire departments, and parties operating emergency vehicles before the street is closed and again as soon as it is opened. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times. The Contractor shall, at all times, maintain proper access to the dwellings and/or businesses located on the private properties adjacent to the Project as required by, and in compliance with, the utility and construction easements acquired from the owners of said properties.

Sanitary Provisions:

6.42 The Contractor shall furnish necessary toilet conveniences, secluded from public observation, for use of all personnel on the Work, whether or not in his employ. They shall be kept in a clean and sanitary condition and shall comply with the requirements and regulations of the public authorities having jurisdiction. He shall commit no public nuisance. Temporary sanitary facilities shall be removed upon completion of the Work and the premises shall be left clean.

Indemnification:

6.43 The Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against any and all liability of every nature, kind and character which may be incurred in connection with the performance or fulfillment of the Work or such other liability resulting from negligence or otherwise on the part of the Contractor, including but not limited to injury to persons and damage to properties, and the structures and improvements thereon, adjacent to the Project, and shall indemnify and hold harmless the Owner and the Engineer from all costs and damages, including attorney's fees, which may be suffered by reason of the failure to fully and completely perform under the Contract Documents and shall fully reimburse Owner and the Engineer for all expenditures of every kind, character and description, including attorney's fees, which may be incurred by Owner and Engineer in making good any and every default which may exist on the part of the Contractor in connection with its performance under the Contract Documents.

Responsibility for Connecting to Existing Work:

6.44 It shall be the express responsibility of the Contractor to connect his Work to each part of the existing work or work previously installed as required by the Drawings and Specifications to provide a complete installation.

Work in Street, Highway and Other Rights-of-Way:

6.45 Excavation, grading, fill, storm drainage, paving and any other construction or installations in rights-of-way of streets, highways, public carrier lines, utility lines (either aerial, surface or subsurface), etc., shall be done in accordance with requirements of the owners thereof. The Owner will be responsible for obtaining permits necessary for the work.

6.46 The Contractor, at his own expense, shall be required to maintain the streets and thoroughfares disturbed in a passable condition providing means of ingress and egress to persons residing and/or by the Work, conducting business thereon specifically, but not by way of limitation, the Contractor shall maintain proper access to the dwellings and/or businesses located on the property adjacent to the Project at all times during the Project as is provided in the utility and construction easements obtained from the owners of said adjacent property.

6.46.1 The Contractor shall provide additional earth backfill or additional surfacing materials for excavation and/or trenches in streets or thoroughfares, if and when the shrinkage sets in, and shall shape and re-shape and grade and re-grade as, in the opinion of the Engineer, is necessary to maintain all thoroughfares disturbed in good condition from the time of initial excavation to the date of final acceptance. In general, the Contractor shall not be required to construct or maintain detours, or to maintain streets disturbed beyond the date of final acceptance of the work.

6.46.2 The Contractor shall provide facilities on a 24 hour, 7 day basis for pulling out vehicles bogged down due to his operations.

6.46.3 At all times, while the work is in progress the Contractor shall take precautions for the protection of all public by placing and maintaining adequate flagmen, barricades, red flags and/or lights, at locations where streets and public thoroughfares have been disturbed by excavations.

Cooperation with Governmental Departments, Public Utilities, Etc.:

6.47 The Contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, telephone, and telegraph facilities such as pavements, tracks, piping, wires, cables,

conduits, poles, guys, etc., including incidental structures connected therewith, that are encountered in the Work in order that such items may be properly shored, supported and protected. The Contractor shall give all proper notices, shall comply with requirements of such parties in the performance of his Work, shall permit entrance of such parties on the Project in order that they may perform their necessary work, and shall pay all charges and fees made by such parties for this work.

6.47.1 The Contractor's attention is called to the fact that there may be delays on the Project due to work to be done by governmental departments, public utilities, and others in repairing or moving poles, conduits, etc. The Contractor shall cooperate with the above parties, in every way possible, so that the construction can be completed in the least possible time.

6.47.2 The Contractor shall have made himself familiar with all codes, laws, ordinances and regulations which in any manner affect those engaged or employed in the Work, or materials and equipment used in or upon the Work, or in any way affect the conduct of the Work, and no plea of misunderstanding will be considered on account of his ignorance thereof.

Public Convenience and Premises:

6.48 Contractor shall confine his apparatus, storage of materials, and operations of his workmen to limits indicated by law, ordinances, permits, and shall not unnecessarily encumber any part of site.

6.48.1 Contractor shall not overload or permit any part of any structure to be loaded with such weight as will endanger its safety, nor shall he subject any part of the Work to stresses or pressures that will endanger it.

6.48.2 Contractor shall arrange and cooperate with the Owner in routing and parking of automobiles of his employees, Subcontractors and other personnel, and in routing material delivery trucks and other vehicles to the Project site.

Protection of Existing Property Improvements:

6.49 Any existing surface or subsurface improvements, such as pavements, curbs, sidewalks, pipes or utilities, footings, or structures (including portions thereof), trees and shrubbery, not indicated on the Drawings or noted in the Specifications as being removed or altered shall be protected from damage during construction of the Project. Any such improvements damaged during construction of the Project shall be restored to a condition equal to that existing at time of award of Contract at the Contractor's expense.

6.49.1 The existence of, and location of some of the known utilities and obstructions are indicated on the plans but are not guaranteed. The Contractor

shall, in addition to the requirements provided in Section 6.47, make sufficient investigation and inspections, at the site of the work, to enable him to determine the existence of and exact nature and location of all such drainage structures, underground and overhead obstructions, fences, and public and private utilities that will be disturbed in the prosecution of the work. The Contractor shall repair or replace such utilities and improvements which are damaged by his operations so as to function properly, at his own expense and in a manner and condition equal to that of such utilities and improvements prior to damage. Fences which must be crossed shall be repaired to an "as was" condition.

6.50 Fuel, Energy and Water. The Contractor shall furnish all fuels, electric power and other energies, water and other consumables used in the prosecution of the work including temporary heat to prevent injury from dampness and cold and testing and trial operations until in the opinion of the Engineer, the work or a part thereof, is Substantially Complete and in use by the Owner, at which time the Owner will begin paying power bills for that part. Arrangements shall be made in advance of need with the utilities involved.

6.51 Flood Protection. The Contractor shall assume complete responsibility for construction and protection of work and property from flood damage in flood prone areas.

ARTICLE 7 - WORK BY OTHERS

7.1 The Owner may perform additional work related to the Project by himself, or he may let other direct contracts therefor which shall contain General Conditions similar to these. The Contractor will afford the other contractors who are parties to such direct 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.

7.2 If any part of the Contractor's work depends for proper execution or results upon the work of any such other contractor (or the Owner), the Contractor will promptly report to the Engineer in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results.

7.3 The Contractor will do all cutting, fitting, and patching of his Work that may be required to make its several parts come together properly and fit it to receive or be received by such other work. The Contractor will not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of the Engineer and of the other contractors whose work will be affected.

7.4 Cooperation is required in the use of site facilities and in the detailed execution of the Work. Each contractor shall coordinate his operations with those of the other contractors for the best interest of the Work in order to prevent delay in the execution thereof.

7.5 Each contractor shall keep himself informed of the progress of the work of other contractors. Should lack of progress or defective workmanship on the part of other Contractors interfere with his operations, the Contractor shall notify the Engineer immediately. Lack of such notice to the Engineer will be construed as acceptance by the Contractor of the status of the work of other contractors as being satisfactory for proper coordination of his own Work.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.1 The Owner will issue all communications to the Contractor through the Engineer.

8.2 The Owner shall have the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding the fact that the time for completing the entire Work or any portion thereof may not have expired; but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract Documents.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

Owner's Representative:

9.1 The Engineer shall be the Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of the Engineer as the Owner's representative during construction are set forth in Articles 1 through 16 of these General Conditions and shall not be extended without written consent of the Owner and the Engineer.

9.1.1 Except as may be otherwise provided in this contract, all claims, counter-claims, disputes and other matters in question between the Owner and the Contractor arising out of or relating to this agreement or the breach thereof will be decided by mediation if the parties hereto mutually agree, or in a court of competent jurisdiction within the State in which the Project is located.

Visits to Site:

9.2 The Engineer will make periodic visits to the site to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. He will not be required to make exhaustive or continuous on-site observations to check the quality or quantity of the

Work. His efforts will be directed toward providing assurance for the Owner that the completed Project will conform to the requirements of the Contract Documents. On the basis of his on-site observations as an experienced and qualified design professional, he will keep the Owner informed of the progress of the Work and will endeavor to guard the Owner against defects and deficiencies in the Work of contractors.

9.2.1 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 of the work. The Contractor will provide proper facilities for such access and observation of the work and also for any inspection, or testing thereof.

Clarifications and Interpretations:

9.3 The Engineer will issue with reasonable promptness such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as he may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

9.4 Reference Points. The Engineer shall furnish and establish base lines for locating the principal component parts of the project together with a suitable number of bench marks adjacent to the project.

9.4.1 The Contractor shall carefully preserve bench marks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense of replacement.

Rejecting Defective Work:

9.5 The Engineer will have authority to disapprove or reject Work which is "defective" (which term is hereinafter used to describe Work that is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection, test or approval referred to, or has been damaged prior to final acceptance). He will also have authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed or completed.

9.5.1 If any work is covered, contrary to the instructions of the Engineer, it must, if requested by the Engineer, be uncovered for his observation and replaced at the Contractor's expense. If the Engineer considers it necessary or advisable that covered work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the work in questions, furnishing all necessary labor, materials, tools, and equipment.

Project Representatives:

9.6 The Engineer will provide observation sufficient to ascertain if construction is in substantial compliance with the design intent of the Drawings and Specifications.

Decisions on Disagreements:

9.7 The Engineer will be the initial interpreter of the terms and conditions of the Contract Documents and the judge of the performance thereunder. In his capacity as interpreter and judge he will exercise his best efforts to insure faithful performance by both the Owner and the Contractor. He will not show partiality to either and shall not be liable for the result of any interpretation or decision rendered in good faith. Claims, disputes and other matters relating to the execution and progress of the Work or the interpretation of or performance under the Contract Documents shall be referred initially to the Engineer for a decision which he shall render in writing within a reasonable time.

Limitations on Engineer's Responsibilities

9.8 Neither the Engineer's authority to act under this Article 9 nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their agents or employees or any other person performing any of the work.

9.9 The Engineer will not be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions and programs incident thereto, and the Engineer will not be responsible for the Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 The Engineer will not be responsible for the acts or omissions of the Contractor, or any Subcontractors, or any of their agents or employees, or any other person performing any of the Work.

9.11 The Engineers' construction engineering services do not include any administration of jobsite safety which is the sole responsibility of the Contractor. Any reference to safety in the Contract Documents shall not create any duty of jobsite safety administration or oversight by the Engineers.

ARTICLE 10 - CHANGES IN THE WORK

10.1 Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, the Contractor will proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the

Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 11 or Article 12. A Change Order signed by the Contractor indicates his agreement therewith.

10.2 The Engineer may, in writing, authorize minor changes or alterations in the Work not involving extra cost and not inconsistent with the overall intent of the Contract Documents.

10.3 Additional Work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in paragraph 6.25.

10.4 The Owner will execute appropriate Change Orders prepared by the Engineer covering changes in the Work to be performed as provided in paragraph 10.1, and Work performed in an emergency as provided in paragraph 6.25 and any other claim of the Contractor for a change in the Contract Time or the Contract Price which is approved by the Engineer and the Owner.

10.5 It is the Contractor's responsibility to notify his surety of any changes affecting the general scope of the Work or change in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Owner if requested.

ARTICLE 11 - CHANGE OF CONTRACT PRICE

11.1 The Contract Price constitutes the total compensation payable to the Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without changing the Contract Price.

11.2 The Owner may, at any time, without notice to the sureties, by written order designated or indicated to be a Change Order, make any change in the Work within the general scope of the contract, including but not limited to changes:

- (1) in the specifications (including drawings and designs);
- (2) in the method or manner of performance of the work;
- (3) in the Owner-furnished facilities, equipment, materials, services, or site; or
- (4) directing acceleration in the performance of the work.

11.2.1 Except as herein provided, no order, statement, or conduct of the Owner shall be treated as a Change Order under this clause or entitle the Contractor to an equitable adjustment hereunder.

11.2.2 No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under this contract.

11.3 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.

11.3.2 By negotiated lump sum.

11.3.3 The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work (hereinafter the "Cost of the Work") plus a fixed amount to be agreed upon to cover the cost of general overhead and profit (hereinafter the "Contractor's Fee").

11.4 The term Cost of the Work means the sum of all costs necessarily incurred and paid by the Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1 Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs may include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Sunday or legal holidays shall be included in the above to the extent authorized by Owner in writing.

11.4.2 Cost of all materials and equipment furnished and incorporated in the Work.

11.4.2.1 All trade discounts, rebates and refunds, and all returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

11.4.3 Payments made by Contractor to the Subcontractors for Work performed by Subcontractors. If required by Owner, the Contractor shall obtain competitive bids from Subcontractors acceptable to him and shall deliver such Bids to Owner who will then determine with the advice of Engineer, which Bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of Work Plus a Fee, the Cost of Work shall be determined in

accordance with paragraphs 11.4 and 11.5. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.5 The Term Cost of the Work shall not include any of the following:

11.5.1 Payroll costs and other compensation of Contractor's officers, executives principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by Contractor whether at the site or in his principal or branch office for general administration of the Work and not specifically included in the schedule referred to in subparagraph 11.4.1 - all of which are to be considered administrative costs covered by the Contractor's Fee.

11.5.2 Expenses of Contractor's principal and branch offices other than his office at the site.

11.5.3 Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

11.5.4 Cost of premiums for all bonds and for all insurance policies whether or not Contractor is required by the Contract Documents to purchase and maintain the same (except as otherwise provided in subparagraph 11.4.1).

11.5.5 Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.6 The Contractor's Fee which shall be allowed to Contractor for his overhead and profit shall be a mutually acceptable firm fixed price; or, if none can be agreed upon, a mutually acceptable fixed fee based on the estimate of the various portions of the Cost of the Work.

11.7 The amount of credit to be allowed by Contractor to Owner for any such change which results in a net decrease in cost, will be the amount of the actual net decrease. When both additions and credits are involved in any one change, the net shall be computed to include overhead and profit, identified separately, for both additions and credits.

11.8 Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4 and 11.5, the Contractor will submit in a form prescribed by Engineer an itemized cost breakdown together with supporting data.

11.9 Claims For Delay Due To Change: No claim for delay damages will be allowed the Contractor on account of change orders executed by him. In support of this stipulation the following language will be set out on the face of each change order:

"It is further understood and agreed that this modification constitutes payment in full on behalf of the Contractor and its Subcontractors and suppliers for all costs and markups directly or indirectly attributable to the change order herein, for all delays related thereto, and for performance of the changes within the time frame stated."

11.10 Allowances: It is understood that the Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such materialmen, suppliers or Subcontractors and for such sums within the limit of the allowances as the Engineer may approve. Upon final payment, the Contract Price shall be adjusted as required and an appropriate Change Order issued. The Contractor agrees that the original Contract Price includes such sums as he deems proper for costs and profit on account of cash allowances. No demand for additional cost or profit in connection therewith will be allowed.

11.10.1 These allowances shall cover the cost to the Contractor, less any applicable trade discount, of the materials and equipment required by the allowance delivered at the site, and all applicable taxes.

11.10.2 The Contractor's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Price and not in the allowance.

11.10.3 Whenever the cost, as described in 11.10.1 above, is more than or less than the allowance, the Contract Price shall be adjusted accordingly by Change Order.

ARTICLE 12 - CHANGE OF THE CONTRACT TIME

12.1 The Contract Time may be changed only by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to Owner and Engineer within 10 days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within 20 days of such occurrence unless Engineer allows an additional period of time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be determined by Engineer if Owner and Contractor cannot otherwise agree. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

12.2 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of Contractor if he makes a claim therefor as provided in paragraph

12.1

12.3. Such delays may include, but not be restricted to, acts or neglect by any other contractor employed by Owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

12.4 No claim for delay shall be allowed because of failure to furnish Drawings until two weeks after written demand for such Drawings and not then unless such claim be reasonable.

ARTICLE 13 - GUARANTEE

13.1 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. The Contractor warrants and guarantees for a period of one (1) year from the date of Substantial Completion of the system that the completed system is free from all defects due to faulty materials or workmanship and the Contractor shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the system resulting from such defects. Where equipment is required to have a longer guarantee time period by other section of these specifications, such longer guarantee time period shall govern. The Owner will give notice of observed defects with reasonable promptness. In the event that the Contractor should fail to make such repairs, adjustments, or other Work that may be made necessary by such defects, the Owner may do so and charge the Contractor the cost thereby incurred. The Payment Bond and Performance Bond shall remain in full force and effect through the guarantee period.

13.2 Neither the final payment nor any provision in the Contract nor partial or entire use of the facilities by the Owner shall constitute an acceptance of work not done in accordance with the Contract Documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

ARTICLE 14 - PAYMENTS AND COMPLETION

Payments to Contractor:

14.1 At least 10 days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer an Application for Payment filled out and signed by the Contractor covering the Work performed during the period covered by the Application for Payment and supported by such data as the

Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or in an approved location, the Application for Payment shall also be accompanied by such 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. The Owner may retain 5 percent of the amount of each payment until the work is at least 50 percent complete, on schedule and satisfactory in the Engineer's opinion, at which time 50 percent of the retainage held to date shall be returned to the Contractor for distribution to the appropriate subcontractors and suppliers. Future retainage shall be withheld at the rate of 2-1/2 percent. On completion and acceptance of a part of the Work on which the priced is stated separately in the Contract Documents, payment may be made in full, including retainage percentages, less authorized deductions. The Owner may reinstate up to 5 percent withholding if the Owner determines, at his discretion, that the Contractor is not making satisfactory progress or there is other specific cause for such withholding.

Contractor's Warranty of Title:

14.2 The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the Project or not, will have passed to the Owner prior to the making of the Application for Payment, free and clear of all liens, claims, security interests and encumbrances (hereafter in these General Conditions referred to as "Liens"); and that no work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor or by any other person performing the Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

Approval of Payments:

14.3 The Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing his recommendation for payment and present the Application to the Owner, or return the Application to the Contractor indicating in writing his reasons for refusing to recommend payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application. The Owner will, within 21 days of presentation to him of an Application for Payment, pay the Contractor the amount recommended by the Engineer.

14.4 The Engineer's recommendation for payment requested in an Application for Payment shall constitute a representation by him to the Owner, based on the Engineer's on-site observations of the Work in progress as an experienced and qualified design professional and on his review of the Application for Payment and the supporting data, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a

functioning Project upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and any qualifications stated in his approval); and that the Contractor is entitled to payment of the amount requested. However, by recommending such payment the Engineer shall not thereby be deemed to have represented that he made exhaustive or continuous on-site observations to check the quality or the quantity of the Work, or that he has reviewed the means, methods, techniques, sequences, and procedures of construction or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys paid or to be paid to him on account of the Contract Price, or that title to any Work, materials, or equipment has passed to the Owner free and clear of any liens.

14.5 The Contractor shall make the following certifications on each request for payment (Partial Payment Estimate):

14.5.1 I hereby certify that the work covered by this request for payment has been completed in accordance with the Contract Documents and that the labor and materials listed hereon have been used in the construction of this work, or that all materials included in this request for payment and not yet incorporated into the construction are now on the site or stored at an approved location; and that payment received from the last request for payment has been used to make payments to all first tier Subcontractors and Suppliers except as listed below.

14.6 The Engineer may refuse to approve the whole or any part of any payment if, in his opinion, he is unable to make such representations to the Owner. He may also refuse to approve any such payment, or, because of subsequently discovered evidence or the results of subsequent inspection of tests, nullify any such payment previously approved, to such extent as may be necessary in his opinion to protect the Owner from loss because:

14.6.1 The Work is defective, or completed Work has been damaged requiring correction or replacement,

14.6.2 The Work for which payment is requested cannot be verified,

14.6.3 Claims or Liens have been filed or there is reasonable evidence indicating the probable filing thereof,

14.6.4 The Contract Price has been reduced because of Modifications,

14.6.5 The Owner has been required to correct defective Work or complete the Work in accordance with paragraph 13.1,

14.6.6 Of unsatisfactory prosecution of the Work, including failure to clean up as required.

14.6.7 Of persistent failure to cooperate with other contractors on the Project and persistent failure to carry out the Work in accordance with the Contract Documents.

14.6.8 Of liquidated damages payable by the Contractor, or

14.6.9 Of any other violation of, or failure to comply with, the provisions of the Contract Documents.

14.7 Prior to Substantial Completion, the Owner, with the approval of the Engineer and with the concurrence of the Contractor, may use any completed or substantially completed portions of the Work. Such use shall not constitute an acceptance of such portions of the Work.

14.8 The Owner shall have the right to enter the premises for the purpose of doing work not covered by the Contract Documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the Work, or the restoration of any damaged Work except such as may be caused by agents or employees of the Owner.

14.9 Upon completion and acceptance of the Work, the Engineer will issue a certificate that the work is in substantial conformance with Contract Documents, recommending Final Acceptance by the Owner and Final Payment. 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 30 days of Final Acceptance of the Work.

14.10 The Contractor will indemnify and save the Owner and the Engineer harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, 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 Contract Price 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.

14.11 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.

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

14.11.2 If the Contractor should fail to complete the work within the Contract Time, or extension of time granted by the Owner, the Contractor will pay to the Owner the amount for liquidated damages as specified in the bid for each calendar day or working day (as specified) that the Contractor shall be in default after the time stipulated in the contract documents.

14.11.3 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 the Contractor has promptly given written notice of such delay to the Owner or Engineer:

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

14.11.3.2 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, abnormal floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather; and

14.11.3.3 To any delays of Subcontractors occasioned by any of the causes specified in the above paragraphs.

14.11.4 Requests by the Contractor for time extensions due to abnormally bad weather shall also consider time gained due to abnormally good weather during the contract period.

Acceptance of Final Payment as Release:

14.12 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 stated 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 Payment Bond and Performance Bond.

Final payment to the Contractor by the Owner shall not be made until the Contractor has obtained written consent from the Surety.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

Owner May Suspend Work:

15.1 The Owner may suspend the Work or a portion thereof by notice in writing to the Contractor. The Contractor may be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if he makes a claim therefor as provided in Articles 11 and 12, provided the Contractor does not concur in the work suspension.

15.1.1 Should the Owner be prevented or enjoined from proceeding with Work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine to compensate for time lost by such delay with such determination to be set forth in writing.

Owner May Terminate:

15.2 If the Contractor is adjudged as 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 similar 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 he disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction, 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 7 days' 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.

15.3 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any rights of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys by the Owner due the Contractor will not release the Contractor from liability.

15.4 Upon 7 days' 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 Agreement. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus a reasonable profit.

Removal of Equipment:

15.5 In the case of termination of this Contract before completion, for any cause whatever, the Contractor, if notified to do so by the Owner, shall promptly remove any part or all of his equipment and supplies from the property of the Owner. Should the Contractor not remove such equipment and supplies within 30 days, the Owner shall have the right to remove them at the expense of the Contractor. Equipment and supplies shall not be construed to include such items for which the Contractor has been paid in whole or in part.

ARTICLE 16 - MISCELLANEOUS

16.1 All Specifications, Drawings and copies thereof furnished by the Engineer shall remain his property. They shall not be used on another Project, and, with the exception of those sets which have been signed in connection with the execution of the Agreement, shall be returned to him on request upon completion of the Project.

16.2 The successful Bidder shall be furnished 5 sets of construction plans and specifications for use in the work. Any other plans and specifications needed shall be supplied upon payment of the amount of plans as set out in the Advertisement for Bids.

16.3 The duties and obligations imposed by these General Conditions, and other Conditions and the rights and remedies available hereunder, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor by paragraph 13.1 and the rights and remedies available to Owner and Engineer thereunder, shall be in addition to, and shall not be construed in any way as a limitation of, any rights and remedies available to them which are otherwise imposed or available by law, by special guarantee or by other provisions of the Contract Documents.

16.4 Should the Owner or the Contractor suffer injury or damage to its person or property because of any error, omission or act of the other or of any of his employees or agents or others for whose acts he is legally liable, claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage.

16.5 The Contract Documents shall be governed by the law of the place of the Project.

16.6 Attorney Fees - In the event it shall be necessary for either party to retain legal counsel to resolve a dispute or to enforce any of its rights hereunder, the party prevailing upon resolution of such disputes or enforcements of such rights shall be entitled to recover payment of all reasonable attorney's fees, expenses and costs incurred therewith.

ARTICLE 17 - ARBITRATION

17.1 All claims, disputes and other matters in question arising out of, or related to, this Agreement or the breach thereof except for claims which have been waived by the making or acceptance of final payment, shall be decided by arbitration, if all parties mutually agree, in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining, or in a court of competent jurisdiction. This agreement so to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof. The arbitration decision must present findings of fact, conclusions of law, basis of award and rationale.

17.2 Notice of the request for arbitration shall be filed in writing with the other party to the Agreement and with the American Arbitration Association, if both parties mutually agree to arbitration, and a copy shall be filed with the ENGINEER. The request for arbitration shall be made within the 30-day period where applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall it be made after institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

17.3 The CONTRACTOR will carry on the Work and maintain the progress schedule during any arbitration proceedings, unless otherwise agreed by him and the OWNER in writing.

Mandatory Addendum to
All City of Tupelo Contracts
August 2019

The City of Tupelo (TUPELO), despite any contrary provision contained in any contract to which TUPELO is a party, does not waive any rights, benefits, or prohibitions that may be provided under any law, statute(s), regulation(s), or policies. All provisions to the contrary in any contact to which TUPELO is a party are hereby null, void and deleted. Not intended to be an exhaustive list, the following are examples of such matters and shall be exceptions to any contrary provision(s) in any contract to which TUPELO is a party.

1. TUPELO does not indemnify or hold harmless any party.
Miss. Const. Art. 4, § 100; Miss AG Op., Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct, 18, 2002).
2. TUPELO does not make any warranty.
Miss. Const. Art. 4, § 100; Miss AG Op., Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct, 18, 2002).
3. TUPELO does not waive any claim; past, present, or future.
Miss. Const. Art. 4, § 100; Miss AG Op; Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct, 18, 2002).
4. TUPELO does not waive its sovereign immunity. TUPELO shall only be responsible for liability resulting from the actions of its officers, agents, and employees acting within the course and scope of their official duties.
Miss. Code Ann. § 11-46-1, et seq.
5. TUPELO does not waive its Constitutional Eleventh (11th) Amendment immunity.
U.S. Const. Amend. XI.
6. TUPELO does not agree to the application of laws of another state.
U.S. Const. amend XI; Miss. Code Ann. 11-11-3; Miss. Code Ann. 11-45-1; *City of Jackson v. Wallace*, 196 So. 223 (1940)
7. TUPELO does not limit the tort liability of another party to the amount of the contract or to any other set amount.
Miss. Const. Art. 4, § 100; Miss AG Op., Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct, 18, 2002); Miss. AG Op., Hathorn (May 28, 1992); Miss. AG Op., Davis (March 3, 1993).
8. TUPELO does not agree to waive warranties of merchantability, fitness for a particular purpose, or any common law warranties to which TUPELO is entitled.
Miss. Const. Art 4, § 100; Miss Code Ann. § 75-2-719; Miss. AG Op., Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct, 18, 2002).

9. TUPELO does not agree that a party may represent, prosecute or defend legal actions in the name of TUPELO. (CITATION NEEDED.)
10. Provisions that limit the time for TUPELO to pursue legal actions are deleted and void.
Miss. Const. Art. 4, § 104; Miss. Const. Art. 4, § 100; Miss Code Ann. § 15-1-5; Miss AG Op; Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct, 18, 2002).
11. TUPELO does not agree to submit to binding arbitration.
Miss. AG Op., Clark (June 7, 2002); Miss. AG Op., Chamberlin (Oct. 18, 2002).
12. TUPELO will make payments for all amounts owed under a contract agreement in accordance with state law.
Miss. Code Ann. § 31-7-305.
13. TUPELO advises for all contracts entered into, the provisions of the contract which will contain the commodities purchased or the personal or professional services provided, the price to be paid, and the term of the contract shall not be deemed to be a trade secret or confidential commercial or financial information, and shall be available for examination, copying or reproduction.
Miss. Code § 25-61-9 (7).
14. TUPELO must comply with Mississippi public records law. Records furnished to public bodies by third parties which contain trade secrets or confidential commercial or financial information shall not be subject to inspection, examination, copying or reproduction until notice to said third parties has been given, but such records shall be released within a reasonable period of time unless the said third parties shall have obtained a court order protecting such records as confidential.
Miss. Code § 25-61-9 (1).
15. Data processing software obtained by TUPELO under a licensing agreement that prohibits its disclosure and which software is a trade secret as defined in Miss. Code Section 75-26-3, and data processing software produced by a public body which is sensitive must not be subject to inspection, copying or reproduction under Mississippi public records law. "Sensitive" means only those portions of data processing software, including the specifications and documentation, used to:
(a) Collect, process, store, and retrieve information which is exempt; (b) Control and direct access authorizations and security measures for automated systems; (c) Collect, process, store, and retrieve information disclosure of which would require a significant intrusion into the business of the public body.

16. TUPELO is prohibited from binding its successors in office to contracts, including leases, which result in taking away the successors' rights and powers conferred by law, unless there is specific statutory authority to enter into such contract. In the absence of specific statutory authority, such contracts are voidable by the successors in office.
MS AG Ops., Barton (January 8, 2014) and Barton (July 15, 2011)(both relying on Biloxi Firefighters Assoc. v. City of Biloxi, 810 So.2d 589 (Miss. 2002).

17. TUPELO does not have the power to grant to any person, firm or corporation any exclusive franchise or any exclusive right to use or occupy the streets, highways, bridges, or public places in such municipality for any purpose. TUPELO cannot grant, renew, or extend any such franchise, privilege or right, without compensation or for any longer period than twenty-five years.
Miss. Code Anno. 21-27-1

18. All contracts must be approved by the City Council of TUPELO, subject to the veto power of the Mayor of TUPELO.
MS AG Ops. 2012-00013

I acknowledge receipt of this document as an element of the Sand Creek Bank Stabilization Project.

June 16, 2020



Jeff Smith, Owner

MOBILIZATION

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Mobilization shall consist of moving all labor, equipment, supplies, and incidentals to the project site and removing same after all the work under the contract has been completed. It shall also include all mobilization pre-construction costs which are necessary direct costs to the project and are of a general nature rather than directly attributable to other pay items.

PART 2: MATERIALS

(None)

PART 3: EXECUTION

3.01 COMPENSATION

- A. When five percent (5%) of the original contract amount is earned from other bid items (exclusive of those listed as dependent items), fifty percent (50%) of the amount of the bid for mobilization, or five percent (5%) of the original contract amount, whichever is lesser, will be paid.
- B. When ten percent (10%) of the original contract amount is earned from other bid items (exclusive of those listed as dependent items), one hundred percent (100%) of the amount of the bid for mobilization, or ten percent (10%) of the original contract amount, whichever is lesser, will be paid.
- C. Upon completion of the work, payment of any amount of bid for mobilization that is outstanding will be paid.

3.02 BASIS OF PAYMENT

- A. Mobilization will be paid for at the contract lump sum price, which shall be full compensation for completing the work specified.

CONCRETE REMOVAL

1. SCOPE OF WORK Work under this item shall consist of the removal of concrete drives, concrete sidewalks, and concrete porches and any other designated removal items by hauling to waste.

2. OBSTRUCTIONS Every precaution shall be taken by the Contractor to preserve and protect all structures, fences, public and private utilities and improvements, above or below ground, within the scope of the construction which are to remain.

3. BASIS OF PAYMENT This item will be paid for at the square yard contract price bid for Concrete Removal, which price shall be full compensation of all work herein specified, including the furnishing of all materials, equipment, tools, labor and incidentals necessary to complete the work.

CONCRETE AND REINFORCING

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install all concrete and reinforcing complete as shown on the Drawings and as specified herein.

PART 2: MATERIALS

2.01 GENERAL

- A. All concrete shall be composed of aggregate, Portland Cement, fly ash, slag (GGBFS), admixtures and water. Air-entrainment admixture shall be added to all concrete. Reinforcement shall be provided where shown on plans. All plain and reinforced concrete shall be prepared and constructed in accordance with these specifications, at the locations and of the form and dimensions called for on the plans or as specified. Unless otherwise noted, finished dimensions shall conform to American Concrete Institute (ACI) Specification 301-96, Section 1.7.2.
- B. Referenced American Society for Testing and Materials (ASTM) standard specifications shall be understood to mean the latest current revision of the standard specifications.
- C. **A MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEERS FOR REVIEW 7 DAYS PRIOR TO THE DELIVERY OF ANY CONCRETE TO THE JOB SITE.**
- D. **THE BATCH PLANT SHALL BE CURRENTLY CERTIFIED BY THE MISSISSIPPI DEPARTMENT OF TRANSPORTATION AND PROOF OF SUCH CERTIFICATION SHALL BE SUBMITTED WITH THE MIX DESIGN.**

2.02 PORTLAND CEMENT

- A. Portland cement shall conform to the Standard Specification for Portland Cement (ASTM C150), and shall be Type I or III or, at the Contractor's option, Type IA or IIIA (Air-entraining).
- B. The Contractor shall furnish vendor's certified test report for each carload, or equivalent, of cement shipped for use on the Project. The report shall be delivered and approved before use of the cement. All such test reports shall be subject to verification by testing samples of materials as received for use on the project.

2.03 FLY ASH

- A. Fly ash shall conform to the standard specification for Fly Ash (ASTM C 618) and shall be Type C or Type F.

2.04 SLAG

- A. Slag shall conform to the standard specification for Slag (ASTM C618) and shall be Grade 100 with loss on ignition less than five percent (<5%).

2.05 CONCRETE AGGREGATES

- A. Concrete aggregate shall conform to the Standard Specification for Concrete Aggregates (ASTM C33) and shall conform to ACI 301-96 Section 4.2.1.2. Coarse aggregate shall be crushed limestone.
- B. The maximum size of the aggregate shall be not larger than 1/5 of the narrowest dimension between sides of the forms within which the concrete is to be cast nor larger than 3/4 of the minimum clear spacing between reinforcing bars, or between reinforcing bars and forms. For unreinforced slabs, the maximum size of aggregate shall not be larger than 1/3 of the slab thickness.

2.06 ADMIXTURES

- A. Air-entraining admixtures shall be ASTM C-260 added so that the air content will be between 4 and 6 percent as determined by ASTM tests C138 or C231.
- B. Water-reducing admixtures, when approved by the Engineers for use, shall be ASTM C-494.

2.07 WATER

- A. Water used in mixing concrete shall be clean, fresh and drinkable.

2.08 STEEL REINFORCING

- A. Reinforcing bars shall conform to Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement (ASTM A615), Grade 60.
- B. Bar and rod mats for concrete reinforcement shall conform to Standard Specification for Fabricated Steel Bar or Rod Mats for Concrete Reinforcement (ASTM A184).
- C. Wire for concrete reinforcement shall conform to Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement (ASTM A185).

- D. Welded wire fabric for concrete reinforcement shall conform to Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement (ASTM A185).
- E. Structural steel shall conform to Standard Specification for Structural Steel (ASTM A36).

2.09 SHOP DRAWINGS

- A. The Contractor shall submit shop drawings of reinforcement to the Engineers for approval before reinforcement is fabricated. Shop drawings shall conform to Manual of Standard Practice for Detailing Reinforcing Concrete Structures, ACI 315-74. Reinforcing steel details shall not include the use of re-intrant corners.

2.10 STORAGE OF MATERIALS

- A. Cement and aggregates shall be stored at the work in such a manner as to prevent deterioration or intrusion of foreign matter. Any material which has deteriorated or which has been damaged shall not be used for concrete. Damaged reinforcement shall not be allowed within a structure.

PART 3: EXECUTION

3.01 CONCRETE QUALITY AND ALLOWABLE STRESSES

- A. All concrete shall be watertight and shall have a minimum 28-day compressive strength of 4,000 pounds per square inch. Compressive tests shall be made in accordance with the Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens (ASTM C39).
- B. The mixture shall contain not less than the equivalent of 6 bags of cementitious material per cubic yard of mixture by weight and the water-cement ratio shall not exceed 0.45 pounds of water per pound of cementitious material. Fly ash content may not exceed twenty percent (20%) of the cementitious material. Slump shall not exceed 4 inches as measured by ASTM C143. The slump at the time of delivery shall not exceed 6 inches when an approved mid-range water reducer is used while maintaining the approved water -cement ratios. In general, a water cement ratio shall be used which will yield test cylinders with a compressive strength averaging 500 psi above the specified strength.
- C. **MIX DESIGNS CONTAINING FLY ASH MAY BE USED ONLY IN STRUCTURAL ELEMENTS WITH MINIMUM DIMENSIONS GREATER THAN OR EQUAL TO 12".**
- D. The proportions of aggregate to cement for any concrete shall be such as to produce a mixture which will work readily into the corners and angles of the forms and around reinforcement with the method of placing employed on the

work, but without permitting the materials to segregate or excess free water to collect on the surface. Laboratory mixtures will be made by the Contractor to determine the proper proportions of materials for the aggregate selected.

- E. The methods of measuring concrete materials shall be subject to approval by the Engineers and shall be such that the proportions can be controlled accurately and checked easily at any time during the work. Measurement of materials for ready-mixed concrete shall conform to Standard Specification for Ready Mixed Concrete (ASTM C94).

3.02 PREPARATION AND PLACING CONCRETE

- A. Before placing concrete, (1) all equipment for mixing and transporting the concrete shall be cleaned, (2) all debris and ice shall be removed from the places to be occupied by the concrete, (3) forms shall be thoroughly wetted or oiled, (4) masonry filler units that will be in contact with the concrete shall be well drenched, and (5) the reinforcement shall be thoroughly cleaned of oil or other coating. Concrete shall not be placed on frozen ground.
- B. Water shall be removed from place of deposit before concrete is placed. The water table shall be lowered at least one foot below the bottom of the concrete pour.
- C. A layer of 6-mil polyethylene shall be placed and lapped on the bedding before the concrete is placed. All holes and breaks in the polyethylene shall be patched immediately before pouring.
- D. For job-mixed concrete, the mixer shall be rotated at the speed recommended by the manufacturer and mixing shall be continued for at least one minute after all materials are in the mixer.
- E. Ready-mixed concrete shall be mixed and delivered in accordance with the Standard Specifications for Ready-Mixed Concrete (ASTM C94).
- F. Concrete shall be conveyed from the mixer to place of final deposit by methods which will prevent the separation or loss of the materials.
- G. Equipment for chuting, pumping and pneumatically conveying concrete shall be of such size and design as to insure a practically continuous flow of concrete at the delivery end without separation of the materials.
- H. Upon arrival at the job site, up to 1.5 gallons per cubic yard of mixing water may be added (per ASTM C94) to low slump concrete to bring the slump within the required limits. Water shall not be added at a later time.

3.03 DEPOSITING

- A. If it is necessary to stabilize loose footing material, layers of washed gravel shall be placed and tamped to form an unyielding foundation. Concrete shall be deposited as nearly as practicable in its final position to avoid separation due to re-handling or flowing. The concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the space between the bars. No concrete that has partially hardened or been contaminated by foreign material shall be deposited on the work; nor shall retempered concrete be used.
- B. Once started the concreting shall be carried on as a continuous operation until the placing of the panel or section is completed. The top surface shall be generally level. When construction joints are necessary, they shall be made as specified herein.
- C. Concrete shall be thoroughly consolidated by suitable vibrators during placement and shall be thoroughly worked into the corners of the forms and around reinforcement and embedded fixtures.

3.03 CURING OF CONCRETE

- A. Concrete shall be protected from premature drying by covering as soon as possible with wetted burlap covered with polyethylene, and shall be kept thoroughly moist for at least 7 days. The moisture condition of surfaces shall be checked daily (more frequently during hot weather) and wetting or spraying shall be applied as necessary to maintain the moist condition for 7 days. If high-early-strength cement is used, the curing period may be reduced to 4 days.
- B. In extreme conditions and on small pours, the Engineers may permit the use of a white pigmented liquid curing membrane.

3.04 COLD AND HOT WEATHER REQUIREMENTS

- A. Equipment shall be provided to heat the concrete materials and protect the concrete during freezing or near-freezing weather. No frozen materials or materials containing ice shall be used.
- B. All concrete materials, reinforcement, forms, fillers and surface with which the concrete is to come into contact shall be free from ice. Whenever the temperature of the surrounding air is below 40°F, all concrete placed shall have a temperature of above 60°F and a means shall be provided to maintain a temperature of not less than 60°F for 2 days and 50°F for 3 days or, for as long as necessary to insure the proper curing of the concrete. The housing, covering, or other protection used in connection with curing shall remain in place and intact at least 24 hours after the artificial heating is discontinued. No dependence shall be placed on salt or other chemicals for the prevention of

freezing.

- C. During hot weather, upon arrival at the job site the temperature of the concrete mixture to be placed shall not exceed 90° F. The concrete materials shall be cooled before mixing or crushed ice of a size that will melt completely during mixing may be substituted at the batch plant for all or part of the mixing water.

3.05 FORMS

A. Design of Forms

- 1. Forms shall conform to the shape, lines and dimensions of the members as called for on the drawings. They shall be substantial and sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together so as to maintain position and shape. The responsibility for the adequacy of the forms shall rest with the Contractor. Forms for all concrete surfaces exposed to view, both inside and outside, shall be constructed of smooth plywood or with a masonite lining or with an approved forming system to insure a smooth surface.
- 2. Chamfer strips shall be provided at all exposed edges and corners both vertical and horizontal unless otherwise instructed.
- 3. Segmented forms of approved design will be permitted on circular surfaces not exposed to view under normal operating conditions.

B. Removal of Forms

- 1. Forms shall be removed in such a manner as to insure the complete safety of the structure. Forms and shoring, supporting concrete and other weights shall be removed at the Contractor's risk but shall not be removed following a pour completion sooner than specified below. In no case shall the supporting forms or shoring be removed until the members have acquired sufficient strength to support safely their weight and the load thereon.
- 2. The removal of forms and shoring shall be based on one of the following methods.
 - a. Method 1: Elapsed Time After Concrete Placement for no fly ash mix only.

<u>Forms</u>	<u>Minimum Time</u>
Columns (Not Under Any Load)	48 Hours
Side of Beams	48 Hours
Walls*	14 Days
Slabs	14 Days
Other Parts	7 Days
Shoring and Centering Under Beams	14 Days

Under Bent Caps

7 Days

b. Method 2: Field Cured Test Cylinder Strength

<u>Forms</u>	<u>Minimum Strength'</u>
Columns (Not Under Any Load)	1000 psi
Sides of Beams	1000 psi
Walls*	2400 psi
Slabs	2400 psi
Other Parts	2400 psi
Shoring and Centering	
Under Beams	2400 psi
Under Bent Caps	2000 psi

*When specified by the Engineers, Forms for walls not under any load (vertical or horizontal pressure) may be removed after 48 hours (Method 1) or test cylinder strength of 1000 psi (Method 2).

Any method of form removal to cause over stressing of the concrete shall not be used. Forms and supports shall be removed in such a manner as to permit the concrete to uniformly and gradually take the stresses due to its own weight. Centers shall be gradually and uniformly lowered in such a manner as to avoid injurious stresses in any part of the structure.

Non-load carrying form facing may be removed after 24 hours of pour completion at the Contractor's risk.

All form ties shall be pulled out, broken or cut beneath the surface and all holes and depressions shall be neatly grouted.

3.06 DEFECTIVE WORK

- A. Any defective work disclosed after the forms have been removed shall immediately be removed and replaced. Deficiencies in dimensions or flaws in the surface which, in the opinion of the Engineers, cannot be satisfactorily repaired shall be cause for removal and replacement at the expense of the Contractor.

3.07 REINFORCEMENT

- A. Cleaning and Bending—At the time concrete is placed, reinforcement shall be free from rust, scale or other coatings in such amounts that would destroy or seriously reduce the bond. All bars shall be bent cold, unless otherwise authorized by the Engineers. Bars partially embedded in concrete shall not be

field bent except as specifically permitted by the Engineers.

- B. Placing—Metal reinforcement shall be accurately placed in accordance with the plans and shall be adequately secured in position by concrete blocks, metal chairs, spacers or ties. Wood fixtures shall not be used to support reinforcement.
- C. Splices and Offsets—In slabs, beams and girders, splices of reinforcement at points of maximum stress shall generally be avoided. SPLICES SHALL PROVIDE SUFFICIENT LAP (ACI 319-89) TO TRANSFER THE STRESS BETWEEN BARS BY BOND AND SHEAR. Unless otherwise directed, all rebar splices shall be at least 45 bar diameters.
- D. Concrete Protection for Reinforcement—The metal reinforcement shall be protected by the thickness of concrete indicated in the plans. Where not otherwise shown, the thickness of concrete over reinforcement shall be as follows:
- E. Minimum concrete cover for reinforcement, except for extremely corrosive atmospheres, other severe exposures, or fire protection, shall be as given below.

<u>Location</u>	<u>Minimum Cover, in.</u>
Slabs and Joints	
Top and bottom bar for dry conditions	
#11 bars and smaller	3/4 inch
# 14 and #18 bars	1 ½ inch
Formed concrete surfaces exposed to earth, water or weather, and over or in contact with sewage and for bottoms bearing on work mat, or slabs supporting earth cover.	
#5 Bars and smaller	1 ½ inch
#6 through #8	2 inch
Bars and columns, formed	
For dry conditions	1 ½ inch
Stirrups and ties	2 inch
Principal reinforcement	2 ½ inch
Walls	
For dry conditions	
#11 bars and smaller	3/4 inch
#14 and #18 bars	1 ½ inch

Formed concrete surfaces, exposed to earth, water, sewage, weather, on in contact with ground 2 inch

Footings and base slabs

At formed surfaces and bottoms bearing on concrete work mat 2 inch

At uniform surfaces and bottoms in contact with earth 2 inch

Top of footings Same as Slabs

Over top of piles 2 inch

In all cases, the thickness of concrete over bars shall be at least equal the diameter of the bars.

Exposed reinforcement bars intended for bending with future extensions shall be protected from corrosion by concrete mortar covering.

3.08 CONSTRUCTION JOINTS

- A. Joints not shown in the contract documents shall be made and located so as to least impair the strength of the structure. In general, they shall be located at the plane of minimum moment. Joints in walls and columns shall be at the underside of floors, slabs and beams and at the tops of footings or floor slabs. Beams, girders, brackets, column capitals, haunches, and drop panels shall be placed at the same time as slabs.
- B. The surface of the concrete at all joints shall be cleaned thoroughly and all laitance (float) removed prior to placing adjoining concrete.
- C. Bond shall be obtained in horizontal joints by removing loose particles and applying a 1/2" coat of 1:1 cement-sand grout immediately before placing concrete.
- D. Vertical surfaces shall be roughened in a manner which will expose the aggregate uniformly and will not leave laitance, loosened particles of aggregate or damaged concrete at the surface.
- E. All construction joints in structures containing liquids shall be watertight. Waterstops shall be provided at joints required to be watertight. Construction joints waterstops shall be 6" width tapered ribbed pattern or dumbbell pattern unless otherwise noted on the plans. Construction joints waterstops shall be Amico PVC #8073 or #8029, Green Streak PVC#748 or #580, or equal.

3.09 EXPANSION JOINTS

- A. Premolded expansion joint filler shall conform to Specifications for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types) ASTM D-1751.
- B. All expansion joints required to be water tight shall contain waterstops, expansion joint filler material and an elastic joint sealant compound. A bond breaker compound or membrane is required between expansion joint filler material and elastic joint sealant compound. Clean and prime the concrete surface as recommended by the elastic sealant manufacturer prior to placement of fillers and sealants.
- C. Expansion joint waterstops shall be 9 inch width, tapered and ribbed with a VINYLEX PVCRL 89-38 or DB9-38 center bulb pattern or shall be dumbbell pattern with a center bulb pattern unless otherwise shown on the drawings. Expansion joint waterstops shall be AMICO PVC #8066 or 8031, Greenstreak PVC #753 or #718, or equal.
- D. Expansion joint filler material, elastic joint sealant compound, and premolded joint seals shall be approved commercially manufactured types.
- E. Ties and other form accessories to be partially or wholly embedded in the concrete shall be of approved commercially manufactured types. After the ends of fasteners have been removed, the embedded portion of the tie shall terminate not less than 1-1/4" inches from any concrete surface either exposed to view or exposed to ground or water. Form ties shall be constructed so that the ends or end fasteners can be removed without spalling the concrete. All ties shall be of a waterseal structures. All embedded bolts and anchors shall be 303 type stainless steel.
- F. In lieu of embedded bolts and anchors, epoxy grooved post-set bolts may be used when approved by the Engineers. Post-set anchors shall be stainless steel of adequate size and strength.
- G. Wall pipes or wall sleeves with a separate flange inside the wall shall be provided for all pipe passing through walls, floors and other structural members containing liquids.
- H. Apply an epoxy bonding agent to all concrete pipes and other precast concrete surfaces to be embedded in the concrete work. The agent shall be a two-component, flexible, non-shrink adhesive, AASHTO Spec. M-200-65, Type B. Apply per manufacturer's instruction and place wet concrete while the agent is tacky.

3.10 EMBEDDED ITEMS

- A. All sleeves, wall pipes, conduit, inserts, anchors, and other embedded items required for adjoining work or for its support shall be placed prior to concreting. All contractors whose work is related to the concrete or must be supported by it shall be given ample notice and opportunity to introduce and/or furnish embedded items before the concrete is placed.
- B. Expansion joint material, waterstops, and other embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, wall pipes, inserts, and anchor slots, etc. shall be filled temporarily with readily removable material to prevent the entry of concrete into the voids.
- C. Reinforcement or other embedded metal items bonded to the concrete (except dowels in floors bonded only on side of joints) shall not be permitted to extend continuously through any expansion joint.
- D. The Contractor shall protect by tape or grease embedded items that extend above grade and/or out of forms.

3.11 SURFACE FINISH

- A. Concrete surfaces shall be true, free from open or rough surfaces, depressions or projections.
- B. After forms have been stripped, cut all form tie wires back to a minimum depth of 3/4 inch. Dampen these areas with clean water and then patch flush with the surrounding area using a non-shrink grout. Fill all honeycombed areas that are 3/8 inch or more in depth with non-shrink grout. Remove all concrete appurtenances that extend above the level of the surface by use of a mortar hoe, stone, or grinding.
- C. As-Cast Formed Structures—Except as indicated on the plans, vertical, inclined and horizontal formed surfaces shall be finished as follows:
 - 1. Rough Form Finish (ACE 5.3.3.a)—Applies to as-cast vertical, inclined and horizontal surfaces more than one foot below finished ground lines. Patch tie holes and defects. Leave surfaces with the texture imparted by the forms.
 - 2. Smooth Form Finish (ACE 5.3.3.3b)—Applies to as-cast vertical, inclined and horizontal surfaces above one foot below finished ground lines, structures interior surfaces and surfaces below normal water lines. Patch tie holes and defects. Remove all fins completely.
- D. Rub Finished Formed Surfaces—The surface finish of structural concrete exposed to view both inside and outside, under normal operating conditions, plus a one-foot strip below the finished ground or normal water lines shall have

either a Smooth Rubbed Finish or a Coating System Finish.

1. Smooth Rubbed Finish (ACI 5.3.3.4.a)—Remove forms as early as permitted and perform necessary patching. Produce finish on newly hardened concrete no later than the day following form removal. Wet the surface and rut it with carborundum brick or other abrasive until uniform color and texture are produced. Use no cement grout other than cement paste drawn from the concrete itself by the rubbing process.
2. Coating Rubbed Finish—Surface finish produced on hardened concrete by application of a cementitious based material on concrete surfaces previously brought to a Smooth Form Finish. The coating system shall be Thoroseal and Thorocoat, Tamoseal (Sand Finish) and Tammscoat or equal. The Coating system shall be applied only on surfaces prepared in accordance with the manufacturer's specifications.

E. Slabs

1. Scratched Finish (ACI 5.3.4.2.a)—For surfaces intended to receive bonded applied cementitious applications.

Place, consolidate, stride off, and level concrete, eliminating high spots and low spots. Roughen the surface with stiff brushes on rakes before the final set. Produce a finish that will meet conventional bullfloated tolerance requirements of ACI 117.

2. Floated Finish (ACI 5.3.4.2.b)—For surfaces to receive roofing, waterproofing membranes or sand bed terrazzo.

Place, consolidate, strike off, and level concrete, eliminating high spots and low spots. Do not work concrete further until it is ready of floating. Begin floating with a hand float, a bladed power float equipped with float shoes. Or a powered disk float when the bleed water sheen has disappeared and the surface has stiffened sufficiently to permit the operation. Produce a finish that will meet conventional straightedge tolerance requirements of ACI 117, then refloat the slab immediately to a uniform texture.

3. Troweled Finish (ACI 5.3.4.2.c)—For inside floor slabs that may or may not be required to receive floor coverings or which are to be painted.

Float concrete surface, then once the moisture film and sheen have disappeared from the floated surface and the concrete has hardened enough to prevent an excess of fine material and water from being worked to the surface power trowel the surface. Hand trowel the surface smooth and free of trowel marks. Continue hand troweling until a ringing sound is produced and the floor is troweled. Tolerance for concrete floors shall be conventional straightedge in accordance with ACI 117.

4. Broom or Belt (ACI 5.3.4.2.d)—For outside slab surfaces including driveways, sidewalks, and ramps unless noted otherwise.

Immediately after concrete has received a floated finish, give the concrete surface a coarse transverse scored texture by drawing a broom or burlap belt across the surface.

5. Nonslip Finish (ACI 5.3.4.2.h) For exterior platforms, steps, and landings and for exterior interior pedestrian ramps.

Apply a broom or belt finish or a dry-shake application of crushed aluminum oxide or other abrasive particles, as noted. Rate of application shall be not less than 25 lb/100 sq ft.

6. Dry-shake Finish (ACI 5.3.4.2.e) To be applied as specified or as directed by the Engineer.

Blend metallic or mineral aggregate specified with portland cement in the proportions recommended by the aggregate manufacturer, or use bagged premixed material as specified. Approximately two-thirds of the blended material required for coverage to the surface by a method that ensures even coverage without segregation. Float finish the surface after application of the first dry-shake. Apply the remaining dry-shake material at right angles to the first application and in locations necessary to provide the specified minimum thickness. Begin final floating and finishing immediately after application of the dry-shake.

After selected material is embedded by the two floatings, complete operation with a broomed, floated, or troweled finish, as specified.

7. Heavy-Duty Topping for Two-Course Slabs (ACI 5.3.4.2.f) To be applied as specified by the Engineer.

Place and consolidate concrete for the base slab, and screed concrete to the specified depth below the top of the finished surface.

Topping placed the same day as the base slab may be placed as soon as bleed water in the base slab has disappeared and the surface will support a person without appreciable indentation.

When topping placement is deferred, brush the surface with a coarse wire broom to remove laitance and scratch the surface when concrete is plastic. Wet cure the base slab at least three days. Before placing the topping, clean the base slab surface thoroughly of contaminants and loose mortar or aggregate. Dampen the surface, leaving it free of standing water.

Immediately before placing topping, scrub into the slab surface a coat of bonding grout consisting of equal parts of cement and fine sand with enough water to make a creamy mixture. Do not allow grout to set or dry before topping is placed. Bonding agents other than cement grout may be used with prior acceptance.

Spread, compact, and float the topping mixtures, check for trueness of surface and complete operation with a floated, troweled, or broom finish as directed or specified.

3.12 TESTING

- A. Under the observation of the Engineers, the testing laboratory's representative shall take cylinders of the concrete mixture for compressive testing.
- B. Mold and cure three cylinders for every 50 CuYd or part thereof in accordance with ASTM C31. The contractor shall provide a suitable area or container at the project site for initial storage and curing (up to the first 48 hours after molding) of specimens cast for testing purposes. Specimens shall be stored under conditions to maintain the temperature adjacent to the specimens in the range of 60 to 80 degrees F (16 to 27 degrees C) and which prevents damage and loss of moisture from the specimens.
- C. Test cylinders in accordance with ASTM C39. Test one specimen at 7 days for information, and two specimens at 28 days for acceptance unless otherwise specified. The compressive strength test results for acceptance shall be the average of the compressive strengths from the two specimens tested at 28 days.
- D. The strength level of concrete will be considered satisfactory when the average of all sets of three consecutive compressive strength test results equal or exceed 4000 psi and no individual strength test result falls below 3500 psi.
- E. If the concrete cylinders for any portion of the structure fail to meet the above requirements, the Contractor shall, at his own expense, engage a laboratory to conduct tests in accordance with Standard Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete (ASTM C42). Portions of structures failing to meet the allowable strengths as determined by these tests shall be removed and replaced by the Contractor, at his own expense, with concrete conforming to the specifications.
- F. Concrete showing leakage after finishing shall be repaired and/or be topped or thickened as directed by the Engineer until watertight.
- G. The concrete testing requirements for selected concrete placements may be

waived at the Engineer's discretion.

3.06 BASIS OF PAYMENT

- A. Concrete and Reinforcing is a reference specification. Payment will be made as set out under each item specification.

CLEARING AND GRUBBING

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. This item shall consist of the removal and satisfactory disposal of all concrete, reinforcing steel, trees, limbs, and stumps; all pole stubs, roots, vegetation, rubbish, saw-dust, or any other material within the limits of the work; and, the removal of any and all structures and/or obstructions, shown on the plans or encountered during construction, which interfere with construction; it shall also include the protection and preservation from injury or defacement of designated trees, shrubs or plants; all in accordance with the provisions and requirements of these specifications and as indicated on the plans.

PART 2: MATERIALS (NONE)

PART 3: EXECUTION

3.01 GENERAL

- A. When construction and work limits have been established, the Engineers will designate all trees, shrubs or plants to remain and these shall be carefully preserved by the Contractor. All clearing and grubbing shall be done a satisfactory distance ahead of excavation operations and grading will not be started until the area cleared and grubbed has been approved by the Engineers.

3.02 CLEARING

- A. All the surfaces of the work area shall be completely cleared of perishable or objectionable vegetable matter and other concrete and reinforcing steel obstruction, as herein defined, except such trees and shrubs which the Engineers designate to remain standing. All trees, brush and stumps within the limits of the project area to be cut, shall be cut sufficiently close to the ground to facilitate future mowing, except such trees and stumps that are to be grubbed, which may be cut to a convenient height for grubbing by bulldozer.
- B. The Contractor shall supply the location and assume all responsibility for the disposal of all cleared non-perishable debris.
- C. Cleared and Grubbed material is to be hauled to a rubbish disposal facility. No material is to be burned on or off-site per MDEQ permit
- D. If limb, bark or root injury should occur to any of the trees or shrubs designated to

remain, the Contractor shall smooth any rough edges on the scarred areas in accordance with generally accepted horticultural practice and then cover the scars thoroughly with an asphaltum base tree paint.

3.03 GRUBBING

- A. Within the area of the construction lines, where excavation is to be made or embankment is to be placed, all trees, stumps, roots and other objectionable matter shall be grubbed out or otherwise completely removed and disposed of as hereinbefore indicated.
- B. When so directed, areas outside the construction lines in marshes or swampy sections shall be cleared of trees and the stumps cut off flush with the ground or at water level.
- C. All stumps, holes, and depressions caused by the grubbing operations that are below the finished surface of the work area shall be back-filled to the level of the original ground and thoroughly compacted prior to the starting of grading operations.

3.04 OBSTRUCTIONS

- A. Every precaution shall be taken by the Contractor to preserve and protect all structures, fences, public and private utilities and improvements, above or below the ground, within the scope of the construction which are to remain.
- B. The Contractor shall raze, remove and satisfactorily dispose of all buildings, structures, old curbs and gutter, sidewalks, fences, land other obstructions any portion of which is on the right-of-way, except those items hereinbefore indicated.
- C. Unless otherwise specifically directed, the substructure of a bridge and all culverts and minor structures shall be razed to the level of the adjacent ground or low water level.
- D. All material which has a salvage value shall be removed, without unnecessary damage, in sections or pieces which may be readily transported, and shall be piled by the Contractor at such places as may be designated. Disposal of unusable material shall be made in accordance with the disposal of debris, under Clearing.
- E. All concrete pavement, base course, sidewalks, curbs, gutters, etc., designated for removal, shall be broken into "one man" stones and all such material, which is in excess of the quantity specified or ordered for use in the work, shall be stockpiled at designated locations for use by the Owner or otherwise disposed of when so directed.

3.05 BASIS OF PAYMENT

- A. Payment for all work required under this specification shall be included as part of the lump sum bid.

9. METHOD OF MEASUREMENT

The Contractor must refer to the

typical sections, original topography and grading plans provided in the plans for the proper construction of the project.

All quantities of unclassified excavation, selected borrow material, and drainage backfill are calculated from the original ground data as compared to the final typical section templates with no shrinkage factors, adjustments, allowances for stripping, etc. These items will not be re-measured and the quantity on the bid form will be the basis for final payment, unless changes are approved in the field by the Engineer. If changes to the quantities are approved, payment will be made at the contract unit bid price per cubic yard for each particular item, field measured, with no shrinkage or adjustments applied.

Geotextile fabric called for shall conform to that specified in the "Stone Riprap" specification and it shall be placed according to the plans.

10. BASIS OF PAYMENT

When, in the opinion of the

Engineer, the Site Earthwork is completed according to the Plans and Specifications, Site Earthwork will be paid for per plan measure, as follows:

Excess Excavation (PM)	per cubic yard
Unclassified Excavation (PM)	per cubic yard
Selected Borrow Material (PM)	per cubic yard
Drainage Backfill (PM)	per cubic yard

which price shall be full compensation for the Unclassified Excavation of all materials encountered, for the disposal of the excavated materials off the project limits, for locating, furnishing, and placing Select Borrow Material, for locating, furnishing, and placing Drainage Backfill, for all Haul required, for subgrade preparation, and for all items of work called for within this specification. Payment shall be full compensation for all materials, equipment and labor for a completed project.

EROSION CONTROL

1. SCOPE

This item provides for the planting and establishment of vegetation for the purpose of controlling erosion and for enhancing the aesthetic value and functional usefulness of the completed project. After acceptance of the finish grading, the entire new soil surfaces and abraded areas shall be prepared, fertilized, seeded and mulched with vegetative material, or erosion control fabric, or excelsior blanket, or solid sodded excepting areas otherwise noted on plans.

It shall be understood that the term "plant establishment" means that work necessary to supplement and improve natural conditions to the end that fully established healthy vegetation is provided. It shall also include the preserving, protecting and replacing and such other work as may be necessary to keep the turf or sod in a satisfactory condition.

The term "seasonably dormant" shall be understood to mean that during the summer or winter season, a particular species of plant does not normally produce growth, but that the roots have taken hold in the soil sufficiently to be capable of growing off at the end of the dormant period.

2. LIMITATIONS

Normal erosion control establishment items will only be performed between March 1 and November 15. Mixture No. 1 will be used during the spring and summer months, March 1 to August 31, and Mixture No. 2 will be used during the fall and winter months, September 1 to November 15. The Contractor is with this forewarned that these are not arbitrary nor flexible dates and his adherence thereto is expected. At other times, temporary erosion control will be required.

3. MATERIALS

Fertilizers Fertilizers shall comply with the applicable fertilizer laws of the State. Combination fertilizer shall be "standard commercial products" and shall contain not less than 13% each Nitrogen, Phosphorous P 205 , and Potash K 20.

Agricultural limestone shall contain not less than 80% soluble of calcium and magnesium carbonate calculated as calcium carbonate on an oven dry basis. Agricultural limestone shall be of such a fineness that at least 80% will pass a U.S. Standard No.10 sieve and 40% will pass a U.S. Standard No. 40 sieve.

Thirty-four percent ammonium nitrate fertilizer, a manufactured fertilizer, shall be a 34-0-0 grade containing a minimum of 34% total nitrogen, of which 17% shall be nitrate nitrogen and 17% shall be ammoniacal nitrogen.

Seed All seeds shall comply with the applicable seed laws of the State. The seeds shall be delivered in bags with certified tags or labels attached to each bag showing the name

(kind and variety), percent of germination and purity of the seed and the percent of obnoxious weeds and inert matter.

The requirements for germination and purity shall be as set out in the table below:

GERMINATION AND PURITY REQUIREMENTS

Name (Kind)	Name (Variety)	Percent Germination	Percent Purity
<u>Normal Conditions</u>			
Bermudagrass	Common	90	95
White Clover	Dutch	85	98
Crimson Clover	Dixie, Chief, Tibee, Autauga	85	98
Bahiagrass	Pensacola Wilmington	85	85
Fescue	Kentucky 31	95	80
Sericea Lespedeza		98	90
<u>Temporary Control</u>			
Wheat	Mixed	80	98

Approved grass seeds shall be treated with a disinfectant protectant containing active ingredient of not less than 50% Thiram (tetraethylthiuram disulfide). The use of other approved dry (dust) treatment type disinfectant protectant materials for grass seeds may be permitted when the Contractor has furnished satisfactory evidence that Thiram is not available. The treatment shall be performed at the rate specified and according to the directions shown on the container for treatment of grass seeds.

Approved legume seeds shall be treated with leguminous inoculant. The inoculants for treating leguminous seeds shall be standard, pure culture of nitrogen fixing bacteria. The seed shall be treated at the rate specified and according to the directions shown on the container of the inoculants and before the expiration date for use of the inoculant as also shown on the container.

Water All water used shall be free from injurious quantities of oil, acid, alkali, or vegetative matter; reasonably clear; and shall not be brackish. If at any time water from any source shall become of unsatisfactory quality of insufficient quantity, the Contractor shall provide satisfactory water from some other source.

Vegetative Materials for Mulch The vegetative materials for much shall be classed as follows:

Type I - Approved baled straw of wheat, oat, rye grain or rice; or broomsage of Bahia grass (without seed heads), which have reached maturity prior to cutting.

Type II - Approved baled hay produced from Bermuda, Bahia, Fescue, Dallas Grass, any of the Lespedezas, or combinations thereof.

All of the above materials shall have been cured properly prior to bailing and shall be reasonably free from Johnson Grass and other obnoxious grasses and weeds. Vegetative material shall be reasonably bright in color, dry, and shall not be musty, moldy or of otherwise low quality.

Type I shall be furnished and used unless written permission to use Type II is obtained.

Asphalt Emulsion Mulch Bituminous material for mulch shall be emulsified asphalt, Grade SS-1. Emulsified asphalt shall be homogeneous, showing no separation of asphalt (limits for settlement excepted) after thorough mixing, within 30 days after delivery. Emulsified asphalts which have been subjected to freezing temperatures while in storage shall be subjected to retest, and acceptance or rejection of the material shall be based on the results of such retest.

Erosion Control Fabric Erosion Control fabric shall consist of knitted construction of Polypropylene yarn with uniform openings interwoven with strops of biodegradable paper. The fabric shall weigh approximately 0.2 pounds per square yard and shall be furnished in 5' to 10' wide rolls of 360' length. Metal staples for securing the erosion control fabric in place shall be fabricated from 11 gauge wire and shall be "U" shaped with a 1-inch crown and legs 6 inches in length. Moisture proof 4 to 6 mil opaque polyethylene bags for protection of the erosion control fabric prior to installation shall be provided.

Excelsior Blanket The excelsior blanket shall consist of a machine-produced mat of interlocking wood excelsior with uniform thickness and the fiber evenly distributed over the entire area of the blanket. A fabric of either twisted paper cord, cotton cord or extruded plastic shall be applied to one side of the excelsior wood mat to hold the wood fibers in place. The stored blankets shall not be exposed to moisture prior to placing.

The blanket shall meet the following requirements:

Interlocking Wood Fibers	0.020" x 0.04" + 25%
50% must be 3 1/2" or longer	
Fabric Net	1 1/2" x 3 1/2" maximum mesh size
Roll Width	36" minimum

The staples shall be "U" shaped, made from 11 gage or heavier steel wire, width 1 or 2 inches at the throat and a minimum of 6 inches from top to bottom after bending.

Solid Sod

Furnish, transport and plant approved grass sod so as to provide a complete cover to solid sod turf with satisfactory growth on all areas shown on the plans or designated to be sodded solid. This work shall also include the accomplishment of plant establishment as required to assure satisfactory growth of the solid sod.

Unless otherwise specified, solid sod shall be bermudagrass (common), bahia or other approved sod species and shall be live, fresh, growing grass with at least 1 1/2 inches of soil adhering firmly to the roots when placed. The sod shall be reasonably free from obnoxious weeds or other grasses, and shall not contain any matter deleterious to its growth, or which might affect its subsistence or harmless when transplanted. The sod shall be in blocks at least 8" x 8" free from ragged edges.

The source of solid sod shall be inspected and approved prior to harvest for use on the project. After approval, the area from which the solid sod is to be harvested shall be closely mowed and raked if deemed necessary to remove excessive top growth and debris.

4. CONSTRUCTION REQUIREMENTS

Ground Preparation

Plow or disk-harrow and thoroughly pulverize to a depth of 4" the areas immediately before the application of vegetative items. The prepared seedbed must be in reasonably close conformity with the established lines and grades without appreciable humps or depressions. Do not attempt to prepare the soil while it is wet or is in otherwise nontillable condition. When the soil is too dry to allow proper tillage, water will be added to insure a tillable condition.

Fertilizing

Furnish all approved equipment necessary to handle, store, uniformly spread and incorporate the specified application of fertilizers, including agricultural limestone. The amounts and types of fertilizers shall be applied and incorporated uniformly in accordance with the requirements for the various items of use. If the fertilizer is not spread in such a manner as to result in the ordered amount, the Contractor shall be required to furnish and spread the original amount and type of fertilizer specified on deficient areas, at no additional cost to the Owner.

In the event fertilizer is to be applied to existing vegetated grass areas, incorporation, unless otherwise specified, shall be accomplished immediately after the fertilizer application by reducing the existing vegetation to a height of approximately 4 inches above the ground, in lieu of other methods of incorporation. Under such conditions, all fertilizer, except agricultural limestone, shall be applied without the use of slurry, hydroseeder or other wet methods and such fertilizers shall be of the granular or pellet type.

All fertilizer shall be incorporated as required within 24 hours following the approved spreading, or as directed.

Seeding

Prepare and fertilize the soil prior to planting the seeds. Sow treated seed uniformly over the entire area. This may necessitate seeds of different size to be sown separately.

No seeding will be permitted during windy weather or when the ground is frozen, extremely wet, or otherwise in a non-tillable condition.

Cover all seeds lightly with soil by raking, rolling or other approved methods, and compact the area as directed.

Mulching

Place mulch uniformly on designated areas within 24 hours following the planting of seeds. Begin placement on the windward side of areas and from top of slopes. In its final position, the mulch shall be loose enough to allow air to circulate but compact enough to shade the ground partially and reduce erosion.

Loosen and break the base material thoroughly before it is fed into the mulching machine to avoid placement of unbroken clumps. This machine shall be capable of maintaining a constant air stream which will apply controlled quantities of asphalt coated mulch in a uniform pattern.

The mulch may be anchored by either the use of a mulch stabilizer or by tacking with bituminous material. If asphalt is used, a jet or spray nozzle for applying uniform, controlled amounts of asphalt to the vegetative material as it is ejected shall be located at or near the discharge spout. Any property damage during this operation shall be the responsibility of the Contractor and he will repair or cause to be repaired any such damage at his expense.

Mulch stabilizers shall consist of dull blades or disks without camber and approximately 20 inches in diameter. The disks shall be notched, shall be spaced at approximately 8-inch intervals, and shall be equipped with scrapers. The stabilizer shall weight approximately 1000-1200 pounds, shall have a working width of no more than eight feet, and shall be equipped with a ballast compartment so that, when necessary, weight can be increased.

If a mulch stabilizer is used, the mulch shall be punched into the soil for a minimum depth of one inch. Where steep slopes or soil conditions are such that anchoring cannot be performed satisfactory with a mulch stabilizer the Engineer will require the bituminous material be applied at the time or immediately following the mulch placement. When mulch stabilizers are used, anchoring the mulch shall be performed along the contour of the ground surface.

The Contractor shall be responsible for maintaining and protecting mulched areas until final acceptance of the project. He shall take every precaution to prevent unnecessary foot and vehicular traffic and shall repair and restore immediately, without extra compensation, any displacement of mulch.

At the appropriate times, the Contractor shall mow all areas mulched, or otherwise remove or destroy all undesirable growth, to prevent competition with the desired planted materials and to prevent reseeding of all undesirable growth.

Erosion Control Fabric

Erosion control fabric may be used in lieu of asphalt straw mulch, at the contractor's option. During the installation, the erosion control fabric shall be draped loosely over the seeded area. Prepare the area to be covered as a fine seed bed, fertilized, limed and seeded prior to installation of erosion control fabric. If the slope is greater than 3:1, apply fabric vertically with paper strips oriented parallel to the slope.

Dig a 4 inch deep check slot 1 foot back from the slope crown; fold, place and staple fabric every 9 inches in the check slot and cover with soil. Repeat check slot at the bottom of the slope. When 2 or more lengths of fabric are required to be installed side-by-side to cover an area, they shall overlap 4 inches (minimum). Fabric lengths installed end-to-end shall overlap 4 inches (minimum) with the upgrade section on top of the lower grade section.

Staple each length of fabric in three rows; each edge and the center with staples placed on 3 foot centers (maximum). Overlap ends shall be stapled on 9 inch centers across the fabric overlap.

Maintain and protect the erosion control fabric until final acceptance or until the fabric has served its useful life, whichever occurs first. Maintenance shall consist of repairs made necessary by erosion, wind, fire or any other cause until final acceptance. Following the restoration of damage areas under plant establishment requirements for applicable underlying items, the fabric shall be repaired or replaced to meet the original requirements and maintained until final acceptance as provided herein.

Excelsior Blanket

The area(s) to be covered shall be prepared, fertilized and vegetated as specified in accordance with the requirements of the contract before the blankets are placed. Immediately following the planting operations, the blankets shall be laid evenly, smoothly and in contact with the soil throughout and with the fabric net on top of the blankets. The asphalt-coated mulch should be omitted from all area(s) receiving the Excelsior Blankets.

For waterways, the blanket shall be unrolled in the direction of water flow. When 2 or more strips are required to cover a ditch area, the edge(s) of adjacent strip(s) shall overlap a minimum of 6 inches. In case a strip is to be spliced lengthwise, the ends of the strips shall overlap 6 inches minimum with the upgrade section on top.

When used on slopes the blankets may be placed either horizontally or vertically to the slope with the edges and ends of adjacent strips lapped a minimum of 6 inches with the upslope strip on top.

Each strip shall be stapled in 3 rows (each edge and the center) with staples spaced not more than 4 feet longitudinally. When using 2 strips overlapped, use a common row of staples on the strips securing the netting of each strip. All end strips shall be stapled at 1 foot intervals at the end. Staples shall be firmly embedded in the underlying soil.

The Contractor shall maintain and protect the Excelsior Blankets until final acceptance or until the Engineer has determined that the blanket has served its useful life, whichever occurs first.

Maintenance shall consist of repairs made necessary by erosion, wind, fire or any other cause until final acceptance. Following the restoration of damaged areas under plant establishment requirements for applicable underlying items, the blanket shall be repaired or replaced to meet the original requirements and maintained until final acceptance as provided herein.

Watering

Apply water in the amounts and at the times necessary to establish growth. Watering of plant life shall be done at night, during late afternoon or during the early morning hours.

Solid Sod Placement

Use approved mechanical devices, such as sod cutters, for cutting the sod into strips or blocks.

All sod in stacks shall be kept moist and protected from exposure to the wind, sun and from freezing prior to transplanting. In no event shall more than 3 days elapse between the cutting and planting of the sod.

Prior to ground preparation for solid sodding upon all excavating, shaping and dressing shall have been completed in such a manner that the foundation for the sod will have the proper cross-section, line and grade and the sod, after placement, will be flush with or slightly below the adjacent final ground line.

Perform ground preparation after the area has been graded as required. Apply the specified amount of fertilizer uniformly and rake or harrow the surface lightly to incorporate it into the prepared soil. After acceptance of the prepared and fertilizer area, sodding shall follow immediately.

Place the sod with the edges in close contact, starting at the lowest point and working upward. Fill cracks between blocks of sod with small pieces of fresh sod. Compact and water and entire sodding area.

On areas on which the solid sodding might slide due to the height and slope of the surface or nature of the soil, use wooden pegs to hold the sod in place.

5. TEMPORARY EROSION CONTROL

When normal erosion control measures must be delayed due to planting season limitations, temporary erosion control measures shall be applied. These shall consist of ground preparation, seeding with wheat, fertilizing, mulching and watering as herein specified. No limestone will be required for temporary control methods.

When the normal planting season arrives, the temporary control plant growth shall be cut and removed, the remaining roots disc-harrowed and the area treated with normal ground preparation procedures as herein specified. After this work, normal erosion control procedures will be followed.

6. PLANT ESTABLISHMENT

The Contractor will be required to provide plant establishment on all areas where seeds or mixtures containing seeds for permanent vegetation is specified, until final acceptance of the project.

Plant establishment will be required for a minimum period of 90 calendar days after completion of seeding or sod placement. In the event satisfactory growth and coverage as specified below has not been provided in the above specified minimum period of time, plant establishment shall be continued, and final inspection will not be made until such specified growth and coverage is provided.

The Contractor shall water the grassed areas during such periods and as frequently as appropriate to promote maximum practicable growth.

The Contractor shall mow grassed areas as many times and in such a manner as may be deemed necessary to control obnoxious vegetation which competes with or shades the desirable grass. Such mowing shall be performed in a manner that will not cause unnecessary damage to desirable vegetation.

Reseeding or resodding may be required at any time on areas or portions of such areas which for any cause are deemed to be unsatisfactory. Except as otherwise specified or permitted, areas deemed to require reseeding shall be prepared, seeded, and all other items of work performed in accordance with the requirements of the contract as if such reseeding was the initial seeding. However, the type of fertilizer and the application rate of fertilizer to be furnished and applied by the Contractor shall be determined by soil tests or as otherwise established.

It shall be the Contractor's responsibility to provide satisfactory growth and coverage of the kinds of grasses or legumes, or a combination of both, produced from seeding as specified.

Growth and coverage on areas seeded as specified shall be considered to be in reasonably close conformity with the intent of the contract when the type of vegetation specified exclusive of that from seeds not expected to have germinated and shown growth at the

time, has reached a point of maturity such that it has produced stems or runners which overlap adjacent similar growth in each direction over the entire area.

7. APPLICATION RATES The application rates shown in the following table are to be considered as minimum rates and the Contractor may use his discretion as to the use of any addition quantities keeping in mind that sufficient growth and establishment must be obtained.

MINIMUM APPLICATION RATES

Normal Conditions

Commercial Fertilizer (13:13:13)	1.0 tons per acre
Agricultural Limestone	2.0 tons per acre
Ammonium Nitrate (34:0:0)	500 lbs. per acre
Vegetative Mulch	2 tons per acre
Asphalt Emulsion for Mulch	100 gals. per ton Vegetative Mulch

Mixture No. 1

Bermudagrass Seed (Common)	45.0 lbs. per acre
White Clover Seed (Dutch)	20.0 lbs. per acre
Bahiagrass Seed (Pensacola, Wilmington)	30.0 lbs. per acre
Sericea Lespedeza	25.0 lbs. per acre

Mixture No. 2

Bermudagrass Seed (Common)	10 lbs. per acre
Bahiagrass (Pensacola, Wilmington)	30 lbs. per acre
Crimson Clover (Dixie, Chief, Tibbee, Autauga)	15 lbs. per acre
Fescue (Kentucky 31)	40 lbs. per acre

Temporary Control

Wheat Seed	180 lbs. per acre
Commercial Fertilizer (13:13:13)	0.5 ton per acre
Vegetative Mulch	2 tons per acre
Asphalt Emulsion for Mulch (if used)	100 gals. per ton Vegetative Mulch

8. BASIS OF PAYMENT Payment will be made at the contract unit price as follows. The pay items are:

- Agricultural Limestone - per ton
- Commercial Fertilizer - (13:13:13) - per ton
- Ammonium Nitrate - per lb
- Seeding - per acre
- Mulch-Vegetative Material - per ton
- Erosion Control Fabric - per square yard

Excelsior Blanket - per square yard
Solid Sodding - per square yard

These payments shall be full compensation for ground preparation, for furnishing, spreading and incorporating fertilizer for the type and amount specified, for furnishing, applying and anchoring mulch for furnishing and placing erosion control fabric and/or excelsior blanket, for furnishing, inoculating, planting the seed, for furnishing and placing the solid sod, for watering and maintaining the work until final acceptance of the contract, and for furnishing all materials, equipment, tools, labor and incidentals necessary to complete the work.

Ground preparation will not be measured for payment. Such construction shall be considered a necessary part of the work in completing the various planting or seeding items and is a responsibility to be assumed by the Contractor in connection with such respective pay items.

There will be no payment for Temporary Control items.

Anchoring of vegetative mulch, whether by use of a mulch stabilizer or by application of bituminous material, will not be measured by separate payment. The cost of anchoring shall be absorbed in the prices bid for other items of work.

GEOTEXTILE FABRIC

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. The scope of this work shall be the furnishing and placing of layers of Geotextile Fabric as set forth on the drawings and in the Contract Documents.
- B. The work associated with the Geotextile Fabric shall conform to the latest edition of the Mississippi Standard Specifications for Road and Bridge Construction, as issued by the Mississippi Department of Transportation.

PART 2: MATERIALS

2.01 GEOTEXTILE FABRIC

- A. The Geotextile Fabric shall conform to that of "Type V, Non-Woven" in **Table I-Geotextiles** of Section 714.13 of the aforementioned specifications.

PART 3: EXECUTION

3.01 INSTALLATION

- A. The Geotextile Fabric shall be installed according to the manufacturer's recommendations and Section 209 of the aforementioned specifications.

3.02 BASIS OF PAYMENT

- A. Geotextile Fabric will be paid for at the contract unit price per square yard

GROUT FOR STONE RIPRAP

1. SCOPE OF WORK The work shall consist of furnishing, transporting, and placing concrete grout in the construction of grouted stone riprap sections.

2. MATERIALS The proportions of the concrete grout shall have a minimum cement content of 6 bags per cubic yard and a maximum net water content of 10 gallons per bag. The fine and coarse aggregates shall be graded as follows:

Fine Aggregates

<u>Sieve</u>	<u>Percent Passing</u>
$\frac{3}{8}$ "	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10

Coarse Aggregate

<u>Sieve</u>	<u>Percent Passing</u>
$\frac{1}{2}$ "	100
$\frac{3}{8}$ "	85 to 100
No. 4	10 to 30
No. 8	0 to 10
No. 16	0 to 15

The proportions of the aggregates shall be such as to produce a concrete grout that will work readily into the voids between the stone riprap but will not aggregate or exude free water during placement. Prior to placement of the concrete grout, a job mix shall be furnished to the Engineer.

3. GENERAL The grout mix shall be delivered to the site and placed within 1 hour after the introduction of the cement to the aggregates. Concrete shall be conveyed from the mixer to the final placement as rapidly as practicable by methods that will prevent segregation of the aggregates or loss of mortar.

Grout mix shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation.

Rock to be grouted shall be kept wet for at least 2 hours prior to and wetted immediately prior to grouting.

Grout shall not be placed in flowing or standing water. On slopes, grout shall be placed starting at the toe and progressing to the top. The flow of the grout shall be directed with brooms, spades, or baffles to prevent it from flowing excessively along the same path and to assure that all intermittent spaces are filled. Sufficient barring shall be done to loosen tight pockets of rock and otherwise aid the penetration of grout so that all voids shall be filled and the grout fully penetrates the rock blanket. The grouted surface shall be protected from injurious action by the sun, rain, flowing water and the mechanical injury.

4. METHOD OF MEASUREMENT Grout for stone riprap will be measured by cubic yards. The amount will be determined by delivery quantity tickets. A copy of each delivery ticket shall be furnished to the Engineer.

5. BASIS OF PAYMENT This work shall be paid for at the contract unit price per cubic yard for concrete grout, complete in place and accepted, which price shall include all labor, materials, equipment and other items necessary and incidental to the furnishing, and placement of the concrete grout.

STONE RIPRAP

1. SCOPE

This item shall consist of the construction of a protective covering of stone riprap, along the slopes of embankments, around culvert inlets and outlets, around culvert headwalls, on slopes and bottom of ditches, or at other locations as indicated on the drawings or as directed, in accordance with these specifications and in conformity with the lines, grades and dimensions shown on the plans, or as established.

2. MATERIALS

Aggregate for stone riprap shall consist of rough, unhewn, dense amorphous quarry stone, resistant to the action of air and water. The stone shall be as nearly rectangular in section as practicable and shall be suitable in all other respects for the purpose intended. The material must be well graded with the smaller stones such that a homogeneous blanket of stone riprap will result with all interstices reasonably well filled with rock.

The Gradation of the Stone Riprap shall be as follows:

Percentage Larger Than
(By weight of the mass)

Stone Weight (lbs.)	300 Lb. Stone Riprap	200 Lb. Stone Riprap	100 Lb. Stone Riprap
300	0	--	--
200	--	0	--
100	--	--	0
60	80	--	--
40	--	80	--
20	90	--	80
10	--	90	--
5	--	--	90

Geotextile Fabric for use under the stone riprap shall conform to the physical requirements of Type "V" in Table 1 of Section 714.13.11 of the Mississippi Standard Specifications for State Aid Road and Bridge Construction, 2004 Edition.

3. GENERAL

Prior to the placement of the stone riprap, shape the slopes or ground surface to the lines and grades indicated on the plans or as directed and thoroughly compact the slopes. Unless otherwise stipulated,

GRANULAR MATERIALS

1. **SCOPE** This item shall consist of the provision of crushed stone, selected borrow material, and drainage backfill for incorporation into the work as specified elsewhere or directed.

The Contractor shall furnish certified test reports of the proposed materials and gradations prior to incorporation into the work.

2. **CRUSHED STONE** Crushed Stone shall consist of fragments of sound, durable limestone, free from disintegrated stone, salt, alkali, vegetable matter, or adherent coatings and other deleterious substances; and shall be reasonably free from thin or elongated pieces. The percentage of wear shall not exceed 50%.

The gradation of the crushed stone shall be as follows:

TYPE	FINE	MEDIUM	COARSE	CRUSHER RUN
Square Opening Sieves	Percent Passing, (by weight)			
3 inch	----	----	100	
2 inch	----	----	60-70	
1 ½ inch	----	----	----	100
1 ¼ inch	----	100	5-40	----
1 inch	----	90-100	0-10	90-100
¾ inch	100	20-60	----	----
½ inch	95-100	0-10	----	----
⅜ inch	45-90	----	----	45-85
No. 4	0-15	0-3	----	30-65
No. 16	0-3	----	----	----
No. 40	----	----	----	15-30
No. 200	----	----	----	4-15

3. **SELECT BORROW MATERIAL** Selected Borrow Material shall be a well graded mixture of sand and clay and shall contain sufficient binder material, natural or processed, to produce a uniform mixture complying with the requirements of these specifications. The materials shall be uniform and free of organic matter such as leaves, grass, roots, and other objectionable or foreign substances. The material shall have a plasticity index of not less than 4 and not more than 10, and have a liquid limit of not more than 35.

4. **DRAINAGE BACKFILL** Drainage Backfill shall consist of fragments of sound, durable limestone, free from disintegrated stone, salt, alkali, vegetable matter, or adherent coatings and other deleterious substances; and shall be

reasonably free from thin or elongated pieces. The percentage of wear shall not exceed 50%.

The Drainage Backfill shall conform to size no. 67 coarse aggregate as specified in Section S-703.03.2.4-Gradation of the "Mississippi Standard Specifications for State Aid Road and Bridge Construction", latest edition.

5. TESTS Sampling and testing shall be in accordance with the following standard methods of the AASHTO: Sampling, T-2; Sieve Analysis, T-27; Liquid Limit, T-89; Plasticity Index, T-90.

The loss by abrasion test shall be as specified under AASHTO Test T-96.

6. SOURCE OF SUPPLY Obtain approval of sources of supply of all materials prior to delivery of any material. Submit samples of each as directed.

7. BASIS OF PAYMENT GRANULAR MATERIALS is a reference specification. Payment will be made as set out in each item specification.

GRANULAR MATERIALS BASE

1. SCOPE This work shall consist of constructing a dense graded granular material base on a prepared subgrade in accordance with the requirements of these specifications and in reasonably close conformity with the lines, grades and thicknesses, shown on the plans or established by the Engineer.

2. MATERIALS Granular Materials (Crushed Limestone) shall conform to Crusher Run Crushed Limestone as specified in the "Granular Materials" specifications.

3. EQUIPMENT Hauling equipment shall be vehicles deemed adequate by the contractor to perform the specified work.

Compaction equipment capable of obtaining the specified requirements shall be utilized by the contractor.

Sprinkling equipment shall consist of tank trucks, pressure distributors or other approved equipment designed to apply a uniform amount of water and controlled quantities to variable widths.

4. SUBGRADE PREPARATION The top portion of the subgrade, both cut and fill sections, shall be shaped correctly and brought to a firm, unyielding layer. The top 6 inches shall be compacted to at least 95% Standard Proctor Method density at optimum moisture content.

Rolling and compaction of the entire area shall be done with equipment which will attain maximum results. Sheepsfoot, rubber-tired, or flat rollers shall be used as, in the opinion of the Engineers, conditions require. Any portion of the area which is not accessible to a roller shall be compacted to the required density by other approved means.

Any irregularities or depressions that develop under rolling shall be corrected by loosening the material at those places and adding, removing, or replacing material until the surface is smooth and uniform. All soft and yielding material which will not compact readily when rolled or tamped shall be removed as directed by the Engineers and replaced with suitable material.

During all compaction operations, the water content of the material shall be constantly adjusted, if necessary, by sprinkling or loosening and subsequent evaporating to within 2% by weight of the optimum moisture content.

At all times the top of the subgrade shall be kept in such condition that it will drain readily and effectively. The Contractor shall protect the subgrade from damage, and in no case

will vehicles be allowed to travel in a single track. If ruts are formed, the subgrade shall be reshaped and rolled.

The top of the subgrade shall be of such smoothness that when tested, it shall not show any deviation in excess of ½ inch nor shall it be more than 0.05 foot from the true established grade.

Where material is encountered that will not permit satisfactory compaction for subgrade, excavation, disposal and replacement for this material will be required and will be considered as incidental to subgrade preparation. No extra pay will be allowed for this item.

5. CONSTRUCTION

Spreading, Compacting and Finishing Granular material base course shall be constructed in layers not to exceed 6 inches in compacted thickness. The first layer shall be constructed upon an approved underlying course. In constructing any required subsequent layer of the stone base the previously laid layer(s) shall have been constructed in accordance with these specifications and shall have been maintained free of all ruts or irregularities and loose material and at the proper moisture content.

Spreading, shaping and compacting of the granular material shall be performed during daylight hours only.

To facilitate the bond between layers of the granular material base, subsequent layer(s) shall be placed upon previously placed layers as soon as practicable.

The contractor shall avoid cutting into the underlying completed course or layer at any time, and by any method. He shall be responsible for maintaining the proper moisture content in the material including the vertical faces of half width spreads of construction.

After each layer of the stone is placed and the rolling nears completion, the course and the adjoining one shall be rolled together with special effort being exercised at the point where the joint occurs.

Compacting shall begin promptly after satisfactory spreading of the material and while moisture content is at optimum.

The density of the completed portions of each layer of the base course shall be 95% Standard Proctor density.

When completed the base course layers shall be smooth, hard, dense, unyielding, and well bonded. It shall be the Contractor's responsibility to:

- (a) Maintain optimum moisture content by reducing or accelerating loss of moisture.

- (b) Make adjustments as necessary to meet thickness, line, grade, and density requirements.
- (c) Minimize segregation or degradation of aggregates.
- (d) Remove from the site and for the full layer depth any materials found to be unsatisfactory and replace with satisfactory material.
- (e) Avoid cleavage lines in the base.
- (f) Insure a completed base course meeting all requirements of these specifications.

Limitation

No granular material shall be placed upon an underlying course or layer when such course or layer is frozen, rutted or otherwise deformed, nor when it is not to the required grade and cross section and does not have the proper moisture content and required density.

No granular material shall be placed when the atmospheric temperature is below 35 degrees F. or when the latest weather bulletin indicates the probability of freezing temperatures within 12 hours in the area in which the project is located.

No granular material shall be placed when over 10 percent of the granular material placed in the previous day's operation fails to meet specified requirements for surface finish or density until the Contractor has made such adjustments or changes in equipment, operating procedure, and methods as are necessary to assure the securing or required results.

Water will not be measured for separate payment.

6. METHOD OF MEASUREMENT

When in the opinion of the Engineers the Granular Material (Crushed Limestone) is completed in accordance with the plans and specifications, the quantity for payment will be measured by the following method. The total area of placement of the Granular Material as shown on the plans or as directed by the Engineer will be measured along neat lines and multiplied by the depth required to be placed in that area. The resultant volume in cubic yards (with no shrinkage allowed) will be the quantity for payment.

7. BASIS OF PAYMENT

The completed and accepted granular material base course, will be paid for at the contract unit price bid per Cu.Yd., which price shall be full compensation for furnishing stone aggregates and water for freight and unloading; for all proportioning, mixing, loading, hauling, spreading, watering, compacting, curing, protecting and maintaining; for replacing defective areas, if required; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made:

Granular Material (Crushed Limestone) per Cu. Yd.

CONCRETE PAVEMENT

1. DESCRIPTION This item shall consist of a pavement composed of portland cement concrete, with or without reinforcement, as specified, constructed on a prepared subgrade or subbase course in accordance with these specifications and shall conform to the thicknesses, typical cross sections, lines and grades as shown on the plans.

2. MATERIALS Portland Cement, aggregates, admixtures, water, metal reinforcement, expansion joint filler, shall all conform to the requirements set forth in the "Concrete and Reinforcing" specification.

Joint Sealer Joint Sealer shall be premolded joint filler or a plastic material. The type joint sealer used must be approved by the Engineer.

Dowel and Tie Bars: Dowel and tie bars shall conform to the requirements of AASHTO M 31 or AASHTO M 42, except that rail steel shall not be used for tie bars that are to be bent or re-straightened during construction. Tie bars shall be deformed bars meeting the requirements of AASHTO M 137. Dowel bars shall be plain round bars of the size specified and shall be free from burring or other deformation restricting slippage in the concrete. Before delivery to the construction site, on-half of the length of each dowel bar shall be painted with one coat of lead or tar paint.

The sleeves for dowel bars shall be metal of an approved design to cover 2 to 3 inches of the dowel, with a closed end, and with a suitable stop to hold the end of the bar at least 1 inch from the closed end of the sleeve. Sleeves shall be of such design that they will not collapse during construction.

3. EQUIPMENT Equipment for batching, mixing, transporting, and depositing shall be as specified in the "Concrete and Reinforcing" specification.

Concrete Saw: When sawing joints is elected or specified, the Contractor shall provide sawing equipment adequate in number of pits and power to complete the sawing to the required dimensions and at the required rate. The Contractor shall provide at least one standby saw in good working order. An ample supply of saw blades shall be maintained at the site of the work at all times during sawing operations. The Contractor shall provide adequate artificial lighting facilities for night sawing. All of this equipment shall be on the job both before and at all times during concrete placement.

4. PROPORTIONS Proportioning shall be designed for specified flexural strength with a minimum cement content.

- (a) Mix Based on Specified Flexural Strength: Prior to the start of paving operations and after approval of all material to be used in the concrete, the Contractor shall submit the proportions of the material to be used to produce the specified flexural strength. Flexural strength shall be not less than 650 pounds per square inch at 28 days using test specimens prepared in accordance with AASHTO T 23 and tested in accordance with AASHTO T 97.

The Flexural strength of the concrete shall meet the following requirements:

- (1) The average of any 5 consecutive strength tests, tested at the end of 28 days, shall have an average flexural strength equal to or greater than the specified flexural strength; (2) Not more than 20% of the beams tested at the end of 28 days shall have a flexural strength less than the specified strength. Specimens which are obviously defective shall not be considered in the determination of the strength.

The cement content shall be not less than 6.0 sacks per cubic yard, nor shall the water-cement ratio (including free surface moisture on the aggregates) be more than 5.5 gallons per sack of cement.

5. PLACING CONCRETE

The placement of the concrete shall be as set forth in the "Concrete and Reinforcing" specifications, except as amended here.

The concrete shall be deposited on the thoroughly moistened grade in such a manner as to require as little rehandling as possible. Unless truck mixers, truck agitators, or nonagitating hauling equipment are equipped with means for discharge of concrete without segregation of the materials, the concrete shall be unloaded into an approved spreading device and mechanically spread on the grade in such a manner as to prevent segregation of the materials. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done with shovels, not rakes. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

When concrete is to be placed adjoining a previously constructed land of pavement and when mechanical equipment will be operated upon the existing lane of pavement, the concrete shall be at least 10 days old and approval shall be obtained from the Engineer.

Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all joint assemblies by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than 15 seconds in any one location.

Concrete shall be deposited as near to expansion and contraction joints as possible without disturbing them but shall not be dumped from the discharge bucket or hopper onto a joint assembly unless the hopper is well centered on the joint assembly.

Should any concrete materials fall on or be worked into the surface of a completed slab, they shall be removed immediately by approved methods.

6. JOINTS

(a) General:

- (1) longitudinal and transverse joints shall be constructed as indicated on the plans and in accordance with these requirements. All joints shall be constructed true to line with their faces perpendicular to the surface of the pavement. Joints shall not vary more than 1/4 inch from a true line of from their designated position. The vertical surface of the pavement adjacent to all expansion joints shall be finished to a true plane and edged to a radius of 1/4 inch, or as shown on the plans. The surface across the joints shall be tested with a 10-foot straightedge as the joints are finished and any irregularities in excess of 1/8 inch shall be corrected before the concrete has hardened. When required, keyways shall be accurately formed with template of metal or wood. The gauge or thickness of the material in the template shall be such that the full keyway, as specified, is formed and is in the correct location. Transverse joints shall be at right angles to the centerline of the pavement and shall extend the full width of the slab. The transverse joints in succeeding lanes shall be placed in line with similar joints in the first lane. In the case of widening existing pavements, transverse joints shall be placed in line with similar joints in the existing pavements. All joints shall be so prepared, finished, or cut to provide a groove of sufficient width and depth to receive and effectively retain joint-sealing material.
- (2) Tie bars installed principally in longitudinal joints or as shown on the plans shall consist of deformed bars of 5/8 inch diameter and 30 inches long, or as designated on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals of 30 inches, unless otherwise specified. They shall be held in position parallel to the pavement surface and midway between the surfaces of the slab. When tie bars extend into an unpaved lane, they may be bent at right angles against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. These bars shall not be painted, greased, or enclosed in sleeves.

- (3) Dowel bars or other load-transfer units of an approved type shall be placed across transverse or other joints in the manner as specified on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel expansion cap or sleeve shall be furnished for each dowel bar used with expansion joints when shown on the plans. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the plans. The portion of each dowel painted with rust preventative paint, shall be thoroughly coated with asphalt MC-70, or an approved lubricant, to prevent the concrete from binding to that portion of the dowel. An approved metal dowel cap or sleeve shall be furnished for each dowel bar used in expansion joints. The caps or sleeves shall fit the dowel bar tightly and the closed end shall be water-tight.

(b) Installation:

The materials and joint position shall be either at right angles or parallel to the centerline of the pavement, except for fillets or irregular sections. The top of an assembled joint device shall be set at proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means during the pouring and finishing of the concrete. The premolded joint material shall be placed and held in a vertical position; if constructed in sections, there shall be no offsets between adjacent units. Dowel bars shall be checked for exact position and alignment as soon as the joint device is staked in place and the device shall be tested to determine whether it is firmly supported. Any joint installation not firmly and securely supported shall be reset.

When joints in concrete pavements are sawed, the equipment used shall be as described.

The circular cutter shall be capable of cutting a groove in a straight line; the circular cutter shall produce a slot of at least 1/8 inch wide. When shown on the plans or required by the specifications, the top portion of the slot or groove shall be widened by means of a second shallower cut or by suitable and approved beveling to provide adequate space for joint sealers. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing. Sawing shall be carried on both during the day and night as required. The

joints shall be sawed at the required spacing consecutively in sequence of the concrete placement, unless otherwise approved by the Engineer.

Expansion joints shall be a premolded type conforming to these specifications and with the plans and shall be the full width of the pavement strip.

All concrete shall be cleaned from the top of the joint material. Before the pavement is opened to traffic this space shall be swept clean and filled with approved joint sealing material.

The filler shall be placed on the side of the installing plate nearest the mixer. The top edge of the filler shall be protected by a metal channel cap of at least 10-gauge material. The installing device may be designed with this cap self-contained.

All devices used for the installation of expansion joints shall be approved by the Engineer. They shall be easily removable without disturbing the concrete and held in proper transverse and vertical alignment. Immediately after forms are removed, any concrete bridging the joint space at the ends shall be removed for the full width and depth of the joint.

When specified, expansion joints shall be equipped with dowels of the dimensions and at the spacing and location indicated on the plans. The dowels shall be firmly supported in place and accurately aligned parallel to the subgrade and the centerline of the pavement by means of a dowel assembly which will remain in the pavement and will insure that the dowels are not displaced during construction.

7. CONCRETE FINISHING The surface of the pavement shall be finished with either a broom finish, a belt finish, or a drag finish.

(1) Broom Finish: If the surface texture is to be a broom finish, it shall be applied when the water sheen has practically disappeared. The broom shall be drawn from the center to the edge of the pavement with adjacent strokes slightly overlapping. The brooming operation shall be so executed that the corrugations produced in the surface shall be uniform in appearance and not more than 1/16 inch in depth. Brooming shall be completed before the concrete is in such condition that the surface will be torn or unduly roughened by the operation. The surface thus finished shall be free from rough and porous areas, irregularities, and depressions resulting from improper handling of the broom. Brooms shall be of the quality, size, and construction and shall be operated to produce a surface finish meeting the approval of the Engineer. Subject to the approval of the Engineer, the Contractor may be permitted to substitute mechanical brooming in lieu of the manual brooming as herein described.

- (2) **Belt Finish:** If the surface texture is to be a belt finish, when straightedging is completed and water sheen has practically disappeared and just before the concrete becomes nonplastic, the surface shall be belted with a 2-ply canvas belt not less than 8 inches wide and at least 3 feet longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the centerline and with a rapid advance parallel to the centerline.
- (3) **Drag Finish:** If the surface texture is to be a drag finish, a drag shall be used; it shall consist of a seamless strip of damp burlap or cotton fabric, and it shall produce a uniform surface of gritty texture after dragging it longitudinally along the full width of pavement. For pavement 16 feet or more in width, the drag shall be mounted on a bridge which travels on the forms. The dimensions of the drag shall be such that a strip of burlap or fabric at least 3 feet wide is in contact with the full width of pavement surface while the drag is used. The drag shall consist of not less than two layers of burlap with the bottom layer approximately 6 inches wider than the upper layer. The drag shall be maintained in such condition that the resultant surface is of uniform appearance and reasonably free from grooves over 1/16 inch in depth. Drags shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags substituted.

Edging at Forms and Joints: After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side or each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints shall be worked with an approved tool and rounded to a 1/4 inch radius unless otherwise directed. A well-defined and continuous radius shall be produced and a smooth, dense, mortar finish obtained. The surface of the slab shall not be unduly disturbed by tilting of the tool during use.

At all joints, any tool marks appearing on the slab adjacent to the joints shall be eliminated by brooming the surface. In doing this, the rounding of the edge shall not be disturbed. All concrete on top of the joint filler shall be completely removed.

Curing: Immediately after the finishing operations have been completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured in accordance with one of the following methods. In all cases in which curing requires the use of water, the curing shall have prior right to all water supply or supplies. Failure to provide sufficient cover material of whatever kind the contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate

suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour between stages of curing or during the curing period.

(a) Cotton or Burlap Mats: The surface of the pavement shall be entirely covered with mats. The mats used shall be of such length (or width) that, as laid, they will extend at least twice the thickness of the pavement beyond the edges of the slab. The mat shall be placed so that the entire surface and both edges of the slab are completely covered. The mats shall be so placed and weighted to remain in intimate contact with the surface covered, and the covering shall be fully wetted and in position for 72 hours after the concrete has been placed, unless otherwise specified.

(b) Impervious Membrane Method: The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place; if the pavement is cured initially with jute or cotton mats, it may be applied upon removal of the mats. The curing compound shall not be applied during rainfall.

Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon to not more than 150 square feet. The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by effective mechanical means. Hand spraying of off widths or shapes and concrete surfaces exposed by the removal of forms will not be permitted. Curing compound shall not be applied to the inside faces of joints to be sealed.

The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause within the required curing period, the damaged portion shall be repaired immediately with additional compound.

Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

(c) Curing in Cold Weather: When the average daily temperature is below 50 degrees F., curing shall consist of covering the newly laid pavement with not less than 12 inches of loose, dry hay or straw placed on a layer of poly-ethylene, or equivalent protective curing authorized by the Engineer, which shall be retained in place for 10 days.

Protection of Pavement: The Contractor shall protect the pavement and its appurtenances against both public traffic and that caused by his own employees and agents. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, or crossovers, etc. Any

damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense.

Opening to Traffic: The Engineer shall decide when the pavement shall be opened to traffic. The pavement shall not be opened to traffic for at least 14 days after the concrete has been placed. Prior to opening, the pavement shall be cleaned.

8. METHOD OF MEASUREMENT Unless modifications, which are approved by the Engineer, are made, the yardage to be paid for shall be the number of square yards of pavement as specified, plan quantity, in place, completed and accepted. If modifications approved by the Engineer are made, the yardage to be paid for shall be field measured.

9. BASIS OF PAYMENT Concrete Pavement will be paid for at the contract unit price bid, per square yard, field measure, for the completed and accepted concrete pavement. This payment shall be full compensation for all materials, equipment, labor, and all items of work required under this specification.

MINOR STRUCTURES

1. SCOPE This item shall consist of concrete structures, concrete toe walls, concrete headwalls, concrete storm water inlets, concrete junction boxes, concrete pipe collars, concrete wings and aprons, etc., constructed in accordance with these specifications, and at the locations and in conformity with the plans. This work shall include the connection to all drainage lines entering or leaving the structures. Grates and Grate Frames shall be furnished as shown on the plans.

Pre-cast inlets and boxes will not be allowed.

2. CONSTRUCTION The Contractor shall perform all excavation required for concrete structures to the required line and grade. Concrete structures shall be constructed as shown on the drawings. Concrete and reinforcements shall be as specified under the section "Concrete and Reinforcing". Inverts shall be finished to drain. Inlet and outlet pipes shall be set flush with the wall in a neat watertight connection. Grates and grate frames shall be furnished as shown on the plans or as specified.

The material for backfill around all structures shall conform to the Selected Borrow Material specified in the "Granular Materials" section of these specifications. This material shall be placed as specified in the Site Earthwork specification. There will be no separate payment for furnishing and placing this material. The cost for this work shall be included in the contract unit price bid for Minor Structure Concrete.

3. METHOD OF MEASUREMENT Minor Structure Concrete will be measured by the Cubic Yard, calculated using the dimensions shown on the plans. The quantity shown on the bid form will be the quantity paid for. If modifications, approved by the Engineer, are made in the field, the structure shall be field measured and the quantity will be adjusted. Steel reinforcement will not be measured for payment. Backfill material will not be measured for separate payment.

4. BASIS OF PAYMENT Minor Structure Concrete will be paid for at the contract unit price bid per cubic yard.

Steel Reinforcement will not be paid for separately. Payment for the steel reinforcement shall be included in the cost for the minor structure concrete.

Grates and Grate Frames will be paid for separately at the contract unit price bid per pound.

Backfill material will not be paid for separately.

These payments shall be full compensation for all items of labor, materials, and equipment in connection with the excavation, construction, and backfill for concrete minor structures.

GABION STRUCTURES

1. SCOPE This work consist of constructing gabion structures as indicated on the plans or directed by the Engineer, in accordance with these specifications and in conformity with the lines, grades, and dimension shown on the plans.

2. MATERIALS Materials shall conform to the following Subsections:

Backfill Material The backfill material shall conform to the selected borrow material as specified in the "Granular Materials" specification.

Gabion Material

Basket Mesh Twist or weld the mesh from galvanized steel wire conforming to ASTM A 631, class 3 or aluminized steel wire conforming to ASTM A 809. Use wire with a minimum tensile strength of 60,000 pounds per square inch when tested according to AASHTO T 244. The galvanized or aluminized coating may be applied after mesh fabrication. Make the mesh openings with a maximum dimension less than 4 ½ inches, an area less than 10 square inches, and a size less than the gabion or revet mattress rock to be used with the mesh.

- (1) Gabion baskets (1 foot or greater in the vertical dimension). Fabricate the mesh for galvanized or aluminized coated baskets from nominal-sized 0.12-inch or greater diameter wire and fabricate the mesh for polyvinyl chloride coated baskets from nominal-sized 0.11-inch or greater diameter wire.
 - a. Twisted wire mesh. Form the mesh in a uniform hexagonal pattern with nonraveling double twists. For galvanized or aluminized coated baskets tie the perimeter edges of the mesh for each panel to a 0.15-inch or greater diameter selvedge wire. For polyvinyl chloride coated baskets, tie the perimeter edges of the mesh for each panel to a 0.13-inch or greater diameter selvedge wire. Make the selvedge at least the same strength as the body of the mesh. Furnish selvedge wire from the same type of material used for the wire mesh.
 - b. Welded wire mesh. For galvanized or aluminized coated baskets, weld each connection to obtain a minimum average weld shear strength of 585 pounds with no value less than 450 pounds. For polyvinyl chloride coated baskets, weld each connection to obtain a minimum average weld shear strength of 472 pounds with no value less than 350 pounds.

Fabricate gabion baskets in the dimensions required with a dimension tolerance of ± 5 percent. Where the length of the basket exceeds 1.5 times its width, equally divide the basket into cells less than or equal to the basket width using diaphragms of the same type and size mesh as the basket panels. Prefabricate each basket with the necessary panels and diaphragms secured so they rotate into place.

(2) Polyvinyl chloride coated baskets Use either a fusion bonded or extruded coating to coat the galvanized or aluminized mesh. Conform to the following:

(a) Color	Black or gray
(b) Thickness	0.125 inch min.
(c) Specific gravity, ASTM D792	1.20 to 1.40
(d) Tensile strength, ASTM D638	2,000 pounds per square inch min.
(e) Modulus of elasticity, ASTM D638	2,000 pounds per square inch min. at 100 strain
(f) Hardness—shore "A", ASTM D2240	75 min.
(g) Brittleness temperature, ASTM D746	16°F max.
(h) Abrasion resistance, ASTM D1242 method B at 200 cycles, CSI-A abrader tape, 80 grit	12% max. mass loss
(i) Salt spray (ASTM B117) and ultraviolet light exposure (ASTM d1499 & G23 using apparatus type E & 145°F) for 3000 hours	No visual effect (c) $\Delta < 6\%$ (d) $\Delta < 25\%$ (e) $\Delta < 25\%$ (h) $\Delta < 10\%$
(j) Mandrel bend, 360° ben at 0°F around a mandrel 10 times the wire diameter	No breaks or cracks in coating

Permanent Fasteners.

- (1) Lacing wire. Furnish nominal-sized 0.086-inch diameter wire of the same type, strength, and coating as the basket mesh.
- (2) Spiral binders. From with wire having at least the same diameter, type, strength and coating as the basket mesh.

Alternate Fasteners.

Furnish fasteners according to the basket manufacturer's specification that remain closed when subjected to a 585-pound tensile force while confining the maximum number of wires to be confined in the gabion structure or revert mattress. Submit installation procedures and fasteners test results.

Gabion Rock

Furnish hard, durable rock that is resistant to weathering and reasonably free of organic and spoil material. Conform to the following:

- (a) Coarse durability index, AASHTO T210 52 min.
- (b) Unit mass of a filled basket 100 pounds per cubic foot min.
- (c) Gradation:
 - (1) Baskets 1 foot or greater in the vertical dimensions.
 - (a) Maximum dimension 8 inches
 - (b) Minimum dimension 4 inches
 - (2) Baskets less than 1 foot in the vertical dimension.
 - (a) Maximum dimension 6 inches
 - (b) Minimum dimension 3 inches

Geotextile Fabric

Geotextile Fabric for use with Gabion structures shall conform to the requirements of Type V in Table 1 of Section 714.13 of the "Mississippi Standard Specifications for State Aid Road and Bridge Construction", latest edition.

Drainage Backfill

The drainage backfill material shall conform to the drainage backfill as specified in the "Granular Materials" specification.

3. CONSTRUCTION

Basket Assembly

Do not damage wire coatings during basket assembly, structure erection, cell filling, or backfilling. Rotate the basket panels into position and join the vertical edges with fasteners according to the plans and specifications. Temporary fasteners may be used for basket assembly if they are supplemented during structure erection with permanent fasteners according to structural erection subsection.

Rotate the diaphragms into position and join the vertical edges according to structure erection subsection.

Structure Erection

Place the empty gabion baskets on foundation and interconnect the adjacent baskets along the top and vertical edges using permanent fasteners.

Where lacing wire is used, wrap the wire with alternating single and double loops every other mesh opening and not more than 6 inches apart. Where spiral binders are used, crimp the ends to secure the binders in place. Where alternate fasteners are used, space the fasteners in every mesh opening and not more than 6 inches apart.

In the same manner, interconnect each vertical layer of baskets to the underlying layer of baskets along the front, back and sides. Stagger the vertical joints between baskets of adjacent rows and layers by at least one cell length.

Cell Filling

Removal all kinks and folds in the wire mesh, and properly align all the baskets. Place rock carefully in the basket cells to prevent bulging of the baskets and to minimize voids in the rock fill. Maintain the basket alignment.

Place internal connecting wires in each unrestrained exterior basket cell greater than 1 foot in height. This includes interior basket cells left temporarily unrestrained. Place internal connecting wires concurrently with rock placement.

Fill the cells in any row or layer so that no cell is filled more than 1 foot above an adjacent cell. Repeat this process until the basket is full and the lid bears on the final rock layer.

Secure the lid to the sides, ends, and diaphragms according to structure erection subsection. Make all exposed basket surfaces smooth and neat with no sharp rock edges projecting through the wire mesh.

Backfilling

Place a geotextile over the back face of the gabion structure. Concurrently with cell filling operation, backfill the area behind the gabion structure with drainage backfill and selected borrow material placed as specified in the Site Earthwork specification and as shown on the plans. Compact each layer according to Site Earthwork specification, except use an acceptable lightweight mechanical or vibratory compactor within 3 feet of the gabion structure.

4. METHOD OF MEASUREMENT

The gabions will be measured using the actual dimensions of the gabion baskets installed.

5. BASIS OF PAYMENT

Gabions will be paid for at the contract unit price bid per cubic foot, for the actual volume of Gabions installed, which price shall be full compensation for furnishing and installing the Gabion baskets, for furnishing and installing the rock fill in the Gabion baskets, and for all equipment, materials, and labor for a complete and finished installation of the Gabion walls.

There will be no separate payment for Geotextile Fabric behind Gabion walls.

Refer to the "Site Earthwork" specification for the selected borrow material and the drainage backfill.

All other items of work required will be absorbed.