MDOT Use Only
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Keyed _____

01 -

SM No. CNH0008030291

PROPOSAL AND CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

01
Reconstruction of US 49 from Florence to the Scale Area, known as Federal Aid Project No. NH-0008-03(029) / 102046301 in Rankin County.

Project Completion: Contractor Determined

(PROJECT OF DIVISION INTEREST)

NOTICE

BIDDERS MUST PURCHASE A BID PROPOSAL FROM MDOT CONTRACT ADMINISTRATION DIVISION TO BID THIS PROJECT.

Electronic addendum updates will be posted on www.gomdot.com

SECTION 900

OF THE CURRENT 2017 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

JACKSON, MISSISSIPPI

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
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(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET
OF SECTION 905 AS ADDENDA)

06/28/2017 11:27 AM

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 901 - ADVERTISEMENT

Electronic bids will be received by the Mississippi Transportation Commission at 10:00 o'clock A.M., Tuesday, August 22, 2017, from the Bid Express Service and shortly thereafter publicly read on the Sixth Floor for:

Reconstruction of US 49 from Florence to the Scale Area, known as Federal Aid Project No. NH-0008-03(029) / 102046301 in Rankin County.

The attention of bidders is directed to the Contract Provisions governing selection and employment of labor. Minimum wage rates have been predetermined by the Secretary of Labor and are subject to Public Law 87-581, Work Hours Act of 1962, as set forth in the Contract Provisions.

The Mississippi Department of Transportation hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, sex, age, disability, religion or national origin in consideration for an award.

The award of this contract will be contingent upon the Contractor satisfying the DBE requirements.

Bid proposals must be purchased online at <https://shopmdot.ms.gov>. Specimen proposals may be viewed and downloaded online at no cost at <http://mdot.ms.gov> or purchased online. Proposals are available at a cost of Ten Dollars ($10.00) per proposal plus a small convenience fee. Cash or checks will not be accepted as payment.

Plans must be purchased online at <https://shopmdot.ms.gov>. Costs of plans will be on a per sheet basis plus a small convenience fee. If you have any questions, you can contact the MDOT Plans Print Shop at (601) 359-7460, or e-mail at plans@mdot.state.ms.us. Plans will be shipped upon receipt of payment. Cash or checks will not be accepted as payment.

Bid bond, signed or countersigned by a Mississippi Agent or Qualified Nonresident Agent, with Power of Attorney attached, a Cashier's check or Certified Check for five (5%) percent of bid, payable to STATE OF MISSISSIPPI, must accompany each proposal.

The attention of bidders is directed to the provisions of Subsection 102.07 pertaining to irregular proposals and rejection of bids.

MELINDA L. MCGRATH
EXECUTIVE DIRECTOR

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: Governing Specifications

The current (2017) Edition of the Standard Specifications for Road and Bridge Construction adopted by the Mississippi Transportation Commission is made a part hereof fully and completely as if it were attached hereto, except where superseded by special provisions, or amended by revisions of the Specifications contained within this proposal. Copies of the specification book may be purchased from the MDOT Construction Division, or online at shopmdot/default.aspx?StoreIndex=1.

A reference in any contract document to controlling requirements in another portion of the contract documents shall be understood to apply equally to any revision or amendment thereof included in the contract.

In the event the plans or proposal contain references to the 2004 Edition of the Standard Specifications for Road and Bridge Construction, it is to be understood that such references shall mean the comparable provisions of the 2017 Edition of the Standard Specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: Status of Right-of-Way

Although it is desirable to have acquired all rights-of-way and completed all railroad agreements, utility adjustments and work to be performed by others prior to receiving bids, sometimes it is not considered to be in the public interest to wait until each and every such clearance has been obtained. The bidder is hereby advised of possible unacquired rights-of-way, relocates, railroad agreements and utilities adjustments which have not been completed.

The status of right-of-way acquisition, utility adjustments, encroachments, potentially contaminated sites, railroad facilities, improvements, and asbestos contamination are set forth in the following attachments.

In the event right of entry is not available to ALL parcels of right-of-way and/or all work that is to be accomplished by others on the date set forth in the contract for the Notice to Proceed is not complete, the Department will issue a restricted Notice to Proceed.

STATUS OF RIGHT-OF-WAY
NH-0008-03(029)
102046-301000, 301100, & 301200
Rankin County
May 22, 2017

All rights of way and legal rights of entry have been acquired, **except**:

The areas listed by station numbers below will be restricted until June 30, 2017.
(See attached utility certification.)

613+00 LT
614+25 LT
797+00 LT
883+00
575+25

ASBESTOS CONTAMINATION STATUS OF BUILDINGS
TO BE REMOVED BY THE CONTRACTOR
NH-0008-03(029)
102046-301000, 301100,301200
Rankin County
May 15, 2017

Reference is made to notices to bidders entitled "Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)" and "Removal of Obstructions".

The following pertinent information is furnished concerning asbestos containing materials (ACMs), if any, found in buildings to be removed by the Contractor.

There are no buildings in the contract to be removed.

STATUS OF POTENTIALLY CONTAMINATED SITES
NH-0008-03(029)
102046-301000, 301100, 301200
Rankin County
May 15, 2017

This project has been inspected and there was no visible indication of potentially contaminated sites within the proposed right of way.

ASBESTOS CONTAMINATION STATUS OF BUILDINGS
TO BE REMOVED BY THE CONTRACTOR
NH-0008-03(029)
102046-201000
Rankin County
May 15, 2017

Reference is made to notices to bidders entitled "Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)" and "Removal of Obstructions".

The following pertinent information is furnished concerning asbestos containing materials (ACMs), if any, found in buildings to be removed by the Contractor.

There are no buildings in the contract to be removed.

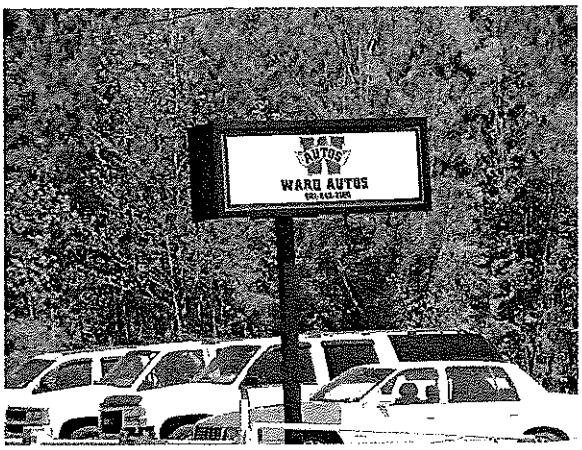
STATUS OF POTENTIALLY CONTAMINATED SITES
NH-0008-03(029)
102046-201000
Rankin County
May 15, 2017

This project has been inspected and there was no visible indication of potentially contaminated sites within the proposed right of way.

Improvements to be included in Notice to Bidders to be removed by the Construction Contractor
FMS Construction Project No: 102046-301000, 301100, 301200
FMS ROW Project No: 102046-201000
External ROW No: NH-0008-03(029)

Parcel No: 031-04-00-W
Station No: 85' L 634+30
Property Owner: O'Reilly Automotive Inc.
Description/Pictures: Metal sign

Parcel No: 036-02-00-W
Station No: 40' R 643+00
Property Owner: James B. Bailey Properties, LLC
Description/Pictures: Metal sign



ASBESTOS CONTAMINATION STATUS OF BUILDINGS
TO BE REMOVED BY THE CONTRACTOR
NH-0008-03(029)
102046-202000
Rankin County
May 15, 2017

Reference is made to notices to bidders entitled "Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)" and "Removal of Obstructions".

The following pertinent information is furnished concerning asbestos containing materials (ACMs), if any, found in buildings to be removed by the Contractor.

There are no buildings in the contract to be removed.

STATUS OF POTENTIALLY CONTAMINATED SITES
NH-0008-03(029)
102046-202000
Rankin County
May 15, 2017

This project has been inspected and there was no visible indication of potentially contaminated sites within the proposed right of way.

Improvements to be included in Notice to Bidders to be removed by the Construction Contractor
FMS Construction Project No: 102046-301000, 301100, 301200
FMS ROW Project No: 102046-202000
External ROW No: NH-0008-03(029)

Parcel No: 050-04-00-W
Station No: 120' L 753+15
Property Owner: Ray & Diane Jones Properties, LLC
Description/Pictures: Wooden sign

Parcel No: 068-07-00-W
Station No: 115' L 793+00
Property Owner: Tar- Kar. Inc.
Description/Pictures: Metal flag pole

ASBESTOS CONTAMINATION STATUS OF BUILDINGS
TO BE REMOVED BY THE CONTRACTOR
NH-0008-03(029)
102046-203000
Rankin County
May 15, 2017

Reference is made to notices to bidders entitled "Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP)" and "Removal of Obstructions".

The following pertinent information is furnished concerning asbestos containing materials (ACMs), if any, found in buildings to be removed by the Contractor.

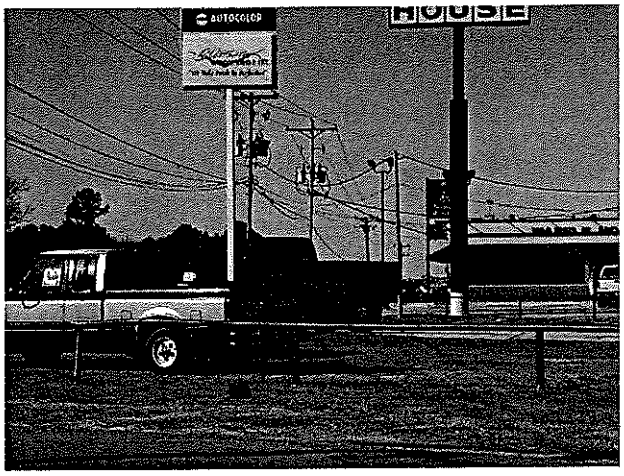
There are no buildings in the contract to be removed.

STATUS OF POTENTIALLY CONTAMINATED SITES
NH-0008-03(029)
102046-203000
Rankin County
May 15, 2017

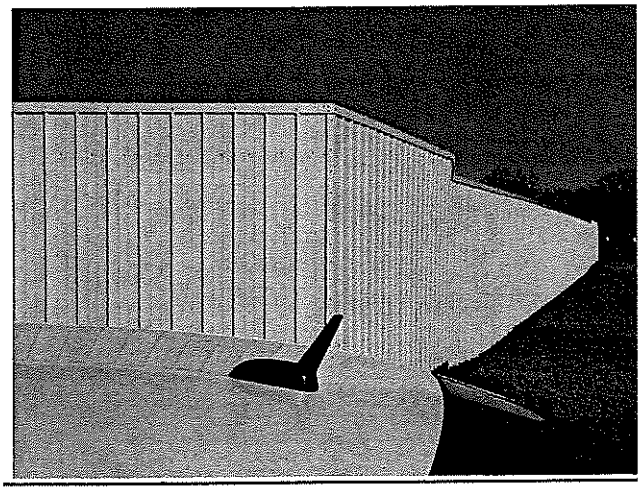
This project has been inspected and there was no visible indication of potentially contaminated sites within the proposed right of way.

Improvements to be included in Notice to Bidders to be removed by the Construction Contractor
FMS Construction Project No: 102046-301000, 301100, 301200
FMS ROW Project No: 102046-203000
External ROW No: NH-0008-03(029)

Parcel No: 077-00-00-W
Station No: 80' R 897+20
Property Owner: JCM Properties
Description/Pictures: Pipe fencing



Parcel No: 077-00-00-W
Station No: 200' R 896+80
Property Owner: JCM Properties
Description/Pictures: Metal fencing



Dick Hall
Central District Commissioner
Brian D. Ratliff
District 5 Engineer

P. O. Box 90
Newton, MS 39345-0090
Telephone (601) 683-3341
FAX (601) 683-7030

MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Melinda L. McGrath
Executive Director

James A. Williams, III
Deputy Executive Director/Chief Engineer

Lisa M. Hancock
Deputy Executive Director/Administration

GoMDOT.com

To: Anne Russell
ROW Division

Date: May 12, 2017

From: Mitchell Young
Resident Engineer

Subject of Project No: NH-0008-03(029)
102046/301000,
102046/301100,
102046/301200

Information Copy To: Kent Reeves (District 5)
John Murray (District 5)
Hogan and Glenn (Construction)
Project File

County: Rankin

Please be advised, I certify that the above captioned project was inspected on May 12, 2017, and no visible encroachments were found.

If more information is needed, please advise.

ROW STATUS REPORT OF AFFECTED RAILROAD FACILITIES

PROJECT EXTERNAL NUMBER: NH-0008-03(029)
PROJECT FMS NUMBER: 102046/301000, 301100, 301200
TERMINI: US 49 from Florence to Scale Area
COUNTY: Rankin

DATE: May 18, 2017

The railroad agreement has been secured on the affected railroad facilities on the above referenced project.

Dick Hall
Central District Commissioner
Brian D. Ratliff
District 5 Engineer

P. O. Box 90
Newton, MS 39345-0090
Telephone (601) 683-3341
FAX (601) 683-7030

MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Melinda L. McGrath
Executive Director

James A. Williams, III
Deputy Executive Director/Chief Engineer

Lisa M. Hancock
Deputy Executive Director/Administration

GoMDOT.com

May 11, 2017

MEMORANDUM

TO: RIGHT OF WAY DIVISION
Ms. Ann Russell

FROM: CONSTRUCTION ASSISTANT
Lisa Horton

RE: US 49 from Florence to Scale Area
NH-0008-03(029) 102046/301000
Rankin County

US 49 from Florence to Scale Area (RR Surface)
NH-0008-03(029) 102046/301100
Rankin County

US 49 from Florence to Scale Area (RR Signals and Gates)
NH-0008-03(029) 102046/301200
Rankin County

UTILITY STATUS

To the best of my knowledge, all utilities have relocated their facilities with the exception of the following:

Entergy has poles to be removed at station numbers 613+00 LT, 614+25 LT, and 797+00 LT, estimated completion date is May 30, 2017.

Atmos at station number 883+00, estimated completion date is June 15, 2017.

City of Florence Sewer: Pump Station Relocation is waiting on Entergy for power and demolition of existing pump station at station number 575+25, estimated completion date is June 1, 2017.

LH: lh

PC: Mr. Michael Hogan, Construction Division
Mr. Dale Greer, ROW Division
Mr. Trudi Loflin, ROW Division
Mr. Kent Reeves, Asst. Dist. Const. Engineer- Preconstruction
District File

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Final Clean-Up

Immediately prior to final inspection for release of maintenance, the Contractor shall pick up, load, transport and properly dispose of all litter from the entire highway right-of-way that is within the termini of the project.

Litter shall include, but not be limited to, solid wastes such a glass, paper products, tires, wood products, metal, synthetic materials and other miscellaneous debris.

Litter removal is considered incidental to other items of work and will not be measured for separate payment.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 6 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Storm Water Discharge Associated with Construction Activity (≥ 5 Acres)

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

A Construction Storm Water General NPDES Permit to discharge storm water associated with construction activity is required.

The Department has acquired Certificate of Permit Coverage MSR-107428 under the Mississippi Department of Environmental Quality's (MDEQ) Storm Water Large Construction General Permit. Projects issued a certificate of permit coverage are granted permission to discharge treated storm water associated with construction activity into State waters. Copies of said permit, completed Large Construction Notice of Intent (LCNOI), and Storm Water Pollution Prevention Plan (SWPPP) are on file with the Department.

Prior to the execution of the contract, the successful bidder shall execute and deliver to the Executive Director an original signed copy of the completed Prime Contractor Certification Forms.

Failure of the bidder to execute and file the completed Prime Contractor Certification Forms shall be just cause for the cancellation of the award.

The executed Prime Contractor Certification Forms shall be prima facie evidence that the bidder has examined the permit, is satisfied as to the terms and conditions contained therein, and that the bidder has the primary responsibility for meeting all permit terms including, but not limited to, the inspection and reporting requirements. For this project, the Contractor shall furnish, set up and read, as needed, an on-site rain gauge.

The Contractor shall make inspections in accordance with condition No. S-5, page 23, and shall furnish the Project Engineer with the results of each weekly inspection as soon as possible following the date of inspection. A copy of the inspection form is provided with the packet. The weekly inspections must be documented monthly on the Inspection and Certification Form. The Contractor's representative and the Project Engineer shall jointly review and discuss the results of the inspections so that corrective action can be taken. The Project Engineer shall retain copies of the inspection reports.

The Engineer will have the authority to suspend all work and/or withhold payments for failure of the Contractor to carry out provisions of MDEQ's Storm Water Construction General Permit, the erosion control plan, updates to the erosion control plan, and /or proper maintenance of the BMPs.

Upon successful completion of all permanent erosion and sediment controls, accepted and documented by the full maintenance release, the Construction Division shall submit a completed Request for Termination (RFT) of Coverage to the Office of Pollution Control.

Securing a permit (s) for storm water discharge associated with the Contractor's activity on any other regulated area the Contractor occupies, shall be the responsibility of the Contractor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO NOTICE TO BIDDERS NO. 7

DATE: 01/17/2017

The goal is 10 percent for the Disadvantaged Business Enterprise. The low bidder is required to submit Form OCR-481 for all DBEs. Bidders are advised to check the bid tabulation link for this project on the MDOT website at:

http://sp.gomdot.com/Contract%20Administration/BidSystems/Pages/letting%20calendar.aspx

Bid tabulations are usually posted by 3:00 pm on Letting Day.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 7 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: Disadvantaged Business Enterprises In Federal-Aid Highway Construction

This contract is subject to the "Moving Ahead for Progress in the 21st Century Act (MAP-21)" and applicable requirements of "Part 26, Title 49, Code of Federal Regulations". Portions of the Act are set forth in this Notice as applicable to compliance by the Contractor and all of the Act, and the MDOT DBE Program, is incorporated by reference herein.

The Department has developed a Disadvantaged Business Enterprise Program that is applicable to this contract and is made a part thereof by reference.

Copies of the program may be obtained from:

Office of Civil Rights
Mississippi Department of Transportation
P. O. Box 1850
Jackson, Mississippi 39215-1850

POLICY

It is the policy of the Mississippi Department of Transportation to provide a level playing field, to foster equal opportunity in all federally assisted contracts, to improve the flexibility of the DBE Program, to reduce the burdens on small businesses, and to achieve that amount of participation that would be obtained in a non-discriminatory market place. In doing so, it is the policy of MDOT that there will be no discrimination in the award and performance of federally assisted contracts on the basis of race, color, sex, age, religion, national origin, or any handicap.

ASSURANCES THAT CONTRACTORS MUST TAKE

MDOT will require that each contract which MDOT signs with a sub-recipient or a Contractor, and each subcontract the Prime Contractor signs with a Subcontractor, includes the following assurances:

"The Contractor, sub-recipient or Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of federally assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as MDOT deems appropriate."

DEFINITIONS

For purposes of this provision the following definitions will apply:

"Disadvantaged Business" means a small business concern: (a) which is at least 51 percent owned by one or more socially and economically disadvantaged individual(s) or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more socially and economically disadvantaged individual(s); and (b) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individual(s) who own it. It is important to note that the business owners themselves must control the operations of the business. Absentee ownership or title ownership by an individual who does not take an active role in controlling the business is not consistent with eligibility as a DBE under CFR 49 Part 26.71.

CONTRACTOR'S OBLIGATION

The Contractor and all Subcontractors shall take all necessary and reasonable steps to ensure that DBE firms can compete for and participate in the performance of a portion of the work in this contract and shall not discriminate on the basis of race, color, national origin, religion or sex. Failure on the part of the Contractor to carry out the DBE requirements of this contract constitutes a breach of contract and after proper notification the Department may terminate the contract or take other appropriate action as determined by the Department.

When a contract requires a zero percent (0%) DBE goal, the Contractor still has the responsibility to take all necessary and reasonable steps to ensure that DBE firms can compete for and participate in the performance of the work in the contract. In this case, all work performed by a certified DBE firm is considered to be a "race neutral" measure and the Department will receive DBE credit towards the overall State goals when the DBE firm is paid for their work. If the Prime Contractor is a certified DBE firm, the Department can receive DBE credit only for the work performed by the Prime Contractor's work force or any work subcontracted to another DBE firm. Work performance by a non-DBE Subcontractor is not eligible for DBE credit.

CONTRACT GOAL

The goal for participation by DBEs is established for this contract in the attached Supplement. The Contractor shall exercise all necessary and reasonable steps to ensure that participation is equal to or exceeds the contract goal.

If the percentage of the contract that is proposed for DBEs is 1% or greater, the Contractor shall agree to meet or exceed the contract goal on the last bid sheet of the proposal.

The apparent lowest responsive bidder shall submit to the Office of Civil Rights Form OCR-481, signed by the Prime Contractor and the DBE Subcontractors, no later than the 3rd business day after opening of the bids.

Form OCR-481 is available on the MDOT website at GoMDOT.com, then Divisions, Civil Rights, Forms, DBE, MDOT Projects, or by calling 601-359-7466.

The OCR-481 Form must contain the following information:

The name and address of each certified DBE Contractor / Supplier;

The Reference Number, percent of work and the dollar amount of each item. If a portion of an item is subcontracted, a breakdown of that item including quantities and unit price must be attached, detailing what part of the item the DBE firm is to perform and who will perform the remainder of the item.

If the DBE Commitment shown on the last bid sheet of the proposal, does not equal or exceed the contract goal, the bidder must submit, to MDOT Contract Administration Division prior to bid opening, information to satisfy the Department that adequate good faith efforts have been made to meet the contract goal.

Failure of the lowest bidder to furnish acceptable proof of good faith efforts, submitted to MDOT Contract Administration Division prior to bid opening, shall be just cause for rejection of the proposal. Award may then be made to the next lowest responsive bidder or the work may be re-advertised.

The following factors are illustrative of matters the Department will consider in judging whether or not the bidder has made adequate good faith effort to satisfy the contract goal.

(1) Whether the bidder attended the pre-bid meeting that was scheduled by the Department to inform DBEs of subcontracting opportunities;

(2) Whether the bidder advertised in general circulation, trade association, and minority-focus media concerning the subcontracting opportunities;

(3) Whether the bidder provided written notice to a reasonable number of specific DBEs that their interest in the contract is being solicited;

(4) Whether the bidder followed up initial solicitations of interest by contacting DBEs to determine with certainty whether they were interested;

(5) Whether the bidder selected portions of the work to be performed by DBEs in order to increase the likelihood of meeting the contract goal;

(6) Whether the bidder provided interested DBEs with adequate information about the plans, specifications and requirements of the contract;

(7) Whether the bidder negotiated in good faith with interested DBEs and did not reject them as unqualified without sound reasons based on a thorough investigation of their capabilities; and

(8) Whether the bidder made efforts to assist interested DBEs in obtaining any required bonding or insurance.

(9) Whether the bidder has written notification to certified DBE Contractors soliciting subcontracting for items of work in the contract.

(10) Whether the bidder has a statement of why an agreement was not reached.

The bidder's execution of the signature portion of the proposal shall constitute execution of the following assurance:

> The bidder hereby gives assurance pursuant to the applicable requirements of "Moving Ahead for Progress in the 21st Century Act (MAP-21)" and applicable requirements of "Part 26, Title 49, Code of Federal Regulations" that the bidder has made a good faith effort to meet the contract goal for DBE participation for which this proposal is submitted.

DIRECTORY

A list of "Certified DBE Contractors" which have been certified as such by the Mississippi Department of Transportation and other Unified Certification Partners (UPC) can be found on the Mississippi Department of Transportation website at www.gomdot.com. The list is in the top left corner of the current Letting Calendar under Contracts & Letting. The DBE firm must be certified at the time the project is let and approved by MDOT to count towards meeting the DBE goal.

REPLACEMENT

If a DBE Subcontractor cannot perform satisfactorily, and this causes the OCR-481 commitment to fall below the contract goal, the Contractor shall take all necessary reasonable steps to replace the DBE with another certified DBE Subcontractor or submit information to satisfy the Mississippi Department of Transportation that adequate good faith efforts have been made to replace the DBE. The replacement DBE must be a DBE who was on the Department's list of "Certified DBE Contractors" when the job was let, and who is still active. All DBE replacements must be approved by the Department.

Under no circumstances shall the Prime or any Subcontractor perform the DBE's work (as shown on the OCR-481) without prior written approval from the Department. See "Sanctions" at the end of this document for penalties for performing DBE's work.

When a Contractor proposes to substitute/replace/terminate a DBE that was originally named on the OCR-481, the Contractor must obtain a release, in writing, from the named DBE explaining why the DBE Subcontractor cannot perform the work. A copy of the original DBE's release must be attached to the Contractor's written request to substitute/replace/terminate along with appropriate Subcontract Forms for the substitute/replacement/terminated Subcontractor, all of which must be submitted to the DBE Coordinator and approved, in advance, by MDOT.

GOOD FAITH EFFORTS

To demonstrate good faith efforts to replace any DBE that is unable to perform successfully, the Contractor must document steps taken to subcontract with another certified DBE Contractor. Such documentation shall include no less than the following:

(1) Proof of written notification to certified DBE Contractors by certified mail that their interest is solicited in subcontracting the work defaulted by the previous DBE or in subcontracting other items of work in the contract.

(2) If the Prime Contractor is a certified DBE firm, only the value of the work actually performed by the DBE Prime can be counted towards the project goal, along with any work subcontracted to a certified DBE firm.

(3) If the Contractor is not a DBE, the work subcontracted to a certified DBE Contractor will be counted toward the goal.

(4) The Contractor may count toward the goal a portion of the total dollar value of a contract with a joint venture eligible under the standards of this provision equal to the percentage of the DBE partner in the joint venture.

(5) Expenditures to DBEs that perform a commercially useful function may be counted toward the goal. A business is considered to perform a commercially useful function when it is responsible for the execution of a distinct element of the work and carries out its responsibilities by actually performing, managing, and supervising the work involved.

(6) The Contractor may count 100% of the expenditures for materials and supplies obtained from certified DBE suppliers and manufacturers that produce goods from raw materials or substantially alters them for resale provided the suppliers and manufacturers assume the actual and contractual responsibility for the provision of the materials and supplies. The Contractor may count sixty percent (60%) of the expenditures to suppliers that are not manufacturers, provided the supplier performs a commercially useful function in the supply process. Within 30 days after receipt of the materials, the Contractor shall furnish to the DBE Coordinator invoices from the certified supplier to verify the DBE goal.

(7) Any work that a certified DBE firm subcontracts or sub-subcontracts to a non-DBE firm will not count towards the DBE goal.

(8) Only the dollars actually paid to the DBE firm may be counted towards the DBE goal.

Failure of the Contractor to demonstrate good faith efforts to replace a DBE Subcontractor that cannot perform as intended with another DBE Subcontractor, when required, shall be a breach of contract and may be just cause to be disqualified from further bidding for a period of up to 12 months after notification by certified mail.

PRE-BID MEETING

A pre-bid meeting will be held in Amphitheater 1 & 2 of the Hilton Jackson located at I-55 and County Line Road, Jackson, Mississippi at 2:00 P.M. on the day preceding the date of the bid opening.

This meeting is to inform DBE firms of subcontracting and material supply opportunities. Attendance at this meeting is considered of prime importance in demonstrating good faith effort to meet the contract goal.

PARTICIPATION / DBE CREDIT

Participation shall be counted toward meeting the goal in this contract as follows:

(1) If the Prime Contractor is a certified DBE firm, only the value of the work actually performed by the DBE Prime can be counted towards the project goal, along with any work subcontracted to a certified DBE firm.

(2) If the Contractor is not a DBE, the work subcontracted to a certified DBE Contractor will be counted toward the goal.

(3) The Contractor may count toward the goal a portion of the total dollar value of a contract with a joint venture eligible under the standards of this provision equal to the percentage of the DBE partner in the joint venture.

(4) Expenditures to DBEs that perform a commercially useful function may be counted toward the goal. A business is considered to perform a commercially useful function when it is responsible for the execution of a distinct element of the work and carries out its responsibilities by actually performing, managing, and supervising the work involved.

(5) The Contractor may count 100% of the expenditures for materials and supplies obtained from certified DBE suppliers and manufacturers that produce goods from raw materials or substantially alters them for resale provided the suppliers and manufacturers assume the actual and contractual responsibility for the provision of the materials and supplies. The Contractor may count sixty percent (60%) of the expenditures to suppliers that are not manufacturers, provided the supplier performs a commercially useful function in the supply process. Within 30 days after receipt of the materials, the Contractor shall furnish to the DBE Coordinator invoices from the certified supplier to verify the DBE goal.

(6) Any work that a certified DBE firm subcontracts or sub-subcontracts to a non-DBE firm will not count towards the DBE goal.

(7) Only the dollars actually paid to the DBE firm may be counted towards the DBE goal. The participation of a DBE Firm cannot be counted towards the Prime Contractor's DBE goal until the amount being counted towards the goal has been paid to the DBE.

AWARD

Award of this contract to the low bidder will be contingent upon the following conditions:

(1) Concurrence from Federal Highway Administration, when applicable.

(2) Bidder must submit to the Office of Civil Rights for approval, Form OCR-481 (DBE Commitment) no later than the 3rd business day after opening of the bids to satisfy the Department and that adequate good faith efforts have been made to meet the contract goal. For answers to questions regarding Form OCR-481, contact the MDOT Office of Civil Rights at (601) 359-7466.

(3) Bidder must include OCR-485 information with their bid proposal listing all firms that submitted quotes for material supplies or items to be subcontracted. OCR-485 information

must be included with the bid proposal. If the OCR-485 information is not included as part of bid proposal, your bid will be deemed irregular.

Prior to the start of any work, the bidder must notify the Project Engineer, in writing, of the name of the designated "DBE Liaison Officer" for this project. This notification must be posted on the bulletin board at the project site.

DEFAULT

If the contract goal established by MDOT in this proposal is 1% or greater, it must be met to fulfill the terms of the contract. The Contractor may list DBE Subcontractors and items that exceed MDOT's contract goal, but should unforeseen problems arise that would prevent a DBE from completing its total commitment percentage, the Contractor will meet the terms of the contract as long as it meets or exceeds MDOT's Contract Goal. For additional information, refer to "Replacement" section of this Notice.

DBE REPORTS

(1) OCR-481: Refer to "CONTRACT GOAL" section of this Notice to Bidders for information regarding this form.

(2) OCR-482: OCR-482: At the conclusion of the project, before the final estimate is paid and the project is closed out, the Prime Contractor will submit to the Project Engineer for verification of quantities and further handling Form OCR-482 whereby the Contractor certifies to the amounts of payments made to all Contractors / Suppliers over the life of the contract. The Project Engineer shall submit the completed Form OCR-482 to the DBE Coordinator (Office of Civil Rights). Final acceptance of the project is dependent upon Contract Administration Division's receipt of completed Form OCR-482 which they will receive from the Office of Civil Rights.

(3) OCR-483: The Project Engineer/Inspector will complete Form OCR-483, the Commercially Useful Function (CUF) Performance Report, in accordance with MDOT S.O.P. No. OCR-03-09-01-483. Evaluations reported on this form are used to determine whether or not the DBE firm is performing a CUF. The Prime Contractor should take corrective action when the report contains any negative evaluations. DBE credit may be disallowed and/or other sanctions imposed if it is determined the DBE firm is not performing a CUF. This form should also be completed and returned to the DBE Coordinator (Office of Civil Rights).

(4) OCR-484: Each month, the Prime Contractor will submit to the Project Engineer OCR-484 that certifies payments to all Subcontractors and shows all firms even if the Prime Contractor has paid no monies to the firm during that estimate period (negative report). The Project Engineer will attach the form to the monthly estimate before forwarding to the Contract Administration Division for further processing. Failure of the Contractor to submit the OCR-484 will result in the estimate not being processed and paid.

(5) OCR-485: ALL BIDDERS must submit signed form with bid proposal of all firms that submitted quotes for material supplies or items to be subcontracted. If the OCR-485 information is not included as part of bid proposal, the bid will be deemed irregular.

(6) OCR-487: Only used by Prime Contractors that are certified DBE firms. This form is used in determining the exact percentage of DBE credit for the specified project. It should be returned to MDOT with the OCR-481 form, or can also be returned with the Permission to Subcontract Forms (CAD-720, CAD-725 and CAD-521).

DBE Forms, can be obtained from the Office of Civil Rights Division, MDOT Administration Building, 401 North West Street, Jackson, MS, or at www.gomdot.com under Divisions, Civil Rights, and Forms.

SANCTIONS

The Department has the option to enforce any of the following penalties for failure of the Prime Contractor to fulfill the DBE goal as stated on the OCR-481 form or any violations of the DBE program guidelines:

(1) Disallow credit towards the DBE goal

(2) Withhold progress estimate payments

(3) Deduct from the final estimate or recover an amount equal to the unmet portion of the DBE goal which may include additional monetary penalties as outlined below based on the number of offenses and the severity of the violation as determined by MDOT.

1st Offense	10% of unmet portion of goal	or	$5,000 lump sum payment	or	Both
2nd Offense	20% of unmet portion of goal	or	$10,000 lump sum payment	or	Both
3rd Offense	40% of unmet portion of goal	or	$20,000 lump sum payment	or	$20,000 lump sum payment and debarment

(4) Debar the Contractor involved from bidding on MDOT federally funded projects.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 9 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: Federal Bridge Formula

Bidders are hereby advised that the latest revision of Federal Highway Administration Publication No. FHWA-HOP-06-105, **BRIDGE FORMULA WEIGHTS**, dated August 2006, is made a part of this contract when applicable.

Prior to the preconstruction conference, the Contractor shall advise the Engineer, in writing, what materials, if any, will be delivered to the jobsite via Interstate route(s).

Copies of the **BRIDGE FORMULA WEIGHTS** publication may be obtained by contacting:

Federal Highway Administration
400 7th Street, SW
Washington, DC 20590
(202) 366-2212

or

http://www.ops.fhwa.dot.gov/Freight/publications/brdg_frm_wghts/bridge_formula_all_rev.pdf

An on line **BRIDGE FORMULA WEIGHTS CALCULATOR** is available at

http://ops.fhwa.dot.gov/freight/sw/brdgcalc/calc_page.htm

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 10 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: DUNS Requirement for Federal Funded Projects

Bidders are advised that the Prime Contractor must maintain current registrations in the System for Award Management (http://www.sam.gov) at all times during this project. A Dun and Bradstreet Data Universal Numbering System (DUNS) Number (http://www.dnb.com) is one of the requirements for registration in the System for Award Management.

Bidders are also advised that prior to the award of this contract, they MUST be registered in the System for Award Management.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 11 **CODE: (SP)**

DATE: 6/9/2017

SUBJECT: Additional Erosion Control Requirements

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised of the following requirements that relate to erosion control activities on the Project:

Bidders are hereby advised that the requirement to maintain a maximum of 19 acres of exposed surface area of erodible material as established in Section 107.22 of the 2017 Mississippi Standard Specifications for Road and Bridge Construction shall not apply to this project.

Clearing and Grubbing: Prior to beginning any clearing and grubbing operations on the project, controls shall be in place to address areas such as drainage structures, wetlands, streams, steep slopes and any other sensitive areas as directed by the Engineer. Clearing and grubbing should be limited to the minimum area necessary to construct the project. Grubbing operations should be minimized in areas outside the construction limits and stumps should be cut off flush with the existing ground elevations. A buffer area of at least fifteen (15) feet shall be in place adjacent to the right-of-way line and at least five (5) feet adjacent to stream banks. The buffer area can either be the existing vegetation that is left undisturbed or re-established by planting new vegetation if clearing and grubbing was required.

Unclassified Excavation: Cut sections shall be graded in accordance with the typical sections and plan grades. Permanent erosion control BMP's should be placed as soon as possible after the cut material has been moved. Fill sections that are completed shall have permanent erosion control BMP's placed. Fill sections that are not completed will be either permanently or temporarily grassed until additional material is made available to complete these sections. The contractor may have to stockpile unclassified excavation. No additional compensation will be made for stockpiling operations.

Disturbed areas that remain inactive for a period of more than fourteen (14) days shall be temporary grassed and mulched. Temporary grassing and mulching shall only be paid one time for a given area.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 12 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: MASH Compliant Devices

Bidders are hereby advised that the Standard Specifications may require certain traffic control and permanent safety hardware devices to meet the requirements of the Manual for Assessing Safety Hardware (MASH). However, devices meeting the requirements of NCHRP Report 350 will be allowed until the mandatory effective date for MASH compliance. The following table shows the effective dates for MASH compliant devices.

Device	Effective Date for MASH Compliance
W-beam barriers, cast-in-place concrete barriers	December 31, 2017
W-beam terminals	June 30, 2018
Cable barriers, cable barrier terminals, crash cushions	December 31, 2018
Bridge rails, transitions, all other longitudinal barriers including portable barriers installed permanently, all other terminals, sign supports, all other breakaway hardware	December 31, 2019

Temporary work zone devices, including portable barriers manufactured after December 31, 2019, must have been successfully tested to the 2016 Edition of MASH. Such devices manufactured on or before this date and successfully tested to NCHRP Report 350 or the 2009 Edition of MASH may continue to be used throughout their normal service lives.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 14 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Railway-Highway Provisions

Prior to bidding, the Contractor shall contact the Railroad concerning insurance coverage required for this project. In case the railroad requires coverage over and above that required by the Standard Specifications, the railroad requirements shall be met.

The name insured, description of the work and designation of the job site to be shown on the Policy are as follows:

Notice of starting to work, completion of any required forms, and correspondence pertaining to railroad liability insurance shall be directed to the person below.

The Contractor shall not commence, or carry on, any work for installation, maintenance, repair, changing or renewal of any FACILITY, under, over or on RAILROAD property at any location without giving at least ten (10) working days prior notice to the RAILROAD authorized representative at the RAILROAD's office(s) below.

If in the opinion of the RAILROAD, the presence of an authorized representative of the RAILROAD is required to supervise the same, the RAILROAD shall render bills to the Contractor for all expenses incurred by it for such supervision. This includes all labor costs for flagmen or cable locate supplied by the RAILROAD to protect RAILROAD operation, and for the full cost of furnishing, installation and later removal of any temporary supports for said tracks, as the RAILROAD's Chief Engineer's Office may deem necessary.

It will be the Contractor's responsibility to pay all bills associated with railroad flagging and cable locating. Generally, the flagging rate is $700.00 per day (1 to 8 hours) plus overtime at $125.00 per hour, however, the Contractor shall contact the RAILROAD to verify all rates.

A flagman is required anytime a Contractor does any work on or near RAILROAD property within twenty-five (25) feet horizontally of the centerline or any work over any railroad track. The RAILROAD, however, also reserves the right to require a flagman for work on RAILROAD property, which is more than twenty-five (25) feet from the centerline of a railroad track when there are other conditions or considerations that would dictate the need for a flagman to safeguard the RAILROAD's operations, property and safety of working personnel.

A cable locate of RAILROAD owned facilities may be required to identify and protect Signal & Communication cables that have been installed to provide power, signal control, wayside communications. These cables are vital to a safe and reliable railway operation. The cable locate will be performed by a qualified RAILROAD employee.

Outside Contractors are prohibited from driving on, along, or across any track that does not have a RAILROAD installed crossing. They may utilize an existing public crossing. The practice of allowing rubber tired equipment to operate over track with no crossing has been banned.

Exceptions to this rule will require the express approval from the RAILROAD Engineers.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 15 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Non-Use of Precast Drainage Units

Bidders are hereby advised that the use of precast inlets and junction boxes will **NOT** be allowed on this project. Subsection 601.02.3 states that "the Contractor may request approval from the Engineer to furnish and install precast units in lieu of cast-in-place units". Should the Contractor make this request, the request will be denied.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 17 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Illinois Central Railroad Construction Requirements

Bidders are hereby advised that provisions which are required as per the Notice to Bidders entitled "Railway-Highway Provisions" shall also include the following.

The Contractor shall submit to the Project Engineer and the Railroad detailed plans and design data for temporary construction clearances, stages of construction, erection plans, demolition plans, false-work plans, excavation plans, and temporary shoring plans and calculations, as required, and shall be sealed by a Mississippi Registered Professional Engineer. All submittals must be approved by the Railroad before excavation or construction can begin within Railroad Right-of-Way. All construction submittals for work performed within the Illinois Central Railroad (ICRR) right-of-way shall be made per the current ICRR design guidelines.

Prior to beginning any work on the ICRR right-of-way, the Contractor shall obtain a Right of Entry License Agreement and submit a Request for Flagging Services. To request said documents, the Contractor should contact John Dinning. Mr. Dinning's contact information is as follows.

John W. Dinning
Manager Engineering Services
Canadian National/Illinois Central Railroad
P.O. Box 2600
Jackson, MS 39207

The Contractor shall be responsible for payment of all application fees.

This project will require construction activities on the right-of-way of active railroad tracks which are currently owned and/or operated by ICRR. When work requires that equipment or personnel be within the ICRR right-of-way or the "foul zone" adjacent to the right-of-way, a qualified "Employee-in-Charge" (EIC) must be present for the purpose of providing on-track safety and flagging protection for the work crews. The EIC shall also be responsible for the coordination of the Contractor's activities within the ICRR right-of-way with the operation of the Railroad. The EIC must be approved by the local ICRR Roadmaster prior to beginning work on the ICRR right-of-way. The Contractor will be required to provide radios for the EIC, all equipment operators, supervisors, and foremen in charge of employees working within the ICRR right-of-way. All personnel who must enter upon the ICRR right-of-way must check in and out with the EIC and be logged in and out of the site.

All personnel who must work within the ICRR right-of-way at any time shall be trained and certified as a ICRR "Roadway Worker" and must at all times have their certification card

with them and available for random inspection. The Contractor will be responsible for providing this training for Contractor employees or any subcontractor(s) employees. The Contractor shall contact www.contractororientation.com for approximate fees and scheduling the necessary training sessions. The Contractor shall also contact the MDOT Project Engineer to see if any MDOT employees need this training. If so, the Contractor shall include the MDOT employees in the list of participates for training. The Contractor shall bear the cost of training the MDOT employees. Costs for training the MDOT employees will be reimbursed to the Contractor by supplemental agreement.

Prior to commencing work, the Contractor shall provide to the Railroad Engineer, or the Railroad Engineer's designated representative, a detailed construction schedule for its work on Railroad's right-of-way, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to be performed on Railroad right-of-way. This schedule shall also include the anticipated dates when the milestone events listed below will occur. The Contractor shall update the schedule for these milestone events as necessary, but at least monthly, and shall provide a copy of all updates to the Railroad so that site visits may be scheduled.

- Preconstruction meetings.
- Excavations, shoring placement/removal, pile driving, drilling of caissons or drilled shafts adjacent to tracks.
- Reinforcement and concrete placement for near track piers.
- Erection of precast concrete or steel overpass bridge superstructure.
- Reinforcement and concrete placement of overpass bridge decks.
- Completion of the bridge structure.

The Contractor shall so arrange and conduct construction operations in such a manner that there will be no interference with Railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad or to poles, cables or wires (whether overhead or underground) and other facilities or tenants on the rights-of-way of the Railroad. Before undertaking any work within Railroad right-of-way and before placing any obstruction over any track, the Contractor shall:

- Notify the Railroad's representative at least 72 hours in advance of the work.
- Provide assurance to the Railroad's representative that arrangements have been made for any required flagging service.
- Receive permission from the Railroad Engineer to proceed with the work.
- Ascertain that the Project Engineer has received copies of notice to the Railroad and the Railroad's response.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 113 **CODE: (SP)**

DATE: 04/18/2017

SUBJECT: Tack Coat

Bidders are advised that in addition to the products listed on the Department's APL as referenced in Subsection 401.03.1.2 on page 256, the Contractor may use one of the following as a tack coat.

- CSS-1
- CSS-1h
- SS-1
- SS-1h

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 114 **CODE: (SP)**

DATE: 04/18/2017

SUBJECT: Right-of-Way Plat

Bidders are advised that pay item 617-A, Right-of-Way Marker not only addresses the requirements for furnishing and placing right-of-way markers but also includes the preparation and submittal of a ROW Plat by a Licensed Professional Surveyor. Since the submittal of the plat is considered a part of the pay item and the pay item is not complete until the plat is received, contract time will not be suspended while waiting on the Contractor to submit the plat.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904- NOTICE TO BIDDERS NO. 156 **CODE: (SP)**

DATE: 5/26/2017

SUBJECT: Contract Time

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

The date for completion of the work to be performed under this contract will not be a predetermined date but will be the date calculated by adding the number of days specified by the Contractor on the Expedite Bid Sheets to the effective date of the Notice to Proceed / Beginning of Contract Time. This date will be known as the Specified Completion Date, which date or extended date as provided in the contract shall be the end of contract time.

It is anticipated that the Notice of Award will be issued no later than **September 12, 2017** and the effective date of the Notice to Proceed / Beginning of Contract Time will be **November 13, 2017**. An early Notice to Proceed **will not** be allowed for this project.

The Contractor will be allowed to work 24 hours a day / 7 days a week on this project with the exception that no work will be allowed by the Contractor on the following days other than work necessary for maintenance of traffic.

- **The Wednesday before Thanksgiving Day through the following Sunday**
- **December 24th through January 1st and any adjacent days that fall on a weekend**

All work must adhere to the lane closure restrictions provided in the contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 157

DATE: 5/25/2017

SUBJECT: Specialty Items

PROJECT: NH-0008-03(029)/102046301 - RANKIN

Pursuant to the provisions of Section 108, the following work items are hereby designated as "Specialty Items" for this contract. Bidders are reminded that these items must be subcontracted in order to be considered as specialty items.

CATEGORY: CURBING, SIDEWALKS, GUTTERS

Line No	Pay Item	Description
1530	609-B002	Concrete Curb, Header
1540	609-D004	Combination Concrete Curb and Gutter Type 2 Modified
1550	609-D012	Combination Concrete Curb and Gutter Type 3A Modified

CATEGORY: DISPOSAL OF BUILDINGS, RIGHT OF WAY CLEA

Line No	Pay Item	Description
0260	202-B240	Removal of Traffic Stripe

CATEGORY: EROSION CONTROL

Line No	Pay Item	Description
0360	213-C001	Superphosphate
0370	216-A001	Solid Sodding
0380	217-A001	Ditch Liner
0390	219-A001	Watering
0400	220-A001	Insect Pest Control
0410	221-A001	Concrete Paved Ditch
0420	223-A001	Mowing
0430	225-A001	Grassing
0440	225-B001	Agricultural Limestone
0450	225-C001	Mulch, Vegetative Mulch
0460	226-A001	Temporary Grassing
0470	234-A001	Temporary Silt Fence
0480	234-C001	Super Silt Fence
0490	234-D001	Inlet Siltation Guard
0500	234-E001	Reset Inlet Siltation Guard
0510	234-F001	Turbidity Barrier
0530	239-A001	Temporary Slope Drains
0540	245-A001	Silt Dike
0550	246-A001	Sandbags
0560	246-B001	Rockbags
0570	247-A001	Temporary Stream Diversion
0580	249-A001	Riprap for Erosion Control

CATEGORY: EROSION CONTROL

Line No	Pay Item	Description
0590	249-B001	Remove and Reset Riprap
3020	907-250-A001	Polyacrylamide (PAM)

CATEGORY: GUARDRAIL, GUIDERAIL

Line No	Pay Item	Description
1460	606-B001	Guard Rail, Class A, Type 1
1470	606-C003	Guard Rail, Cable Anchor, Type 1
1480	606-D005	Guard Rail, Bridge End Section, Type A
1490	606-D022	Guard Rail, Bridge End Section, Type I
1500	606-E001	Guard Rail, Terminal End Section
1510	606-E007	Guard Rail, Terminal End Section, Non-Flared

CATEGORY: INTELLIGENT TRANSPORTATION SYSTEMS

Line No	Pay Item	Description
3160	907-659-A001	Traffic Management Center Modifications
3170	907-659-C001	Traffic Management Center Modifications - Training

CATEGORY: MISCELLANEOUS/ SPECIALTY WORK ITEMS

Line No	Pay Item	Description
3240	907-899-A001	Railway-Highway Provisions

CATEGORY: PAVEMENT STRIPING AND MARKING

Line No	Pay Item	Description
1940	626-A001	6" Thermoplastic Double Drop Traffic Stripe, Skip White
1950	626-B002	6" Thermoplastic Double Drop Traffic Stripe, Continuous White
1960	626-C002	6" Thermoplastic Double Drop Edge Stripe, Continuous White
1970	626-D002	6" Thermoplastic Double Drop Traffic Stripe, Skip Yellow
1980	626-E001	6" Thermoplastic Double Drop Traffic Stripe, Continuous Yellow
1990	626-F001	6" Thermoplastic Double Drop Edge Stripe, Continuous Yellow
2000	626-G004	Thermoplastic Double Drop Detail Stripe, White
2010	626-G005	Thermoplastic Double Drop Detail Stripe, Yellow
2020	626-H001	Thermoplastic Double Drop Legend, White
2030	626-H002	Thermoplastic Double Drop Legend, White
2040	627-K001	Red-Clear Reflective High Performance Raised Markers
2050	627-L001	Two-Way Yellow Reflective High Performance Raised Markers
3070	907-626-U002	4" Thermoplastic Traffic Stripe, Skip White, 40-mil min.
3080	907-626-V002	4" Thermoplastic Traffic Stripe, Continuous White, 40-mil min.
3090	907-626-X002	4" Thermoplastic Traffic Stripe, Continuous Yellow, 40-mil min.
3100	907-626-Y001	Thermoplastic Detail Traffic Stripe, White, 4" Equivalent Length, 40-mil. min.
3110	907-626-Y003	Thermoplastic Detail Traffic Stripe, Yellow, 4" Equivalent Length, 40-mil. min.

CATEGORY: PAVEMENT STRIPING AND MARKING

Line No	Pay Item	Description
3120	907-626-Z001	Thermoplastic Legend, White, 4" Equivalent Length, 40-mil. min.
3130	907-626-Z002	Thermoplastic Legend, White, 4" Equivalent Length, 40-mil. min.

CATEGORY: SURVEY AND STAKING

Line No	Pay Item	Description
2960	699-A001	Roadway Construction Stakes

CATEGORY: TRAFFIC CONTROL - PERMANENT

Line No	Pay Item	Description
2060	629-A004	Vehicular Impact Attenuator, 60 MPH
2070	629-B001	Median Barrier End Section
2080	630-A001	Standard Roadside Signs, Sheet Aluminum, 0.080" Thickness
2090	630-A003	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness
2100	630-B002	Interstate Directional Signs, Bolted Extruded Aluminum Panels, Ground Mounted
2110	630-C002	Steel U-Section Posts, 2.0 lb/ft
2120	630-C003	Steel U-Section Posts, 3.0 lb/ft
2130	630-D006	Structural Steel Beams, W6 x 12
2140	630-D007	Structural Steel Beams, W6 x 15
2150	630-D008	Structural Steel Beams, W6 x 9
2160	630-E001	Structural Steel Angles & Bars, 3 1/2" x 3 1/2" x 1/4" Angles
2170	630-E002	Structural Steel Angles & Bars, 3" x 3" x 1/4" Angles
2180	630-E004	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar
2190	630-F001	Delineators, Flexible Post Mounted, Crossover, Type I, Green
2200	630-F002	Delineators, Flexible Post Mounted, Crossover, Type I, Yellow
2210	630-F006	Delineators, Guard Rail, White
2220	630-F007	Delineators, Guard Rail, Yellow
2230	630-G005	Type 3 Object Markers, OM-3R or OM-3L, Post Mounted
2240	630-G006	Type 3 Object Markers, OM-3R or OM-3L, 2 Markers Per Post, Post Mounted
2250	630-G008	Type 2 Object Markers, OM2-2
2260	630-I002	Metal Overhead Sign Supports, Assembly No. 1
2270	630-I014	Metal Overhead Sign Supports, Assembly No. 2
2280	630-I019	Metal Overhead Sign Supports, Assembly No. 3
2290	630-K001	Welded & Seamless Steel Pipe Posts, 3 1/2"
2300	630-K002	Welded & Seamless Steel Pipe Posts, 3"
2310	630-K003	Welded & Seamless Steel Pipe Posts, 4"
2320	632-A010	Solid State Traffic Cabinet Assembly, Type IV Cabinet, Type 1 Controller
2330	633-A001	Uninterruptable Power Supply
2340	634-A036	Traffic Signal Equipment Pole, Type II, 22' Shaft, 100' Arm
2350	634-A038	Traffic Signal Equipment Pole, Type II, 22' Shaft, 30' Arm
2360	634-A039	Traffic Signal Equipment Pole, Type II, 22' Shaft, 35' Arm
2370	634-A041	Traffic Signal Equipment Pole, Type II, 22' Shaft, 45' Arm

CATEGORY: TRAFFIC CONTROL - PERMANENT

Line No	Pay Item	Description
2380	634-A042	Traffic Signal Equipment Pole, Type II, 22' Shaft, 50' Arm
2390	634-A044	Traffic Signal Equipment Pole, Type II, 22' Shaft, 60' Arm
2400	634-A045	Traffic Signal Equipment Pole, Type II, 22' Shaft, 65' Arm
2410	634-A046	Traffic Signal Equipment Pole, Type II, 22' Shaft, 70' Arm
2420	634-A047	Traffic Signal Equipment Pole, Type II, 22' Shaft, 75' Arm
2430	634-A048	Traffic Signal Equipment Pole, Type II, 22' Shaft, 80' Arm
2440	634-A049	Traffic Signal Equipment Pole, Type II, 22' Shaft, 85' Arm
2450	634-A051	Traffic Signal Equipment Pole, Type II, 22' Shaft, 95' Arm
2460	634-A172	Traffic Signal Equipment Pole, Type III, 22' Shaft, 75' & 60' Arms
2470	634-A174	Traffic Signal Equipment Pole, Type III, 40' Shaft, 80' & 40' Arms
2480	634-A195	Traffic Signal Equipment Pole, Type II, 40' Shaft, 40' Arm
2490	634-A200	Traffic Signal Equipment Pole, Type II, 40' Shaft, 65' Arm
2500	634-A201	Traffic Signal Equipment Pole, Type II, 40' Shaft, 70' Arm
2510	634-A202	Traffic Signal Equipment Pole, Type II, 40' Shaft, 75' Arm
2520	634-A203	Traffic Signal Equipment Pole, Type II, 40' Shaft, 80' Arm
2530	634-A205	Traffic Signal Equipment Pole, Type II, 40' Shaft, 90' Arm
2540	634-C005	Pole Foundations, Class "B" Concrete
2550	634-E001	Camera Pole with Foundation, 50' Pole
2560	635-A059	Traffic Signal Head, Type 1
2570	635-A061	Traffic Signal Head, Type 2
2580	635-A065	Traffic Signal Head, Type 2 FYA
2590	635-A070	Traffic Signal Head, Type 3
2600	635-A076	Traffic Signal Head, Type 6
2610	636-B015	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 4 Conductor
2620	636-B016	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 5 Conductor
2630	636-B018	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 8 Conductor
2640	636-B028	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 8, 2 Conductor
2650	636-B035	Electric Cable, Underground in Conduit, THHN, AWG #1, 4 Conductor
2660	636-B054	Electric Cable, Underground in Conduit, THHN, AWG #8, 3 Conductor
2670	637-A009	Pull Box Enclosure, Type 2, Tier 22
2680	637-A011	Pull Box Enclosure, Type 3, Tier 22
2690	637-A013	Pull Box Enclosure, Type 4, Tier 22
2700	637-A015	Pull Box Enclosure, Type 5, Tier 22
2710	637-C009	Traffic Signal Conduit, Underground, Rolled Pipe, 2"
2720	637-C028	Traffic Signal Conduit, Underground, Type 4, 2"
2730	637-C030	Traffic Signal Conduit, Underground, Type 4, 3"
2740	637-D002	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 2"
2750	637-D003	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 3"
2760	637-F005	Traffic Signal Conduit, Aerial Supported, Type 1, 2"
2770	637-G006	Traffic Signal Conduit, Underground Encased in Concrete, Type 3, 2"
2780	637-H001	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"
2790	637-H003	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 3 @ 2"

CATEGORY: TRAFFIC CONTROL - TEMPORARY

Line No	Pay Item	Description
2800	637-I001	Traffic Signal Conduit Bank, Underground, Drilled or Jacked, Rolled Pipe, 2 @ 2"
2810	637-I003	Traffic Signal Conduit Bank, Underground, Drilled or Jacked, Rolled Pipe, 3 @ 2"
2820	638-A003	Flashing Assembly, Be Prepared to Stop When Flashing
2830	639-A001	Railroad Signal Preemption
2840	639-B001	Optical Detector
2850	639-C001	Multimode Phase Selector
2860	639-E001	Optical Detector Cable
2870	640-B003	Shielded Cable, AWG #14, 2 Conductor
2880	641-A002	Signal Stop Bar Radar Detection, 1 Sensor, Type 2
2890	641-B002	Signal Advanced Radar Detection, 1 Sensor, Type 2
2900	641-C001	ITS Radar Detection, 1 Sensor
2910	641-D001	Radar Detection Communication Cable
2920	646-C001	LED Blank-Out Sign
2930	653-B003	Street Name Sign, Type III
2940	656-A001	Dynamic Message Sign, Type 1
2950	660-A003	Equipment Cabinet, Type B
3140	907-650-A002	On Street Video Equipment, Fixed Type
3150	907-650-A003	On Street Video Equipment, PTZ Type
3180	907-661-A004	Fiber Optic Cable, 72 SM
3190	907-661-B002	Fiber Optic Drop Cable, 12 SM
3200	907-663-A001	Network Switch, Type A
3210	907-663-A002	Network Switch, Type B
3220	907-663-B001	Terminal Server
3230	907-663-D001	Category 6 Cable, Installed in Conduit

CATEGORY: TRAFFIC CONTROL - TEMPORARY

Line No	Pay Item	Description
1670	619-A1004	Temporary Traffic Stripe, Continuous White, Paint
1680	619-A2004	Temporary Traffic Stripe, Continuous Yellow, Paint
1690	619-A3003	Temporary Traffic Stripe, Skip White, Paint
1700	619-A4003	Temporary Traffic Stripe, Skip Yellow, Paint
1710	619-A5002	Temporary Traffic Stripe, Detail, Paint
1720	619-A6003	Temporary Traffic Stripe, Legend, Paint
1730	619-A6004	Temporary Traffic Stripe, Legend, Paint
1740	619-C6001	Red-Clear Reflective High Performance Raised Marker
1750	619-C7001	Two-Way Yellow Reflective High Performance Raised Marker
1760	619-D1001	Standard Roadside Construction Signs, Less than 10 Square Feet
1770	619-D2001	Standard Roadside Construction Signs, 10 Square Feet or More
1780	619-D3001	Remove and Reset Signs, All Sizes
1790	619-D4001	Directional Signs
1800	619-E1001	Flashing Arrow Panel, Type C
1810	619-E3001	Changeable Message Sign

CATEGORY: TRAFFIC CONTROL - TEMPORARY

Line No	Pay Item	Description
1820	619-F1001	Concrete Median Barrier, Precast
1830	619-F2001	Remove and Reset Concrete Median Barrier, Precast
1840	619-G4001	Barricades, Type III, Double Faced
1850	619-G4003	Barricades, Type III, Double Faced, Permanent, Red/White
1860	619-G4005	Barricades, Type III, Single Faced
1870	619-G5001	Free Standing Plastic Drums
1880	619-G7001	Warning Lights, Type "B"
1890	619-H1001	Traffic Signals
1900	619-J1003	Impact Attenuator, 50 MPH
1910	619-J2003	Impact Attenuator, 50 MPH, Replacement Package
3060	907-619-S001	Construction Safety Fence

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 158 **CODE (SP)**

DATE: 6/06/2017

SUBJECT: Placement of Fill Material in Federally Regulated Areas

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

A Permit (404, General, Nationwide, etc.) for placing fill material federally regulated sites is required.

The Department has acquired the following permit for permanently filling at regulated sites that are identified during project development:

Nationwide Permit No. 14 (Waters of U.S.) ---------- All sites with less than 0.10 Acres. (I.D. No. MVK-2011-538)

Copies of said permit(s) are on file with the Department.

Securing a permit(s) for the filling of any other regulated site, the purpose of which is temporary construction for the convenience of the Contractor, shall be the responsibility of the Contractor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 159 **CODE: (SP)**

DATE: 6/23/2017

SUBJECT: A + B Bidding

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised this project contains requirements for A + B bidding.

The bidder shall determine the total number of calendar days required to complete the work in the contract. The product of the total number of calendar days required for construction of the project in accordance with the plans and specifications (contract time), as determined by the Bidder, times the disincentive cost of **$50,000.00 per calendar day** shall be added to the total bid determined from the bid items. The sum of these two amounts will be the amount used for comparison of bids. This information will be shown on the Expedite Bid Sheets.

The proposal guaranty for this project should not include the amount determined for contract time as specified above. The proposal guaranty should be for the amount of the bid items.

After the proposals are opened and read, they will be compared on the basis of the following formula:

X = A + B

Where:

X = The total amount used only for determining the lowest bid for award of Contract.

A = Total Bid - Direct and Dependent Items - This being the summation of the products of the quantities shown in the bid schedule multiplied by their respective unit prices.

B = Value of the Contract Time – This being the total calendar days required to complete construction of the project in accordance with the plans and specifications (contract time), as determined by the Bidder, multiplied by the disincentive cost of **$50,000.00** per day. The value B is included for comparison of bids only and will NOT be included in any payment to the Contractor. **The total number of days entered for contract time CAN NOT EXCEED 1106 Calendar Days.** If the Contractor enters a Contract Time of more than **1106 calendar days**, the proposal will be considered **irregular, rejected, and returned to the bidder.**

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 160 **CODE: (SP)**

DATE: 06/6/2017

SUBJECT: Project Number Change

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised that any references to Project Number NH-0008-03(029) / 102046/301000, 301100, or 301200 in the plans or specifications shall be understood to mean Project Number NH-0008-03(029) / 102046/301000.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 161 **CODE: (SP)**

DATE: 06/23/2017

SUBJECT: Lane Closure Restrictions

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised that lane closure restrictions on the above project shall be as follows:

US 49

Monday through Friday: Lane closures will NOT be allowed between the hours of 6:00 AM to 8:00 PM on Northbound Us 49. Lane closures will NOT be allowed between the hours of 8:00 AM to 9:00 PM on Southbound US 49.

Saturday and Sunday: Lane closures will NOT be allowed between the hours of 9:00 AM to 9:00 PM on Northbound or Southbound US 49.

All Signalized Intersections

Monday through Friday: For all side roads at signalized intersections lane closures will NOT be allowed between the hours of 6:00 AM to 9:00 AM or 4:00 PM to 7:00 PM.

Exception: For the cases described in the High Priority Areas Notice to Bidders the above restriction for signalized intersections will not apply.

No further exceptions to the above restrictions will be allowed unless specifically approved by the Project Engineer.

Also, no lane closures will be permitted on the following holidays or the day preceding them: New Year's Day, Memorial Day, Easter, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. In the event that one the above mentioned holidays falls during the weekend or on a Monday, no lane closures will be allowed during that weekend or the Friday immediately preceding that holiday. In addition, no lane closures will be allowed the Friday, Saturday, and Sunday following Thanksgiving.

If the lane closure restriction listed above is violated, the Contractor will be charged a fee of **$500.00** for each full or partial five minute period until the roadway is back in compliance with the lane closure restriction requirement.

Work requiring a lane closure shall begin within one (1) hour of the completion of the lane closure setup. Lane closures will be allowed only at times when work requiring a lane closure is underway. Failure to begin work within this 1-hour period will result in the Contractor being charged a lane rental fee of **$500.00** for each full or partial five-minute period until work has begun.

For the purposes of this contract, official time shall be the announced time available at the Jackson area telephone number (601) 355-9311.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 162 **CODE: (SP)**

DATE: 06/23/2017

SUBJECT: Liquidated Damages

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised to disregard the values in the "Schedule of Deductions for Each Day of Overrun in Contract Time" table shown in Subsection 108.07 of the 2017 Mississippi Standard Specifications for Road and Bridge Construction.

Liquidated Damages of **$50,000.00** per calendar day shall be applicable to each calendar day after the Contractor determined completion date and shall continue until all work under the contract has been met.

Liquidated damages for this project is a combination of both liquidated damages and road user costs.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 163 **CODE: (SP)**

DATE: 06/23/2017

SUBJECT: Road Closures

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

The Bidders attention is hereby called to the Phase 2A Traffic Control sheets in the plans in which Old Pearson Road and Cleary Road are noted to be closed. Bidders are hereby advised that the closure of these roads shall be limited to a **30 Calendar Day** maximum. The Contractor shall maintain access to all residences and businesses at all times. The Contractor shall notify the Project Engineer at least 7 days in advance of the scheduled closures.

Failure to adhere to the above listed restrictions will result in the Contractor being assessed a fee of **$10,000.00** for each full or partial day until the road is re-opened to traffic.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 165 **CODE: (SP)**

DATE: 6/2/2017

SUBJECT: Additional Construction Requirements

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised of the following additional construction requirements:

- Forty-two (42") tall traffic cones meeting the requirements of the MUTCD will be allowed in place of free standing plastic drums with the approval of the Engineer for the purpose of delineation at and along a driveway turnout when an adjacent edge drop off does not exist. If forty-two (42") tall traffic cones are approved for use at such location, payment will be made under the pay item for free standing plastic drums unless the method of payment is noted elsewhere within the plans and specifications.
- The 220 liner foot of 6'x3' precast box culvert required on the easement at approximately station 883+00 left shall be constructed during non-business hours. This work shall be completed at nights or on weekends in order to minimize the impact to the businesses in proximity to the easement. The parking lot shall be returned to a safe and useable condition Monday through Friday, 8:00 AM to 5:00 PM.
- Portable construction lighting will be required for any and all night work on this project and shall conform to the requirements of section 680 of the 2017 Mississippi Standard Specifications for Road and Bridge Construction. No separate payment will be made for this item of work and shall be included in other items bid.
- All pile driving activities shall be restricted to daytime operations only.
- At the time the project is ready to be opened to three lanes for traffic, the opening of lanes shall progress from the north end of the project (EOP) to the south end of the project (BOP).

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904-NOTICE TO BIDDERS NO. 166

DATE: 6/6/2017

SUBJECT: Mowing and Litter Pickup

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised that the Contractor shall perform mowing of noxious vegetation or excess growth at least three times a year. Steep slopes and areas not accessible by mowers, shall be cut by any means deemed appropriate to the satisfaction of the Engineer.

Prior to mowing, the Contractor shall pick up and properly dispose of all trash and debris within the area to be mowed and along any adjacent roadway shoulders. Trash and debris picked up and piled or bagged on the roadside must be removed from the right-of-way by the close of the work day. Piles or bags will not be allowed to remain on the roadside overnight. All trash and debris is defined as all trash, debris, litter, junk, rubbish, paper, cardboard, glass, cans, styrofoam cups, discarded items, garbage, old tires, treads, etc. The Contractor will not be required to pick up such items as cigarette butts, tiny chips of glass or other small items not readily visible to the traveling public.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 167 **CODE: (SP)**

DATE: 6/6/2017

SUBJECT: Removal of Obstructions

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised that the obstructions described below will need to be cleared from the Right-of-Way prior to the final acceptance of the contract. Refer to Notice to Bidders No. 2 for additional information. All compensation for the necessary operations shall be included in the bid price for 202-A001 Removal of Obstructions:

- STA 634+30:
  - Metal Sign at 85’ LT
- STA 643+00:
  - Metal Sign at 40’ RT
- STA 753+15:
  - Wooden Sign at 120’ LT
- STA 793+00:
  - Metal Flagpole at 115’ LT
- STA 897+20:
  - Pipe Fencing at 80’ RT
- STA 896+80:
  - Metal Fencing at 200’ RT

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 168 **CODE: (SP)**

DATE: 6/23/2017

SUBJECT: Restoration of Channels

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised that the cleaning of all channels, for the purpose of the restoration of the drainage systems, from right-of-way to right-of-way will be required on this project. This includes all channels associated with box bridges (including barrels), box culverts (including barrels), and bridges (including area underneath bridges). This work shall consist of, but not limited to, the clearing of all trees, bushes, brush, silt, foreign materials, etc. from the bottom and slopes of channels. Grubbing will not be required for this work. All materials removed from the channels shall be properly disposed of off the right-of-way. The use of temporary pipe, filling of channels, and any other materials that could block the channel will not be allowed. Slope and channel stabilization shall be required for all disturbed areas and shall be stabilized using existing erosion control items.

Payment for all materials, labor, equipment, etc. for the above mentioned work shall be included in the bid price for Pay Item 201-A001 Clearing and Grubbing.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 169 **CODE: (SP)**

DATE: 5/30/2017

SUBJECT: Jacked or Bored Steel Pipe

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised of the following regarding the steel pipe to be jacked or bored: The Contractor will be required to submit, for approval, design calculations stamped by a registered professional engineer with the following criteria considered at a minimum: PH, Resistivity, Corrosion, Wall Thicknesses, Dead and Live Loads.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904-NOTICE TO BIDDERS NO. 170

DATE: 6/6/2017

SUBJECT: High Priority Areas

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

Bidders are hereby advised of the following regarding the areas labeled as "High Priority" in the Traffic Control section of the plans.

Work in these defined areas in which the road, intersection, or cross over will be closed shall be restricted to being performed between the hours of 9:00 PM Friday through 6:00 AM Monday. The road, intersection, or crossover shall be opened to the traveling public outside of the above mentioned times.

Consecutive interchanges shall not be closed simultaneously.

The Contractor shall notify the Project Engineer at least 72 hours in advance of a closing of a "High Priority" area.

The Contractor shall submit to the Project Engineer a proposed Closure Plan for review and approval prior to closing any "High Priority" area. This plan shall consider, at a minimum, the Contractor's proposed methods of construction, a schedule of construction, a traffic control plan, and any other relevant information.

Failure to adhere to the above listed restrictions will result in the Contractor being assessed a fee of **$5,000.00** for each full or partial day until the area is re-opened to traffic.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 171 **CODE: (SP)**

DATE: 6/23/2017

SUBJECT: Cooperation Between Contractors

PROJECT: NH-0008-03(029) / 102046301 – Rankin County

The Bidder's attention is hereby called to Subsection 105.07, Cooperation between Contractors, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction.

The Bidder is advised of the following construction projects within the limits of this project:

NH-0008-03(029) / 102046301100 and 301200 – Rankin County, RR Surface and RR Signals and Gates

The scope of these projects is to install new signals and a crossing surface on the proposed new alignment of Cleary Road at approximately Station 26+32.

The Contractor shall cooperate in all respects and shall coordinate construction of all phases of work with the Contractor of the above projects. Failure to coordinate work schedules, such as but not limited to lane closures, shall not be reason to modify contract time.

For additional information regarding the Railroad see the general notes on sheet GN-3 of the plans, Notice to Bidders No. 14 and No. 17, and Special Provision 907-899-1.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 242 **CODE: (SP)**

DATE: 06/21/2017

SUBJECT: Use of Scheduling Software

Bidders are hereby advised that they will be required to produce a computerized Critical Path Methodology (CPM) progress schedule for this project. MDOT will be using Primavera's Project Planner (P6) to review the Contractor's progress schedule and updates thereto. All progress schedule data files submitted to MDOT must be compatible with Primavera P6.

All references to the "Progress Schedule" in the Standard Specifications, contract plans and documents, and the Department's Standard Operating Procedures shall be deemed to mean the CPM schedule produced according to Special Provision No. 907-108-2.

General Decision Number: MS170244 01/06/2017 MS244

Superseded General Decision Number: MS20160244

State: Mississippi

Construction Type: Highway

County: Rankin County in Mississippi.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017

* ELEC0480-010 07/01/2016

	Rates	Fringes
TRAFFIC SIGNALIZATION		
Electrician	$ 24.60	3%+7.48

SUMS2010-063 08/04/2014

	Rates	Fringes
CARPENTER (Form Work Only)	$ 15.47	0.00
CEMENT MASON/CONCRETE FINISHER	$ 14.02	0.00
ELECTRICIAN	$ 24.04	5.87
HIGHWAY/PARKING LOT STRIPING: Truck Driver (Line Striping Truck)	$ 12.04	0.00
INSTALLER - GUARDRAIL	$ 12.07	0.00
INSTALLER - SIGN	$ 11.92	0.00
IRONWORKER, REINFORCING	$ 15.47	0.00
LABORER: Common or General, Including Asphalt Raking,		

Shoveling, Spreading; and Grade Checking	$ 10.65	0.00
LABORER: Flagger	$ 10.22	0.00
LABORER: Luteman	$ 12.88	0.00
LABORER: Mason Tender - Cement/Concrete	$ 11.27	0.00
LABORER: Pipelayer	$ 13.44	0.00
LABORER: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper	$ 11.29	0.00
OPERATOR: Asphalt Spreader	$ 14.71	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 15.36	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 11.64	0.00
OPERATOR: Broom/Sweeper	$ 11.57	0.00
OPERATOR: Bulldozer	$ 15.41	0.00
OPERATOR: Concrete Saw	$ 14.38	0.00
OPERATOR: Crane	$ 19.22	0.00
OPERATOR: Distributor	$ 10.95	0.00
OPERATOR: Grader/Blade	$ 14.41	0.00
OPERATOR: Grinding/Grooving Machine	$ 15.90	0.00
OPERATOR: Loader	$ 12.57	0.00
OPERATOR: Mechanic	$ 19.27	0.00
OPERATOR: Milling Machine	$ 14.68	0.00
OPERATOR: Mixer	$ 14.25	0.00
OPERATOR: Oiler	$ 12.35	0.00
OPERATOR: Paver (Asphalt, Aggregate, and Concrete)	$ 12.15	0.00
OPERATOR: Roller (All Types)	$ 12.64	0.00
OPERATOR: Scraper	$ 12.25	0.00
OPERATOR: Tractor	$ 11.22	0.00
TRUCK DRIVER: Flatbed Truck	$ 14.06	0.00

TRUCK DRIVER: Lowboy Truck.....$ 11.00 0.00

TRUCK DRIVER: Mechanic.....$ 13.00 0.00

TRUCK DRIVER: Water Truck.....$ 10.98 0.00

TRUCK DRIVER: Dump Truck (All Types).....$ 12.56 0.00

TRUCK DRIVER: Semi/Trailer Truck.....$ 14.60 0.00

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example:

PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

SUPPLEMENT TO FORM FHWA-1273

DATE: **01/06/2016**

SUBJECT: **Final Certificate and Contract Provisions for Subcontracts**

All subcontracts shall be in writing and contain all pertinent provisions and requirements of the prime contract.

Each "Request for Permission to Subcontract" (Mississippi Department of Transportation Form CAD-720) shall include a copy of subcontract upon request for review by the Mississippi Department of Transportation. The federal contract provisions may be omitted from the subcontract copy submitted for review provided the Contractor certifies that the provisions will be physically incorporated into the agreement furnished to the Subcontractor.

In lieu of submitting a copy of the subcontract for review, the Contractor may certify that the subcontract agreement is in writing and that it contains all the requirements and pertinent provisions of the prime contract.

Each Subcontractor will be required to provide a copy of the subcontract agreement for contract compliance reviews, along with physical evidence (copy of FHWA-1273) that requirements and pertinent provisions have been provided for review and adherence.

The Contractor is hereby advised of the requirements set forth in the following Attachment (Title 46 - Shipping) as it pertains to the implementation of Cargo Preference Act (CPA) requirements in the Federal-aid Highway Program.

By signing this contract, the Contractor agrees to conform to the requirements of the CPA.

Attachment

Title 46- Shipping

Volume: 8
Date: 2014-10-01
Original Date: 2014-10-01
Title: Section 381.7 - Federal Grant, Guaranty, Loan and Advance at Funds Agreements.
Context: Title 46- Shipping. CHAPTER II- MARITIME ADMINISTRATION, DEPARTMENT OF TRANSPORTATION. SUBCHAPTER J - MISCELLANEOUS. PART 381 - CARGO PREFERENCE-U.S.-FLAG VESSELS.

§ 381.7 Federal Grant, Guaranty, Loan and Advance of Funds Agreements.

In order to insure a fair and reasonable participation by privately owned United States-flag commercial vessels in transporting cargoes which are subject to the Cargo Preference Act of 1954 and which are generated by U.S. Government Grant, Guaranty, Loan and/or Advance of Funds Programs, the head of each affected department or agency shall require appropriate clauses to be inserted in those Grant. Guaranty$_1$ Loan and/or Advance of Funds Agreements and all third party contracts executed between the borrower/grantee and other parties, where the possibility exists for ocean transportation of items procured, contracted for or otherwise obtained by or on behalf of the grantee, borrower, or any of their contractors or subcontractors. The clauses required by this part shall provide that at least 50 percent of the freight revenue and tonnage of cargo generated by the U.S. Government Grant, Guaranty, Loan or Advance of Funds be transported on privately owned United States-flag commercial vessels. These clauses shall also require that all parties provide to the Maritime Administration the necessary shipment information as set forth in § 381.3. A copy of the appropriate clauses required by this part shall be submitted by each affected agency or department to the Secretary, Maritime Administration, for approval no later than 30 days after the effective date of this part. The following are suggested acceptable clauses with respect to the use of United States-flag vessels to be incorporated in the Grant, Guaranty, Loan and/or Advance of Funds Agreements as well as contracts and subcontracts resulting therefrom:

(a) *Agreement Clauses.* "Use of United States-flag vessels:

"(1) Pursuant to Pub. L 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

"(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590."

(b) *Contractor and Subcontractor Clauses.* "Use of United States-flag vessels: The contractor agrees --

"(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

"(2) To furnish within 20 days following the date of loading for shipments originating within the United

States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

"(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

(Reorganization Plans No.21 of 1950(64 Stat. 1273) and No. 7 of 1961 (75 Stat. 840) as amended by Pub. L 91.469 (84 Stat 1036) and Department of Commerce Organization Order 10-8 (38 FR 19707, July 23, 1973)) (42 FR 57126, Nov. 1, 1977]

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise

the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goal for female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work, is 6.9%.

Until further notice	Goals for minority participation for each trade (percent)
SHSA Cities:	
Pascagoula - Moss Point	16.9
Biloxi - Gulfport	19.2
Jackson	30.3
SMSA Counties:	
Desoto	32.3
Hancock, Harrison, Stone	19.2
Hinds, Rankin	30.3
Jackson	16.9
Non-SMSA Counties:	
George, Greene	26.4
Alcorn, Benton, Bolivar, Calhoun, Carroll, Chickasaw, Clay, Coahoma, Grenada, Itawamba, Lafayette, Lee, Leflore, Marshall, Monroe, Montgomery, Panola, Pontotoc, Prentiss, Quitman, Sunflower, Tallahatchie, Tate, Tippah, Tishomingo, Tunica, Union, Washington, Webster, Yalobusha	26.5
Attala, Choctaw, Claiborne, Clarke, Copiah, Covington, Franklin, Holmes, Humphreys, Issaquena, Jasper, Jefferson, Jefferson Davis, Jones Kemper, Lauderdale, Lawrence, Leake, Lincoln, Lowndes, Madison, Neshoba, Newton, Noxubee, Oktibbeha, Scott, Sharkey, Simpson, Smith, Warren, Wayne, Winston, Yazoo	32.0
Forrest, Lamar, Marion, Pearl River, Perry, Pike, Walthall	27.7
Adams, Amite, Wilkinson	30.4

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

The Contractor's compliance with the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4.2(d). Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is to the county and city (if any), stated in the advertisement.

5. The notification required in Paragraph 3 shall be addressed to the following:

Contract Compliance Officer
Mississippi Department of Transportation
P.O. Box 1850
Jackson, Mississippi 39215-1850

(06/28/2012)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-103-2 **CODE: (SP)**

DATE: 06/22/2017

SUBJECT: Award and Execution of Contract

Section 103, Award and Execution of Contract, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-103.01--Consideration of Proposal. Delete the second and third paragraphs of Subsection 103.01 on page 19, and substitute the following.

907-103.01.1--For Projects Constructed Without Federal Funds. Resident Contractors actually domiciled in Mississippi are to be granted preference over nonresidents in awarding of Contracts financed 100% with State funds.

In consideration of proposals that are equal to or in excess of $50,000 and financed 100% with State funds, a nonresident bidder domiciled in a state having laws granting preference to local Contractors will be considered for such contracts on the same basis as the nonresident bidder's state awards contracts to Mississippi Contractors bidding under similar circumstances. When a nonresident Contractor submits a bid equal to or in excess of $50,000 on a contract financed 100% with State funds, a copy of the current laws from the state of domicile and an explanation thereof pertaining to treatment of nonresident Contractors shall be attached. If no preferential treatment is provided for Contractors in the state of domicile and contracts are awarded to the lowest responsible bidder, a statement to this effect shall be attached. Should the attachment not accompany the bid when submitted, the Contractor shall have 10 days following the opening of the bids to furnish the required information to the Contract Administration Director for attachment to the bid. Failure to provide the attachment within 10 days will result in the nonresident Contractor’s bid being rejected and not considered for award. As used herein, the term "resident Contractor" includes a nonresident person, firm or corporation that has been qualified to do business in this State and has maintained a permanent full-time office in the State of Mississippi for two years prior to the submission of the bid, and the subsidiaries and affiliates of such a person, firm or corporation.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-107-1 **CODE: (SP)**

DATE: 06/13/2017

SUBJECT: Contractor's Erosion Control Plan

Section 107, Legal Relations and Responsibility to Public, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-107.22.1--Contractor's Erosion Control Plan (ECP). Delete the example Narrative in Subsection 107.22.1 on page 65, and substitute the following.

EXAMPLE
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
Storm Water Pollution Prevention Plan (SWPPP)
Narrative

General Permit Coverage No: MSR_____
Project Number: _____
County: _____
Route: _____

SITE INFORMATION

This project consists of grading and installing drainage structures necessary to construct approximately 6 miles of parallel lanes on SR 31 between the Hinds County Line and the Rankin County Line.

SEDIMENT AND EROSION CONTROLS

a) Vegetative Controls: Clearing and grubbing areas will be minimized to comply with the buffer zones (minimum of 15 feet along the ROW lines and 5 feet along creeks) as per the contract documents. A combination of temporary and permanent grassing will be used to protect slopes as construction progresses. **Should a disturbed area be left undisturbed for 14 days or more, placement of temporary BMPs (seeding & mulching, silt fences, basins, ditch checks, slope drains, etc.) or permanent erosion control measures (seeding & mulching, riprap, paved ditch, flumes, etc.) will be initiated by the next working day after the land disturbing activities have stopped.**

b) Structural Controls: Gravel construction entrance/exit will be installed near Stations 145+50, 159+50, 164+50 & 172+50. Riprap ditch checks will be constructed at Stations 144+50, 151+75, 162+00 & 166+25. The Concrete washout area will be at Stations 140+25, 152+00 & 168+50.

c) Housekeeping Practices: Structural BMPs will be cleaned out when sediment reaches 1/3 to 1/2 of the height of the BMP. Maintenance and repair of equipment will be performed off-site, material wash out will occur either off-site or within designated wash out areas.

d) Post-Construction Control Measures: As construction is completed, permanent vegetative growth will be established on disturbed soils to improve soil stability and provide a buffer zone for loose material. Paved ditches and flumes will be placed as specified in the ECP to reduce erosion in concentrated flow areas and rip rap will be placed as specified to dissipate flow energy and reduce flow velocity.

IMPLEMENTATION SEQUENCE

Perimeter controls will be installed first. Clearing and grubbing will be performed in 19-acre sections beginning at the BOP and temporary grassing will be installed as needed. Temporary erosion control BMPs will be installed at the drainage structures prior/during construction of the drainage structures. Grading activities will commence at the BOP and proceed towards the EOP, fill slopes will be permanently grassed in stages for fill heights that exceed 5 feet. Base materials will be installed on completed grading sections with the paving to follow.

MAINTENANCE PLAN

All erosion and sediment control practices will be checked for stability and operation following every rainfall but in no case less than once every week. Any needed repairs will be made immediately to maintain all practices as designed. Sediment basins will be cleaned out when the level of sediment reaches 2.0 feet below the top of the riser. Sediment will be removed from the front/upstream end of the BMPs when it becomes about 1/3 to 1/2 height of BMP.

_____ _____
Prime Contractor's Signature Date

_____ _____
Printed Name Title

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-108-2 **CODE: (SP)**

DATE: 06/22/2017

SUBJECT: Critical Path Methodology (CPM) of Scheduling

Section 108, Prosecution and Progress, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete Subsection 108.03.1 on pages 74 and 75, and substitute the following.

907-108.03.1--Critical Path Progress Schedules.

907-108.03.1.1--Definitions. The following definitions pertaining to construction schedules shall apply with respect to all scheduling provisions set forth in the Contract:

1. Activity: Any task, or portion of a project, that takes time to complete.

2. Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.

3. Controlling Operation: The activity within that series of activities defined as the Critical Path, which, if delayed or prolonged, will delay the time of completion of the Contract.

4. Critical Path: The series of activities that determines the earliest completion of the project (i.e., the Forecast Completion Date) in accordance with the terms and conditions of the Contract.

5. Critical Path Method: A mathematical calculation that determines the earliest completion of the project in accordance with the terms and conditions of the Contract and that includes a graphic representation of the sequence of activities showing the interrelationships and interdependencies of the elements composing a project.

6. Current Contract Completion Date: The date for completion of the Contract based on the total number of days, or fixed completion date as specified for full and final completion of the work in the contract documents.

7. Differential Completion Time: The difference in time between the Current Contract Completion Date and the Contractor's scheduled early Forecast Completion Date as shown on the Baseline Schedule, or schedule updates and revisions thereto.

8. Float: The amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity or group of activities in the network. See Free Float and Total Float.

9. Forecast Completion Date: The Early Finish date of the last scheduled work activity identified on the Critical Path.

10. Fragnet: A section or fragment of the network diagram comprised of a group of activities.

11. Free Float: The amount of time an activity can be delayed without delaying the Early Start of a successor activity.

12. Hammock Activity: A non-critical activity added to the network to span an existing group of activities for summarizing purposes.

13. Milestone: An activity that represents a significant point in time, and may be used to indicate the start or end of a series of related activities and/or contract accomplishment. A milestone has zero original and remaining duration, and does not increase the Contract time.

14. Revision: A change in the schedule that modifies logic, revises the current contract completion date, adds or deletes activities, or alters activities, sequences, descriptions, calendars, actual dates, or durations.

15. Tabular Listing: A report showing schedule activities, their relationships, durations, scheduled and actual dates, float, resources, and all log notes where comments are inserted for an activity.

16. Total Float: The amount of time that an activity may be delayed without affecting the total duration of the project.

17. Update: The modification of the most current Contractor CPM progress schedule through a regular and periodic (at least monthly) review to incorporate actual progress to date by activity. Update shall indicate changes to the activity's percent complete, actual start and actual finish dates.

907-108.03.1.2--Pre-Construction Scheduling Conference. The Contractor shall schedule and conduct a Pre-Construction Scheduling Conference. Mandatory attendees shall include the Contractor's Project Manager and Construction Scheduler and the Engineer. This conference shall be scheduled within 10 working days after the after the Bidder has received the Contract for execution. At this meeting, the requirements of the Special Provisions regarding scheduling will be reviewed with the Contractor.

At the Pre-Construction Scheduling Conference, the Contractor shall furnish a Preliminary Baseline Schedule as discussed in Subsection 907-108.03.1.3 and be prepared to discuss both its

proposed methodologies for fulfilling the scheduling requirements and its sequence of operations. In this meeting, the Contractor shall also supply to the Engineer a copy of the Contractor's proposed activity code dictionary that will be utilized in the sorting of the activities into phases of work, areas of work, types of work, etc.

At the Pre-Construction Scheduling Conference, the Contractor shall be prepared to discuss the requirements for all off-site material testing and submittals applicable to the Contract, discuss their respective preparation, and review durations.

907-108.03.1.3--Preliminary Baseline Schedule. The Preliminary Baseline Schedule shall use the Critical Path Method, and indicate all various activities of work required under the Contract, from commencement of the work to completion of the work. These activities shall be detailed significantly small enough to communicate the Contractor's understanding of the construction sequencing and phasing of the project. Detailed significantly small enough means that all activities are easily identifiable and progress on the activities can be readily measured. For example, in bridge work, detailed significantly small enough means each element of work (piles, footings, columns, caps, rebar, cure time, etc.) of individual bents; each element of work in individual spans (girders, joints, concrete, rebar, cure time, etc.); individual approach slabs; railings; rebar for all of the above as separate activities; and, miscellaneous other bridge work. In road work, detailed significantly small enough means individual runs of pipe in drainage structures; individual box culverts; individual detour roads; the embankment, excavation, base and paving layers within definable geometric limits (e.g. from station to station, within a single ramp, etc.). For each activity, the Contractor shall indicate the amount of time necessary to perform the activity and the anticipated beginning and completion date of each activity. In addition, the Preliminary Baseline Schedule shall indicate the sequence of performing each activity and the logical dependencies and inter-relationships among the activities.

Failure to include any element of work or any activity relating to utility relocation will not relieve the Contractor from completing all work within the Contract Time at no additional time or cost to MDOT, notwithstanding the acceptance of the schedule by the Engineer.

The Preliminary Baseline Schedule shall include all submittals and required offsite material testing required by the Contract. Furthermore, the schedule shall include activities for the Engineer's review, with the corresponding allowable period of days specified in the contract, for each submittal and offsite testing activity.

The Engineer will be allowed 15 working days to review the Preliminary Baseline Schedule and to provide comments regarding it. The Preliminary Baseline Schedule does not require the Engineer's acceptance, but all comments from the Engineer with respect to the Preliminary Baseline Schedule shall be incorporated within the Baseline Schedule. Re-submittal of the Preliminary Baseline Schedule is not required. Further, late review of the Preliminary Baseline Schedule by the Engineer shall not restrain the Contractor's submittal of either the Interim Baseline or Baseline Schedule. No site disturbance shall be allowed until the Engineer has reviewed and commented on the Preliminary Baseline Schedule, or the 15-day review period has elapsed.

907-108.03.1.4--Interim Baseline Schedule. Within five working days of the Notice to Proceed, the Contractor shall submit to the Engineer an Interim Baseline Schedule, which will serve as the progress schedule for the first 180 days of the project, or until the Baseline Schedule is approved by the Engineer, whichever is sooner. The Interim Baseline Schedule shall utilize the Critical Path Method for depicting how the Contractor plans to perform the work during the first 180 days of the Contract. At a minimum, the Interim Baseline Schedule shall depict all submittals required during the first 180 days of the Contract and all activities required during the first 180 days for the Contractor to comply with all permits and regulatory requirements that pertain to the work.

The Engineer will be allowed 15 working days to review the Interim Baseline Schedule and to provide comments. The Interim Baseline Schedule does not require the Engineer's acceptance, but all comments from the Engineer with respect to the Interim Baseline Schedule are to be incorporated within the Baseline Schedule. Re-submittal of the Interim Baseline Schedule is not required. Late review of the Interim Baseline Schedule by the Engineer shall not restrain the Contractor's submittal of the Baseline Schedule.

907-108.03.1.5--Baseline Schedule. Within 45 working days of the Notice to Proceed, the Contractor shall submit to the Engineer a Baseline Schedule, which shall incorporate any and all comments provided by the Engineer regarding the Preliminary Baseline Schedule and the Interim Baseline Schedule. The Baseline Schedule shall have a data date of the effective date of the Notice to Proceed and shall not include any work prior to that date. The Baseline Schedule shall be accompanied by a Baseline Schedule Narrative as described in Subsection 907-108.03.1.9.1.

The Baseline Schedule shall depict how the Contractor plans to complete the work of the Contract and shall show all those activities that defines the Critical Path. The scheduled time for each activity shall be reasonable, depicting a realistic time to perform the activity. Each activity depicting the Contractor's operations at the work site shall have duration of not more than 30 working days and not less than 1 day unless permitted otherwise by the Engineer. The Baseline Schedule shall provide for the adequate planning of the project, as well as the Engineer's monitoring and evaluation of progress and analysis of time impacts. The Contractor shall not attribute any negative float to any activity depicted on the Baseline Schedule. The Engineer will be allowed 15 calendar days to review and approve the Contractor's submittal of the Baseline Schedule. Should the Engineer reject the Contractor's submittal of the Baseline Schedule, the Contractor shall resubmit a revised schedule within 15 working days of receipt of the Engineer's review comments, at which time a new 15 calendar day review period by the Engineer will begin.

907-108.03.1.6--General Requirements Regarding Schedules. The Baseline Schedule and all schedules submitted thereafter by the Contractor shall comply with the following requirements.

All schedules shall be created, updated and provided in the format compatible with Primavera Project Planner (P6) and shall comply with (1) any and all interim target dates and/or milestones specified by the Contract; (2) all constraints, restraints or sequences specified by the Contract; and (3) the number of days set forth in the Contract for completion of the work.

All schedules submitted to the Engineer shall be depicted graphically by network diagrams. The Contractor's network diagrams shall be time-scaled to show a continuous flow of information from left to right. The critical path shall be clearly and graphically identified on the network diagrams.

All network diagrams prepared by the Contractor shall be organized in a logical fashion. The activities shown on the diagrams shall be sorted and grouped per work structure, with the work covered by each Contract Item separately designated by distinct schedule activities.

The Contractor's coding for each activity shall be in accordance with the activity code dictionary supplied to the Engineer at the Pre-Construction Scheduling Conference. The Engineer has the authority to require the Contractor to utilize additional filters, layouts or activity codes to be able to further categorize, group or summarize the activities. Furthermore, the network diagrams shall indicate all submittals and off-site material testing required by the Contract, and the submittals shall be sub-grouped by category.

All schedules shall identify, at a minimum, the following activities:

- Identification of utility relocations and interfaces as separate activities, including activity description and responsibility coding that identifies the type of utility and the name of the utility company involved.

- Identification of all subcontractor work and interfaces as separate activities, including activity description and responsibility coding that identifies the type of utility and the name of the subcontractor involved.

- Identification of all tests, submission of test reports, and approval of test results required under the Contract.

- Identification of Punchlist and final clean up required by the Contractor to complete the work. The Contractor shall designate not more than 30 days for the Contractor's performance of Punchlist and final clean-up activities.

- Identification of any manpower, material, or equipment restrictions, as well as the specific identification of any activity requiring unusual shift work, such as double shifts, 6-day weeks, specified overtime, or work at times other than regular days or hours.

Each activity depicting the Contractor's operations at the work site shall have duration of not more than 30 working days and not less than one (1) day unless permitted otherwise by the Engineer. All activities shown in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor activity.

At the Contractor's option, the Schedule shall be labor and equipment resource loaded, indicating resource allocations for each type of labor craft and each equipment class with respect to each and every activity indicated in the schedule. The resource loading shall include sufficient labor and equipment to properly execute the activity with respect to the Original Duration depicted in the Schedule. The Contractor shall optimize and level labor to reflect a reasonable plan for

accomplishing the work of the Contract and to assure that resources are not duplicated in concurrent activities.

For each activity in the network, the Contractor shall determine the contract value of the work activity. Administrative activities, MDOT activities and milestones shall have an assigned cost of zero. The summation of the costs of all activities shall be equal to the cost of the project, or the Contractor's approved bid for the construction of the project. These costs are to be incorporated into the schedule and the anticipated daily earnings computed for both early and late starts. These earnings are to be graphically displayed in a time-cost chart ("S" curve).

For each activity in the network, the Contractor shall determine the contract pay item quantity of the work activity. The summation of the pay item quantities of all activities shall be equal to the total of each of the pay item quantities of the project.

Float shall not be considered as time for the exclusive use of or benefit of either MDOT or the Contractor but shall be considered as a jointly owned, expiring resource available to the project and shall not be used to the financial detriment of either party. Any schedule, including the Baseline Schedule and all updates thereto, showing an early completion date shall show the time between the forecast completion date and the Contract Completion Date as "project float".

In connection with the submittal of the Baseline Schedule and all updates thereto, the Contractor shall require all of its subcontractors to submit in writing a statement certifying that the subcontractor has concurred with the schedule and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities and labor and equipment resource loading.

The Engineer's acceptance of a Contractor schedule shall not constitute a change of any portion of the Contract. Failure of the Contractor to include any element of work required by the Contract in its schedules shall not relieve the Contractor from completing the work within the time limit specified for completion of the Contract. If the Contractor fails to define any element of work, activity or logic, and the omission or error is discovered by either the Contractor or the Engineer, it shall be corrected by the Contractor in regard to the next monthly update or revision of the schedule.

Should the Baseline Schedule or any update thereto show variances from the scheduling requirements of the Contract, the Contractor shall make specific mention of the variations in the letter of transmittal, in order that, if accepted, proper adjustments to the project schedule can be made. Notwithstanding the foregoing, the Contractor will not be relieved of the responsibility for completing all work required by the Contract.

In the event that the Baseline Schedule, or any updates or revisions, show completion occurring prior to the Completion Date and/or interim milestones, the Contractor must demonstrate to the Engineer that the schedule is reasonable, practical and achievable. Moreover, it is expressly understood and agreed that (1) the Contractor shall have no claim for delay, disruption, hindrance, or other impact based on any early completion indicated in the Contractor's schedule(s); (2) a delay is critical if and only if to the extent that the delay extends the completion of the entire work to a

date that is beyond the contractually specified date for full completion of the work, regardless of the Contractor's planned early completion; and (3) the contract price includes full compensation for all time-related costs associated with the Contractor working at the project site for the full duration of the time set forth in the Contract, even if the Contractor represents that the Contractor plans to fully finish the work in less than the time established by the Contract for full completion of the work.

The Contractor shall not incorporate any changes or delays to the work in the Baseline Schedule and in all schedules submitted thereafter without the Engineer's approval.

The submittal of all schedules shall also be accompanied by computer-generated mathematical analysis tabular reports for all activities included in the network diagrams. The tabular reports (8½" x 11" size) shall consist of a report detailing the following:

1) Activity number and description
2) Activity Codes Line
3) Original, and remaining durations
4) Earliest start date (by calendar date)
5) Earliest finish date (by calendar date)
6) Actual start date (by calendar date)
7) Actual finish date (by calendar date)
8) Latest start date (by calendar date)
9) Latest finish date (by calendar date)
10) Identify activity calendar ID
11) Total Float and Free Float, in calendar days
12) Percentage of activity complete and remaining duration for incomplete activities
13) Detailed Predecessor
14) Detailed Successor
15) Resources assigned to each activity
16) Cost associated with each activity

Unless otherwise specifically noted elsewhere in this special provision, network diagrams and the tabular reports shall be submitted to the Engineer in the following quantities:

a) 4 sets of the network diagrams on "E" size (36" x 48") sheets
b) 4 sets of the network diagrams on reduced-size (11" x 17") sheets
c) 8 copies of all tabular reports (8½" x 11" size)
d) 8 copies of the "S" curve
e) 2 copies of electronic files of the data and the schedule narrative report on CD-ROM or flash drive.

907-108.03.1.7--Monthly Progress Meetings. The Engineer and the Contractor shall hold monthly progress meetings to discuss, among other things, (1) the near-term schedule activities; (2) the current status of as-Built documentation, RFI's, Contractor Daily Reports, Quality Control, submittals, correspondence, and Contract Change Orders; and (3) Jobsite safety, cleanup, traffic control, and coordination issues. Furthermore, the meeting shall address any long-term schedule

issues discussion of any relevant technical issues. The Contractor shall develop a look-ahead schedule identifying the previous month; current month and a month look ahead. The Contractor's look-ahead schedules shall provide sufficient detail to address all activities to be performed and to identify issues requiring action or input by MDOT. Twenty-four (24) hours prior to the monthly progress meetings, the Contractor shall furnish the look-ahead schedule in hard copy and electronic format to the Engineer for review.

No later than two (2) days prior to the Monthly Progress Meeting, the Contractor shall furnish a list of critical items relating to the look-ahead schedule. During the meeting the parties will jointly determine whether additional items need to be listed, the priority of items, the parties responsible for resolving the critical item and the scheduled resolution date. The updated list will be distributed with the monthly meeting minutes. Nothing herein shall be construed to excuse the Contractor's obligation to timely provide either a Notice of Delay or a Notice of Potential Claim.

907-108.03.1.8--Monthly Update Schedules. The Contractor shall regularly update the approved Baseline Schedule to reflect the current status of the project. On the day following the estimate cut-off date, the Contractor shall submit a Monthly Update Schedule to the Engineer. The update shall include all information available and status of the project as of the estimate cut-off date, or such other date as established by the Engineer. All Monthly Update Schedules described below shall comply with the requirements indicated above.

All Monthly Update Schedules shall incorporate all changes previously approved by the Engineer.

Each Monthly Update Schedule shall reflect all as-built activities performed as of the effective date of the update schedule. The Monthly Update Schedule shall include the period from the last update to the effective date and for the remainder of the project. The current period's activities shall be reported as they actually took place. In the updated schedule, the Contractor shall indicate the actual dates that activities were started, completed, or split. Ongoing activities shall have an indication of the percent complete and the remaining duration to complete such activities.

Portions of the schedule on which activities are complete need not be reprinted and submitted in subsequent updates. However, the electronic file of the submitted Monthly Update Schedule and the related reports shall constitute a clear record of the actual progress of the work from the effective date of the Notice to Proceed to the effective date of the update, as well as the projected future work up to final completion of the project.

The Monthly Update Schedule, and any other relevant information available, will be used to determine the effect of any contemplated or actual changes or delays to the work.

907-108.03.1.9--Schedule Narrative Reports. The Contractor shall also prepare Schedule Narrative Reports, which are to be submitted to the Engineer concurrently with each CPM submittal.

907-108.03.1.9.1--Baseline Narrative Report. The Baseline Schedule Narrative Report shall describe, in a narrative fashion, the logic of the schedule. It shall identify the critical path and

other areas of schedule delay risk. The narrative shall include a listing of all decision/approval points in the schedule.

907-108.03.1.9.2--Progress Narrative Reports. The Progress Narrative Report shall describe the physical progress of work performed by the Contractor during the report period. In addition, the report shall indicate the Contractor's plans for continuing the work during the forthcoming report period, actions planned to correct any negative float, and any delays or problems and their estimated impact on the contract completion date for the project. In addition, the Contractor shall include for consideration by the Engineer alternatives for possible schedule recovery to mitigate any potential delay. The report shall follow the outline set forth below:

1. Contractor's Transmittal Letter
2. Work completed during the report period
3. Description of the current critical path of the schedule
4. List of any and all delayed activities
5. Status of the Contract Interim Milestone and Contract Completion Dates
   a) On schedule
   b) Ahead of schedule and number of days
   c) Behind schedule and number of days
6. Listing of any changes to the schedule activities or logic

Narrative reports containing non-factual, subjective statements, judgments or opinions, which appear to assign responsibility or to make conclusions as to excusability, responsibility, or compensability for delays shall be cause for rejection of the narrative report.

On a monthly basis, and on a date to be determined by the Engineer, the Contractor shall meet with the Engineer to review the Monthly Update Schedule and the Schedule Narrative Report. The Engineer will be allowed 15 working days after the meeting to review and accept or reject the Monthly Update Schedule and the Schedule Narrative Report. Rejected schedules and/or reports shall be revised and resubmitted to the Engineer within 10 working days, at which time a new 15-working day review period by the Engineer will begin. All efforts shall be made between the Engineer and the Contractor to complete the review and the approval process prior to the cut-off date for the next update schedule. To expedite the process, a second meeting between the Engineer and the Contractor shall be held, as determined to be necessary by the Engineer.

907-108.03.1.10--Schedule Revisions.

907-108.03.1.10.1--Contractor Proposed Revisions. Once the Baseline Schedule is accepted, the Contractor shall not make any revisions to the schedule without first obtaining the approval of the Engineer.

Possible revisions to the Baseline Schedule include, but are not limited to, changes to the logic and sequence of the activities depicted in the schedule; changes to the duration of a particular activity; and addition or deletion of activities to be included with the schedule.

The Contractor's request to revise the approved Baseline Schedule shall be made in writing. The request shall set forth the reasons for the change and the proposed revisions to the activities, logic and duration of the approved schedule. In addition, the Contractor shall submit a schedule analysis showing the effect of the revisions on the entire project. The analysis shall include the following:

- An updated schedule that does not include the proposed revisions. The schedule shall have a data date just prior to implementing the proposed revisions, and the schedule shall indicate the current contract completion date;
- A revised schedule that includes the proposed revisions. The schedule shall have the same data date as the updated schedule, and the schedule shall indicate the current contract completion date;
- A narrative explanation of the revisions and their impact to the schedule, including any revised resource allocations for the activities depicted in the two schedules; and
- Computer files of the updated and revised schedules, on duplicate sets of CD-ROMs or flash drive.

The Engineer will be allowed 15 working days to consider the Contractor's request for revision to the approved schedule. Should the Engineer accept the proposed revision, the Contractor shall incorporate the revision into the next monthly update of the schedule. However, if the Engineer does not accept the proposed revision, the Contractor shall not make any change to the schedule.

The above provisions shall not be construed as a limitation on the Contractor's obligation to accurately reflect the as-built progress of the work with respect to each Monthly Update Schedule. It is expressly understood and agreed that the term "revisions", as used herein shall refer to changes to the schedule with respect to work that will be prospectively performed up to completion of the project.

907-108.03.1.10.2--Engineer Required Revisions. Within 15 working days of the Engineer's request, the Contractor shall submit a revised schedule whenever the Engineer determines that there is a significant change in the Contractor's operations that affects the Critical Path;

907-108.03.1.11--Measurement and Payment. CPM Scheduling will **NOT** be paid for by separate payment. All costs incurred by the Contractor in complying with the above requirements for furnishing the CPM schedule shall be included in other items bid.

An amount equal to twenty-five percent (25%) of the total estimated value of the work performed during each period in which the Contractor fails to submit any of the schedules required herein will be withheld from the Contractor's earned work. This includes Monthly Updates and Schedule Narrative Reports, and/or failure of said schedules to conform to the requirements of this special provision, as determined by the Engineer.

Thereafter, on subsequent successive estimate periods, the percentage withheld will be increased at the rate of twenty-five percent (25%) per estimate period in which the non-conformance with this specification continues. Monies withheld for this non-conformance will be released for payment on the next monthly estimate for partial payment following the date the schedule information is brought back into compliance with this specification.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-250-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Polyacrylamide (PAM)

Section 907-250, Polyacrylamide (PAM), is hereby added and becomes a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-250--POLYACRYLAMIDE (PAM)

907-250.01--Description. This work consists on designing, furnishing, applying, and maintaining a water-soluble anionic polyacrylamide (PAM) as temporary soil binding agents to reduce erosion as a result of storm water on construction sites.

This product shall be applied directly to the soil surface in areas where the timely establishment of vegetation may not be feasible or where vegetative cover is absent or inadequate.

PAM mixtures shall be used in conjunction with, but not a substitute for, other Best Management Practices (BMPs).

907-250.02--Materials. Only anionic PAM mixtures will be allowed. Cationic PAM mixtures shall not be allowed. The Contractor shall make necessary arrangements to get project soil samples analyzed to determine that the correct type of PAM is being used on the project.

The anionic PAM mixtures shall be an environmentally friendly, non-combustible, benign material which is harmless to fish, aquatic organisms, wildlife, and plants.

The PAM mixtures shall meet the following requirements:

- $\leq$ 0.05% free acrylamide monomer by weight,
- have a charge density of 10 to 55 percent, and
- have a molecular weight of 6 to 24 Mg/mole.

The manufacturer/supplier shall provide a certified test report that the material meets these requirements.

The manufacturer/supplier shall provide written instructions to insure proper safety, storage, and mixing of their product.

907-250.03--Construction Requirements. The PAM shall be applied directly to the soil in a liquid form at the application rate specified by the manufacturer. The application rate shall not exceed the maximum application rate specified by the manufacturer. Higher concentrations of anionic PAM mixtures may actually decrease effectiveness. Repeated applications of PAM

mixtures may be applied, if necessary, to ensure adequate effectiveness.

Unused liquid anionic PAM mixtures shall be minimized. Excess material shall not be applied at a rate greater than the maximum application rate. Disposal shall not occur in storm water conveyance systems (i.e. storm sewer manholes, storm sewer inlets, ditches, culverts, etc.).

The manufacturer/supplier shall provide a product expiration date for the PAM mixtures based on product expiration date of the PAM in pure form. The manufacturer/supplier shall provide general written application methods, based on site conditions, such as slope and soil type. The application method shall provide uniform coverage to the target area and avoid drift to non-target areas.

Anionic PAM mixtures may lose its effectiveness due to weather conditions. Areas where PAM is applied shall be inspected within 24 hours after the end of a rainfall event of one-half inch or more, and at least once every seven (7) calendar days. Maintenance needs that are identified during inspections must be accomplished before the next rain event, if possible. Maintenance shall consist of reapplying anionic PAM mixtures to disturbed areas, including high use traffic areas, which interfere in the performance of this application.

907-250.04--Method of Measurement. Polyacrylamide (PAM) will be measured by the actual weight in pounds of PAM applied, including any PAM used during maintenance re-applications. Water or other liquids used during application will not be included in the measurement per pound.

907-250.05--Basis of Payment. Polyacrylamide, measured as prescribed above, will be paid for per pounds, which price shall be full compensation for soil analysis, furnishing all materials, labor, equipment and all incidentals necessary to complete the work.

Payment will be made under:

907-250-A: Polyacrylamide - per pound

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-603-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Slotted Drain Pipe

Section 603, Culverts and Storm Drains, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-603.01--Description. After the last paragraph of Subsection 603.01 on page 383, add the following:

This work consists of the construction of a slotted drain system in accordance with these specifications and in reasonably close conformity with the details, lines and grades shown on the plans, or as established. This work shall also consist of furnishing all materials for the installation and backfill of the drain system, and joining the work to other conduit, catch basins, manholes, inlets, etc., as may be required to complete the work as designated.

907-603.02--Materials. After the last paragraph of Subsection 603.02 on page 383, add the following:

Slotted drain pipe shall meet the requirements of Sections 708 or 709 of the Standard Specifications, as applicable. Unless otherwise specified, slotted concrete pipe shall be Class III and slotted corrugated metal pipe (CMP) shall be 14 gauge.

907-603.03--Construction Requirements. After the last sentence of the first paragraph of Subsection 603.03.3 on page 385, add the following:

Prior to backfilling slotted pipe, the Contractor shall make sure the slot in the top of the pipe is to grade and properly aligned. The drain pipe shall then be carefully backfilled in accordance with the details in the plans, or as set forth elsewhere, to assure proper line and grade.

907-603.03.4--Joining Conduit.

907-603-.03.4.1--Storm Drainage. After the last paragraph of Subsection 603.03.4.1 on page 386, add the following:

When a slotted drain pipe begins or terminates without a connection to other pipe or structure, the pipe end shall be sealed or plugged with a suitable cap properly connected to provide a waterproof connection.

907-603.05--Basis of Payment. Add the following to the list of pay item at the end of Subsection 603.05.

907-603-CG: ___" Reinforced Concrete Pipe, Slotted Drain Pipe - per linear foot

907-603-MK: ___" Slotted Drain Pipe - per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-604-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Trench Drains

Section 604, Manholes, Inlets and Catch Basins, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as amended by this special provision is applicable for Trench Drains Only.

SECTION 907-604 -- TRENCH DRAINS

907-604.01--Description. This work shall consist of furnishing and installing a pre-engineered trench drain system in accordance with the plan details, standard specifications, and this special provision. The drain system shall consist of a pre-fabricated channel encased in concrete per the plan detail. The drain system shall be constructed to form a channel for the collection and flow of storm water. Grates shall be installed to allow water to pass into the channel and to allow vehicular traffic to move over the drains.

907-604.02--Materials.

907-604.02.1--Drain Channel. The drain channel shall be constructed on plastic, fiberglass, or polymer concrete. The minimum width and depth of the drain channel below the drain grate, or minimum required flow rate, will be shown on the plan detail. Connections to structures shall not restrict the hydraulic flow of the drain channel.

The drain channel shall have a smooth interior face.

The precast channels must have a radius or trapezoidal bottom and a minimum channel flow width of four inches (4”). The drain channel must be smooth to the touch and have interconnecting end profiles to obtain channel alignment within 1/16 inch.

Trench drain channel must conform to the requirements listed in Table 1.

Table 1

Physical Property	**Requirement**	**Test Method**
Lateral/Vertical Deflection	Pass	See Below
Compressive Strength	11,000 psi minimum	ASTM C 579
Moisture Absorption	1% maximum after 24 hr. immersion	ASTM D 570
Freeze/Thaw	1% maximum weight loss after 300 cycles	ASTM C 666
Chemical Resistance	Hydrocarbons / Automotive fluids -- No weight loss	ASTM C 267

Weathering Resistance	No cracking after 2000-hour exposure	ASTM D 2565
Burning Rate	HB	ASTMD 635

Lateral Deflection. The channel body shall be tested without the grate in a typical section of the length and width described in the catalog and supplied to the Contractor. The channel body must have a maximum lateral deflection of 1/4 inch when test loaded by 350 pounds per square foot applied over the entire sidewall of the channel body. Validation of the deepest channel body will validate all shallower channel bodies manufactured with the same design.

Vertical Deflection. The grate and channel body shall be tested as a unit in accordance with AASHTO Designation: M 306, with the following modifications.

- test block dimensions are nine inches (9") long by 75% of the trench grate width;
- proof pressure is 200 psi applied for one minute duration;
- acceptance criteria is no breaking, buckling, or bowing and a maximum deflection of 1/8 inch; and
- each grate width must be validated.

Prefabricated drain channels shall be made from components that are anchored by the placement of concrete to encase the anchoring lugs that are integral to the channel components. Prefabricated drain channels shall interlock with adjoining channels.

Unless otherwise indicated, Class B concrete shall meet the requirements of Section 804 shall be used concrete shall be placed in a monolithic pour between inlet structures. Construction joints will only be allowed if approved by the Engineer. If joints are allowed, they shall be constructed with a concrete lug or keyway approved by the Engineer.

907-604.02.2--Grates and Frames. The grates for the trench drains must have openings consisting of a minimum of 60 percent of the total top surface area of the grate, with no individual opening or slot having a dimension greater than two inches (2") when measured in the direction of the grated line drain flow line.

Grates or frames must have studs for anchoring to the surrounding concrete. Studs must extend at least three inches (3") from the grate or frame. The anchor studs must be spaced 24 inches or less along the length of the grate or frame on both sides. Studs must either be integrally cast with or may be welded to the grate or frame. Welded studs must have a 360 degree flash.

Grates and frames must be either grey iron casting in accordance with ASTM Designation: A 48, Class 35B, or ductile iron casting in accordance with ASTM Designation: A 536, Grade 80-55-06.

All grates and frames must have a load capacity meeting or exceeding AASHTO HS-20 for bridge construction. The grates supplied must meet AASHTO M 306-09, with the following modifications:

- proof load contact area width is 75% of trench flow width to a maximum contact width of

nine inches (9");

- proof load contact length is nine inches (9") for all trench widths; and

- proof load is 494 psi for a maximum proof load of 40,000 pounds over a 9-inch x 9-inch contact area.

Grate retaining devices shall not obstruct the flow of water into the channel or through the channel. The grate shall fit into the frame without rocking.

Frames shall be anchored into the surrounding concrete by metal extensions attached to the frame at all four corners. Frames which extend past the channel sidewall and bear on the adjacent concrete shall include vent holes to help release entrapped air during concrete consolidation. Vent holes shall be a large enough for visually observe proper consolidation of the concrete.

907-604.03--Construction Requirements. The Contractor shall submit the trench drain manufacturer's recommendations for installation to the Engineer prior to beginning installation. The submittal shall include a quantity listing of all materials required for the construction of the trench drain. The submittal shall be delivered to the Engineer at least ten calendar days prior to beginning the construction of the trench drain.

A representative of the trench drain manufacturer shall be present to advise the Engineer of the adequacy of the first trench drain units that are installed. The installation of the trench drain units shall not begin until the manufacturer's representative is present at the site of installation.

Connection to an existing structure may require the use of a transitional fitting and/or sections of pipe to provide a suitable connection without damage to the grate, drain and structure. Connections to structures shall be approved by the Engineer prior to construction.

When the trench drain begins or terminates without a connection to other pipes or drainage structures, the trench drain end shall be sealed or plugged with a cap suitable to the Engineer. The seal shall provide a waterproof connection. Unless otherwise detailed in the plans, outlet/inlet end attachments to connect existing or required pipe to the trench drain shall be standard manufactured attachments that are compatible with the trench drain and the outlet/inlet pipe. Unless otherwise detailed in the plans, adequate sized pipe shall be used to connect existing or required structure to the trench drain.

Excavation shall be kept as nearly as possible to the minimum width, depth, and length shown on the plan detail.

Trench drains shall be installed to the lines and grades shown on the plans or as directed by the Engineer. The trench opening should be protected during installation by a removable wood strip, heavy duty tape, or other suitable material, affixed to the opening to prevent infiltration of material into the drain. After finishing, any protective covering shall be removed and any debris that entered the trench shall be removed.

The furnishing and placement of the concrete backfill shall be in accordance with the requirements of Sections 601 and 804. The prefabricated trench drain components shall be supported or held in place in such a manner as to permit flow of the concrete backfill material around the drain. Unless otherwise shown, the concrete encasement adjacent and beneath the drain channel shall be a minimum thickness of six inches (6"). Drain channels shall be positioned in the excavated trench so that, when finished, the surrounding concrete backfill will encase the channel. Concrete backfill shall be placed in the trench against undisturbed material at the sides and bottom of the trench and in a manner that will prevent floating or shifting of the trench drain components and voids in, or segregation of, the concrete. Where necessary, earth plugs shall be constructed and compacted at the ends of the planned concrete backfill to contain the concrete within the trench. Concrete shall be finished flush with the adjacent finish grade. The surface of the concrete shall be textured with a broom or burlap drag to produce a durable skid-resistant surface.

Under no circumstances shall any portion of the trench drain slot extend above the paving material or curb and gutter section.

907-604.04--Method of Measurement. Trench drain will be measured by the linear foot along the top of the trench drain. Connections to other structures (i.e. elbows, pipe, joints, etc.) will not be measured for payment unless shown otherwise on the plan detail. Excavation and backfill will not be measured for separate payment.

907-604.05--Basis of Payment. Trench drain, measured as prescribed above, will be paid for at the contract unit price per linear foot, which shall be full compensation for fabricating, furnishing and installing the trench drain components, furnishing and installing connections to other structures or pipe, all concrete, excavation, backfill, satisfactory disposal of surplus materials, and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

907-604-T: ___-inch Trench Drain -per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-618-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Service Patrol

Section 618, Maintenance of Traffic and Traffic Control Plan, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-618.01--Description. After Subsection 618.01.2 on page 441, add the following.

907-618.01.3--Service Patrol. This work shall consist of providing Service Patrol inclusive of the equipment and operator to patrol the roadways within the project limits to clear the lanes and shoulders of disabled automobiles, motorcycles and small trucks, and to provide assistance at other incidents as directed by law enforcement personnel or the Engineer. The Service Patrol vehicle shall be a tow truck as described in this special provision.

907-618.01.3.1--Service Patrol Limits. The limits of operation for Service Patrol included in this contract shall be mainline roadways and ramps and other roadways within the construction limits defined on the plans for the project.

907-618-01.3.2--Service Patrol Truck. The Contractor shall provide one (1) Service Patrol truck with operator. The Service Patrol truck shall be one ton or larger, having a minimum gross vehicle weight rating of 10,000 pounds and a dual wheel chassis. The truck shall be no older than 2012.

The truck shall be equipped, as a minimum, with the following.

(1) Wheel lift towing equipment with a minimum lift rating of 3,000 pounds.
(2) Hydraulically extendible boom with a minimum static rating of 8,000 pounds.
(3) Winch - 8,000-pound rating on the first layer of cable.
(4) Winch Cable - 100 feet, 3/8-inch diameter, steel center, with a minimum working load capacity of 3,500 pounds.
(5) Towing sling.
(6) Push bumper and grill guard.
(7) AM/FM radio.
(8) Spotlight(s) capable of directing a beam centered in any direction of a 360 degree horizontal arc around the truck.
(9) Roof-mounted amber warning lights, flashing, with on/off switch in cab.
(10) Power outlets ("hot boxes"), front mounted with outlets compatible to booster cables.
(11) Heavy duty, 75-amp± battery.
(12) Cellular mobile telephone.
(13) Wiring harness for powering portable, remote brake/tail lights on towed vehicles.

(14) Lamp, high intensity, dashboard mounted.
(15) Trailer hitch.
(16) Motorcycle transporting capability.
(17) Rear work lights.
(18) Safety chain D-ring or eyelet mounted or rear of truck.
(19) "Loudhailer" with Microphone and External Speaker, 100-watt.
(20) Vehicle Mounted Flashing Warning Sign (Arrow Board) and Roof Rack. Flashing Arrow Board shall be capable of flashing 50 times per minute and display right arrow, left arrow, warning bar or double arrow messages.
(21) 40-Channel Citizens Band (CB) Radio.

The truck shall display the Service Patrol title and the name of the Prime Contractor. The displays shall be mounted on the doors and in a readable location on the front and rear of the truck. The displays shall be maintained in a clean, readable condition throughout the Service Patrol operation.

The Service Patrol truck shall be assigned exclusively to this project. The truck shall be used only at the times and locations as specified herein, or as designated by the Engineer, and until such time as the Contractor is released from maintenance.

Truck maintenance shall be performed during off-duty hours. The truck shall be kept neat and clean, and shall be maintained in conformance with the requirements of the Motor Vehicle Code.

The Service Patrol truck and the equipment it carries shall be subject to periodic inspection by the Engineer who, for an unsafe or a poorly maintained truck, or for an improperly equipped truck, may order the truck removed from service and replaced at no cost to the Department. The Contractor shall replace the truck removed from service within 24 hours. Failure to comply may result in the Contractor's monthly estimate being held until such time the Service Patrol is returned to service.

907-618.01.3.3--Toolbox. The Service Patrol truck shall carry a toolbox with the tools and supplies required to perform operations specified herein. Such tools and supplies shall included the following as a minimum.

	Quantity
Screwdrivers:	
Standard - 1/8", 3/16", 1/4", 5/16"	1 each, min.
Phillips head - No. 1 & No. 2	1 each, min.
Needle nose pliers	1
Adjustable, rib-joint pliers, 2-inch min. capacity	1
Crescent wrench - 8-inch	1
Crescent wrench - 12-inch	1
3-lb. hammer	1
20-oz. claw hammer	1
Rubber mallet	1
Wire cutters	1

Jackknife 1
Electrical tape, roll 1
Hacksaw & spare blades 1
Duct tape, 20-yard roll 1
Light or penetrating oil, 2-oz. or larger can 1
Battery cable puller 1
Tire pressure gauge 1
Ratchet Wrenches ..... 1 complete set
Open-end Wrenches ..... 1 complete set

907-618.01.3.4--Equipment for Operations. Each Service Patrol vehicle shall carry as a minimum the following equipment needed to perform the intended service function.

Two - 5-gallon fuel cans filled with
Diesel fuel 1
Unleaded gasoline 1
Safety chain, towing 1
Snatch block, 4-ton capacity 1
First aid kit 1
Fire extinguishers
20-lb. Chemical ABC 1
20-lb. Carbon Dioxide 1
Pry bar - 36" or longer 1
5-gallon can of radiator water 1
4" x 6" x 12" wood blocks 4
24" wide street broom 1
Square point shovel 1
Highway flares, 15 minutes 12
Traffic cones - fluorescent orange, 28" 6
Star type lug wrench 1
Air compressor or rechargeable air bottle hoses &
fittings to fit tire valve stems, 200 psi capacity 1
Paper towels, roll 1
Hand cleaner, waterless, can 1
Flashlights & spare batteries 2
Booster cables, 25 feet long, 3-AWG copper, with heavy-duty
clamps and one end adapted to truck's power outlets ..... 1 set
Vehicle door unlocking tool ..... 1 set
Funnel, multipurpose, flexible spout 1
Tow chain and hooks 1
Self-loading dolly 1
5-gallon cans, filled with sand 2

Expendable items such as gasoline, fire extinguishers and fusees shall be replenished after use and prior to commencing the next circuit of the patrol route. Such re-stocking shall be

accomplished at sites which do not require the operators to travel more than 1½ miles from the Service Patrol route.

907-618.01.3.5--Communications Equipment. Service Patrol trucks shall be equipped and maintained with a cellular mobile telephone capable of communicating with the Prime Contractor from any and all points along the patrol route, and for contacting the Mississippi Highway Patrol, other law enforcement agencies and the Engineer.

907-618.01.3.6--Operators Uniforms. Operators shall wear protective shoes or boots, a cap, white shirt, and dark slacks, not blue jeans. Jackets and shirts shall bear the name of the Prime Contractor and the designation 'Service Patrol'. Clearly visible and readable plates or badges showing the operator's name shall be worn on the shirts and jackets.

907-618.01.3.7--Operations.

907-618.01.3.7.1--Patrol Route. The Service Patrol truck shall operate on mainline roadways, ramps and other roadways located within the construction limits as designated on the plans for this project. The Service Patrol truck shall not leave the designated area except:

(1) To discontinue patrol at the end of a shift.
(2) For mechanical failure of the Service Patrol vehicle or equipment.
(3) To replenish expendable supplies.
(4) To circumvent a queue to reach an incident or lane blockage.
(5) In response to an order from a law enforcement officer or fire department official carrying out their duties, or an order from the Engineer or his representative.
(6) To provide an operator a rest period of no longer than 15 minutes. Such rest periods shall be outside peak periods and shall be no more frequent than one such break per four-hour shift segment.
(7) To change operators in the event of operator illness.
(8) dispose of collected debris gathered during the previous circuit.

The operator shall maintain a detailed, written log of his time during the work shift as indicated herein. A copy of the Service Patrol logs documenting its activities shall be submitted to the Engineer on a weekly basis.

907-618.01.3.7.2--Time of Operation. Service Patrol operation shall commence on the first day of construction and shall remain in operation until all work has been completed and the Contractor released from maintenance on the project.

The Service Patrol vehicle shall operate within the limits of the project 24 hours a day / 7 days a week, regardless of whether or not the Contractors is working on the project.

When Service Patrol operators receive a request for service from either the Engineer or law enforcement agencies near the end of the Service Patrol operator's shift, the operator shall respond and provide the necessary services. The specified level of service shall be provided for

each incident or disabled vehicle, even if it requires work past an otherwise scheduled break or end of shift, all at no additional cost to the State.

Service Patrol operators shall keep a log of the times their truck physically commences its patrol of the designated route, and the times the truck goes off duty, and any time the truck leaves the designated patrol area. The operator shall provide a copy of the log to the Engineer each week. The log shall contain the reason for each departure from the patrol route.

907-618.01.3.7.3--Duties. The Service Patrol shall perform the following duties within the specified time and patrol area.

Patrol: Continuously patrol the designated area seeking disabled vehicles, stranded motorists, debris in the roadway, spilled loads, accidents, obstructions to traffic, and other potential hazards.

Clearing, Clean-up and Communications: Clear lanes and shoulders of all disabled vehicles encountered on patrol, and call the following parties where appropriate:

a) The Contractors forces for large spilled loads or large debris.
b) Local fire departments for verified fires.
c) The Mississippi Highway Patrol (MHP) for accidents, law enforcement situations, or for towing of vehicles beyond the Service Patrol truck's capacity.

Assistance to Motorists: The Service Patrol operator shall provide assistance to motorists as follows:

a) Change flat tires for motorists.
b) Provide jump starts with booster cables for vehicles with dead batteries.
c) Attempt unlocking of vehicles for locked-out motorists.
d) Provide fuel for motorists where necessary.
e) Perform minor repairs where time permits.

Advice to Motorists: Motorists shall be advised, and given a card, approved by the Engineer, explaining that prior to towing, pushing, fueling, or servicing their vehicles, their vehicle must be removed from the highway, that this service is being provided free of charge as a courtesy by MDOT, that the Service Patrol may attempt minor repairs when time permits, once the vehicle is cleared from the highway, and that, should the repairs not prove feasible, the motorist may make two local telephone calls not longer than three minutes using the Service Patrol's cellular telephone to telephone arrangements for further service, towing , or transportation.

Disabled Vehicles: Disabled vehicles shall be cleared of lanes, with the least delay practicable, by either pushing or towing. Vehicles that are disabled due to lack of fuel shall be provided with a maximum of two (2) gallons of the proper fuel after which re-starting of the vehicle should be attempted. Then, if the vehicle is not able to continue under its own power, it shall be towed to a safer location on the next exit ramp or to the nearest designated staging area, when provided in the contract. Vehicles with flat tires shall be towed to safer location and the tire changed there.

Disabled vehicles shall be pushed or towed to a safer location on the next exit ramp or to the nearest designated staging area, when provided in the contract.

Disabled vehicles may be towed to an open service station, located within the above limits, only at the specific request of the patron. Within these stated limits, the patron's request for disposition of the disabled vehicle shall be followed.

After towing or pushing a disabled vehicle to a location other than a service station, as described above, the Service patrol operator shall attempt to discern the cause of the disability and offer to attempt simple repairs and/or remedies. The patrol operator may spend up to 15 minutes during off-peak periods 'with any single disable vehicle and shall inform the motorist of this requirement prior to commencing repairs. If repairs cannot be made, or would take longer than 15 minutes, the Service Patrol operator shall offer the motorist the opportunity to make two local telephone calls (not more than three (3) minutes) using the Service Patrol Vehicle's cellular telephone.

Should a motorist refuse to allow the disabled vehicle to be cleared of the traffic lanes, the Service Patrol operator shall contact the Mississippi Highway Patrol for assistance and remain on the scene, directing traffic around the disabled vehicle while providing additional protection to same from traffic via the patrol truck. If the driver does not grant permission, vehicles shall not be removed unless a Mississippi Highway Patrol officer authorizes the removal.

Abandoned Vehicles: When an abandoned vehicle is encountered, the attending Service Patrol operator shall contact the Mississippi Highway Patrol to advise the vehicle location, make, color, body type, plate number and whether or not it is impeding traffic.

When an abandoned vehicle is not impeding traffic, or is not considered to be a potential safety hazard, the Service Patrol shall notify the MHP of the vehicle location for tagging and for scheduling of wrecker services for removal.

If the abandoned vehicle is impeding traffic, or is considered to be a potential safety hazard, the Service Patrol shall request the MHP for authorization for the Service Patrol vehicle to move the abandoned vehicle to a safer location or to the nearest designated staging area, when provided in the contract. Once moved to a safer location the vehicle shall be treated as abandoned as described in the previous paragraph.

After towing an abandoned vehicle, or removing a vehicle from the scene of an accident, it shall be parked at a safer location, the wheels turned away from the roadway, the parking brake set, the windows closed, and doors locked, if possible. The vehicle may be removed to the nearest designated staging area, when provided in the contract. An inventory of vehicle items shall be conducted to include, but not limited to, radios, C.B.'s and other personal items. The location of the vehicle shall be reported to MHP.

Accidents: The Service Patrol operator shall call for police, fire and ambulance assistance as necessary at accident scenes. Where no apparent physical injury is evident, the operator shall

request drivers to drive or be pushed to emergency lanes or off the road to open the obstructed lane to traffic. Operators shall take no action without the driver's consent except under police direction. Where apparent physical injury or driver intoxication is evident or suspected the operator shall not move vehicles involved in an accident until so directed by the police. In such cases, the operator shall not follow directions or requests made by vehicle's driver or occupants.

The Service Patrol Operator shall protect accident scenes by setting flares, cones, flagging, and/or flashing amber lights and assisting in traffic control.

When a vehicle's operator has been involved in an accident and is unable or not available to authorize towing, the Service Patrol operator shall request and receive authorization and orders from the Mississippi Highway Patrol prior to removing the vehicle.

Assistance to Mississippi Highway Patrol and/or other Law Enforcement Agencies: The Service Patrol operator shall render assistance to Mississippi Highway Patrol and/or other law enforcement officers when requested. Service Patrol operators shall follow the instructions of, and obey the orders of law enforcement officers at the scene of any incident.

Towing: The Service Patrol operator shall use an appropriate method of towing for each encountered situation and type of vehicle to be towed. The operator shall use towing procedures considered appropriate by the towing industry and other competent tow service operators acting in similar circumstances with similar equipment. Safety chain(s) between the towed vehicle and the Service Patrol truck shall be used during all towing.

People shall not be permitted to ride in vehicles being towed, but shall ride in the Service Patrol truck instead. If there are more than two such persons, the Service Patrol shall call the Mississippi Highway Patrol or a cab service for transportation. Costs of any needed cab service shall be included in the Service Patrol bid price.

Transporting People: When transporting passengers, the Service Patrol operator shall keep a log with the names, destination and time and mileage at the moment of departure with the passenger, and again with the mileage and time of arrival at the destination.

Animals: The location, type, and condition of injured or dead animals shall be telephone to the Animal Control Agency. The location of dead animals shall be communicated to the Contractor for his disposal.

Disposal of Rubbish, Debris and Dead Animals: The Contractor shall dispose of collected rubbish, debris, and dead animals at a legal site and in a manner conforming to local sanitation laws. The locations and nature of heavy or voluminous debris shall be reported to the Contractor for removal.

907-618.01.3.7.4--Service Patrol Log. Service Patrol operators shall maintain "Service Patrol Logs" which shall be completed for each incident attended to by the Patrol. The log form shall be approved by the Engineer.

Service Patrol Logs shall show:

(1) The date of the incident.
(2) The following times (using military time):

a) The time when the Service Patrol dispatcher noted the incident.
b) The time of arrival at the incident.
c) The time of departure from the scene of the incident.
d) The time of return to patrol duty.

(3) The nature of the incident, such as debris removal, injured or dead animal, stalled vehicle, accident.
(4) Whether the incident was detected by normal patrol activity or in response to a dispatcher's call.
(5) The incident location by route name and approximate distance north, south, east, or west to a cross street, the lane number(s) in which the incident was located, and the direction travel of the lanes.
(6) Where applicable, the following information shall be recorded.

a) The vehicle's make model, body type, and license plate number.

b) The nature of the problem, such as out of gas, overheated and flat tire.

c) The disabled vehicle driver's sex.

d) The type of assistance provided by the Service Patrol.

e) Any damage evident before, and again after, towing or pushing the disabled vehicle.

f) The location at which the disabled vehicle was disengaged from the tow truck and parked.

g) The location to which the disabled vehicle's driver and/or passengers were transported.

h) Expendable items and quantities furnished.

(7) If additional assistance by other tow services or government agencies was required.
(8) Weather conditions.
(9) The Service Patrol operator's name.

907-618.01.3.7.5--Operator Qualifications. Service Patrol truck operators shall be licensed in accordance with the Mississippi Motor Vehicle Code.

Operators shall be competent in the tasks of tow truck operations to provide safe and proper discharge of their service responsibilities. The Contractor shall provide resumes of the proposed operators for approval by the Engineer.

907-618.01.3.7.6--Operator Conduct. The operators shall exercise good sound judgment in carrying out their duties and conduct themselves in such a manner that it will reflect favorably upon the Mississippi Department of Transportation and State of Mississippi.

Operators shall:

(1) Wear clean uniforms at the start of each shift.
(2) Be well-groomed.
(3) Wear name plates where they can be seen.
(4) Be courteous at all times.

Service Patrol operators shall follow the following safety rules and general regulations.

Operator shall:

(1) Not drink alcoholic beverages on, or less than 4 hours before a shift, nor use illegal or controlled substances.
(2) Inspect assigned Service Patrol vehicles at the beginning of each shift.
(3) Always wear uniform while on duty. Uniform shirt or jacket must be clearly visible.
(4) Keep all communications radio and monitors 'on' and the volume 'up'.
(5) Remain in their assigned area and depart from the area only when absolutely necessary.
(6) Obey all traffic laws.
(7) Stop on the Interstate only to service an incident. Paperwork should be done off the Interstate, along ramps.
(8) When clearing an incident, use caution.
(9) Never push a truck or any other vehicle that obscures the vision directly ahead of you. Tow instead.
(10) Not accept payment for any type of service rendered. This is a free service and operators shall not accept any payment or gratuity for services rendered, even if the motorist insists.
(11) Contact the Mississippi Highway Patrol when arriving at situations which the Service Patrol cannot handle.
(12) Not carry firearms or other weapons either on their persons or in the Service Patrol truck.
(13) Use flashing amber lights in conformance with the Mississippi Motor Vehicle Code and only in the following circumstances:
    a) When needed to warn overtaking traffic of the Service Patrol truck's low speed when accelerating into traffic lanes.
    b) To warn traffic when using the truck to protect the scene of an incident.

907-618.04--Method of Measurement. After the last paragraph of Subsection 618.04 on page 449, add the following.

The Service Patrol item of work will be measured as a lump sum quantity. The percentage of the contract lump sum price allowed on progress estimates will be determined by the percentage of the combined total monetary value of all direct bid items, excepting those items identified in the

bid schedule as dependent items and the Service Patrol item itself, earned during the current (same) estimate period; however, when the Service Patrol is initially placed in service, the Contractor will be allowed payment at least equal to ten percent (10%) of the amount bid for Service Patrol.

907-618.05--Basis of Payment. After the third paragraph of Subsection 618.05 on page 449, add the following.

Service Patrol will be paid for at the contract lump sum price which includes compensation for complying with all the requirements of the specifications and this special provision and which shall be full compensation for completing the work.

After the last pay item listed on page 450, add the following.

907-618-M1: Service Patrol lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-619-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Construction Safety Fence

Section 619, Traffic Control for Construction Zones, of the 2017 Edition of Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-619.02--Materials. After Subsection 619.02.15 on page 472, add the following:

907-619.02.18--Construction Safety Fence. Construction safety fence shall be 4-foot orange safety fence manufactured by Tenex, Nilex, Roadtech, or approved equal.

Steel tee post shall meet the requirements of Subsection 712.05.2.2.

Tie wire shall meet the requirements of Subsection 712.13.

907-619.03--Construction Requirements. After Subsection 619.03.11 on page 476, add the following:

907-619.03.18--Construction Safety Fence. In order to route the public, workers, and equipment around the work area or certain parts of the work areas, the Contractor shall install the fence at the location(s) shown on the plans, or directed by the Engineer. The fence shall be supported by at least 6-foot tee post spaced on 10-foot centers. The fence shall be secured to the post by aluminum fence tie wire.

907-619.05--Basis of Payment. After the last pay item listed in Subsection 619.05 on page 480, add the following.

907-619-S: Construction Safety Fence - per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-626-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: 40-mil Thermoplastic Markings

Section 626, Thermoplastic Traffic Markings, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as amended by this special provision is applicable for 40-mil Thermoplastic Markings Only.

907-626.01--Description. This work shall consist of furnishing materials and applying 40-mil thick hot thermoplastic pavement marking as shown on the plans or directed by the Engineer.

907-626.02--Materials.

907-626.02.1--Binder. The binder shall consist of a mixture of synthetic resins, at least one of which is solid at room temperature. The total binder content of the compound shall be well distributed throughout the compound. The binder shall be free from all foreign objects or ingredients that would cause bleeding, staining or discoloration. The binder shall be 26 percent minimum by weight of the compound. The binder shall be characterized by an IR Spectra.

907-626.02.2--Pigment. The pigment used for the white compound shall be a high-grade pure (minimum 93% titanium dioxide, TiO_2). The white pigment content shall not be less than 10 percent by weight and shall be uniformly distributed throughout the compound.

The pigments used for the yellow paint compound shall be heat resistant and shall produce a compound meeting the requirements of FED 595 Color No. 33538. The yellow marking material shall contain a minimum of 4 percent by weight of the yellow pigment. Yellow pigment shall be lead free.

907-626.02.3--Filler. The filler to be incorporated with the resins as a binder shall be a white calcium carbonate, silica, or an approved substitute. Any filler which is insoluble in 6N hydrochloric acid shall be of such particle size as to pass a No.100 sieve.

907-626.02.4--Glass Beads. Intermix glass beads shall be uniformly mixed throughout the material at the rate of not less than 27 percent by weight (retained on the No.100 sieve) of compound. Drop on beads shall be used with pavement marking material and shall be applied uniformly at a minimum rate of 12 pounds per 100 square feet.

907-626.02.4.1--Properties. The drop on glass beads furnished under this specification shall consist essentially of transparent, water-white glass particles of a spherical shape. They shall be manufactured from a glass of a composition designed to be highly resistant to traffic wear and to the effects of weathering. The glass beads shall conform to the following requirements:

(a) **Sieve Analysis**. The glass beads shall meet the following sieve requirements:

Sieve No.	% Retained	% Passing
12	0	100
14	0-5	95-100
16	5-20	75-95
18	40-80	10-47
20	10-40	0-7
25	0-5	0-2
Pan	0-2	--

(b) **Imperfections**. The surface of the glass beads shall be free of pits and scratches. The sizes beads shall have a roundness of 70% minimum average per ASTM Designation: D1155 with the exception of the +20 portion, which shall have a 65% minimum true spheres, tested visually.

(c) **Index of Refraction**. The index of refraction of the glass beads shall be not less than 1.50 when tested by the immersion method at 77°F.

(d) **Silica Content**. The glass beads shall contain not less than 65 percent silica (SiO2).

(e) **Chemical Stability**. Glass beads which show tendency toward decomposition, including surface etching, when exposed to material or material constituents will be rejected. The glass beads shall be tested by Federal Specification T-T-B-1325A, Section 4.3.11, water resistant soxhlet extraction method, with the following exceptions:

Under "Procedure", the size of sample to be tested shall be 25 grams.

Under testing, Paragraph (1), the reflux-time shall be five hours and upon examination after testing the glass beads shall show no dulling effect.

Under Paragraph (2), if more than 4.5 mls of 0.1 N hydrochloric acid are used to reach the end point, it shall constitute failure of the test.

(f) **Flowing Properties**. The glass beads shall flow uniformly through dispensing equipment in atmospheric humidity up to 94%. The drop-on beads shall pass the following test:

One hundred grams of glass beads, spread evenly and thinly in a suitable container, shall be conditioned at 77°F for 4 hours over a solution of sulfuric acid with Sp. Gr. 1.10, in a closed desiccator. After four hours, the glass beads shall flow readily through a clean glass analytical funnel, 60°, 5-mm. diameter and 105-mm. stem. Inside diameter of the stem shall be a nominal 1/4 inch.

(g) **Coating**: The glass beads used for intermix shall be uncoated. The glass beads used for the drop on application shall be coated with an adhesion promoting coating. Silicone coated drop

on beads shall not be allowed.

(h) **Packaging**. The drop on glass beads shall be delivered in moisture proof bags consisting of at least five-ply paper construction unless otherwise approved. Each bag shall contain 50 or 55 pounds net, and shall be legibly marked with the manufacturer, specifications and type, lot number, and the month and year the glass beads were packaged.

907-626.02.5--Thermoplastic Material. In the plastic state, the material shall not give off fumes that are toxic or otherwise injurious to persons or property. The manufacturer shall provide material safety sheets for the product.

The temperature versus viscosity characteristic of the plastic material shall remain constant and the material shall not deteriorate in any manner during reheating processes.

There shall be no obvious change in color of the material as a result of repeated heatings or from batch to batch. The maximum elapsed time after application after which normal traffic will leave no impression or imprint on the new stripe shall be 30 seconds when the air and road surface temperature is approximately 68° ±6°F. After appreciable deformation or discoloration, shall remain free from tack, and shall not lift from the pavement under normal traffic conditions within a road temperature range of -20° to 150°F. The stripe shall maintain its original dimensions and placement. Cold ductility of the material shall be such as to permit normal dimensional distortion as a result of traffic impact within the temperature range specified.

The material shall provide a stripe that has a uniform thickness throughout its cross section and has the density and character to provide a sharp edge of the line.

The compound after heating for four hours ±5 minutes at 375° ±3°F and cooled at 77°F shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotomer with 45° circumferential/0° geometry, illuminant C, and 2° observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral band pass of 10 nm.

White: Daylight Reflectance (Y) 75 percent minimum
*Yellow: Daylight Reflectance (Y) 42-59 percent

* Shall match Federal 595 Color No. 33538 .and chromaticity limits as follows:

x	.470	.510	.485	.530
y	.455	.485	.425	.456

907-626.02.5.1--Specific Gravity. The specific gravity of the material shall not exceed 1.87.

907-626.02.5.2--Softening Point. After heating the material for four hours ±5 minutes at 375° ±3°F and testing in accordance with ASTM E28, the material shall have a minimum softening point of 180°F as measured by the ring and ball method.

907-626.02.5.3--Tensile Bond Strength. After heating the material for four hours ±5 minutes at 375°F, the tensile bond strength to unprimed, sandblasted, portland cement concrete block, 0.0625-inch thick film drawdown at 375°F, tested at 75° ±2°F shall exceed 180 psi when tested in accordance with ASTM D4796.

907-626.02.5.4--Impact Resistance. After heating the material for four hours ±5 minutes at 375° ±3°F, the impact resistance shall be a minimum of 50 inch-pounds with no cracks or bond loss when 0.0625-inch thick film drawdown is made at 375°F on an unprimed, sandblasted, portland cement concrete block, male indenter 5/8-inch, no female Die tested at 75° ±2°F when tested in accordance with ASTM D2794 minimum.

907-626.02.5.5--Packaging and Storage. Each package of material shall be stenciled with the manufacturer's name, the type of material and specification number. the month and year the material was packaged and lot number. Lot numbers must begin with the last two digits of the year manufactured and be sequential. The letters and numbers used in the stencils shall be a minimum of 1/2 inch in height.

The material shall be packaged in suitable containers which will not adhere to the product during shipment and storage. The container of material shall weigh approximately 50 lbs. Each container shall designate the color, binder (alkyd or hydrocarbon), spray and user information. The label shall warn the user that the that material shall be heated in the range of 350° to 425°F.

The material shall meet the requirements of this specification for a period of one year. The material must also melt uniformly with no evidence of skins or unmelted particles for this one year period. Any material not meeting the above requirements shall be replaced by the manufacturer.

907-626.03--Construction Requirements.

907-626.03.1--Installation Requirements. Before applying the thermoplastic material, the Contractor shall remove any dirt, glaze, grease, or any other material that would reduce the adhesion of the material to the pavement.

The thermoplastic material shall be readily renewable by placing an overlay of new material directly over old markings of the same material. Such new material shall bond itself to the old markings in such a manner that no splitting or separation takes place. The Contractor shall remove all existing material that might cause premature failure of the new material.

The thermoplastic material shall be installed in a molten state at a minimum temperature of 350°F and a maximum temperature of 425°F. Scorching or discoloration of material shall be cause for rejection by the Engineer. The machinery shall be constructed so that all mixing and conveying parts, up to and including the application gun, maintain the material in the molten state.

Pavement marking materials shall not be applied when air or pavement surface temperatures are below 40°F, or when the surface of the pavement contains any evidence of moisture.

The material shall be applied at a thickness of not less than 0.040" and in no case shall it exceed a

thickness of 0.050".

The Contractor shall place the pavement markings with adequate drop-on glass beads in accordance with the above requirements, uniformly applied to assure adequate nighttime reflectivity. It shall be the Contractor's responsibility to use a compatible combination of material and beads to preclude the surface beads from sinking deeply into the paint.

907-626.03.2--Equipment Requirements. The equipment used to install hot applied thermoplastic material shall provide continuous uniform heating to temperatures exceeding 400°F, mixing and agitation of the material. Conveying parts of the equipment between the main material reservoir and the line dispensing device shall prevent accumulation and clogging. All parts of the equipment which come in contact with the material shall be constructed for easy accessibility and exposure for cleaning and maintenance. The equipment shall operate so that all mixing and conveying parts including the line dispensing device, maintains the material at the plastic temperature.

Glass beads applied to the surface of the completed marking shall be applied by an automatic bead dispenser attached to the marking machine so that the beads are dispensed closely behind the installed marking. The glass bead dispenser shall be equipped with an automatic cut-off control synchronized with the cut-off of the material.

907-626.03.3--Acceptance. The manufacturer of the thermoplastic material shall furnish the Engineer three (3) copies of certified test report(s) showing results of all required test and certification that the material meets the specifications.

The manufacturer of the glass beads shall furnish the MDOT Central Laboratory three (3) copies of certified test report(s) showing results of all required test and certification that the material meets the specifications. Acceptance sampling and testing of glass beads will be in accordance with S.O.P. No. TMD-40-20-00-000.

907-626.04--Method of Measurement. Thermoplastic stripe completed in accordance with the plans and specifications will be measured by the mile or by the linear foot, as indicated, from end-to-end of individual stripes. In the case of skip lines the measurement will include skips. The length used to measure centerline, lane lines and edge stripes will be the horizontal length computed along the stationed control line.

Detail traffic stripe will be measured by the linear foot from end-to-end of individual stripes. Measurements will be made along the surface of each stripe and will exclude skip intervals where skips are specified. Stripes more than the indicated width will be converted to equivalent lengths of stripe of the indicated width.

Legend, which is to include railroad markings, pedestrian crosswalks and stop lines, will be measured by the square foot or linear foot. Pay areas of individual letters and symbols will usually be shown on the plans and measured by the square foot. Transverse railroad bands, pedestrian crosswalks and stop lines will generally be measured by the linear foot, in which case, stripes more than the indicated width will be converted to equivalent lengths of stripe of the indicated width.

907-626.05--Basis of Payment. Thermoplastic traffic markings will be paid for at the contract unit price per mile, linear foot, or square foot, as applicable, which shall be full compensation for completing the work.

Payment will be made under:

907-626-U:	Width" Thermoplastic Traffic Stripe, Skip White, 40-mil. min.	- per linear foot or mile
907-626-V:	Width" Thermoplastic Traffic Stripe, Continuous White, 40-mil. min.	- per linear foot or mile
907-626-W:	Width" Thermoplastic Traffic Stripe, Skip Yellow, 40-mil. min.	- per linear foot or mile
907-626-X:	Width" Thermoplastic Traffic Stripe, Continuous Yellow, 40-mil. min.	- per linear foot or mile
907-626-Y:	Thermoplastic Detail Traffic Stripe, Color, Width" Equivalent Length, 40-mil. min.	- per linear foot
907-626-Z:	Thermoplastic Legend, Color , Width" Equivalent Length, 40-mil. min.	- per linear foot or square foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-650-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: On-Street Video Equipment

Section 907-650, On-Street Video Equipment, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-650 - ON-STREET VIDEO EQUIPMENT

907-650.01--Description. This work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, test, train, and operate CCTV Camera Systems. CCTV Camera System shall be provided to provide TMC personnel with live streaming video of the roadway network via CCTV Camera Systems. CCTV Camera Systems include both fixed and PTZ cameras.

907-650.02--Materials. All materials furnished, assembled, fabricated or installed shall be new, corrosion resistant.

Support equipment for the CCTV Camera Systems shall be provided in a Type B ITS Equipment Cabinet as described in Section 660.

The CCTV Camera System shall comply with the following minimum materials specifications:

907-650.02.1--General Capabilities and Performance Requirements. Overall CCTV Camera System capabilities and performance requirements include the following:

1) CCTV PTZ Cameras shall be placed and installed at fixed locations to provide full coverage of the mainline travel lanes and shoulders.
2) CCTV Fixed Cameras shall be placed and installed at fixed locations to provide coverage of the mainline travel lanes. The cameras shall be provided with a varifocal lens which shall be adjusted by the Contractor for the desired view of the mainline. At major intersections fixed cameras shall also be adjusted to the desired view of the surface streets. The Contractor shall record the adjusted views and submit to the MDOT ITS Engineer or his designee for approval and the MDOT Project Engineer. This recording shall be in a format playable with Windows Media Player or pre approved by MDOT ITS Engineer.
3) The CCTV Camera System components shall be compatible with each other and be of rugged design and suitable for reliable operation when mounted in their fixed locations.
4) The PTZ and the Fixed cameras shall be provided as either Ethernet IP-based or Analog as indicated in either project plan sheets or Notice to Bidders or should be assumed Ethernet IP if description isn't provided.
5) The CCTV Camera System shall be capable of attended and unattended, continuous 24 hours per day operation at fixed sites.

6) The Contractor shall ensure that the installed equipment provides unobstructed video of the roadway, traffic, and other current conditions around a roadside CCTV field site; that it responds to camera control signals from an operator of the system; and that the video images can be transmitted to remote locations interfaced to the system for observation.
7) PTZ and IP based cameras shall be capable of being remotely controlled and programmed.
8) All PTZ enclosures shall be provided with the ability to be pressurized for environmental protection.
9) PTZ Dome type cameras shall be mounted together with the zoom lens and integrated into the pan and tilt device within the dome enclosure forming a totally integrated, easily removable assembly.
10) All cameras shall include a high quality integrated camera/lens combination.
11) The camera shall also be equipped with an auto-iris lens capability compatible with the zoom lens supplied.
12) Iris capability shall include a provision for manual override via software.
13) The PTZ camera shall be capable of auto-focus during zoom-in or zoom-out, with provisions for override via software.
14) Overexposure protection shall be provided - the camera shall not be degraded or damaged under normal reasonable operating conditions.
15) The capability for local control of pan, tilt and zoom functions shall be provided at the roadside cabinet using vendor-supplied software installed on a laptop computer.
16) All IP Based CCTV cameras shall support the NTCIP 1205 v1.08 or later version if backward compatible communication protocol.

907-650.02.2--Analog Camera Unit. The minimum Camera Unit requirements include:

1) The camera unit shall incorporate solid-state design and provide digital signal processing (DSP) capable of providing clear and low-bloom color video pictures during daylight hours and monochrome video at night when the roadway is illuminated with minimal roadway lighting.
2) The Analog Camera shall be fully compliant with all aspects of the National Television Standards Committee (NTSC) specification, and produce NTSC compatible video.
3) The Analog camera shall operate over wide dynamic light conditions ranging from low light/dusk to full sunlight having day (color)/night (monochrome) switchover and iris control, with user-selectable manual and automatic control capabilities.
4) The camera unit shall be equipped with a low light level sensor to automatically switch the camera to Black and White mode.
5) The camera unit shall be equipped with an override capability to allow the camera to be manually switched via software to turn off the automatic low light level sensor switch feature for Color or Monochrome operation.
6) Image sensor: 1/3 inch charge-coupled device (CCD) employing digital video signal processing (DSP) technology with a minimum Effective Picture Elements of 768 horizontal x 494 vertical pixels.
7) The camera unit shall include integrated image stabilization.
8) Sensitivity: The camera shall maintain usable video under both day and nighttime lighting conditions.

9) Video output synchronization shall be 2 to 1 interlace and will observe the NTSC (color) and EIA RS-170 (black and white) standards.
10) Resolution: 470 lines horizontal and 350 TV lines vertical, NTSC equivalent.
11) Signal-to-noise ratio: 48 dB, minimum with AGC off, un-weighted, and 4.5MHz filter.
12) Video Signal Format: National Television Standards Committee (NTSC) composite video output of 1 $Volt_{p-p}$ at 75 ohms, unbalanced.

907-650.02.3--Internet Protocol IP Camera Unit. IP cameras shall provide the same functionality as the analog camera units specified in subsection 907-650.02.2, in addition to the following minimum requirements:

1) Power over Ethernet or 24 VAC Power Input.
2) Open Architecture.
3) Shall utilize H.264 (Video Coding Experts Group (VCEG)/Moving Picture Experts Group)Video Compression Technology types as directed by the Intelligent Transportation Systems Program Manager
4) Standard Definition (SD) Units Shall be capable of 2 simultaneous H.264 video streams.
    a. The primary stream shall provide 480p at 30 fps and the ability to be reduced to D1 resolution at 30 fps.
    b. The secondary stream shall provide a minimum CIF resolution 30fps.
5) High Definition Units (HD) Shall be capable of 2 simultaneous H.264 video streams.
    a. The primary stream shall provide 720p at 30 fps at a minimum and the ability to be reduced to D1 resolution at 30 fps.
    b. The secondary stream shall provide a minimum CIF resolution 30fps.
6) Image sensor: 1/3 inch charge-coupled device (CCD)
7) Shall be capable to take video snapshots in JPEG format and transfer image via FTP.
8) IP encoded streams and Video Compression Technology shall be compatible with the existing video streaming servers and decoders for the www.mdottraffic.com WEB site or as approved by the Intelligent Transportation Systems Program Manager.
9) Internet Protocols: TCP, UDP (Unicast, Multicast IGMP V2), UPnP, DNS, DHCP, RTP, NTP
10) Support Real Time Streaming Protocol (RTSP)
11) Multilevel Password Protection.
12) EDR (Extended Dynamic Range).
13) C/CS Lens Mount.
14) Backlight Compensation.
15) Low Profile Top/Bottom Mount.
16) BNC Service Connector. Tap shall be installed inside cabinet.

907-650.02.4--PTZ Camera Lens. The minimum camera lens requirements include:

1) The camera lens shall have a minimum F-Stop of 1.4 to 1.6.
2) Optical and Digital Zoom:
    a. Shall provide an optical zoom of 35X for analog dome cameras.
    b. Shall provide a minimum optical zoom of 18X and a minimum digital zoom of 6X for IP PTZ cameras.

3) Zoom Control: The zoom magnification shall be fully controllable via the remote PTZ mechanism. The time to pass through the full range of movement of Iris, Zoom and Focus shall in no case exceed 10 seconds.
4) Iris and Focus: Support automatic iris and focus control with manual override capability. The iris shall be in a closed position when there is no power.
5) White or Color Balance: Support automatic or set to yield optical results under various outdoor lighting conditions.
6) Shutter Speed: Support automatic or set to yield optimal results under low lighting conditions without blooming or smearing, auto-iris on. Provide electronic shutter that is selectable in steps.
7) The lens shall be equipped for continuous remote control of zoom, focus and iris.
8) Mechanical or electrical means shall be provided to protect motors from overrunning in extreme positions.
9) The zoom lens shall be an integrated camera/lens combination.
10) Vibration or ambient temperature changes shall not affect the automatic iris function, focus mechanism and zoom mechanism.
11) The lens shall be optically clear, impact resistant and acrylic. The acrylic lens shall not yellow and shall not introduce appreciable light loss or geometric distortion over a 10-year service life when exposed to the environment.
12) The zoom mechanism shall be designed for maintenance-free operations. All gearing and bearings shall be self-lubricating with lubrication and gearing tolerances compatible with the environmental specifications contained herein.

907-650.02.5--Character Generator. The minimum character generator requirements include:

1) The capability of generating and superimposing lines of English language text on the video image/stream shall be provided.
2) A minimum of 20 characters per line that are between 10 and 30 horizontal TV lines in height shall be provided.
3) Control (enable, disable and edit) of this feature shall be available remotely and at the field site using a laptop computer.
4) The text messages shall be stored in non-volatile memory.
5) Characters shall be white with a black border to ensure legibility in varied scenes.
6) The following minimum text insertion requirements shall be provided with the ability to individually turn each one on or off:
   a. Camera ID
   b. Sector Message
   c. Alarm Messages
   d. Pan/Tilt Azimuth/Elevation
   e. Compass Direction in 8 discreet zones

907-650.02.6--PTZ Enclosure. The minimum PTZ enclosure requirements include:

1) Sealed, pressurized dome enclosure that provides complete protection for the camera and lens assembly from moisture and airborne contaminants.

2) Environmental resistant and tamper proof meeting NEMA 4X or IP-67 rating requirements.
3) The dome enclosure shall be constructed in such a way that unrestricted camera views can be obtained at all camera and lens positions.
4) Dome environmental control shall be provided by nitrogen pressurization with a Schrader Valve for pressurization and purging. The enclosure shall be designed to be pressurized to the manufactures recommended level .with dry nitrogen. The notation "CAUTION – PRESSURIZED" shall be printed on the rear plate of the enclosure and shall be clearly visible and readable.
5) An alarm shall be displayed under low-pressure conditions and displayed on the camera video. The low-pressure alarm shall be on/off selectable by the operator at the TMC.
6) The PTZ dome enclosure shall consist of a two-piece (upper and lower half) dome.
7) A harness and cables shall be provided with each enclosure to extend the video, power and data from the CCTV Camera System to the field cabinet. No harness shall be exposed. All entry points shall have gaskets to prevent moisture entry. A sealed connector shall be at the top of the dome.
8) The dome enclosure shall assist in preventing lens fogging and effectively reduce internal temperatures.
9) The enclosure shall minimize glare and provide overexposure protection for the camera when pointed directly at the sun.
10) The enclosure shall be equipped with a heater, a defroster and a thermostat.
11) The camera equipment inside the dome enclosure shall meet all its specified requirements when operating under the following conditions:
    a. Ambient Temperatures: From -40ºC to +65ºC (-40ºF to +149ºF). A heater/blower shall be used to maintain internal dome temperatures within the manufacturer required operating temperatures for their equipment.
    b. Relative Humidity: 5% and 95%, non-condensing.
12) Total weight of CCTV cameras (including the housing, sunshield, and all internal components shall be less than 18 pounds.
13) At a minimum, dome enclosures shall be secured with a mounting plate/attachment designed to withstand a 90mph sustained wind speed with a 30% gust factor. For projects that are in areas with higher wind standards, the higher standard is required.

907-650.02.7--Pan and Tilt Unit (PTU). The minimum pan and tilt unit requirements include:

1) The motorized, remotely controlled Pan/Tilt unit shall be mounted within the dome enclosure. The unit shall be integrated with the CCTV control system.
2) For dome enclosed units, the unit shall provide a minimum continuous tilt (vertical) movement of 90 degrees from horizontal and continuous pan (horizontal) movement of 360 degrees.Tilt speed shall be variable from zero up to 40 degrees per second, minimum, and the pan speed shall be variable from zero up to 80 degrees per second, minimum.
3) For separately housed tilt motor units (non-Dome Cameras), the unit shall provide a minimum continuous tilt (vertical) movement of +90° to -90° degrees from horizontal and continuous pan (horizontal) movement of 360 degrees.Tilt speed shall be variable from zero up to 34 degrees per second, minimum, and the pan speed shall be variable from zero up to 80 degrees per second, minimum.

4) The unit shall be capable of simultaneous pan, tilt movements and zoom on one camera
5) Drive motors shall be capable of instantaneous reversing, be corrosion resistant, not require lubrication, and have overload protection.
6) Braking shall be provided in both pan and tilt movements to enable fast stop and reversal and to prevent drifting.
7) The viewing limits shall be set by a minimum of eight (8) discreet privacy zones that are software selectable.

907-650.02.8--Camera Control Receiver – Driver. The minimum camera control receiver-driver requirements include:

1) The camera control receiver shall provide a single point interface for control, power and video communications.
2) The camera control receiver-driver shall be included within the dome enclosure and control the camera, pan/tilt and lens functions at each CCTV site.
3) The unit shall provide alphanumeric generation for on-screen titles.
4) The unit shall provide the ability to display diagnostic information on the screen in response to user commands.
5) The diagnostic information shall include current pan, tilt, zoom and focus positions, and error codes for power, communication, position and memory problems.
6) The capability for programmed tours shall be provided.
7) The camera control receiver shall use non-volatile memory to store the required information for presets, camera ID and sector text.
8) Presets shall meet the following requirements:
   a. A minimum of 64 presets shall be supported. Each preset shall consist of pan, tilt, zoom and focus positions.
   b. The Contractor shall develop and install ten (10) presets for each camera. The Contractor shall submit the preset locations to the MDOT ITS Engineer for review and approval.
9) Protocols: CCTV cameras shall support at a minimum the Pelco D and the NTCIP 1205 v1.08 communication protocol. No camera control receiver-driver shall use non-published protocols. The Contractor shall provide protocol documentation.
10) Communications Interface: The communications interface shall support communications compliant with RS- 232,and/or 485 (user selectable), or shall provide a network interface port.
11) Serial communications interface shall be compatible with the Video Encoder serial port as defined in Section 907-662 .
12) Standard interface connectors shall be provided.
13) The local video input and output connections shall be the BNC type for analog cameras. IP Based Cameras should stream video over the Ethernet connection but include a BNC type connection for local testing, configuration, and calibration.
14) Connector(s) shall also be used for connecting the control outputs from the control receiver-driver unit to the camera, lens and pan/tilt mechanisms.

907-650.02.9--Fixed Camera Lens. The fixed camera lens shall meet the following minimum requirements.

1) Type ..... Varifocal
2) Format Size ..... 1/3 Inch
3) Mount Type ..... CS
4) Focal Length 5-50
5) Zoom Ratio ..... 1.4 -360
6) Relative Aperture (F) 1.6-360
7) Iris ..... Auto (Direct Drive)
8) Focus ..... Manual
9) Zoom ..... Manual
10) Minimum Object Distance ..... 0.5 m
11) Back Focal Length ..... 10.05 mm
12) The camera lens shall have a minimum F-Stop of 1.4 to 1.6.
13) Shall provide a varifocal zoom of 5-50 mm.
14) Iris: Support automatic iris control with manual override capability. The iris shall be in a closed position when there is no power.
15) White or Color Balance: Support automatic or set to yield optical results under various outdoor lighting conditions.
16) Shutter Speed: Support automatic or set to yield optimal results under low lighting conditions without blooming or smearing, auto-iris on. Provide electronic shutter that is selectable in steps.
17) Vibration or ambient temperature change shall not affect the automatic iris function, focus mechanism or zoom mechanism.
18) The lens shall be optically clear, impact resistant and acrylic. The acrylic lens shall not yellow and shall not introduce appreciable light loss or geometric distortion over a 10-year service life when exposed to the environment.

907-650.02.10--Fixed Camera Enclosure. The fixed camera lens shall meet the following minimum requirements.

1) Designed for Outdoor Applications
2) Maintenance access for servicing
3) Environmental resistant and tamper proof meeting NEMA 4X or IP-66 rating requirements.
4) A harness and cables shall be provided with each enclosure to extend the video, power and data from the CCTV Camera System to the field cabinet. No harness shall be exposed. All entry points shall have gaskets to prevent moisture
5) The enclosure shall minimize glare and provide overexposure protection for the camera when pointed directly at the sun.
6) The enclosure shall be equipped with a heater, a defroster and a thermostat.
7) The camera equipment inside the enclosure shall meet all its specified requirements when operating under the following conditions:

a. Ambient Temperatures: -10ºC to +50ºC (14ºF to +122ºF). A heater/blower shall be used to maintain internal temperatures within the manufacturer required operating temperatures for their equipment.
b. Relative Humidity: 5% and 95%, non-condensing.

8) Total weight of CCTV cameras (including the housing, sunshield, and all internal components shall be less than 18 pounds.
9) The enclosure shall be secured with a mounting plate/attachment designed to withstand a 90mph sustained wind speed with a 30% gust factor. For projects that are in areas with higher wind standards, the higher standard is required.

907-650.02.11--Electrical. The minimum electrical requirements include:

1) The CCTV Camera System shall be furnished with any and all equipment required for a fully functional system, including all appropriate power and communications cables as defined by the manufacturer.
2) The power cables shall be sized to meet the applicable National Electrical Code (NEC) requirements.
3) Total power consumption shall not exceed 125 watts.
4) All devices supplied as system components shall accept, as a primary power source, 120 volts of alternating current (VAC) at an input of 60 hertz. Any device that requires source input other than 120 VAC at 60 hertz, such as cameras, PTUs, receiver/drives and dome heaters/blowers that operate at 24 volts or other, shall be furnished with the appropriate means of conversion.
5) IP fixed cameras shall receive Power over Ethernet (POE) with appropriate cabling.

907-650.02.12--Coaxial Cabling. The minimum coaxial interconnect cable requirements include:

1) The coaxial cable from the CCTV Camera System to the equipment cabinet shall be Belden 8281 or approved equivalent.
2) RG 59/U, 20AWG, bare copper conductor, polyethylene insulation.
3) 98% tinned copper, double braid shield, black polyethylene jacket.
4) Characteristic Impedance: 75 ohms (Ω), nominal.
5) Capacitance (conductor to shield): 21pF/ft; Inductance: 0.131uH/ft, nominal.

907-650.02.13--Surge Protection. All CCTV Camera System electrical interconnects shall be protected from voltage surges caused by lightning and external electromagnetic fields. The minimum surge protection requirements include:

1) Surge protectors shall be furnished for all non-dielectric cable and conductors (video, data/signal and device/assembly power) between the CCTV Camera System and the equipment cabinet.
2) The surge protectors shall have leads that are kept to a minimum length as recommended by the surge device manufacturer.
3) All surge protection devices shall be designed to meet the temperature and humidity requirements expected in this type of outdoor application.

4) All Surge protectors shall be U.L. listed (UL 1449, UL 497, 497A, 497B, etc., as appropriate) and bonded to the same single-point ground point.
5) Coaxial Cable Surge protectors for coaxial cable shall meet/provide the following functionality:
   a. Attenuation: 0.1dB @10 MHz, typical
   b. Input/Output Impedance: 75 ohms nominal
   c. Operating Voltage of the surge protector shall match characteristics of the ITS device/assembly
   d. Peak Surge Current: 5,000-amperes for an 8x20 microsecond waveform
   e. Response Time: 1 nanosecond or less
6) Low Voltage/Signal Cable Surge protectors for data/signal/control cable shall meet/provide the following functionality:
   a. Peak Surge Current: 10,000-amperes for an 8x20 microsecond waveform
   b. Response Time: 1 nanosecond or less
   c. Life Expectancy: Capable of surviving at a minimum of 25 occurrences at 2000-amperes
7) CCTV power surge protectors for power from equipment cabinet power distribution to the CCTV Camera System shall meet/provide the following functionality:
   a. Frequency: DC to 10MHz
   b. Clamping Voltage: < 30VAC (rms) or 42VDC
   c. Insertion Loss: < 0.2dB
   d. Input/Output Impedance: 75 ohms, typical
   e. Peak Surge Current: 3000-amperes
   f. Response Time: 1 nanosecond or less
8) Surge protection for the IP Fixed cameras shall include provisioning for the Power over ETHERNET (POE) cabling and voltages.

907-650.03--Installation Requirements. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

1) The Contractor shall provide the MDOT with a written inventory of items received and the condition in which they were received. Inventory shall be inclusive of make, model, and serial numbers, MAC address, and installation GPS coordinates. All equipment shall be installed according to the manufacturer's recommendations or as directed by the MDOT.
2) Materials and associated accessories/adapters shall not be applied contrary to the manufacturer's recommendations and standard practices.
3) Shall include all materials needed to permanently mount the CCTV camera to the support structure as indicated in the plans.
4) Furnish and install power, video, and data cables, and any and all ancillary equipment required to provide a complete and fully operational CCTV system site.
5) Verify all wiring meets NEC requirements where applicable.
6) All above requirements apply to both new CCTV sites as well as sites where an existing CCTV is being replaced.
7) Any new, additional or updated drivers required for the existing ATMS software to communicate and control new CCTV installed by the Contractor shall be the responsibility of the Contractor.

907-650-03.1--CCTV Test Requirements. The Contractor shall conduct a Project Testing Program. All costs associated with the Project Testing Program shall be included in overall contract prices; no separate payment will be made for any testing.

1) The Contractor is responsible for planning, coordinating, conducting and documenting all aspects of the Project Testing Program. The Project Engineer, ITS Engineer, and/or their designee(s) are only responsible for attending and observing each test, and reviewing and approving the Contractor's test results documentation. The ITS Engineer, Project Engineer and/or their designee(s) reserve the right to attend and observe all tests. The Contractor is required to perform the final project acceptance test with the MDOT ITS Engineer or his designee present.
2) Each test shall fully demonstrate that the equipment being tested is clearly and definitely in full compliance with all project requirements. Test procedures shall be submitted and approved for each test as part of the project submittals. Test procedures shall include every action necessary to fully demonstrate that the equipment being tested is clearly and definitively in full compliance with all project requirements. Test procedures shall cross-reference to these Technical Specifications or the Project Plans. Test procedures shall contain documentation regarding the equipment configurations and programming.
3) No testing shall be scheduled until approval of all project submittals and approval of the test procedures for the given test.
4) The Contractor shall provide all ancillary equipment and materials as required in the approved test procedures.
5) The Contractor shall request in writing the Project Engineer's approval for each test occurrence a minimum of 14 days prior to the requested test date. Test requests shall include the test to be performed and the equipment to be tested. The Project Engineer reserves the right to reschedule test request if needed.
6) All tests shall be documented in writing by the Contractor in accordance with the test procedure and submitted to the Project Engineer within seven (7) days of the test. Any given test session is considered incomplete until the Project Engineer has approved the documentation for that test session.
7) All tests deemed by the Project Engineer to be unsatisfactorily completed shall be repeated by the Contractor. In the written request for each test occurrence that is a repeat of a previous test, the Contractor shall summarize the diagnosis and correction of each aspect of the previous test that was deemed unsatisfactory. The test procedures for a repeated test occurrence shall meet all the requirements of the original test procedures, including review and approval by the Project Engineer and ITS Program Manager or his designee.
8) The satisfactory completion of any test shall not relieve the Contractor of responsibility to provide a completely acceptable and operating system that meets all requirements of this project.
9) Standalone Acceptance Test (SAT). The Contractor shall perform a complete SAT on all equipment and materials associated with the field device site, including but not limited to electrical service, conduit, pull boxes, communication links (fiber, leased copper, wireless), control cables, poles, etc. An SAT shall be conducted at every field device site. Where applicable, a SAT shall be conducted for a fully installed and completed connection to the designated Traffic Management Center (TMC) or central data/video collection site.

10) The SAT shall demonstrate that all equipment and materials are in full compliance with all project requirements and fully functional as installed and in final configuration. The SAT shall also demonstrate full compliance with all operational and performance requirements of the project. All SATs will include a visual inspection of the cabinet and all construction elements at the site to ensure they are compliant with the specifications.

907-662.03.2--Warranty. Minimum warranty requirements are as follows:

1) All warranties and guarantees shall be assigned to the Mississippi Department of Transportation.
2) The warranty shall be a **minimum of one (1) year warranty** per CCTV and all other installed and/or attached appurtenances.
3) The one year warranty period begins upon final acceptance of the video subsystem.
4) During the warranty period, the Contractor shall repair or replace with new or refurbished material, at no additional cost to the State, any product containing a warranty defect, provided the product is returned postage-paid by the Department to the manufacturer's factory or authorized warranty site.
5) Products repaired or replaced under warranty by the manufacturer shall be returned prepaid by the manufacturer.
6) During the warranty period, technical support shall be available from the Contractor via telephone within **four (4) hours** of the time a call is made by the Department, and this support shall be available from factory certified personnel.
7) During the warranty period, **updates and corrections to hardware**, software and firmware shall be made available to the Department by the Contractor at no additional cost.

907-662.03.3--MDOT Employee Training. Minimum Training requirements are as follows:

1) The Contractor shall provide a camera system training plan that includes a schedule, documentation to be provided, identified trainer, and location at a minimum to MDOT Project Manager. The camera system training plan must be accepted by the MDOT Project Manager and ITS Engineer and training must be completed before burn in period may start.
2) The training shall be approved two (2) weeks ahead of the scheduled date.
3) For provided devices that MDOT already has the same make and model existing in the system:
    1. One (1) day of on site device operation, maintenance, and configuration training for up to 10 individuals.
    2. One (1) day of on site system training at TMC for up to 10 people, that is separate from above training and specifically for software control of integrated devices.
4) For provided devices that MDOT does not have the same make and model existing in the system:
    1. Three (3) days of on site device operation, maintenance, and configuration training for up to 10 individuals.
    2. Three (3) days of on site system training at TMC for up to 10 people, that is separate from above training and specifically for software control of integrated devices.

907-650.04--Method of Measurement. On-Street Video Equipment will be measured per each camera installation.

907-650.05--Basis of Payment. On-Street Video Equipment, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for furnishing all materials inclusive of camera unit, housing, pan/tilt drive, receiver/driver, software driver, mounting hardware, any necessary enclosures, items necessary to mount the camera unit from a mast arm pole, steel strain pole, pole extension pipe, etc., for all installing, connecting, cutting, pulling and testing and for all equipment, tools, labor, and incidentals necessary to complete the work.

Required cabinet facilities, including transformer and/or disconnects, will not be measured for separate payment.

Progress payments for the On-Street Video System will be paid as follows:

1) 50% of the contract unit price upon delivery of equipment and approval of any bench and/or pre-installation test results, as prescribed in Project Testing Program;

2) An additional 40% of the contract unit price upon approval of Stand Alone Acceptance Test results; and

3) Final 10% of the contract unit price upon Final Project Acceptance.

Payment will be made under:

907-650-A: On-Street Video Equipment Type _____ - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-659-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Traffic Management Center (TMC) Modifications

Section 907-659, Traffic Management Center (TMC) Modifications, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-659 - TRAFFIC MANAGEMENT CENTER (TMC) MODIFICATIONS

907-659.01--Description. The MDOT Statewide Traffic Management Center (TMC) is located in the Traffic Engineering Division in the MDOT Shop Complex at 2567 North West Street, Jackson, Mississippi. Regional and City Traffic Management Centers may be located statewide. The following is a list of existing/planned centers and their addresses:

City of Jackson TMC – 300 North State Street, Jackson, Mississippi (basement)
Northwest Regional Combined TMC – 8791 Northwest Drive, Southaven, Mississippi (Police Department)
City of Ridgeland TOC – 304 Hwy 51, Ridgeland, Mississippi (City Hall)
Oxford Combined TMC – 715 Mollybarr Road, Oxford, Mississippi (Oxford Police Department)
Hattiesburg Regional TMC/EOC – 6356 Hwy 49N, Hattiesburg, Mississippi (MDOT District 6 Headquarters)
Batesville Regional TMC/EOC – 150 Hwy 51N, Batesville, Mississippi (MDOT District 2 Headquarters)
Natchez Combined TMC – 233 Devereaux Drive, Natchez, Mississippi (Police Department)
Gulf Regional TMC – 16499 Hwy 49, Saucier, Mississippi (MDOT Lyman Project Office)

Additional Traffic Management Centers may be added as needed.

907-659.02--Blank.

907-659.03--Construction and Operation Requirements.

907-659-03.1--TMC Modifications. The MDOT TMC modifications required to integrate and operate the traffic systems and devices shall be provided. These include, but are not limited to, expanding the central video management system, interconnecting the appropriate number of video interfaces to the TMC video management systems, expanding the MSTraffic backbone network through radio communications, wireless communications, T1 lines or fiber communications, expanding the TACTICS signal system, or upgrading existing signal systems, expanding or modifying existing adaptive control signal software systems (i.e. SCOOT, ACS Lite, etc.), expanding the Automated Traffic Management System (ATMS), and integrating all the existing

computing facilities. All TMC modifications must meet U.S. Department of Transportation Intelligent Transportation System (ITS) Standards, Policies, and Architectures as well as MDOTs applicable Statewide or Regional Architecture.

907-659.03.2--TMC Modifications - Monitor Systems. Roadway traffic monitor locations shall provide local control functions related to traffic slowdowns and other congestion monitors as defined by MDOT Traffic Engineering. Additionally, the traffic monitor systems shall provide on-line data for use by the existing MDOT ATMS for engineering, operations, planning, incident, and mstraffic.com purposes. This data shall include, but is not limited to, per vehicle data raw data which shall be transmitted to and stored and managed by the ATMS. The traffic monitor systems shall be capable of utilizing both or either loop, microloop, radar, and/or video detection information. The system shall provide a consistent communication and management system regardless of detection methods used. All Traffic Monitoring Systems must meet U.S. Department of Transportation Intelligent Transportation System (ITS) Standards, Policies, and Architectures as well as MDOT's applicable Statewide or Regional Architecture.

907-659.03.3--TMC Modifications – Installation Requirements. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

1) Any new, additional or updated drivers required for the existing ATMS software to communicate and control new devices installed by Contractor shall be the responsibility of the Contractor.
2) Installation of all equipment and software shall be included. The Contractor must provide the MDOT ITS Manager with an Installation Schedule. The Installation Schedule must be approved by the State Traffic Engineer.
3) All equipment and software must be fully functional and pass a Final Inspection by the ITS Manager and Project Engineer before being accepted by MDOT.

907-659.03.4--MDOT Employee Training. Training shall be provided covering the system architecture, operations, and maintenance of the TMC systems. If training requirements include travel on the part of training participants then the cost of the travel shall be included.

907-659.04--Method of Measurement. Traffic Management Center Modifications and Traffic Management Center Modifications – Monitor Systems, complete in place, tested and accepted, will be measured per each intersection or on a lump sum basis. Traffic Management Center Modifications – Training will be measured on a lump sum basis.

907-659.05--Basis of Payment. Traffic Management Center Modifications, Traffic Management Center Modifications – Monitor Systems, and Traffic Management Center Modifications - Training, measured as prescribed above, will be paid for at the contract unit price per each or contract lump sum price, which price shall be full compensation for furnishing all materials for all installing, connecting, cutting, pulling and testing and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

907-659-A: Traffic Management Center Modifications	- per each or lump sum
907-659-B: Traffic Management Center Modifications – Monitor Systems	- per each or lump sum
907-659-C: Traffic Management Center Modifications – Training	- lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-661-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Fiber Optic Cable

Section 907-661, Fiber Optic Cable, is hereby added to and made a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-661 – FIBER OPTIC CABLE (OSP)

907-661.01--Description. The work shall consist of the construction of the infrastructure required to install, replace, or upgrade fiber optic cable. The infrastructure shall include all necessary conduits, pull boxes, pole line hardware, building entries, risers and fiber cable to make a complete system.

907-661.02--Materials.

907-661.02.1--Single Mode Fiber Optic Cable (FO Cable). The Contractor shall provide 72-count fiber optic cable that meets the following requirements:

- All-dielectric, outside plant, loose tube cable with central strength/anti-buckling member
- Dry water blocking materials and construction
- Reverse oscillating “SZ” stranded buffer tube construction
- High tensile strength yarn
- Medium density polyethylene outer jacket
- 72-fiber cable with six (6) active buffer tubes and 12 individual stranded fibers per buffer tube
- Cable construction design that allows no more than six (6) buffer tube positions
- Maximum diameter 0.48 inches
- Maximum weight 0.07 pounds per foot.

The Contractor shall provide a cable in accordance with the Plans and contract documents. This cable shall be designated as a trunk cable.

The Contractor shall ensure that the cable can withstand a maximum pulling tension of 600 pounds (lbf) during installation and 180 pounds (lbf) installed long term (at rest).

The cable shall have a shipping, storage and operating temperature range of -22°F to +158°F and installation temperature range of -22°F to +140°F.

The Contractor shall provide cable with outer jacket marking using the following template.

Manufacturer's Name - “Optical Cable” - Month/Year of Manufacture - Telephone Handset

Symbol - "MDOT" - "72F SM"

The Contractor shall include in the outer jacket marking the cable sequential length in accordance with the following:

- In English units every two (2) feet
- Within -0/+1% of the actual length of the cable
- In contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- On any single length of cable on a reel, the sequential length markings do not run through "00000"

907-661.02.2--Single Mode Fiber Optic Cable Indoor/Outdoor Riser Rated. The Contractor shall provide fiber optic plenum rated cable that meets the following requirements when called for on the Plans:

- All-dielectric, inside plant, loose tube central core cable
- High tensile strength yarn surrounding the central tube core
- Dry water blocking materials and construction
- 72-fiber cable with six (6) active buffer tubes and 12 individual stranded fibers per buffer tube
- The Contractor shall provide a cable in accordance with the Plans and contract documents. This cable shall be designated as the building entry cable.

The Contractor shall ensure that the cable can withstand a maximum pulling tension of 300 pounds (lbf) during installation.

The cable shall have a shipping, storage and operating temperature range of -22°F to +158°F and an installation temperature range of 14°F to 140°C shall be provided.

The Contractor shall provide cable with outer jacket marking using the following template.

Manufacturer's Name - "Optical Cable" - Month/Year of Manufacture - Telephone Handset
Symbol - "MDOT" - "72F SM"

The Contractor shall include in the outer jacket marking the cable sequential length in accordance with the following:

- English units every two (2) feet.
- Within -0/+1% of the actual length of the cable
- Contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- The sequential length markings do not run through "00000" on any single length of cable on a reel

907-661.02.3--Single Mode Fiber Optic Drop Cable (FO Drop Cable). The Contractor shall

provide 12-count Single Mode Fiber, Pre-Terminated Drop Cable Assemblies. These assemblies shall be employed when connecting a camera, traffic controller, DMS or other device to the main cable.

Assemblies shall be factory assembled and terminated on one end with ceramic ferrule, LC compatible, heat cured epoxy connectors with an operational temperature of -40°F to +158°F. Each connector shall have a minimum of a 1-inch strain relief boot.

Insertion loss for each connector shall not exceed 0.30 dB.

Return loss for single mode connectors shall be greater than 45 dB.

Each assembly shall be fully tested and those test results placed on a test tag for each assembly.

Each assembly shall be individually packaged within a box or reel, with the submitted manufacturer's part number marked on the outside of the package.

Individual 250-µm coated fibers shall be up-jacketed to 1/8-inch using fan-out tubing. This tubing shall contain a 900-µm Teflon inner tube, aramid yarn strength members and an outer jacket.

The fan-out tubing shall be secured to the cable in a hard epoxy plug transition. Length of the individual legs shall be a minimum of three feet with the length difference between the shortest and longest legs of the assembly being no more than two inches.

The 12-Fiber, Pre-terminated Drop Cable Assemblies provided shall meet the following minimum requirements:

- All-dielectric, outside plant, loose tube central core cable shall be used
- High tensile strength yarn surrounding the central tube core
- Dry water blocking materials and construction
- Twelve (12) individual stranded fibers contained within the central tube core
- The Contractor shall provide a cable in accordance with the Plans and contract documents. This cable shall be designated as the drop cable.

The Contractor shall ensure that the cable can withstand a maximum pulling tension of 300 pounds (lbf) during installation.

The cable shall have a shipping, storage and operating temperature range of -22°F to +158°F and an installation temperature range of 14°F to 140°F.

The Contractor shall provide cable with outer jacket marking using the following template.

Manufacturer's Name - "Optical Cable" - Month/Year of Manufacture - Telephone Handset Symbol - "MDOT" - "12F SM"

The Contractor shall include in the outer jacket marking the cable sequential length in accordance

with the following:

- English units every two (2) feet
- Within -0/+1% of the actual length of the cable
- Contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- The sequential length markings do not run through "00000" on any single length of cable on a reel

907-661.02.4--Multimode Fiber Optic Drop Cable (MM FO Drop Cable). The Contractor shall provide 12-count Multimode Fiber, Pre-Terminated Drop Cable Assemblies. These assemblies shall be employed when connecting a camera, traffic controller, DMS or other device to the main cable.

Cable Assembly shall be rated for outdoor environment and have operational temperature of -40°F to +158°F. Each connector shall have a minimum of a 1-inch strain relief boot. The Cable Assembly shall also be pre-terminated on one end.

Insertion loss for each connector shall not exceed 0.30 dB.

Fiber loss shall not exceed 3dB/km for 850 nm and 1 dB/km for 1300 nm.

Each assembly shall be fully tested and those test results placed on a test tag for each assembly.

Each assembly shall be individually packaged within a box or reel, with the submitted manufacturer's part number marked on the outside of the package.

The fan-out tubing shall be secured to the cable in a hard epoxy plug transition. Length of the individual legs shall be a minimum of three feet with the length difference between the shortest and longest legs of the assembly being no more than two inches.

The 12-Fiber, Pre-terminated Drop Cable Assemblies provided shall meet the following minimum requirements:

- All-dielectric, outside plant, loose tube central core cable
- High tensile strength yarn surrounding the central tube core
- Dry water blocking materials and construction
- Twelve (12) individual stranded fibers contained within the central tube core
- The Contractor shall provide a cable in accordance with the Plans and contract documents. This cable shall be designated as the drop cable.

The Contractor shall ensure that the cable can withstand a maximum pulling tension of 300 pounds (lbf) during installation.

The cable shall have a shipping, storage and operating temperature range of -22°F to +158°F and an installation temperature range of 14°F to 140°F.

The Contractor shall provide cable with outer jacket marking using the following template.

Manufacturer's Name - "Optical Cable" - Month/Year of Manufacture - Telephone Handset Symbol - "MDOT" - "12F MM"

The Contractor shall include in the outer jacket marking the cable sequential length in accordance with the following:

- English units every two (2) feet
- Within -0/+1% of the actual length of the cable
- Contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- The sequential length markings do not run through "00000" on any single length of cable on a reel

907-661.02.5--Plenum Rated Nonmetallic Corrugated Raceway. The Contractor shall provide plenum rated nonmetallic corrugated raceway inside buildings when cable is not in rigid conduit when called for on the plans.

The installation shall conform to NEC articles 770 and 800.

Raceway shall meet UL Standards 910 and 2024.

The Contractor shall provide 2-inch diameter raceway unless larger is called for in the plans.

The Contractor shall provide Fiber Optic Fusion Splice (FO Splice Fusion) for splicing of all fibers with a fully automatic portable fusion splicer that provides consistent low loss (max 0.10 dB) splices.

Splicer shall provide three-axis fiber core alignment using light injection and loss measurement techniques.

The fusing process shall be automatically controlled.

The splicer shall provide splice loss measurements on an integral display, as well as a magnified image of the fiber alignment.

The Contractor shall retain ownership of the fusion splicer.

907-661.02.6--Fiber Optic Connectors. The Contractor shall provide fiber optic connectors for all fiber optic infrastructures including but not limited to fiber optic termination cabinets, fiber optic drop panels, and fiber optic patch cords.

The Contractor shall provide only factory-installed keyed LC compatible connectors for all fiber optic infrastructures.

Field-installed connectors shall not be used.

Adapter couplers shall not be used to change connector types.

Ceramic ferule connectors, factory-installed, with a thermal-set heat-cured epoxy and machine polished mating face shall be used.

Connectors shall be installed as per manufacturer application and recommendations, including proper termination to the outer-tubing (900-micron tubing, 3-mm fan out tubing, etc.) required for the application.

Connectors rated for an operating temperature of -40°F to +167°F shall be used.

Simplex connectors for all male LC connectors shall be used and a latching cover for two male connectors being used in a duplex configuration shall be provided. Female couplers may be duplex but must allow simplex mating connectors.

Dust caps shall be provided for all exposed male connectors and female couplers at all times until permanent connector installation.

907-661.02.7--Fiber Optic Termination Cabinet (FO Termination Cabinet). Fiber optic termination cabinets shall be provided in communications hubs, field junctions, and the MDOT Traffic Management Center (TMC) as shown in the Plans for termination of 72-fiber outside plant (OSP) cable.

The Contractor shall provide wall/shelf mount 12-fiber distribution cabinet equipped with fiber optic connector modules in a 12-fiber configuration. These will be used in field equipment and communication cabinet locations.

Termination cabinets with cable management features included shall be provided.

The Contractor shall use termination cabinets that are fully compatible with all components of the fiber optic infrastructure as specified, including, but not limited to, fiber optic cable, fiber optic fusion splices and fiber optic connectors.

The Contractor shall provide rack-mount termination cabinets designed to fit standard 19-inch EIA equipment racks.

The Contractor shall provide all mounting hardware and supports to mount the termination cabinets in the locations shown in the Plans.

The Contractor shall provide fiber optic termination cabinets providing 72-fiber connectors and capable of storing 72 fusion splices in splice trays.

The Contractor shall provide termination cabinets that integrate the splice trays and connector

modules into one compartment within one cabinet, or houses the splice trays and connector modules in separate compartments integrated into one cabinet.

The maximum dimensions of a complete termination cabinet shall be 7-rack units, 12.25 inches high by 16 inches deep.

Fiber optic termination cabinets shall be fully enclosed metallic construction with a protective hinged front cover for the connector ports.

The cabinet shall have cable access on all sides of the enclosed area behind the connector port panel.

The Contractor shall provide sufficient splice trays for storing 72 fusion splices in 12 or 24-splice increments.

The Contractor shall provide termination cabinets with fiber optic connector modules in a 12 fiber configuration of six (6) rows of one (1) duplex connector couplers. Connector modules shall mount vertically in the termination cabinet front panel.

Connector modules shall include clearly legible and permanent labeling of each of the 12 fiber connector couplers, and shall be labeled and identified as shown in the Plans.

The Contractor shall provide factory-assembled 12-fiber termination interconnect cables (pigtail cables) to be fusion spliced to the outside plant or indoor cable and connected to the rear of the connector modules.

Termination interconnect cables shall be all-dielectric, single jacketed cable with high tensile strength yarn surrounding 12 individual 900-micron fibers following EIA/TIA-598B color identification with factory-installed connectors.

The Contractor shall provide all incidental and ancillary materials including but not limited to grommets, cable strain relief and routing hardware, blank connector panels and labeling materials.

The cable shall be new (unused) and of current design and manufacture.

907-661.02.8--OSP Closures for Aerial, Pole Mount, Pedestal and Hand Hold Environments.
OSP closures for aerial, pole mount, pedestal and hand hole shall be capable of accepting up to eight cables. The closures shall be capable of storing up to eight 90-inch lengths of expressed buffer tubes and up to 96 splices.

Assembly shall be accomplished without power supplies, torches, drill kits or any special tools. Re-entry shall require no additional materials.

Sealing shall be accomplished by enclosing the splices in a polypropylene case that is clamped together with a stainless steel latch and sealed with an O-ring.

Closure shall be capable of strand mounting with the addition of a strand mounting bracket.

Splice case shall be non-filled, non-encapsulate to prevent water intrusion, and shall allow re-entry without any special tools.

The closure shall be capable of preventing a 10-foot water head from intruding into the splice compartment for a period of seven (7) days.

It is the responsibility of the Contractor to ensure that the water immersion test has been performed by the manufacturer or an independent testing laboratory, and the appropriate documentation has been submitted to the Engineer.

907-661.02.9--OSP Closures for Drop Cable Splice Points. OSP closures for aerial, pole mount, pedestal and hand hold shall be capable of accepting the trunk cable and two drop cables. The closures shall be capable of storing up to eight 90-inch lengths of expressed buffer tubes and up to 48 splices.

Assembly shall be accomplished without power supplies, torches, drill kits or any special tools. Re-entry shall require no additional materials.

Sealing shall be accomplished by enclosing the splices in a polypropylene case that is clamped together with a stainless steel latch and sealed with an O-ring.

Closure shall be capable of strand mounting with the addition of a strand mounting bracket.

Splice case shall be non-filled, non-encapsulate to prevent water intrusion, and shall allow re-entry without any special tools.

The closure shall be capable of preventing a 10-foot water head from intruding into the splice compartment for a period of seven days.

It is the responsibility of the Contractor to ensure that the water immersion test has been performed by the manufacturer or an independent testing laboratory, and the appropriate documentation has been submitted to the Engineer.

907-661.02.10--Patch Cords and Jumper Cables. Any patch cords or jumper cables required to connect the new fiber and equipment at existing locations shall be considered incidental and shall be included in the cost of pay items Fiber Optic Cable and Fiber Optic Drop Cable.

Any patch cords used for system configuration shall be compatible with fiber types and connectors specified herein.

Single-mode patch cords shall be yellow in color.

Jacketing material shall conform to the appropriate NEC requirement for the environment in which installed.

All cordage shall incorporate a 900-µm buffered fiber, aramid yarn strength members and an outer jacket.

Patch cords may be simplex or duplex, depending on the application.

Attenuation shall be less than 1.0 dB/km @ 1310 nm, 0.75 dB/km @ 1550 and have a total attenuation of less than 0.5 dB.

The Contractor shall be responsible to determine and provide attenuators with the proper attenuation to not exceed the optical budgets of the equipment connected by patch cables.

907-661.02.11 Cable Labels. The Contractor shall provide cable labels that meet the following requirements:

- Self-coiling wrap-around type
- PVC or equivalent plastic material with UV and fungus inhibitors
- Base materials and graphics/printing inks/materials designed for underground outside plant use including solvent resistance, abrasion resistance and water absorption
- Minimum size of 2.5 inches wide by 2.5 inches long
- Minimum thickness of 0.010 inches
- Orange label body with pre-printed text in bold black block-style font with minimum text height of 0.375 inches
- The Contractor shall pre-print the following text legibly on labels used for all fiber optic trunk cables:

  Caution Fiber Optic Cable Mississippi Department of Transportation (601) 359-1454

- The Contractor shall pre-print the following text legibly on labels used or all fiber optic drop cables (FO Drop Cable):

  Caution Fiber Optic Drop Cable Mississippi Department of Transportation (601) 359-1454

- On all cable labels, the Contractor shall print the text specified above twice on the label with the text of the second image inverted. The end result shall be text which "reads correctly" when the label is coiled onto a cable.

907-661.02.12--Cable Markers. The Contractor shall provide low profile soil cable markers which meet the following requirements:

- 3.5 inches in diameter
- UV stabilized for Maximum fade resistance
- Durable and abrasion resistant
- Lawn mower resistant
- Orange in color

- Printed Legend:

  Fiber Optic Cable
  Mississippi Department of Transportation
  Traffic Engineering Division (601)359-1454

The Contractor shall install cable markers with a 13-inch nylon stake every 500 feet along the fiber run.

907-661.02.13--Conduit Detection Wire. Conduit detection wire shall be #10 AWG stranded copper, orange-insulated, THHN -THWN conductor.

The Contractor shall furnish and install a detection wire surge protection system. The Contractor shall ensure that detection wires are attached to a surge protection system designed to dissipate high transient voltages or other electrical surges.

The Contractor shall ensure that the detection wire surge protection system is grounded to a driven rod within 10 feet of the system using AWG #6 single conductor wire. Grounding must be done through a stand alone system not connected to power or ITS device grounding.

The Contractor shall ensure that the surge protection system normally allows signals generated by locate system to pass through the protection system without going to ground.

907-661.02.14--Project Submittal Program Requirements. The Contractor shall provide project submittals for all fiber optic infrastructures. The project submittals for fiber optic infrastructure shall include all items in this provision and any additional requirements included in any Notice to Bidders.

The Contractor shall provide project submittals including manufacturer recommended operations, maintenance and calibration procedures for the following equipment:

- Fiber optic installation and testing tools
- Fusion splicers
- Cable pulling strain dynamometers and breakaway links
- Cable air jetting/blowing systems
- OTDRs
- Optical attenuation testers (light sources and power meters)

The Contractor shall submit documentation and proof of manufacturer recommended operator training and certification for the following equipment:

- Fusion splicers
- Cable air jetting/blowing systems
- OTDRs
- Optical attenuation testers (light sources and power meters)

907-661.03--Construction Requirements. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows.

907-661.03.1--General Requirements. The Contractor shall install all fiber optic infrastructures according to the manufacturer's recommended procedures and specifications.

The Contractor shall provide all necessary interconnections, services and adjustments required for a complete and operable data transmission system.

The Contractor shall install all fiber truck, drop, and patch cables such that attenuation shall be less than 1.0 dB/km @ 1310 nm, 0.75 dB/km @ 1550.

All pole attachments, service loops and conduit risers shall be placed to minimize the possibility of damage as well as to facilitate future expansion or modernization.

The cable shall be installed in continuous runs as indicated on the plans. Splices shall be allowed only at drop points or reel end points specified in the plans.

At drop locations only, those fibers necessary to complete the communication path shall be spliced. Other fibers in the cable(s) shall be left undisturbed, with a minimum of five feet of buffer tube coiled inside the closure.

Sufficient slack shall be left at each drop point to enable access of the cable components and splicing to occur on the ground. This is typical two times the pole height plus 15 feet.

For aerial installations, the following minimum slack requirements shall apply:

- For aerial slack storage at splice points, a radius controlling device, commonly referred to as a SNO-SHOE, shall be used for securing resulting cable slack at aerial splice points and shall be mounted directly to the strand.
- For aerial cable runs exceeding 6-pole spans between splice points as indicated on the plans, two opposing SNO-SHOES shall be placed on the span 50 feet apart to provide for a 100-foot service loop for future drops and for slack for repair and pole relocations.

For aerial supported installations, the slack requirements shall be the same as in the underground conduit runs. The slack will be coiled in the structure-mounted pull boxes.

Drop cable shall be routed to the controller cabinets via conduit risers as illustrated in the plans. The cable entrance shall be sealed with a duct plug designed for fiber optic cable to prevent water ingress.

The minimum requirement for fiber protection outside a fiber optic enclosure in ALL cases shall be 1/8-inch fan-out tubing, containing a hollow 900-µm tube, aramid strength members and an outer jacket, and shall be secured to the cable sheath.

The minimum requirement for fiber protection inside wall mount or rack mount fiber enclosure

shall be 900-µm buffering, intrinsic to the cable in the case of tight buffered fibers, or in the case of 250-µm coated fibers, a fan-out body and 900-µm tubing secured to the buffer tube(s).

During installation, even if the tension specifications for the cable are not exceeded, the first ten feet shall be discarded.

Warning tape shall be placed 12 inches above the cable not to deviate ±18 inches from the centerline of the optical cable. Warning tape shall be at least two inches wide and colored orange.

907-661.03.2--Cable Shipping and Delivery. The cable shall be packaged on reels for shipment. Each package shall contain only one continuous length of cable. The packaging shall be constructed as to prevent damage to the cable during shipping and handling.

Both ends of the cable shall be sealed to prevent the ingress of moisture.

A weatherproof reel tag shall be attached to each reel identifying the reel and cable so that it can be used by the manufacturer to trace the manufacturing history of the cable and the fiber. A cable data sheet shall be included with each reel containing the following information:

- Manufacturer name
- Cable part number
- Factory order number
- Cable length.
- Factory measured attenuation of each fiber

The Contractor shall cover the cable with a protective and thermal wrap.

The outer end of the cable shall be securely fastened to the reel head so as to prevent the cable from becoming loose in transit. The inner end of the cable shall be projected a minimum of 6.5 feet into a slot in the side of the reel, or into housing on the inner slot of the drum, in such a manner as to make it available for testing.

Each reel shall be plainly marked to indicate the direction in which it is to be rolled to prevent loosening of the cable on the reel.

907-661.03.3--Cable Handling and Installation. The Contractor shall not exceed the maximum recommended pulling tension during installation as specified by the cable manufacturer.

The Contractor shall continuously monitor pulling tensions with calibrated measuring devices, such as a strain dynamometer.

The Contractor shall ensure that the depth of the cable is a minimum of 36 inches unless shown otherwise in plans.

All pulled installations shall be protected with calibrated breakaway links.

The Contractor shall ensure that the minimum recommended bend radius is not exceeded during installation as specified by the cable manufacturer. Unless the manufacturer's recommendations are more stringent, the following guidelines shall be used for minimum bend radius:

- 20 X Cable Diameter Short Term - During Installation
- 10 X Cable Diameter Long Term - Installed

Before cable installation, the cable reels and reel stands shall be carefully inspected for imperfections or faults such as nails that might cause damage to the cable as it is unreeled.

All necessary precautions shall be taken to protect reeled cable from vandals or other sources of possible damage while unattended. Any damage to reeled cable or the reel itself shall necessitate replacement of the entire cable section at no additional cost to the State.

Whenever unreeled cable is placed on the pavement or surface above a pull box, the Contractor shall provide means of preventing vehicular or pedestrian traffic through the area in accordance with the safe maintenance of traffic provisions.

The cable shall be kept continuous throughout the pull. Cable breaks and reel end splices are permitted only in Type 5 pull boxes and occur at a minimum of 10,000 feet.

Where a cable ends in an underground fiber optic closure, all unused fibers and buffer tubes shall be secured and stored in splice trays in preparation for future reel end splicing and continuation.

907-661.03.4--Cable Storage. The Contractor shall properly store all cable to minimize susceptibility to damage. The proper bend radius shall be maintained, both short and long term, during cable storage.

Storage coils shall be neat in even length coils, with no cross over or tangling.

Storage coils of different cables shall be kept completely separate except when the cables terminate in the same splice closure.

Storage coils shall be secured to cable racking hardware with tie wraps, Velcro straps, or non-metallic cable straps with locking/buckling mechanism. No adhesive or self-adhering tapes, metal wires and straps, or rope/cord shall be used to secure coils.

Unless otherwise noted on the plans, the following are the requirements for cable storage for underground applications:

Trunk cable in Type 4 pull box ..... 25 feet
Trunk cable in Type 5 pull box ..... 200 feet
Drop cable in Type 4 pull box ..... 10 feet
Drop cable in Type 5 pull box, not terminated in a splice closure 10 feet
Drop cable in Type 5 pull box, terminated in a splice closure with the trunk cable ..... 100 feet

Trunk cable end in Type 5 pull box ..... 200 feet
Drop cable terminated in same splice closure as trunk cable end 200 feet

The Contractor shall label each pull box with a numbered disk obtained from the Traffic Engineering Division. The disk shall be installed in accordance with the manufactures specification on the lid of each pull box. Numbers shall be noted on the As-Built plans for each pull box.

No slack cable shall be stored inside the communications hub building or Control Center.

907-661.03.5--Cable Labels. Cable labels shall be installed on all trunk and drop fiber optic cables. The installed cable shall be cleaned of all dirt and grease before applying any label.

The Contractor shall label all cables in or at every location where the cable is exposed outside of a conduit, innerduct or pole using the cable IDs for trunk cables or the device number for drop cables.

As a minimum, cable labels shall be installed in the following locations:

- Within 12 inches of every cable entry to a pull box, equipment cabinet, communications hub, or the TMC
- Within 12 inches of the exterior entry point of every fiber optic splice closure, termination cabinet and drop panel
- Every 30 feet for the entire length of cable in any storage coil in pull boxes
- Within one (1) foot of every pole attachment
- On every riser
- On every splice enclosure

907-661.03.6--Conduit Detection Wire. The Contractor shall install one conduit detection wire in all conduit banks. Conduit detection wire is required in all conduit banks installed by any installation method, including trenching, directional boring or plowing.

Only one conduit detection wire is required per installed conduit bank regardless of the number of conduits installed in that segment. Conduit detection wire shall be installed inside the conduit.

Conduit detection wire is not required for structure mounted conduit, except where underground segments of structure mounted conduit are greater than 20 feet in length.

The conduit detection wire shall be continuous and unspliced between pull boxes and shall enter the pull boxes at the same location as the conduit with which it is installed, entering under the lower edge of the pull box.

Four (4) feet of conduit detection wire shall be coiled and secured in each pull box or vault.

When two or more detection wires are in any pull box, the Contractor shall mechanically splice all detection wire together.

Conduit detection wire is required in drop cable conduits.

A detection wire surge protection system shall be furnished and installed. Detection wires shall be attached to surge protection systems designed to dissipate high transient voltages or other electrical surges. The detection wire surge protection system shall be grounded to a driven rod within 10 feet of the system using AWG #6 single conductor wire. Grounding shall be done through a stand alone system not connected to power or ITS device grounding. The surge protection system shall normally allow signals generated by locate system to pass through the protection system without going to ground.

907-661.03.7--Splicing into Existing Fiber Optic Cable. At some locations, the Contractor may be required to splice new drop cable into existing fiber optic cable at existing pull boxes. The Contractor is responsible to protect all existing fiber during this work. No separate payment shall be made for splicing into the existing fiber. The cost for all fiber optic work and equipment shall be included in the bid price for pay items Fiber Optic Cable and Fiber Optic Drop Cable.

The Contractor must notify the Project Engineer in writing no less than 10 days in advance of doing any work to existing fiber optic cable. Before any work can begin the Contractor must have obtain approval from the Project Engineer.

907-661.03.8--Replace Fiber Optic Cable. In locations specified in the Plans, the Contractor shall be required to remove and replace existing fiber optic cable with new fiber optic cable. The new fiber optic cable shall be an equivalent cable having the same cable type, assembly, connectors, size, construction, buffer tube construction, temperature characteristics, tensile strength, and optical characteristics. The cable type and mode shall be the same unless specified as otherwise in the Plans or contract documents. The new cable shall be a compatible replacement having equivalent or improved link characteristics. The Contractor shall install the cable as per manufacturer application and recommendations and adhere to the Installation Requirements and Testing specifications as stated herein. No separate payment will be made for this work. The cost for pulling new fiber optic cable for cable replacement, and splicing/terminating all fibers shall be included in the cost of the pay item Replace Fiber Optic Cable.

907-661.03.9--Replace Fiber Optic Drop Cable. In locations specified in the Plans, the Contractor shall be required to remove and replace existing fiber optic drop cable with new fiber optic drop cable. The new fiber optic drop cable shall be an equivalent cable having the same cable type, assembly, connectors, size, construction, buffer tube construction, temperature characteristics, tensile strength, and optical characteristics. The cable type and mode shall be the same unless specified as otherwise in the Plans or Notice to Bidders. The new cable shall be a compatible replacement having equivalent or improved link characteristics. The Contractor is required to install the cable as per manufacturer application and recommendations and adhere to the Installation Requirements and Testing specifications as stated herein. No separate payment will be made for this work. The cost for pulling new fiber optic drop cable for cable replacement, and splicing/terminating all fibers shall be included in the cost of pay item Replace Fiber Optic Drop Cable.

907-661.03.10--Upgrade Fiber Optic Cable. In locations specified in the Plans, the Contractor shall be required to upgrade existing fiber optic cable to new cable that adheres to the respective cable specification and requirements. The cable type and mode shall be the same unless specified as otherwise in the Plans or contract documents. The cable upgrade shall be treated as a new cable installation and adhere to all corresponding specifications and requirements stated herein. No separate payment will be made for this work. The cost for pulling new fiber optic to upgrade existing cable, and splicing/terminating all fibers shall be included in the cost of pay item Replace Fiber Optic Cable, Aerial.

907-661.03.11--Fiber Optic Connections at Existing Communication Nodes. In some locations, the Contractor shall be required to pull new fiber optic cable into an existing communications huts. No separate payment will be made for this work. The cost for pulling the fiber into the hut, providing and installing the termination equipment, and terminating all the fibers shall be included in the cost of pay items Fiber Optic Cable and Fiber Optic Drop Cable.

907-661.03.12--Drop and Insert Applications. The signal from the TMC to local controllers, cameras, and/or dynamic message signs will be conveyed via the backbone and branch cables.

The appropriate closure, as set out in Subsection 907-661.02.8, shall be used.

A 12-port fiber distribution cabinet and appropriate jumper shall be installed within the cabinet at locations approved by the Engineer.

At each device, the applicable fibers will be routed in and out of the equipment cabinet using a pre-terminated drop cable.

Only fibers required for the drop and insert shall be cut, no other fibers in the cable shall be cut without the approval of the Engineer.

The fibers shall be connected to the transmission equipment via LC/LC fiber optic patch cables.

The drop cable shall be routed in a position that will allow access to all installed components without movement of the cable.

In traffic signal control boxes the drop cable shall be routed up the left rear corner to a shelf mounted fiber optic termination cabinet.

In ITS equipment or communication cabinets the cable shall be routed neatly allowing for service of all installed components.

907-661.03.13--Testing.

907-661.03.13.1--General Requirements. The project testing program for fiber optic infrastructure shall include but is not limited to the specific requirements in this subsection.

All test results shall confirm physical and performance compliance with this TSP including but

not limited to optical fibers and fusion splices. No event in any given fiber may exceed 0.10 dB. Any event measured above 0.10 dB shall be replaced or repaired at the event point.

The Contractor shall provide the tentative date, time and location of fiber optic infrastructure testing no less than seven (7) days in advance of the test. The Contractor shall provide confirmed date, time and location of fiber optic infrastructure testing no less than 48 hours before conducting the test.

The Contractor shall provide test results documentation in electronic format (3 copies) and printed format (3 copies). Electronic formats shall be readable in Microsoft Excel or other approved application. Printed copies shall be bound and organized by cable segment.

- Two sets are for the Traffic Engineering ITS Department
- One set are for the Engineer

All test results shall be provided in English units of measure of length.

All test results documentation shall be submitted to the Engineer within 14 days of completion of the tests.

The ITS Engineer, Project Engineer and/or their designee(s) are only responsible for attending and observing each test, and reviewing and approving the Contractor's test results documentation. The ITS Engineer, Project Engineer and/or their designee(s) reserve the right to attend and observe all tests. The Contractor shall perform the Pre-Installation test and the Standalone Acceptance test with the the Department ITS Engineer or their designee present.

907-661.03.13.2--Pre-Installation Test (PIT). The Contractor shall perform a PIT on all FO Cable prior to any cable removal from the shipping reels.

The Contractor shall perform a PIT on each cable reel delivered to the job site.

The PIT for FO Cable shall include but is not limited to:

- A visual inspection of each cable and reel
- An OTDR Test and documentation as required in the Standalone Acceptance Test (SAT) for three randomly selected fibers from each buffer tube

An Optical Attenuation Test is not required. However, if the Contractor decides to perform one of these tests for their own protection, it shall be documented and provided to the Engineer.

907-661.03.13.3--Standalone Acceptance Test (SAT). The Contractor shall perform an SAT on all fiber optic infrastructures on this project after field installation is complete, including but not limited to all splicing and terminations. All fiber in pull boxes shall be in its final position mounted to the racks prior to the start of testing.

An SAT for each fiber in each cable shall include OTDR Tests and Optical Attenuation Tests.

For the Attenuation Tests, all fibers in all FO Cables and FO Drop Cables shall be tested from termination point to termination point, including:

- Fibers from FO Termination Cabinet to FO Termination Cabinet
- Fibers from FO Termination Cabinet to FO Drop Panel
- Fibers from FO Drop Panel to FO Drop Panel
- Fibers from FO Termination Cabinet to the end of the cable run in the last FO closure

All test results shall confirm compliance with this TSP including but not limited to optical fibers and fusion splices. No event in any given fiber may exceed 0.10 dB. Any event measured above 0.10 dB shall be replaced or repaired at the event point.

Test documentation shall include but is not limited to:

- Cable & fiber identification
- Cable & fiber ID and location - Physical location (device ID and station number of FO Termination Cabinet, FO Drop Panel, or cable end FO closure), fiber number, and truck or drop cable ID for both the beginning and end point
- Operator name
- Engineer's representative
- Date & time
- Setup and test conditions parameters
- Wavelength
- Pulse width Optical Time Domain Reflectometer (OTDR)
- Refractory index (OTDR)
- Range (OTDR)
- Scale (OTDR)
- Ambient temperature
- Test results for OTDR test (each direction and averaged)
- Total fiber trace (miles)
- Splice loss/gain (dB)
- Events > 0.05 dB
- Measured length (cable marking)
- Total length (OTDR measurement)
- Test results for attenuation test (each direction and averaged)
- Measured cable length (cable marking)
- Total length (OTDR measurement from OTDR test)
- Number of splices (determined from as-builts)
- Total link attenuation

The OTDR Test shall be conducted using the standard operating procedure and recommended materials as defined by the manufacturer of the test equipment.

The Contractor shall use a factory patch cord ("launch cable") of a length equal to the "dead zone"

of the OTDR to connect the OTDR and the fiber under test.

Bi-directional OTDR tests shall be conducted and bi-directional averages calculated for each fiber.

All tests shall be conducted at 1310 and 1550 nm for single mode cable.

The Contractor shall conduct the Optical Attenuation Test using the standard operating procedure and recommended materials as defined by the manufacturer of the test equipment.

Bi-directional Optical Attenuation tests shall be conducted and bi-directional averages calculated for each fiber.

A continuity or tone test shall be performed after installation to confirm that a continuous run of conduit detection wire was installed between pull boxes or vaults.

The Contractor shall prepare a test plan, supply equipment, conduct the test and document the results.

The test plan shall be submitted at least 15 working days prior to the desired testing date.

Testing shall not begin until the Engineer has approved the test plan, and all tests shall be conducted in the presence of the Engineer. The Traffic Engineering ITS Department representative shall be notified of the testing dates and invited to observe all testing.

The Traffic Engineering ITS Department may perform additional testing of any and all infrastructure using their own equipment. The Contractor may observe this testing.

The burn in period cannot start until the Traffic Engineering ITS Department is satisfied with the installation.

907-661.03.14--Documentation - As-Built Plans. The Contractor shall provide GPS locations of all pull boxes, splices, termination equipment cabinets, DMS, CCTV, Detectors and all pole locations.

The Contractor shall record the sequential footage markers from the fiber optic trunk and drop cables for each GPS location.

The Contractor shall provide scanned PDF files of all plan sheets with pen and ink markups.

The Contractor shall also provide the Department with an electronic file containing all of the data and test reports required above in a format that is compatible with Microsoft Excel.

A copy of all documentation shall be provided to the the Department Traffic Engineering ITS Department and Project Office

The Contractor shall provide a site location inventory of ITS devices to include manufacturer

model, serial numbers, and quantity. It shall also include the following:

- OTN Nodes and OTN Cards
- Fiber modems
- Video Encoders and Decoders
- Cameras
- Dome Camera housings
- DMS Signs
- Any other serial numbered devices installed

All documentation timing will be due to the Department by the close of business on the Friday of the week following the installation.

907-661.03.15--MDOT Employee Training. Minimum training requirements are as follows:

After the installation is complete, the Contractor shall provide formal classroom training and "hands-on" operations training for proper operation and maintenance of the fiber optic plant. The training shall be provided for up to six personnel designated by the Engineer and shall be a minimum of one day in duration. The training shall cover as a minimum preventive maintenance, troubleshooting techniques, fault isolation and OTDR trace analysis. All training materials shall be provided by the Contractor.

A Training Plan shall be submitted within 90 days of the Notice-to-Proceed. Approval of the Plan shall be obtained from the Engineer and the Traffic Engineering ITS Department. A detailed explanation of the contents of the course and the time schedule of when the training shall be given shall be included in the Training Plan.

Prior to training, the Contractor shall submit resume and references of the training instructor(s) along with an outline of the training course in a Training Plan. Training instructor(s) shall be manufacturer-certified, experienced in the skill of training others. The training shall be conducted by a trainer with a minimum of four years of experience in training personnel on the operation and maintenance of fiber optic systems.

The Contractor shall furnish all handouts, manuals and product information for the training. The same models of equipment furnished for the project shall be used in the training. The Contractor shall furnish all media and test equipment needed to present the training. Training shall be conducted in the Jackson area.

907-661.04--Method of Measurement. Fiber optic cable of the type specified will be measured by the linear foot. The measurement will be made horizontally along the conduit, aerially along the messenger cable, or from the trunk line to the controller cabinet.

The cost for all fiber optic work, equipment and testing shall be included in the bid price for fiber optic cable.

All required cabinet facilities shall not be measured for separate payment. All standard or special

fiber optic modems, fan out boxes, connectors, termini nation cabinets, patch cords, raceways, splicing devices, splicing, detection wire, warning tape, above ground markers, backplane facilities, twisted pair communications cable interface devices, etc., and any other cabinet modifications required for the fiber optic system shall be included in the price bid for other items of work.

907-661.05--Basis of Payment. Fiber optic cable, measured as prescribed above, will be paid for at the contract unit price bid per linear foot, which price shall be full compensation for furnishing all materials, for all installing, connecting, cutting, pulling and testing and for all equipment, tools, labor and incidentals necessary to complete the work.

Payment will be made under:

907-661-A:	Fiber Optic Cable, *	- per linear foot
907-661-B:	Fiber Optic Drop Cable, *	- per linear foot
907-661-C:	Fiber Optic Cable, Aerial, *	- per linear foot
907-661-D:	Replace Fiber Optic Cable	- per linear foot
907-661-E:	Replace Fiber Optic Drop Cable	- per linear foot
907-661-F:	Replace Fiber Optic Cable, Aerial	- per linear foot
907-661-G:	Upgrade Fiber Optic Cable	- per linear foot

* Indicate the type of cable

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-663-1 **CODE (SP)**

DATE: 01/17/2017

SUBJECT: Networking Equipment

Section 907-663, Networking Equipment, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-663 - NETWORKING EQUIPMENT

907-663.01--Description. This work consists of providing networking communication equipment, including network switches, terminal servers, cellular modems, and associated cabling, furnished and installed.

Type A, Type B, Type D, and Type E switches shall be environmentally hardened and rated for an operating temperature of 158°F. These switches support Intelligent Transportation Elements deployed on arterial streets and the highway system. Elements include but are not limited to traffic signals, dynamic message signs, surveillance cameras, and vehicle detection systems. Type C switches will support the Intelligent Transportation System and be installed in the Traffic Management Center and Communications Huts which are environmentally controlled. Type C switches are not required to be hardened.

This section also specifies the minimum requirements for standalone and network switch module Terminal Servers, standalone and network switch module cellular modems, and Category 6 cable The Terminal Servers shall be hardened. The Terminal Server device, also commonly referred to as a Port Server device, will be used to communicate bi-directionally between IP-based Ethernet network systems and existing field devices that communicate or are controlled via a full-duplex serial interface. Cellular modems shall be used to communicate via cell to remote sites such as portable traffic signal sites, portable CMS, smart work zones or ITS site locations, or sites or devices that need serial or Ethernet communication that can be provided over cellular service.

The Category 6 cable shall be installed in conduit and cabinets between elements that are within 300 feet of each other to eliminate the need for two hardened switches.

The work shall consist of providing all labor, materials, equipment and incidentals necessary to furnish, install and test the networking equipment.

907-663.02--Materials. Network Switches Type A, Type B, Type C, Type D, Type E, Terminal Servers, Cellular Modems, and associated cabling will be placed in the field device cabinets and shall meet the following requirements:

907-663.02.1--Network Switch Requirements. The Type A, Type B, Type C, Type D, and Type E Network switches shall adhere to the following minimum requirements.

1) Field switch optical ports shall meet the following:

   a. The minimum optical budget between transmit and received ports shall be 18dB.
   b. It shall include LC connector types.
   c. Optical receiver maximum input power level shall not be exceeded.
   d. Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.
   e. The Contractor shall be required to measure the optical power on each optical port to ensure that power entering the receiver is within the acceptable power budget of the optical port.
   f. Optical interface equipment shall operate at 1310 nm.
2) It shall operate from 100 VAC to 200 VAC.
3) The field switches shall operate between -29° to +165°F, including power supply.
4) The field switches shall operate from 10% to 90% non-condensing humidity.
5) Meet the IEEE 802.3 (10Mbps Ethernet) standard.
6) Meet the IEEE 802.3u (Fast Ethernet 100 Mbps) standard.
7) Meet the IEEE 802.3x (Full Duplex with Flow Control) standard.
8) Meet the IEEE 802.1p (Priority Queuing) standard.
9) Meet the IEEE 802.1Q (VLAN) standard per port for up to four VLAN's.
10) Meet the IEEE 802.1w (Rapid Spanning Tree Protocol) standard.
11) Meet the IEEE 802.3ad (Port Trunking) standard for a minimum of two groups of four ports.
12) The field switches shall meet IEEE 802.3D (Spanning Tree Protocol) standard.
13) Capable of mirroring any port to any other port within the switch.
14) Password manageable through:
   a. SNMP
   b. Telnet/CLI
   c. HTTP (Embedded Web Server) with Secure Sockets Layer (SSL)
15) Full implementation of SNMPv1 and SNMPv2c.
16) Full implementation of GVRP (Generic VLAN Registration Protocol).
17) Full implementation of IGMP and IGMP snooping.
18) Minimum MTBF of 100,000 hrs. using Bellcore TS-332 standard.
19) Full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.
20) UL approved.
21) The field switch shall provide status indicators as follows: 1) power on an off, 2) network status per port (transmit, receive, link, speed), and 3) status indicators shall be LED.
22) Unused ports (copper and optical) shall be covered with rubber or plastic dust caps/cover.

907-663.02.1.1--Type A Network Switch. Type A network switches shall adhere to the following minimum requirements.

1) Minimum of six 10/100Base-TX ports. Each port shall connect via RJ-45 connector.
2) Minimum of two 1000 Base Long Reach optical ports.
3) Full implementation of RMON I and RMON II.

4) Rack, shelf or DIN Rail mountable. If shelf mounted, the Contractor shall furnish and install a shelf if shelf space is not available in the facility. Any shelf used shall be ventilated as per the Network Switch manufacturer recommendation.
5) All power transformers provided shall be "fastening mechanism" type. No plug-in types shall be permitted. All corded transformers shall be mountable with the ability to neatly secure power cords.

907-663.02.1.2--Type B Network Switch. Type B network switches shall adhere to the following minimum requirements.

1) Minimum of twelve 10/100 Base-TX ports. Each port shall connect via RJ-45 connector.
2) Minimum of one 10/100/1000 Base-TX ports. Each port shall connect via RJ-45 connector.
3) Full implementation of RMON I and RMON II.
4) Minimum of two 1000 Base Long Reach optical ports.
5) Rack, shelf or DIN Rail mountable. If shelf mounted, the Contractor must furnish and install a shelf if shelf space is not available in the facility. Any shelf used shall be ventilated as per the Network Switch manufacturer recommendation.
6) All power transformers provided shall be "fastening mechanism" type. No plug-in types shall be permitted. All corded transformers shall be mountable with the ability to neatly secure power cords.

907-663.02.1.3--Type C Network Switch Requirements. The Type C Network Switch will be installed in the Communication Hubs and shall meet the following requirements:

1) Each switch shall be populated with the following modules:
   a. Two redundant switch fabric modules that meet the following minimum requirements:
      i. Layer 2/3/4 switching and routing services
      ii. 64Gbps/48Mpps module Bandwidth
      iii. Min of 2-GE uplinks available per card. The Contractor shall provide an uplink SFP optical module compatible with the interface for the uplink as indicated in the Comm Node notice to bidders for each uplink
   b. In one (or more) SFP-based module(s): a minimum of 48 ports of 1000Base-X (SFP-based) compatible. The Contractor shall provide whichever is greater between a min number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a min of 14 and shall meet the following minimum requirements:
      i. Optical budget of 18dB
      ii. Hot-swappable
      iii. Same optical wavelength as Type A & B switches
      iv. Same optical transmitter power as Type A & B switches
   c. In one (or more) modules: 24 Ethernet 10/100/1000 ports
2) Optical receiver maximum input power level shall not be exceeded.
3) Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657 of the Mississippi Standard Specifications for Road and Bridge Construction. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.

4) 19" rack mountable.
5) Operate from 5 to 40 degree Celsius.
6) NEBS Level 3 compliant.
7) Operate from 5 to 80 non-condensing humidity
8) Designed as a chassis with easy to remove modules.
9) Chassis backplane shall be passive.
10) All modules shall be hot-swappable.
11) Meet the IEEE 802.1d (Virtual Bridge) standard.
12) Meet the IEEE 802.1x (authentication) standard.
13) Meet the requirements of :
    a. IEEE 802.3z
    b. IEEE 802.3ah
    c. GR-20-CORE: Generic requirements for Optical Fiber and Optical Fiber Cable
    d. GR-326-CORE: Generic Requirements for Singlemode
14) Full implementation of RIP protocol as outlined by RFCs: 1058, 1723, 1812
15) Full implementation of OSPF protocol as outlined by RFCs: 2178, 1583, 1587, 1745, 1765, 1850, 2154, 2328, 1850, 1997, 2385, 2439, 2842, 2918, 2370.
16) Capable of mirroring any port to any other port within the switch.
17) Password manageable through:
    a. SSHv2 (Secure Shell)
18) Full implementation of GMRP (Generic Multicast Registration Protocol).
19) Full implementation of IGMPv2.
20) Full implementation of PIM-SM and PIM-DM.
21) Full implementation of DVMRPv3.
22) Full implementation of VRRP.
23) Comply with FCC 47 CRF Part 15 Class A emissions.
24) Bandwidth flow rate limiting policing support per port.
25) Full security implementation of
    a. Support SSH2, 802.1x (rel 2)
    b. Access Control Lists (ACL's)
    c. RADIUS
    d. TACACS
26) Have redundant power supplies installed.
27) The power supply units shall be hot swappable.
28) Switch chassis shall have a minimum of 6 module slots.
29) Blank covers for all remaining slots.

907-663.02.1.4--Type D Network Switch Requirements. The Type D Network Switch shall be of chassis design. The switch shall be able to accept a minimum of four (4) different type modular cards and have Layer 2 switch and Layer 3 routing capabilities. The Type D Network Switch shall meet the minimum requirements specified below:

1) The switch shall be chassis designed with a minimum of 4 module slots.
2) Each switch shall be able to accept the following type modules:
    a. Ethernet module:
        i. A minimum number of six (6) 10/100Base-TX compatible RJ45 ports.

ii. The Contractor shall provide the minimum number of modules necessary to meet or exceed the required number of ports as indicated in the plans and NTBs.
iii. Total required bandwidth shall per chassis shall not exceed 10 Gbps

b. Fiber based modules:
i. The module shall accept SFP type fiber modules
ii. The Contractor shall supply any necessary fiber modules that meet the requirements of speed, type of fiber, and link budget connection.
iii. The Contractor shall provide the minimum number of modules necessary to meet or exceed the required number of ports as indicated in the plans and NTB

c. WAN module:
i. T1, DS3 or Metro Ethernet Interface (as per NTB or project plans)
1. The Interface shall be T1, DS3 or Metro Ethernet
2. The ports shall connect via RJ45 connector.
ii. Cellular Interface
1. Contractor shall provide information to the Project Engineer to enable activation of the modem.
2. Contractor shall get prior approval from the Project Engineer on selection of cellular radio type (HSPA/EVDO)

d. Terminal Server module:
i. Module that meets Terminal Server requirements Subsection 907-663.02.6

e. Power Supply module:
i. The power module provided shall be "screw terminal block" type. No pluggable terminal block.
ii. Input power: Same as Type A and Type B switches.
iii. Power module shall be hot-swappable.
iv. The Contractor shall supply the necessary amount of power supplies to meet power requirements for all cards installed and the chassis itself

3) The software license shall be provided to match functionality of installed modules.
4) It shall be DIN or Panel mountable.
5) The switch shall provide layer 2 and 3 switching and routing services
6) It shall meet the IEEE 802.1d (Virtual Bridge) standard.
7) It shall meet the IEEE 802.1x (authentication) standard.
8) Password manageable through:
a. SSHv2 (Secure Shell)
9) Full implementation of VRRP.
10) It shall comply with FCC 47 CRF Part 15 Class A emissions.
11) Bandwidth flow rate limiting policing support per port.
12) Full security implementation of
a. Support SSH2, 802.1x (rel 2)
b. Access Control Lists (ACL's)
c. RADIUS
13) Blank covers for all remaining slots.
14) Electronic surfaces shall be covered with conformal coating for additional environmental protection.

907-663.02.1.5--Type E Network Switch Requirements. The Type E Network Switch will be installed in locations where multiple backbone fiber converge or high concentration of ports are needed for a field location but need a hardened switch and shall meet the following requirements:

1) Each switch shall be populated with redundant switch fabric modules that meet the following minimum requirements:
   a. Layer 2/3/4 switching and routing services
   b. 64Gbps/48Mpps module Bandwidth
   c. Min of 2-GE uplinks available per card with a minimum capability to expand to 4. The Contractor shall provide an uplink SFP optical module compatible with the interface for the uplink as indicated in the Comm Node Notice to Bidders for each uplink
2) Optical interfaces shall include 1000 Base-X (SFP-based module(s)) with a minimum of 8 ports. The Contractor shall provide whichever is greater between a min number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a min of 6 and shall have a minimum Optical budget of 18dB and be the same optical wavelength as Type A and B switches.
   a. Optical receiver maximum input power level shall not be exceeded.
   b. Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.
3) Include a minimum 8 Ethernet 10/100/1000 ports
4) 19" rack mountable.
5) Operate from -22°F to +158°F.
6) Operate from 10 to 90 non-condensing humidity
7) Chassis backplane shall be passive.
8) All modules shall be hot-swappable.
9) Meet the IEEE 802.1d (Virtual Bridge) standard.
10) Meet the IEEE 802.1x (authentication) standard.
11) Meet the requirements of :
   a. IEEE 802.3z
   b. IEEE 802.3ah
   c. GR-20-CORE: Generic requirements for Optical Fiber and Optical Fiber Cable
   d. GR-326-CORE: Generic Requirements for Singlemode
12) Full implementation of RIP protocol as outlined by RFCs: 1058, 1723, 1812
13) Full implementation of OSPF protocol as outlined by RFCs: 2178, 1583, 1587, 1745, 1765, 1850, 2154, 2328, 1850, 1997, 2385, 2439, 2842, 2918, 2370.
14) Capable of mirroring any port to any other port within the switch.
15) Password manageable through:
   a. SSHv2 (Secure Shell)
16) Full implementation of GMRP (Generic Multicast Registration Protocol).
17) Full implementation of IGMPv2.
18) Full implementation of PIM-SM and PIM-DM.
19) Full implementation of DVMRPv3.
20) Full implementation of VRRP.
21) Comply with FCC 47 CRF Part 15 Class A emissions.
22) Bandwidth flow rate limiting policing support per port.

23) Full security implementation of
    a. Support SSH2, 802.1x (rel 2)
    b. Access Control Lists (ACL's)
    c. RADIUS
    d. TACACS
24) Have redundant power supplies installed.
25) Blank covers for all remaining slots.
26) Have options or modules to add a terminal server as specified in Subsection 907-663.02.2
27) Have options or modules to add a cellular interface as specified in Subsection 907-663.02.3

907-663.02.2--Terminal Server. Terminal server shall adhere to the following minimum requirements.

1) 10/100 Base-T Ethernet port connection
2) RJ-45/DB9 Serial port connection
3) RS-232/422/485 selectable serial connections
4) Baud rates up to 230 Kbps
5) Full Modem and hardware flow control
6) TCP/UDP Socket Services
7) UDP Multicast
8) Telnet and Reverse Telnet
9) Modem emulation
10) SNMP (Read/Write)
11) PPP
12) Port buffering
13) HTTP
14) Remote management
15) DHCP/RARP/ARP-Ping for IP address assignment
16) LED status for link and power
17) The Terminal Server shall support a minimum of Four (4) bi-directional serial communications over Ethernet 10/100 Base-TX.
18) Each Terminal Server shall have a minimum of four (4) EIA-232/422/485 serial interface ports. These ports shall be individually and independently configurable, directly or over the network, to EIA-232/422/485 mode of operation as defined by the EIA for data format, data rate and data structure (e.g., the number of bits, parity, stop bits, etc.). Each serial port shall support up to 230 Kbps.
19) Each serial port shall support IP addressing and socket number selection.
20) The equipment shall provide the capability to establish an IP connection directly from a workstation to any encoder IP address and socket number transport serial data.
21) Each Terminal Server shall have an Ethernet Interface (10/100Base-TX protocol, Full/Half-Duplex, Auto Sense (802.3), RJ-45).

907-663.02.3--Cellular Modem. Cellular Modem and associated equipment shall be new and constructed using the highest quality, commercially available components and techniques to assure high reliability and minimum maintenance and meet the following requirements.

907-663.02.3.1--Functional Requirements. Cellular Modem, antenna, wiring assemble, configuration software, and installation necessary shall be provided and furnished for a working cellular wireless communication connection in accordance with plans and specifications and compatible with the requirements of the Department system, and the wireless service carrier used by the Department. Unless otherwise indicated on the plans, all items that are required to complete the installation and ensure an operational system shall be supplied by the contractor whether listed above or not. Items required but not listed above shall be at no direct pay. All components supplied by the contractor are the responsibility of the contractor. It shall be the responsibility of the contractor to properly configure and deliver a working cellular communications system. It shall be the responsibility of the contractor to determine the final configuration of all electrical connections. Cellular account setup shall be coordinated with MDOT Traffic Engineering Division. Warranty and cellular carrier account shall be transferred into the Department's name upon acceptance of the project.

907-663.02.3.2--Cellular Modem System. The Cellular Modem shall adhere to the following minimum requirements.

1) Model and Type provided shall be pre-approved on a Department cellular service carrier.
2) Highest available on a Department cellular service carrier of 4G, EVO, or higher service.
3) Minimum of one 10/100 Base-T RJ45 Ethernet port
4) Minimum of one RS-232 serial port
5) Minimum of one external antenna connector
6) GPS Data available
    a. Acquisition Time under 2 seconds
    b. Accuracy: under 5m 90% of time
    c. Tracking Sensitivity: -161 dBm
7) Device Configuration and Management Software via web interface.
8) Communications and Protocols supported:
    a. Network: TCP/IP, UDP/IP, DNS
    b. NAT and DHCP routing with VLAN, VRRP, and Static Routes configurable
    c. Includes TELNET, SMTP, SNMP, SMS sessions and services
    d. Serial: TCP/UDP PAD Mode, Modbus (ASCII,
    e. GPS: NMEA V3.0, TAIP, RAP
    f. Provides VPN security with up to 5 tunnels
9) Provides event reporting for GPS/AVL, Network Parameters, Data Usage, Time, Power, and Device Temperature over SMS, SNMP, or Email, SNMP.
10) Input Voltage: 10 to 36 VDC
11) Operating Temperature of -22°F to +158°F

907-663.02.4--Category 6 Cable. Category 6 cable shall adhere to the following minimum requirements.

1) 4 Pair #24 AWG UTP Category 6 Cable
2) This item is paid for Category 6 cables installed between cabinets and does not apply to other patch cords installed inside cabinets or huts.

3) Supplied Category 6 cable shall be suitable for use outdoors in duct and as a minimum meet the following requirements:
4) Fully water blocked
5) Conforms to the National Electrical Code Article 800
6) UL 1581 certified
7) Voltage Rating 300 Volts or greater
8) Operating and installation temperature (-4°F to 140°F)
9) Bend Radius 10 x Cable OD or smaller
10) Recommended for 1000Base-T applications for a distance of 100 meters.

907-663.02.4.1--Category 6 Patch Cords. The Cat 6 Patch Cords shall be furnished and installed as needed to connect the Network Switches with other equipment. Cat 6 Patch Cords shall be considered an incidental component for this project and furnished and installed as needed to provide a functional system. Cat 6 Patch Cords shall meet the following minimum requirements:

1) All patch cords shall be from the same manufacturer.
2) It shall incorporate four (4) pair 24 AWG stranded PVC Category 6.
3) It shall be factory made; Contractor or vendor assembled patch cords are not permitted.
4) It shall be TIA/EIA 568-B.2-1 compliant. Patch Cords shall be compliant to T568B pin configuration (whichever is used).
5) Certified by the manufacturer for Category 6 performance criteria.
6) Length as needed. Excessive slack is not permitted.

907-663.02.5--Project Submittal Program Requirements. The Contractor shall provide project submittals for network switches including scheduling requirements. The project submittals for network switches, terminal servers, and cellular modems shall include but are not limited to the following specific requirements.

The Contractor shall submit detailed cut sheets which document compliance with all parameters required in this section. If a parameter is not covered in the cut sheet a signed statement from the manufacturer on letterhead shall be submitted as an attachment. Failure to address all requirements will result in rejection of the submittal.

The Contractor shall submit documentation and proof of manufacturer-recommended training and certification for the installation and configuration of network switches.

The Contractor shall submit technical specifications for the minimum transmitter port to receiver port optical attenuation required for the switches to function in accordance with this specification for the optical links shown on the plans.

907-663.03--Construction Requirements. All networking equipment shall be installed according to the manufacturer's recommendations, the plans, and as follows.

Network switches shall only be configured and installed by the switch manufacturer trained personnel in accordance with manufacturer's guidelines and requirements.

The Contractor shall request from the Department, switch configuration information (such as IP address, VLAN Tag values, etc.) not more than 30 days after the switch submittals have been approved.

The Contractor shall provide as needed the necessary Cat 6 patch cords and fiber optic patch cords for a complete and functional installation. Category 6 cable installed in conduit shall be installed and terminated per the manufacturers recommended procedures. Five feet of spare slack shall be provided in the pull boxes nearest each Type B or Type C cabinet.

The Contractor shall provide training for proper management of the equipment installed. This training should cover daily operation as well as maintenance and configuration of the switching equipment installed as part of this project and meet the requirements of Subsection 907-663.03.5.

The Contractor shall provide the Department with a written inventory of items received and the condition in which they were received. Inventory shall be inclusive of make, model, and serial numbers, MAC address, and installation GPS coordinates. All equipment shall be installed according to the manufacturer's recommendations or as directed by the Department.

Any new, additional or updated drivers required for the existing ATMS software to communicate and control new Networking Equipment installed by the Contractor shall be the responsibility of the Contractor.

907-663.03.1--Switch Configuration Requirements. The Contractor shall configure Network Switches as follows.

All 100 Base-TX ports shall be configured as follows:

a. RSTP/STP – Off.
b. Unused TX ports shall be disabled.
c. Operating TX ports shall be programmed to filter only for the MAC address of the connected device.

All 1000 Base-FX ports shall be configured as follows:

a. RSTP/STP – On.
b. IGMP Snooping – On.

The Type D switch configuration shall be as outline in the plans and contract documents.

All network switches shall be installed and configured with the same firmware configuration. The optimum settings shall be used consistently system-wide. Any locations that require different settings for optimum performance shall be approved by the Engineer.

The switches shall be configured to enable multicasting and turn on multicast protocols.

The Contractor may submit an alternate switch configuration to the ITS Engineer for review and approval. The ITS Engineer will review alternate switch configuration documentation. The goal of the switch configuration is to reduce the network delay, as well as provide network redundancy.

The Contractor shall submit an electronic copy of all final and approved configurations of all switches to the Project Engineer and to the ITS Engineer.

907-663.03.2--Testing. The Contractor shall conduct a Project Testing Program as required below. All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

All test results shall confirm physical and performance compliance with these specifications.

Each test shall fully demonstrate that the equipment being tested is clearly and definitely in full compliance with all project requirements.

Contractor shall submit all test results documentation to the Engineer for review within 14 calendar days of completion of the tests.

All tests deemed by the Project Engineer to be unsatisfactorily completed shall be repeated by the Contractor. In the written request for each test occurrence that is a repeat of a previous test, the Contractor shall summarize the diagnosis and correction of each aspect of the previous test. The Contractor shall summarize the diagnosis and correction of each aspect of the previous test that was deemed unsatisfactory. The test procedures for a repeated test occurrence shall meet all the requirements of the original test procedures, including review and approval by the Project Engineer and ITS Manager or designee.

The satisfactory completion of any test shall not relieve the Contractor of responsibility to provide a completely acceptable and operating system that meets all requirements of this project.

907-663.03.3--Documentation. As-built plans showing switch configuration and connections shall be provided to the Project Engineer and ITS Engineer in electronic format.

The Contractor shall submit documentation and proof of measured optical power budgets to all optical links of all type switches.

All equipment and software must be fully functional and pass a Final Inspection by the ITS Manager and Project Engineer before being accepted by the Department

907-663.03.4--Warranty. All warranties and guarantees shall be assigned to the Mississippi Department of Transportation. The warranty shall be a minimum of one (1) year warranty

907-663.03.5--MDOT Employee Training. After the installation is complete, the Contractor shall provide formal classroom training and "hands-on" operations training for proper operation and maintenance of the network switch. The training shall be provided for up to six personnel designated by the ITS Engineer and shall be a minimum of four hours in duration. The training

shall cover as a minimum preventive maintenance, troubleshooting techniques, fault isolation and circuit analysis. All training materials shall be provided by the Contractor.

Prior to training, the Contractor shall submit resume and references of instructor(s). The Contractor shall submit a Training Plan which includes an outline of the training course. The plans shall be submitted within 90 days of Notice-to-Proceed. Approval of the plans shall be obtained from the Engineer and the Traffic Engineering ITS Department. The Plan shall detail the contents of the course and the time schedule of when the training will be given.

Training shall be conducted in the Jackson area. For the training, a same models of equipment furnished for the project shall be presented. During the training, handouts, manuals, and product information shall be distributed. All media and test equipment needed shall be present at the training. Training instructor(s) shall be manufacturer-certified, experienced in the skill of training others. The training shall be conducted by a trainer with a minimum of four years of experience in training personnel on the operation and maintenance of fiber optic systems.

907-663.04--Method of Measurement. Network Switch of the type specified, Terminal Server, and Cellular Modem will be measured per each installation as specified in the plans.

Category 6 Cable, Installed in Conduit, will be measured for payment by the linear foot, horizontally between cabinets.

907-663.05--Basis of Payment. Network Switch, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for all labor, tools, materials, equipment, furnishing, installing, system integration and testing of a network switch including all chassis, modules, power cables, power supplies, software, license, fiber optic patch cords, fiber optic attenuator patch cords, Cat 6 patch cords, attachment hardware, mounting shelf and hardware, testing and training requirements, all system documentation including: shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams, and other material necessary to document the operation of the switch and network, and all incidentals necessary to provide a fully functional switch ready for use.

Terminal server, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for all labor, tools, materials, equipment, furnishing, installing, system integration and testing of a terminal server including all incidental components, attachment hardware, mounting shelf and hardware, testing and training requirements, and all incidentals necessary to provide a fully functional Terminal Server ready for use.

Cellular modem, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for all labor, tools, materials, equipment include the, modem, antenna, reset timers, cabling, factory and manufacturing inspection, testing, storage, packaging, shipping, warranty, and all incidentals necessary
to effect the full operation and control of the cellular modem complete in place and ready for use

Category 6 Cable, measured as prescribed above, will be paid for at the contract unit price per linear foot, which price shall include all labor, tools, materials, equipment, and all incidental necessary to complete the work.

Payment will be made under:

907-663-A:	Network Switch, Type __	- per each
907-663-B:	Terminal Server	- per each
907-663-C:	Cellular Modem	- per each
907-663-D	Category 6 Cable, Installed in Conduit	- per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS NO. 907-823-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Preformed Joint Seal

Section 907-823, Preformed Joint Seal, is hereby added to and made a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-823--PREFORMED JOINT SEAL

907-823.01--Description. This work consists of furnishing and installing preformed joint seals in accordance with these specifications and the details shown in the Plans or drawings provided.

907-823.02--Materials. The Contractor shall furnish a manufacturer's certification stating that the material used meets the requirements of this specification.

The preformed joint seal shall be one of the following, or an approved equal. The size of the seal, Type I or Type II, shall be determined based on the size of the joint opening, as detailed in the Plans or drawings provided. It is the Contractor's responsibility to ensure that the size selected is appropriate for the width of the joint. Type I shall be used for joint openings less than two inches (2"). Type II shall be used for joint openings greater than two inches (2"), with the maximum joint opening being two and one-half inches (2½"). In cases where the joint opening is greater than two and one-half inches (2½"), another type of expansion material shall be required as directed by the Director of Structures, State Bridge Engineer.

1. Silicoflex Joint Sealing System
   Manufactured by R.J. Watson, Inc. in Alden, NY
   www.rjwatson.com

2. Wabo®SPS Joint System
   Manufactured by Watson Bowman Acme Corporation in Amherst, NY
   www.wbacorp.com

3. Silspec SSS Silicone Strip Seal
   Manufactured by SSI Commercial & Highway Construction Materials in Tulsa, OK
   www.ssicm.com

907-823.03--Construction Methods. Preformed joint seals shall be installed in accordance with the manufacturer's recommendations. The material shall seal the deck surface, gutters, and curbs to prevent moisture or other contaminants from leaking through the joints. The joint seal shall be installed in such a manner that the top surface of the material is within the minimum and maximum depths below the roadway or bridge surface recommended by the manufacturer.

Saw cutting for the joint repair shall be accomplished by sawing at the locations and depth shown

on the joint repair detail sheets in the plans or in the contract documents. Saw cuts shall be as near vertical as possible at the saw line of the repair area. The saw cut depth shall be equivalent to the installation depth required by the manufacturer's specifications, and the type specified shall be the same as the type specified for preformed joint seal.

907-823.04--Method of Measurement. Preformed joint seal of the type specified will be measured in linear feet along the length of the centerline joint.

Saw cuts of the type specified will be measured by the linear foot along the length of the bridge deck on each side of the centerline joint.

907-823.05--Basis of Payment. Preformed joint seal, measured as prescribed above, will be paid for at the contract unit price per linear foot, which shall be full compensation for furnishing all labor, equipment, tools, materials, and incidentals necessary to complete the work.

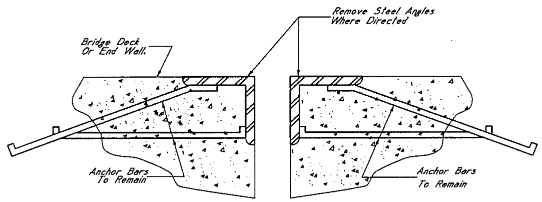
Saw cuts, measured as prescribed above, will be paid for at the contract unit price per linear foot, which shall be full compensation for furnishing all labor, equipment, tools, materials, and incidentals necessary to complete the work.

Payment will be made under:

907-823-A: Preformed Joint Seal, Type ___ - per linear foot

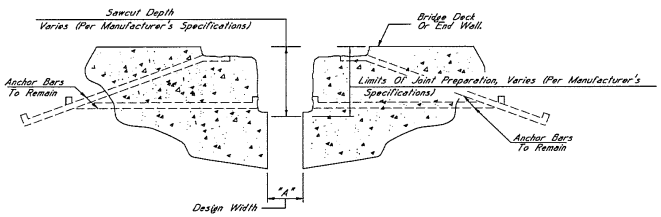
907-823-B: Saw Cut, Type _____ - per linear foot

STATE	PROJECT NO.
MISS.	



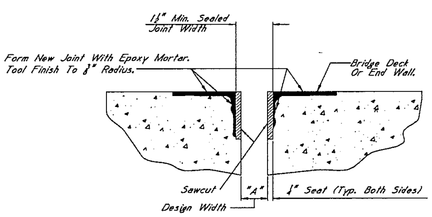
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



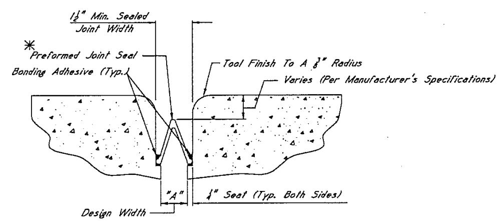
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING MATERIAL

Showing Limits Of Joint Preperation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

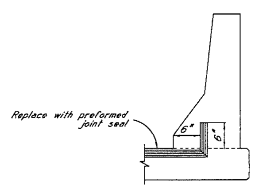
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The $\frac{1}{4}$" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being $2\frac{1}{2}$". In Cases Where Design Widths Are Greater Than $2\frac{1}{2}$", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B298 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
ARMORED EXPANSION JOINTS

PROJECT

COUNTY

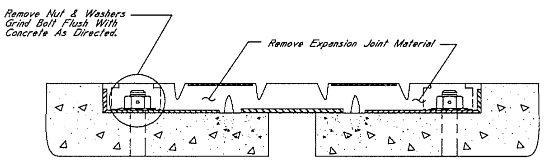
WORKING NUMBER

SHEET NUMBER

BY
REVISIONS
DATE

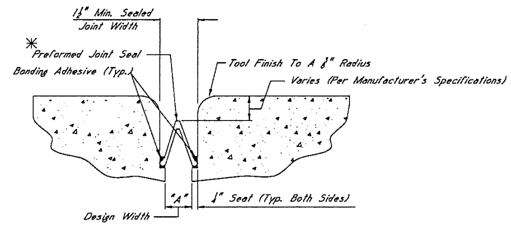
DESIGNER
DETAILER
CHECKER
ISSUE DATE
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - MICK J. ALTOBELLI PE.
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

STATE	PROJECT NO.
MISS.	



TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

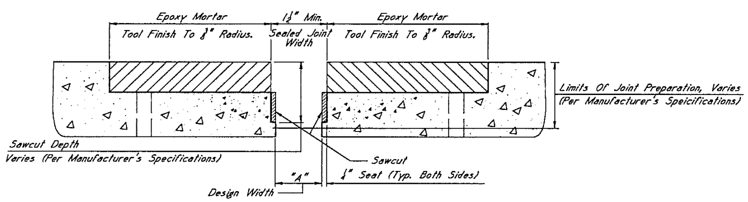
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

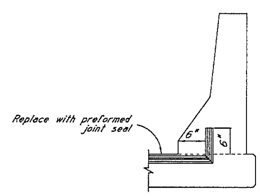
2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ¼" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". In Cases Where Design Widths Are Greater Than 2½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preperation For Application Of New Joint Seal Materials



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B298 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
NEOPRENE EXPANSION JOINTS

PROJECT

COUNTY

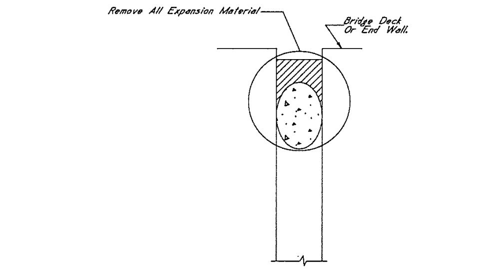
WORKING NUMBER

SHEET NUMBER

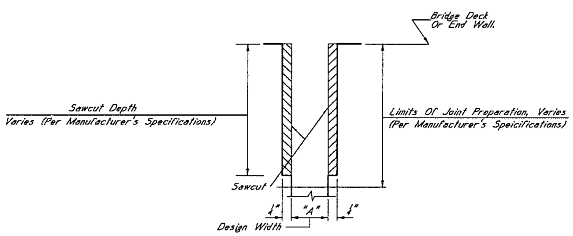
REVISIONS | BY | DATE

DESIGNER ____ CHECKER ____
DETAILER ____ ISSUE DATE ____
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE.
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

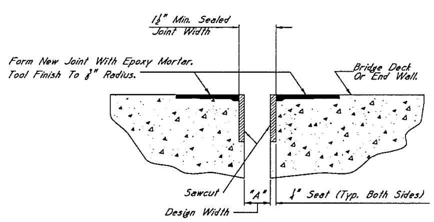
STATE	PROJECT NO.
MISS.	



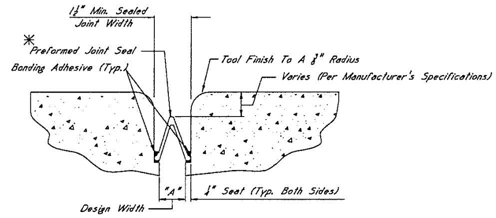
TYPICAL SECTION AT EXISTING JOINT
Showing Existing Expansion Materials To Be Removed And Replaced With Preformed Joint Seal



TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL
Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR
Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT
Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

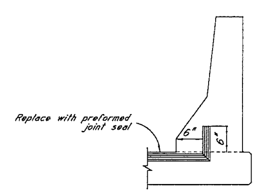
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ¼" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". In Cases Where Design Widths Are Greater Than 2½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint. It Is The Contractor's Responsibility To Ensure That The Proper Depth Is Selected Based On The Manufacturer's Recomendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
SILICONE SEALED EXPANSION JOINTS

PROJECT

COUNTY

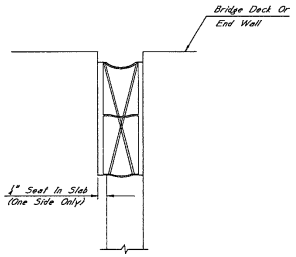
WORKING NUMBER

SHEET NUMBER

REVISIONS | BY | DATE

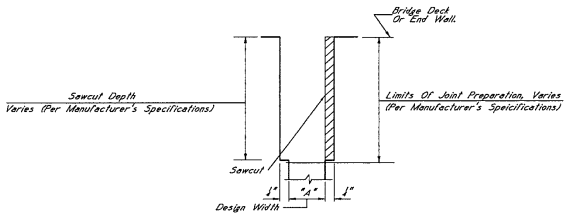
DESIGNER ____ CHECKER ____
DETAILER ____ ISSUE DATE ____
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE.
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

STATE	PROJECT NO.
MISS.	



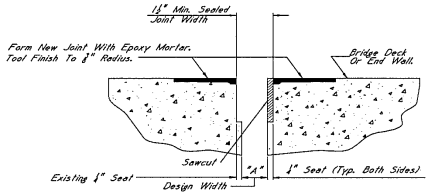
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



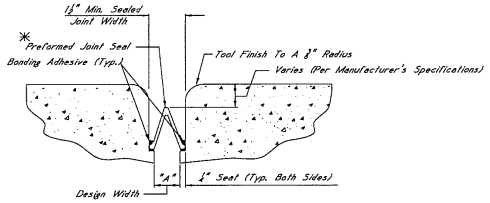
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

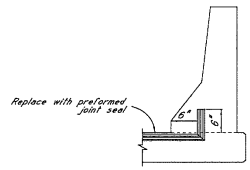
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbecorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The 1" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2". With The Maximum Design Width Being 3". In Cases Where Design Widths Are Greater Than 3", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck, On Each Side Of The Centerline Joint. It Is The Contractor's Responsibility To Ensure That The Proper Depth Is Selected Based On The Manufacturer's Recomendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
COMPRESSION EXPANSION JOINTS

PROJECT

COUNTY

WORKING NUMBER

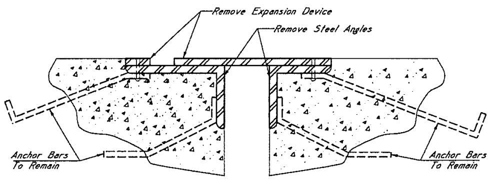
SHEET NUMBER

REVISIONS BY

DATE

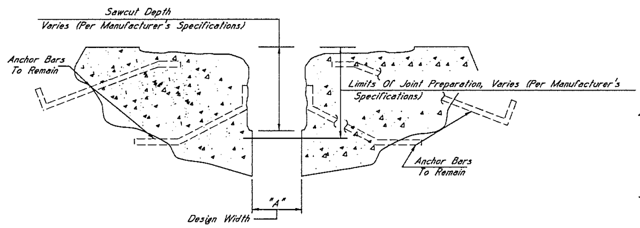
DESIGNER _____ CHECKER _____
DETAILER _____ ISSUE DATE _____
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE
DEP. DIRECTOR OF STRUCTURES, ASST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE

STATE	PROJECT NO.
MISS.	



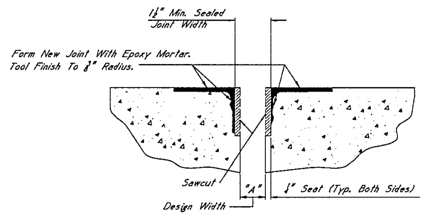
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



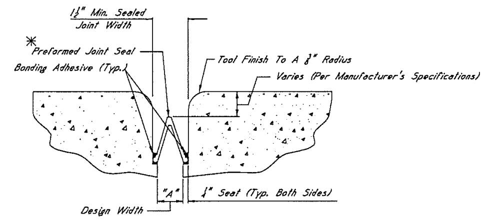
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preperation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Epoxy Morter Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

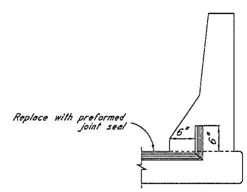
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". In Cases Where Design Widths Are Greater Than 2½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B298 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MDOT — DEPARTMENT OF TRANSPORTATION — MISSISSIPPI

REVISIONS | BY | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
SLIDING PLATE EXPANSION JOINTS

PROJECT

COUNTY

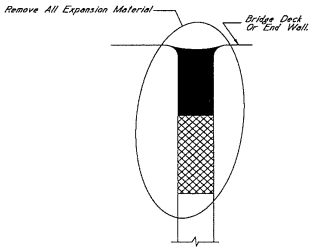
WORKING NUMBER

SHEET NUMBER

DESIGNER ____ CHECKER ____
DETAILER ____ ISSUE DATE ____

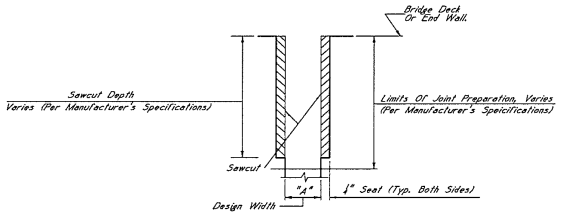
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE.
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

STATE	PROJECT NO.
MISS.	



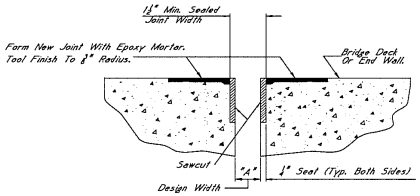
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Material To Be Removed And Replaced With Preformed Joint Seal



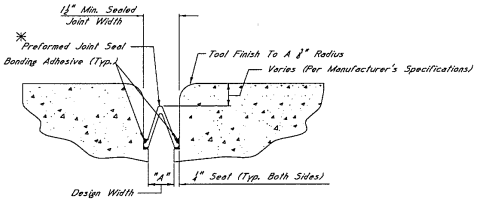
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

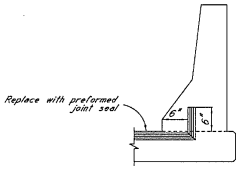
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec 555 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The R.J Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½ Seal Required On Both Sides Of The Joint. Preformed Joint Seal Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 8". In Cases Where Design Widths Are Greater Than 8", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

908-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 908 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint. It Is The Contractor's Responsibility To Ensure That The Proper Depth Is Selected Based On The Manufacturer's Recomendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

REVISIONS	BY

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
AC SEALED EXPANSION JOINTS

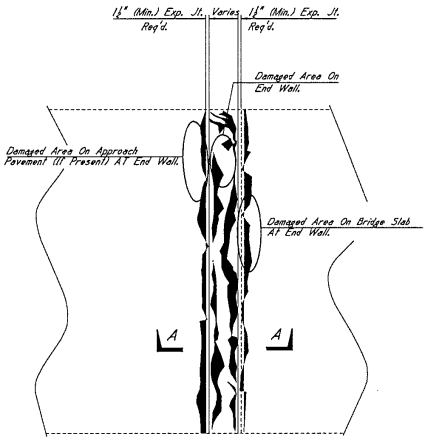
PROJECT

COUNTY

WORKING NUMBER
SHEET NUMBER

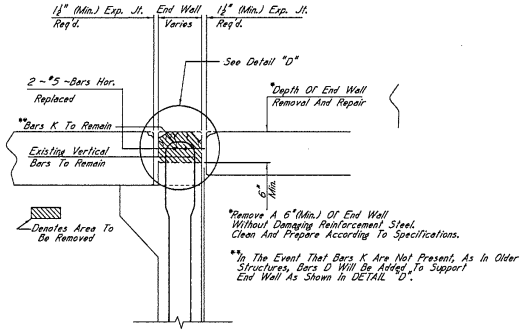
DATE
DESIGNER _____ CHECKER _____
DETAILER _____ ISSUE DATE _____
DIR. DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK A. ALTOBELLI PE
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE

STATE	PROJECT NO.
MISS.	



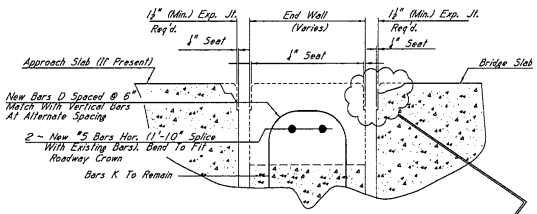
PLAN VIEW

Showing Existing Damaged Areas On And Around End Wall.



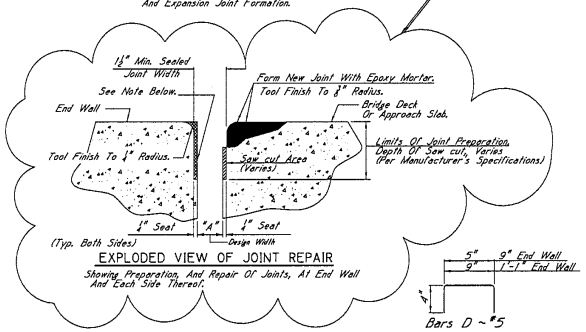
ELEVATION (SECTION A-A)

Showing Details Of Removal Of Damaged End Wall.



DETAIL "D"

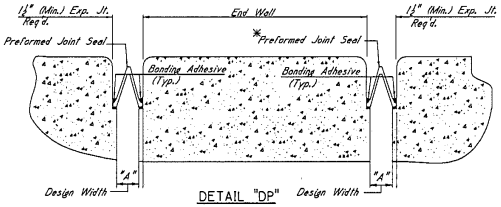
Showing Repair Details Of End Wall, Reinforcing Steel, And Expansion Joint Formation.



EXPLODED VIEW OF JOINT REPAIR

Showing Preparation, And Repair Of Joints, At End Wall And Each Side Thereof.

NOTE: *Form Vertical Faces Of End Wall To Include 1" Seat Such That The Preformed Joint Seal May Be Applied Per Manufacturers's Specification. See Detail "DP" On This Sheet.*



DETAIL "DP"

Showing Sealed Joint After Saw cut And Repair With Epoxy Mortar

NOTES ON ASSOCIATED ITEMS OF WORK:

907-824-PP097 BRIDGE REPAIR, ENDWALL REPAIR

Description: Shall Include The Work Necessary To Remove And Replace The Damaged Endwall, As Designated In The Detail Drawings Provided. Instead Of Limiting The Repair To The Damaged Section, The Specified Depth Of Endwall Shall Be Removed Along The Entire Width Of The Bridge Deck.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Width Of The Bridge Deck.

Damage Caused To Other Elements Of The Structure Or Roadway While Completing This Item Of Work Shall Be Repaired By The Contractor At No Cost To The Department.

Prior To Placing New Concrete, All Concrete Surfaces That Will Be In Contact With The New Concrete Shall Be Painted With An Approved Epoxy Binder Designed To Bond New Concrete To Old.

New Concrete Shall Be High Early Strength Bridge Concrete, As Follows:

The concrete mixture design shall be furnished by the Contractor for approval by the Materials Division. Mixture design parameters are as follows:

Required Strength:	2500 psi prior to releasing to traffic
Total Air Content:	3-6 %
Maximum Slump:	6 inches

Non-chloride based accelerator may be used if the ambient temperature is 50°F or less, but shall not be used if the ambient temperature is greater than 50°F.

Synthetic structural fibers shall be used. The Contractor shall select a manufacturer from MDOT's Approved Products List, and the manufacturer's recommendations shall be followed for the dosage rate.

Curing is to be continuous until 2500 psi is attained. Traffic is to be diverted from the repair area until this value is reached. The Contractor may use the Maturity Method per Section 907-804 to estimate the concrete compressive strength for the purposes of releasing the repair area to traffic. However, final acceptance of the in-place concrete shall be determined using eight concrete test cylinders, which shall be cured in a container next to the concrete placement. Two cylinders are to be tested at 8, 16, and 24 hour intervals. The two remaining cylinders shall be used to determine the 28-day compressive strength of the concrete.

The Removal Of Existing Expansion Material May Require Any Number Of The Pay Items Listed Below. Once The Expansion Device Is Identified, Refer To The Corresponding Joint Repair Detail Sheet For Additional Details On The Associated Items Of Work.

202-8298	REMOVAL OF EXISTING JOINT MATERIAL
808-A001	JOINT PREPARATION
907-823-B001	SAW CUT, TYPE I
907-823-B002	SAW CUT, TYPE II
907-823-A001	PREFORMED JOINT SEAL, TYPE I
907-823-A002	PREFORMED JOINT SEAL, TYPE II

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc.
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation
   www.wbacorp.com

   C. Silspec 555 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. The Width Does Not Account For The 1" Seat Required On Both Sides Of The Joint. Preformed Joint Seal Type I Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 3". In Cases Where Design Widths Are Greater Than 3", Another Type Of Expansion Material Shall Be Proposed As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

END WALL REPAIR

PROJECT

COUNTY

WORKING NUMBER

SHEET NUMBER

REVISIONS | BY | DATE

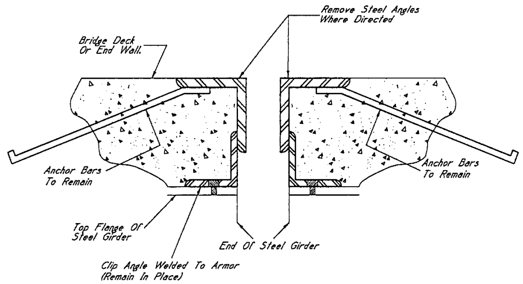
DESIGNER _____ CHECKER _____

DETAILER _____ ISSUE DATE _____

DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE.

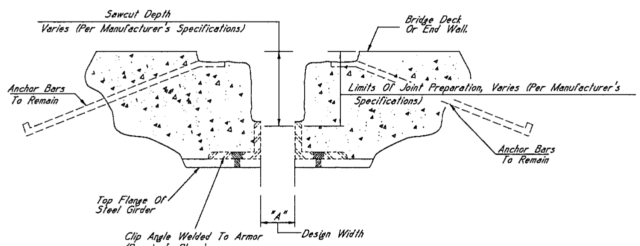
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

STATE	PROJECT NO.
MISS.	



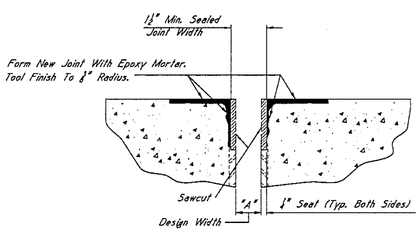
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



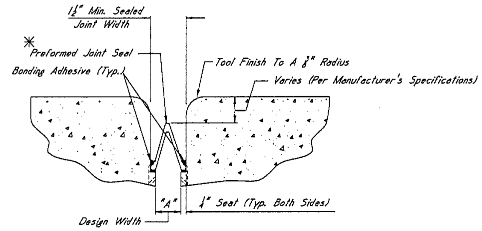
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING MATERIAL

Showing Limits Of Joint Preperation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

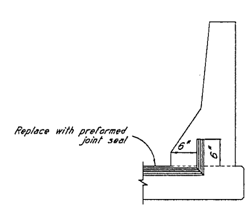
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The 1" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". In Cases Where Design Widths Are Greater Than 2½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B298 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

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DEPARTMENT OF TRANSPORTATION MDOT MISSISSIPPI

REVISIONS | BY | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
ARMORED EXPANSION JOINTS
STEEL GIRDER SPANS

PROJECT

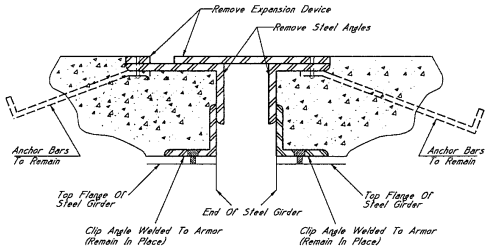
COUNTY

WORKING NUMBER

SHEET NUMBER

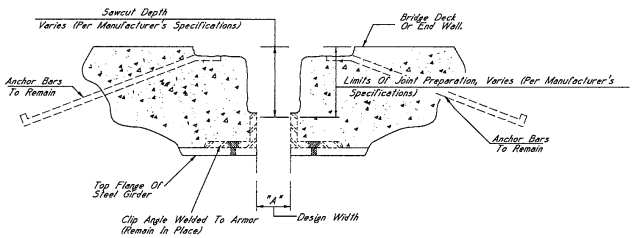
DESIGNER
DETAILER
CHECKER
ISSUE DATE
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE.
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

STATE	PROJECT NO.
MISS.	



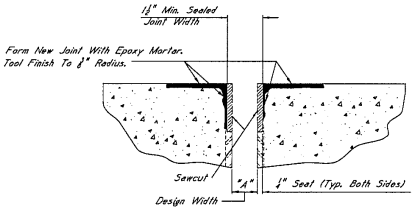
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



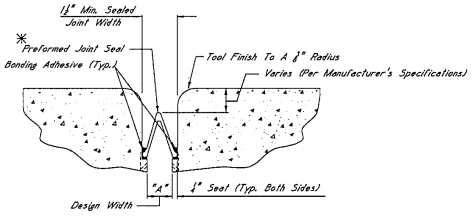
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING MATERIAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

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1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

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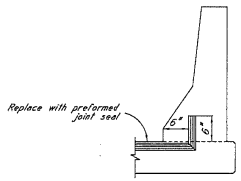

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B298 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint. While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

808-A001 JOINT PREPARATION

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

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907-823-B001 SAW CUT, TYPE I & 907-823-B002 SAW CUT, TYPE II

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Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2004.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

JOINT REPAIR
SLIDING PLATE EXPANSION JOINTS
STEEL GIRDER SPANS

PROJECT

COUNTY

WORKING NUMBER
SHEET NUMBER

REVISIONS | BY | DATE

DESIGNER _____ CHECKER _____
DETAILER _____ ISSUE DATE _____
DIRECTOR OF STRUCTURES, STATE BRIDGE ENGINEER - NICK J. ALTOBELLI PE.
DEP. DIRECTOR OF STRUCTURES, ASSIST. STATE BRIDGE ENGINEER - JUSTIN WALKER PE.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-899-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Railway-Highway Provisions

Section 907-899, Railway-Highway Provisions, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-899--RAILWAY-HIGHWAY PROVISIONS

907-899.01--Description. This special provision addresses the Contractor's involvement with railroad flagging, Contractor Safety Orientation, Contractor Background Investigation, Contractor Roadway Worker on Track Safety Program and Safety Action Plan, and any other requirements set forth by the Railroad and any attached Exhibits.

Prior to bidding, the Contractor shall read and comply with the requirements of the Railroad and any attached Exhibits. The Contractor shall contact the Railroad concerning insurance coverage requirements, Railroad flagging costs, Contractor Safety Orientation, Contractor Background Investigation, Contractor Roadway Worker on Track Safety Program and Safety Action Plan, and any other requirements set forth by the Railroad and any attached Exhibits. In case the railroad requires coverage over and above that required by the Standard Specifications, the railroad requirements shall be met.

If in the opinion of the RAILROAD, the presence of an authorized representative of the RAILROAD is required to supervise the same, the RAILROAD shall render bills to the Contractor for all expenses incurred by it for such supervision. This includes all labor costs for flagmen or cable locate supplied by the RAILROAD to protect RAILROAD operation, and for the full cost of furnishing, installation and later removal of any temporary supports for said tracks, as the RAILROAD's Chief Engineer's Office may deem necessary.

It will be the Contractor's responsibility to pay all bills associated with the Railroad requirements and any attached Exhibits.

A cable locate of RAILROAD owned facilities may be required to identify and protect Signal & Communication cables that have been installed to provide power, signal control, wayside communications. These cables are vital to a safe and reliable railway operation. The cable locate will be performed by a qualified RAILROAD employee.

Outside Contractors are prohibited from driving on, along, or across any track that does not have a RAILROAD installed crossing. They may utilize an existing public crossing. The practice of allowing rubber tired equipment to operate over track with no crossing has been banned.

The Contractor shall complete and process any required forms addressed by the Railroad or any attached Exhibits. The Contractor shall not commence or carry on any form of work on, under, above or within the designated distance from the Railroad track prior to getting approval from the Railroad.

907-899.02--Blank.

907-899.03--Construction Requirements. The Contractor shall read and comply with the requirements of the Railroad and any attached Exhibits.

907-899.04--Method of Measurement. Railway-highway provisions will be measured as a unit lump sum quantity. Measurement for payment will be in accordance with the following schedule:

a) On the first estimate, twenty five percent (25%) of the amount bid for Railway Highway Provision will be paid.
b) When twenty five percent (25%) of the original contract amount is earned from all direct pay items, fifty percent (50%) of the amount bid for Railway Highway Provision will be paid.
c) When fifty percent (50%) of the original contract amount is earned from all direct pay items, one hundred percent (100%) of the amount bid for Railway Highway Provision will be paid.

907-899.05--Basis of Payment. Railway-highway provisions, measured a prescribed above, will be paid for at the contract lump sum price, which price shall be payment in full for all insurance coverage requirements, railroad flagging costs, Contractor safety orientation, Contractor background investigation, Contractor safety programs and plans, and any other requirements set forth by the Railroad and any attached Exhibits, and other incidentals necessary to complete the requirements of this work.

Payment will be made under:

907-899-A: Railway-Highway Provisions - lump sum

SPECIAL PROVISION NO. 906-8

Training Special Provision

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a). Additional information regarding On the Job Training (OJT), Forms, and *Exhibits* are available at the following website.

http://www.gomdot.com/Divisions/CivilRights/Resources.aspx

As part of the Contractor's equal employment opportunity affirmative action program training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainee hours to be trained under this special provision will be as indicated in the bid schedule of the contract.

In the event that a Contractor subcontracts a portion of the contract work, the Contractor shall determine how many, if any, of the trainee hours are to be trained by the Subcontractor, provided, however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the State transportation agency for approval an OJT Trainee Schedule Form indicating the number of trainees to be trained in each selected classification, training program to be used and start date of training for each classification. Furthermore, the Contractor shall provide a Trainee Enrollment Form for each trainee enrolled. The Contractor will be credited for each trainee employed on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that they take in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the State highway agency and the

Federal Highway Administration. The State transportation agency and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office.

Except as otherwise noted below, the Contractor will be reimbursed $5.00 per hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein.

No payment shall be made to the Contractor if failure to provide the required training is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or until the trainee has completed the training program. It is not required that all trainees be on board for the entire length of the contract. A Contractor's responsibility will have been fulfilled under this Training Special Provision if the Contractor has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program being followed in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports to include an OJT Trainee Monthly Report form and an OJT Trainee Termination Report form when appropriately documenting performance under this Training Special Provision.

Contractor's Responsibility

1. Provide On-the-Job Training aimed at developing full journeymen in the type of trade or job classification involved. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g., conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment.

2. Contractors are expected to fulfill their obligations under the Training Special Provisions. Those obligations will be considered fulfilled if Contractors have provided acceptable training to the number of trainees specified in the OJT Plan.

3. Upon deciding to sub-contract out a portion of the contract work, determine how many, if any, of the trainees are to be trained by the sub-Contractor. The Contractor however, shall retain the primary responsibility for meeting the training requirements imposed by the special provision. Additionally, the Contractor will ensure that the Training Special Provision is made applicable to such sub-contract. Training and upgrading of minorities and women toward journeymen status is a primary objective of the Training Special Provision.

4. Prior to commencing construction (no more than 60 days from the date of the Notice to Proceed), the Contractor shall submit to the State Transportation Agency (STA) (MDOT) for approval the Trainee Schedule Form indicating the number of trainees to be trained in each selected classification and any appropriate attachments representing their training program or OJT Plan *(See Exhibit 1)* to be used. The Contractor shall also submit Trainee Enrollment Forms for each trainee to be trained *(See Exhibit 2).* Contractors should submit the above-mentioned forms as their OJT Plan to the Project Engineer who will in turn forward on to the Office of Civil Rights for Approval.

5. Designate and make known at the preconstruction conference to the Office of Civil Rights and the Project Engineer the name of the company **Equal Employment Officer (EEO Officer)/Designated Representative** who will have the responsibility for and must be capable of effectively administering and promoting an active Contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so. These individuals should have the authority to sign monthly trainee enrollment/time reports.

6. **Implement the EEO policy** and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To assure that the preceding policy is adhered to, the following actions will be taken as a minimum:

   a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six (6) months.

   b. Ensure that supervisors brief all employees which include trainees on company EEO Policies.

7. Utilize the following procedures to request additional training classifications not presently approved by the STA for assignment to the OJT for training.

   a. Initially, for a "trainee" to be trained, there must be a "journeyman" on the project site to train the employee. The "trainer" can be a supervisor, foreman or another employee in the "trainee classification" who already is a "journeyman".

b. If a classification is not on the "Wage Determination" included in the contract, a written request for an additional classification should be submitted by the Contractor to the Project Engineer.

c. Preferably, the request (written) should originate in the Project Office so that they will know that the Contractor has applied for the needed classification and that payrolls will not be delayed. The Project Office will ensure that they have been given the project number, Contractor, subcontractor, craft and rate and will submit to the Office of Civil Rights.

For documentation purposes it is recommended to the Contractor that the request for additional classifications should be written and addressed to the Office of Civil Rights that states in concise manner the need for the new classification in lieu of using an existing classification within the OJT Manual. In addition, the training program with required hours and job description similar to the OJT Manual.

d. After receipt of the Request for Additional Classification, the OJT Coordinator will:

1. Review for preliminary approval and submit a new Trainee Schedule Form to the Contractor for signature.

2. Upon receipt of the signed form from the Project Office/Contractor, a cover letter is attached to the appropriate documentation. The cover letter and documentation are transmitted to Department of Labor (DOL) in Washington D.C. requesting concurrence of the new classification.

e. If an individual is hired for the requested classification during the time frame when the STA (OJT Coordinator) is awaiting approval, the individual will be paid at the proposed wage rate.

f. If the DOL does not agree with the proposed classification and wage rate, the DOL will make a determination on the appropriate wage rate for the classification. The Labor Compliance Officer will make a copy of the letter and attach a cover letter which cites the recommendation and rationale for the disapproval.

g. If the DOL approves the request, a letter will be sent to the STA (OJT Coordinator) citing approval and the accompanying wage rate. The OJT Coordinator will make a copy of the approval letter and attach a cover letter which cites the approval of the classification and wage rate. This letter is sent to the Contractor and all "paper copies" listed at the end of the cover letter.

8. Begin training as soon as possible after the start date indicated on the Trainee Schedule Form for work utilizing the skill involved. In addition, if training does not begin at the preceding time, a written explanation will be given to the Project Engineer citing the rationale and time frame when training will commence on the project. The trainee should be briefed (furnished a copy) at this juncture on the training program for which he/she has started to ensure understanding of the phases of work and wage rates within each section of the program.

9. After commencement of work at the project site, the Contractor shall implement the following **Trainee Wage Rates** according to the Davis Bacon rules.

Normally, trainees are paid a percentage of journeyman's wages (Davis Bacon rates). The following payment plan is required in the FHWA Training Special Provision;

a. Sixty percent (60%) of the journeyman's wages for the first half of the training period;

b. Seventy-five percent (75%) of the journeyman's wages for the third quarter of the training period; and

c. Ninety percent (90%) of the journeyman's wages for the last quarter of the training period.

10. Indicate on the payroll records the trainer i.e. roller operator trainer for a given classification.

11. Recruit a replacement for the trainee when training obligations have not been met on a project provided that there are enough work hours remaining on the project as well as time within the work phase to complete training. Contractors will document in writing all Good Faith Efforts (GFE) in accordance with FHWA Form 1273 Section II 4a- 4e Recruitment and 6a-6d Training and Promotions) *(See Exhibit 9)*. The Contractor must submit documentation of GFE i.e. efforts made to hire replacements for trainees who terminated their training program to the Office of Civil Rights. The GFE will be complied into a letter which is attached to the MDOT Monthly Training Report and submitted to the along a MDOT Termination Report *(See Exhibit 4)* that includes the names/reasons of individuals who separated from the company during the respective reporting period. The GFE will be evaluated to determine if it is sufficient or insufficient. The Project Engineer will forward documentation to the Office of Civil Rights within five (5) days of receipt.

12. Transferring trainees from one federal-aid project to another.

a. Contractors are to make written requests for transferring trainees from one federal-aid project to another federal aid project and submit to the Project Engineer to be forwarded to the Office of Civil Rights for review and approval.

b. In addition, if trainees are approved for transfer, the gaining project must have the same training classification approved for that project. The Contractor must provide documentation i.e. written letter that the gaining project will have sufficient work time to complete training requirements.

c. All hours trained by employees on a project other than their originally assigned project without the proper transfer approval will not be counted towards the OJT obligation for that project. If the OJT obligation is not met, the prime Contractor will have to show good faith efforts in fulfilling this portion of the contract requirement.

13. Utilize and submit monthly trainee reports *(See Exhibit 3)* to document training activities to the respective Project Engineer. Monthly training reports should be accurate, concise and include the following items:

a. Report Period (month) – the date at the top of the training report reflects the month and year the trainee received the training (not the date the report was completed by the Contractor)

b. Project Number – project number on the certified payroll and training report should match

c. Contractor Name

d. County

e. Trainee Name

f. Job Classification/Hours Required – obtained from OJT Manual - certified payrolls and training reports should match

g. Hours required – obtained from OJT Manual should match the Job Classification

h. Date Training Started/Terminated – inserted by the Contractor

i. Hours trained for the month – training performed this month on federal aid projects and inserted by a respective week ending date i.e. Sunday

j. Hours to date – all training annotated on report for previous and current month

k. Hours training remaining – subtraction of total training hours to date from training hours required

l. Trainee wage rate – Contractor cite the appropriate wage rate for phase of training

m. Original signatures and dates for respective training period citing trainee, trainer, and Company EEO Officer/Designated Representative

n. Every applicable field on the training report is completed

14. Monthly training reports intended for submission to the MDOT Central Office should cite activities illustrated in the individual training forms received from project personnel. Failure of the Contractor to submit monthly trainee reports may result in the estimate not being processed and paid. Monthly Training Reports should be submitted to the Project Engineer within fifteen (15) days of the current month with data covering the previous month's activities. However, if monthly training reports are not submitted within this time frame, the Contractor will provide written explanation to the Project Engineer citing the reason for the delay. In addition, a copy of this documentation will be provided to the MDOT Office of Civil Rights within ten (10) days of receipt by the Project Engineer.

15. Provide the trainee with a certification *(See Exhibit 7)* showing the type and length of training satisfactorily completed.

16. Retain all EEO records, i.e. employment breakdown by race and craft on a project, recruitment and hiring of minority and females for a period of three (3) years following the completion of contract work and shall be available at reasonable times and places for inspection by authorized representatives of the STA and the FHWA.

17. Submit an annual report to the STA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR 1391 *(See Exhibit 8)*. Contractors are provided an annual notice for this reporting requirement.

18. Periodically evaluate the effectiveness of their OJT Programs and trainees' progress within the training program. Based on these evaluations, forward comments / recommendations through the Project Engineer to the Office of Civil Rights for improving or correcting deficiencies in the training program.

S E C T I O N 9 0 5 - P R O P O S A L

Date _____

Mississippi Transportation Commission
Jackson, Mississippi

Sirs: The following proposal is made on behalf of _____
_____ of _____
_____
for constructing the following designated project(s) within the time(s) hereinafter specified.

The plans are composed of drawings and blue prints on file in the offices of the Mississippi Department of Transportation, Jackson, Mississippi.

The Specifications are the current Standard Specifications of the Mississippi Department of Transportation approved by the Federal Highway Administration, except where superseded or amended by the plans, Special Provisions and Notice(s) to Bidders attached hereto and made a part thereof.

I (We) certify that I (we) possess a copy of said Standard and any Supplemental Specifications.

Evidence of my (our) authority to submit the Proposal is hereby furnished. The proposal is made without collusion on the part of any person, firm or corporation. I (We) certify that I (we) have carefully examined the Plans, the Specifications, including the Special Provisions and Notice(s) to Bidders, herein, and have personally examined the site of the work. On the basis of the Specifications, Special Provisions, Notice(s) to Bidders, and Plans, I (we) propose to furnish all necessary machinery, tools, apparatus and other means of construction and do all the work and furnish all the materials in the manner specified. I (We) understand that the quantities mentioned herein are approximate only and are subject to either increase or decrease, and hereby propose to perform any increased or decreased quantities of work at the unit prices bid, in accordance with the above.

I (We) acknowledge that this proposal will be found irregular and/or non-responsive unless a certified check, cashier's check, or Proposal Guaranty Bond in the amount as required in the Advertisement (or, by law) is submitted electronically with the proposal or is delivered to the Contract Administration Engineer prior to the bid opening time specified in the advertisement.

INSTRUCTION TO BIDDERS: Alternate and Optional Items on Bid Schedule.

1. Two or more items entered opposite a single unit quantity WITHOUT DEFINITE DESIGNATION AS "ALTERNATE ITEMS" are considered as "OPTIONAL ITEMS". Bidders may or may not indicate on bids the Optional Item proposed to be furnished or performed WITHOUT PREJUDICE IN REGARD TO IRREGULARITY OF BIDS.
2. Items classified on the bid schedule as "ALTERNATE ITEMS" and/or "ALTERNATE TYPES OF CONSTRUCTION" must be preselected and indicated on bids. However, "Alternate Types of Construction" may include Optional Items to be treated as set out in Paragraph 1, above.
3. Optional items not preselected and indicated on the bid schedule MUST be designated in accordance with Subsection 102.06 prior to or at the time of execution of the contract.
4. Optional and Alternate items designated must be used throughout the project.

I (We) further propose to perform all "force account or extra work" that may be required of me (us) on the basis provided in the Specifications and to give such work my (our) personal attention in order to see that it is economically performed.

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) shall submit electronically with our proposal or deliver prior to the bid opening time a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

SECTION 905 -- PROPOSAL (CONTINUED)

I (We) hereby certify by digital signature and electronic submission via Bid Express of the Section 905 proposal below, that all certifications, disclosures and affidavits incorporated herein are deemed to be duly executed in the aggregate, fully enforceable and binding upon delivery of the bid proposal. I (We) further acknowledge that this certification shall not extend to the bid bond or alternate security which must be separately executed for the benefit of the Commission. This signature does not cure deficiencies in any required certifications, disclosures and/or affidavits. I (We) also acknowledge the right of the Commission to require full and final execution on any certification, disclosure or affidavit contained in the proposal at the Commission's election upon award. Failure to so execute at the Commission's request within the time allowed in the Standard Specifications for execution of all contract documents will result in forfeiture of the bid bond or alternate security.

Respectfully Submitted,

DATE _____

_____
Contractor

BY _____
Signature

TITLE _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE _____

FAX _____

E-MAIL _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

_____
President Address

_____
Secretary Address

_____
Treasurer Address

The following is my (our) itemized proposal.

Reconstruction of US 49 from Florence to the Scale Area, known as Federal Aid Project No. NH-0008-03(029) / 102046301 in Rankin County.

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
			Roadway Items		
0010	201-A001		1	Lump Sum	Clearing and Grubbing
0020	202-A001		1	Lump Sum	Removal of Obstructions
0030	202-B007		276,689	Square Yard	Removal of Asphalt Pavement, All Depths
0040	202-B018		5	Each	Removal of Box Culvert
0050	202-B023		4	Each	Removal of Bridge
0060	202-B029		660	Square Yard	Removal of Bridge End Pavement
0070	202-B037		1,360	Linear Feet	Removal of Bridge Railing
0080	202-B042		1	Each	Removal of Camera Pole
0090	202-B058		33	Each	Removal of Concrete Lug Anchor
0100	202-B059		2,611	Square Yard	Removal of Concrete Median & Island Pavement, All Depths
0110	202-B063		216	Square Yard	Removal of Concrete Paved Ditch
0120	202-B073		231,656	Square Yard	Removal of Concrete Pavement, All Depths
0130	202-B080		105	Square Yard	Removal of Concrete Sidewalk
0140	202-B092		68,916	Linear Feet	Removal of Curb, All Types
0150	202-B129		49	Each	Removal of Flared End Section, All Sizes
0160	202-B130		44	Each	Removal of Footing
0170	202-B158		3,324	Linear Feet	Removal of Guard Rail, Including Rails, Posts and Terminal Ends
0180	202-B165		62	Each	Removal of Inlets, All Sizes
0190	202-B170		20	Each	Removal of Junction Box
0200	202-B185		1	Each	Removal of Overhead Sign Including Panels, Truss, Supports & Footing
0210	202-B190		9	Each	Removal of Piling
0220	202-B191		16,664	Linear Feet	Removal of Pipe, 8" And Above
0230	202-B207		500	Ton	Removal of Riprap
0240	202-B213		3	Each	Removal of Sign
0250	202-B226		129,197	Square Yard	Removal of Soil Cement Treated Base, All Depths
0260	202-B239		6	Each	Removal of Traffic Signal
0270	202-B240		251,424	Linear Feet	Removal of Traffic Stripe
0280	202-B250		40	Linear Feet	Removal of Trench Drain, All Sizes, All Types
0290	203-A001	(E)	205,904	Cubic Yard	Unclassified Excavation, FM, AH
0300	203-EX021	(E)	226,725	Cubic Yard	Borrow Excavation, AH, FME, Class B9-6
0310	203-F001	(E)	7,434	Cubic Yard	Channel Excavation, FM
0320	203-G001	(E)	331,970	Cubic Yard	Excess Excavation, FM, AH
0330	206-A001	(S)	41,406	Cubic Yard	Structure Excavation
0340	206-B001	(E)	737	Cubic Yard	Select Material for Undercuts, Contractor Furnished, FM

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
0350	209-A005		768,774	Square Yard	Geotextile Stabilization, Type V, Non-Woven
0360	211-B001	(E)	5,000	Cubic Yard	Topsoil for Slope Treatment, Contractor Furnished
0370	213-C001		42	Ton	Superphosphate
0380	216-A001		10,929	Square Yard	Solid Sodding
0390	217-A001		2,355	Square Yard	Ditch Liner
0400	219-A001		220	Thousand Gallon	Watering ($20.00)
0410	220-A001		84	Acre	Insect Pest Control ($30.00)
0420	221-A001	(S)	4,385	Cubic Yard	Concrete Paved Ditch
0430	223-A001		840	Acre	Mowing ($50.00)
0440	225-A001		84	Acre	Grassing
0450	225-B001		42	Ton	Agricultural Limestone
0460	225-C001		168	Ton	Mulch, Vegetative Mulch
0470	226-A001		84	Acre	Temporary Grassing
0480	234-A001		105,690	Linear Feet	Temporary Silt Fence
0490	234-C001		2,400	Linear Feet	Super Silt Fence
0500	234-D001		127	Each	Inlet Siltation Guard
0510	234-E001		127	Each	Reset Inlet Siltation Guard
0520	234-F001		300	Linear Feet	Turbidity Barrier
0530	237-A002		43,902	Linear Feet	Wattles, 20"
0540	239-A001		5,000	Linear Feet	Temporary Slope Drains
0550	245-A001		5,792	Linear Feet	Silt Dike
0560	246-A001		5,792	Linear Feet	Sandbags
0570	246-B001		375	Each	Rockbags
0580	247-A001		27	Each	Temporary Stream Diversion
0590	249-A001		1,974	Ton	Riprap for Erosion Control
0600	249-B001		500	Cubic Yard	Remove and Reset Riprap
0610	304-B005	(GT)	49,312	Ton	Granular Material, Class 5, Group E
0620	310-B001	(GT)	1,000	Ton	Size I Stabilizer Aggregate, Coarse
0630	403-A001	(BA1)	12,995	Ton	12.5-mm, HT, Asphalt Pavement
0640	403-A003	(BA1)	3,003	Ton	12.5-mm, ST, Asphalt Pavement
0650	403-A004	(BA1)	120,166	Ton	19-mm, HT, Asphalt Pavement
0660	403-A006	(BA1)	97,871	Ton	19-mm, ST, Asphalt Pavement
0670	403-A013	(BA1)	8,255	Ton	9.5-mm, HT, Asphalt Pavement
0680	403-A015	(BA1)	2,252	Ton	9.5-mm, ST, Asphalt Pavement
0690	403-D003	(BA1)	52,861	Ton	19-mm, HT, Asphalt Pavement, Polymer Modified
0700	403-E004	(BA1)	1,941	Ton	9.5-mm, HT, Asphalt Pavement, Polymer Modified, Leveling
0710	405-A001	(BA1)	58,631	Ton	Stone Matrix Asphalt, 12.5 mm Mixture

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
0720	405-A002	(BA1)	45,997	Ton	Stone Matrix Asphalt, 9.5 mm Mixture
0730	406-A002		61,700	Square Yard	Cold Milling of Bituminous Pavement, All Depths
0740	406-B001		533	Square Yard	Cold Milling of Concrete Pavement, All Depths
0750	407-A001	(A2)	161,938	Gallon	Asphalt for Tack Coat
0760	413-D004		300	Linear Feet	Cleaning and Filling Joints in PCC Pavement, 10" or Less
0770	413-E001		310	Linear Feet	Sawing and Sealing Transverse Joints in Asphalt Pavement
0780	423-A001		3	Mile	Rumble Strips, Ground In
0790	501-A001	(C)	2,850	Square Yard	6" Reinforced Cement Concrete Pavement, Broom Finish
0800	501-E001		267	Linear Feet	Expansion Joints, Without Dowels
0810	501-K001		533	Square Yard	Transverse Grooving
0820	502-A001	(C)	2,316	Square Yard	Reinforced Cement Concrete Bridge End Pavement
0830	503-C010		48,047	Linear Feet	Saw Cut, Full Depth
0840	601-A001	(S)	1,064	Cubic Yard	Class "B" Structural Concrete
0850	601-B001	(S)	1,736	Cubic Yard	Class "B" Structural Concrete, Minor Structures
0860	602-A001	(S)	562,562	Pounds	Reinforcing Steel
0870	603-A045	(S)	1,400	Linear Feet	24" Steel Pipe, Jacked or Bored
0880	603-A046	(S)	512	Linear Feet	30" Steel Pipe, Jacked or Bored
0890	603-A047	(S)	1,046	Linear Feet	36" Steel Pipe, Jacked or Bored
0900	603-A048	(S)	784	Linear Feet	42" Steel Pipe, Jacked or Bored
0910	603-A049	(S)	304	Linear Feet	48" Steel Pipe, Jacked or Bored
0920	603-ALT003	(S)	784	Linear Feet	18" Type A Alternate Pipe
0930	603-ALT006	(S)	40	Linear Feet	24" Type A Alternate Pipe
0940	603-CA011	(S)	23,864	Linear Feet	18" Reinforced Concrete Pipe, Class III
0950	603-CA026	(S)	9,932	Linear Feet	24" Reinforced Concrete Pipe, Class III
0960	603-CA040	(S)	6,600	Linear Feet	30" Reinforced Concrete Pipe, Class III
0970	603-CA055	(S)	4,032	Linear Feet	36" Reinforced Concrete Pipe, Class III
0980	603-CA066	(S)	2,952	Linear Feet	42" Reinforced Concrete Pipe, Class III
0990	603-CA076	(S)	944	Linear Feet	48" Reinforced Concrete Pipe, Class III
1000	603-CA087	(S)	2,032	Linear Feet	54" Reinforced Concrete Pipe, Class III
1010	603-CB003	(S)	150	Each	18" Reinforced Concrete End Section
1020	603-CB004	(S)	33	Each	24" Reinforced Concrete End Section
1030	603-CB005	(S)	14	Each	30" Reinforced Concrete End Section
1040	603-CB006	(S)	24	Each	36" Reinforced Concrete End Section
1050	603-CB007	(S)	4	Each	42" Reinforced Concrete End Section
1060	603-CB008	(S)	4	Each	48" Reinforced Concrete End Section
1070	603-CB009	(S)	4	Each	54" Reinforced Concrete End Section
1080	603-CE002	(S)	584	Linear Feet	22" x 13" Concrete Arch Pipe, Class A III

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
1090	603-CE008	(S)	440	Linear Feet	29" x 18" Concrete Arch Pipe, Class A III
1100	603-CE013	(S)	344	Linear Feet	36" x 23" Concrete Arch Pipe, Class A III
1110	603-CE018	(S)	1,304	Linear Feet	44" x 27" Concrete Arch Pipe, Class A III
1120	603-CE023	(S)	1,120	Linear Feet	51" x 31" Concrete Arch Pipe, Class A III
1130	603-CE028	(S)	816	Linear Feet	58" x 36" Concrete Arch Pipe, Class A III
1140	603-CE034	(S)	584	Linear Feet	65" x 40" Concrete Arch Pipe, Class A III
1150	603-CE039	(S)	1,088	Linear Feet	73" x 45" Concrete Arch Pipe, Class A III
1160	603-CE044	(S)	48	Linear Feet	88" x 54" Concrete Arch Pipe, Class A III
1170	603-CF002	(S)	10	Each	22" x 13" Concrete Arch Pipe End Section
1180	603-CF003	(S)	3	Each	29" x 18" Concrete Arch Pipe End Section
1190	603-CF004	(S)	7	Each	36" x 23" Concrete Arch Pipe End Section
1200	603-CF005	(S)	31	Each	44" x 27" Concrete Arch Pipe End Section
1210	603-CF006	(S)	23	Each	51" x 31" Concrete Arch Pipe End Section
1220	603-CF007	(S)	7	Each	58" x 36" Concrete Arch Pipe End Section
1230	603-CF009	(S)	15	Each	73" x 45" Concrete Arch Pipe End Section
1240	603-PA001	(S)	142	Linear Feet	10' x 4' Precast Concrete Box Culvert
1250	603-PA009	(S)	659	Linear Feet	6' x 3' Precast Concrete Box Culvert
1260	603-PA011	(S)	44	Linear Feet	6' x 5' Precast Concrete Box Culvert
1270	603-PA013	(S)	146	Linear Feet	8' x 4' Precast Concrete Box Culvert
1280	603-PB001	(S)	4	Each	10' x 4' Precast Concrete Box Culvert End Section
1290	603-PB007	(S)	1	Each	6' x 3' Precast Concrete Box Culvert End Section
1300	603-PB009	(S)	2	Each	6' x 5' Precast Concrete Box Culvert End Section
1310	603-PB011	(S)	4	Each	8' x 4' Precast Concrete Box Culvert End Section
1320	603-SB014	(S)	14	Each	18" Branch Connections, Stub into Concrete Box Culvert
1330	603-SB015	(S)	1	Each	18" Branch Connections, Stub into Concrete Box Culvert Wingwall
1340	603-SB028	(S)	3	Each	24" Branch Connections, Stub into Box Culvert
1350	603-SB029	(S)	1	Each	24" Branch Connections, Stub into Concrete Box Culvert Wingwall
1360	603-SB036	(S)	3	Each	30" Branch Connections, Stub into Box Culvert
1370	603-SB042	(S)	1	Each	36" Branch Connections, Stub into Concrete Box Culvert Wingwall
1380	603-SB046	(S)	1	Each	42" Branch Connections, Stub into Box Culvert
1390	603-SB053	(S)	1	Each	54" Branch Connections, Stub into Box Culvert
1400	604-A001		42,898	Pounds	Castings
1410	604-B001		26,105	Pounds	Gratings
1420	605-AA001	(S)	58,224	Square Yard	Geotextile for Subsurface Drainage, Type III
1430	605-O002	(S)	646	Linear Feet	4" Perforated Sewer Pipe for Underdrains, SDR 23.5
1440	605-P002	(S)	15	Linear Feet	4" Non-perforated Sewer Pipe for Underdrains, SDR 23.5
1450	605-W001	(GY)	4,902	Cubic Yard	Filter Material for Combination Storm Drain and/or Underdrains,Type A, FM

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
1460	606-B001		2,025	Linear Feet	Guard Rail, Class A, Type 1
1470	606-C003		5	Each	Guard Rail, Cable Anchor, Type 1
1480	606-D005		3	Each	Guard Rail, Bridge End Section, Type A
1490	606-D022		6	Each	Guard Rail, Bridge End Section, Type I
1500	606-E001		9	Each	Guard Rail, Terminal End Section
1510	606-E007		5	Each	Guard Rail, Terminal End Section, Non-Flared
1520	608-B001	(S)	185	Square Yard	Concrete Sidewalk, With Reinforcement
1530	609-B002	(S)	8,728	Linear Feet	Concrete Curb, Header
1540	609-D004	(S)	3,783	Linear Feet	Combination Concrete Curb and Gutter Type 2 Modified
1550	609-D012	(S)	113,978	Linear Feet	Combination Concrete Curb and Gutter Type 3A Modified
1560	612-B001		535	Cubic Yard	Flowable Fill, Non-Excavatable
1570	613-D003		8	Each	Adjustment of Inlet
1580	614-B001	(S)	22,021	Square Yard	Concrete Driveway, With Reinforcement
1590	615-A001	(S)	2,756	Linear Feet	Concrete Bridge End Barrier, 32"
1600	615-A002	(S)	312	Linear Feet	Concrete Bridge End Barrier, 33.5"
1610	615-A023	(S)	2,320	Linear Feet	Concrete Type IV Modified, 42" Height, Cast-in-Place Median Barrier
1620	616-A001	(S)	5,388	Square Yard	Concrete Median and/or Island Pavement, 10-inch
1630	616-A004	(S)	1,904	Square Yard	Concrete Median and/or Island Pavement, 4-inch
1640	617-A001		462	Each	Right-of-Way Marker
1650	617-B001		18	Each	Permanent Easement Marker
1660	618-A001		1	Lump Sum	Maintenance of Traffic
1670	619-A1004		16	Mile	Temporary Traffic Stripe, Continuous White, Paint
1680	619-A2004		13	Mile	Temporary Traffic Stripe, Continuous Yellow, Paint
1690	619-A3003		31	Mile	Temporary Traffic Stripe, Skip White, Paint
1700	619-A4003		1,604	Linear Feet	Temporary Traffic Stripe, Skip Yellow, Paint
1710	619-A5002		181,557	Linear Feet	Temporary Traffic Stripe, Detail, Paint
1720	619-A6003		7,633	Square Feet	Temporary Traffic Stripe, Legend, Paint
1730	619-A6004		10,110	Linear Feet	Temporary Traffic Stripe, Legend, Paint
1740	619-C6001		11,444	Each	Red-Clear Reflective High Performance Raised Marker
1750	619-C7001		1,200	Each	Two-Way Yellow Reflective High Performance Raised Marker
1760	619-D1001		1,920	Square Feet	Standard Roadside Construction Signs, Less than 10 Square Feet
1770	619-D2001		2,319	Square Feet	Standard Roadside Construction Signs, 10 Square Feet or More
1780	619-D3001		2	Each	Remove and Reset Signs, All Sizes
1790	619-D4001		118	Square Feet	Directional Signs
1800	619-E1001		1	Each	Flashing Arrow Panel, Type C
1810	619-E3001		20	Each	Changeable Message Sign (Radar Capable)

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
1820	619-F1001		92,823	Linear Feet	Concrete Median Barrier, Precast
1830	619-F2001		9,800	Linear Feet	Remove and Reset Concrete Median Barrier, Precast
1840	619-G4001		96	Linear Feet	Barricades, Type III, Double Faced
1850	619-G4003		72	Linear Feet	Barricades, Type III, Double Faced, Permanent, Red/White
1860	619-G4005		1,974	Linear Feet	Barricades, Type III, Single Faced
1870	619-G5001		5,224	Each	Free Standing Plastic Drums
1880	619-G7001		43	Each	Warning Lights, Type "B"
1890	619-H1001		1	Lump Sum	Traffic Signals
1900	619-J1003		47	Each	Impact Attenuator, 50 MPH
1910	619-J2003		47	Each	Impact Attenuator, 50 MPH, Replacement Package
1920	620-A001		1	Lump Sum	Mobilization
1930	622-A004		1	Each	Engineer's Field Office Building, Type 3
1940	626-A001		31	Mile	6" Thermoplastic Double Drop Traffic Stripe, Skip White
1950	626-B002		2	Mile	6" Thermoplastic Double Drop Traffic Stripe, Continuous White
1960	626-C002		14	Mile	6" Thermoplastic Double Drop Edge Stripe, Continuous White
1970	626-D002		1,604	Linear Feet	6" Thermoplastic Double Drop Traffic Stripe, Skip Yellow
1980	626-E001		3	Mile	6" Thermoplastic Double Drop Traffic Stripe, Continuous Yellow
1990	626-F001		10	Mile	6" Thermoplastic Double Drop Edge Stripe, Continuous Yellow
2000	626-G004		135,560	Linear Feet	Thermoplastic Double Drop Detail Stripe, White
2010	626-G005		47,422	Linear Feet	Thermoplastic Double Drop Detail Stripe, Yellow
2020	626-H001		7,671	Square Feet	Thermoplastic Double Drop Legend, White
2030	626-H002		10,770	Linear Feet	Thermoplastic Double Drop Legend, White
2040	627-K001		7,236	Each	Red-Clear Reflective High Performance Raised Markers
2050	627-L001		1,201	Each	Two-Way Yellow Reflective High Performance Raised Markers
2060	629-A004		5	Each	Vehicular Impact Attenuator, 60 MPH
2070	629-B001		5	Each	Median Barrier End Section
2080	630-A001		575	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.080" Thickness
2090	630-A003		2,575	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness
2100	630-B002		302	Square Feet	Interstate Directional Signs, Bolted Extruded Aluminum Panels, Ground Mounted
2110	630-C002		59	Linear Feet	Steel U-Section Posts, 2.0 lb/ft
2120	630-C003		2,309	Linear Feet	Steel U-Section Posts, 3.0 lb/ft
2130	630-D006		39	Linear Feet	Structural Steel Beams, W6 x 12
2140	630-D007		40	Linear Feet	Structural Steel Beams, W6 x 15
2150	630-D008		245	Linear Feet	Structural Steel Beams, W6 x 9
2160	630-E001		53	Pounds	Structural Steel Angles & Bars, 3 1/2" x 3 1/2" x 1/4" Angles
2170	630-E002		290	Pounds	Structural Steel Angles & Bars, 3" x 3" x 1/4" Angles
2180	630-E004		2,275	Pounds	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
2190	630-F001		2	Each	Delineators, Flexible Post Mounted, Crossover, Type I, Green
2200	630-F002		2	Each	Delineators, Flexible Post Mounted, Crossover, Type I, Yellow
2210	630-F006		61	Each	Delineators, Guard Rail, White
2220	630-F007		31	Each	Delineators, Guard Rail, Yellow
2230	630-G005		44	Each	Type 3 Object Markers, OM-3R or OM-3L, Post Mounted
2240	630-G006		7	Each	Type 3 Object Markers, OM-3R or OM-3L, 2 Markers Per Post, Post Mounted
2250	630-G008		14	Each	Type 2 Object Markers, OM2-2
2260	630-I002		1	Lump Sum	Metal Overhead Sign Supports, Assembly No. 1 DMS-1
2270	630-I014		1	Lump Sum	Metal Overhead Sign Supports, Assembly No. 2 DMS-2
2280	630-I019		1	Lump Sum	Metal Overhead Sign Supports, Assembly No. 3 DMS-3
2290	630-K001		149	Linear Feet	Welded & Seamless Steel Pipe Posts, 3 1/2"
2300	630-K002		689	Linear Feet	Welded & Seamless Steel Pipe Posts, 3"
2310	630-K003		1,063	Linear Feet	Welded & Seamless Steel Pipe Posts, 4"
2320	632-A010		8	Each	Solid State Traffic Cabinet Assembly, Type IV Cabinet, Type 1 Controller
2330	633-A001		8	Each	Uninterruptable Power Supply
2340	634-A036		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 100' Arm
2350	634-A038		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 30' Arm
2360	634-A039		2	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 35' Arm
2370	634-A041		3	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 45' Arm
2380	634-A042		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 50' Arm
2390	634-A044		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 60' Arm
2400	634-A045		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 65' Arm
2410	634-A046		2	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 70' Arm
2420	634-A047		6	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 75' Arm
2430	634-A048		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 80' Arm
2440	634-A049		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 85' Arm
2450	634-A051		1	Each	Traffic Signal Equipment Pole, Type II, 22' Shaft, 95' Arm
2460	634-A172		1	Each	Traffic Signal Equipment Pole, Type III, 22' Shaft, 75' & 60' Arms
2470	634-A174		1	Each	Traffic Signal Equipment Pole, Type III, 40' Shaft, 80' & 40' Arms
2480	634-A195		1	Each	Traffic Signal Equipment Pole, Type II, 40' Shaft, 40' Arm
2490	634-A200		1	Each	Traffic Signal Equipment Pole, Type II, 40' Shaft, 65' Arm
2500	634-A201		1	Each	Traffic Signal Equipment Pole, Type II, 40' Shaft, 70' Arm
2510	634-A202		2	Each	Traffic Signal Equipment Pole, Type II, 40' Shaft, 75' Arm
2520	634-A203		1	Each	Traffic Signal Equipment Pole, Type II, 40' Shaft, 80' Arm
2530	634-A205		1	Each	Traffic Signal Equipment Pole, Type II, 40' Shaft, 90' Arm
2540	634-C005		150	Cubic Yard	Pole Foundations, Class "B" Concrete

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
2550	634-E001		4	Each	Camera Pole with Foundation, 50' Pole
2560	635-A059		78	Each	Traffic Signal Head, Type 1
2570	635-A061		25	Each	Traffic Signal Head, Type 2
2580	635-A065		12	Each	Traffic Signal Head, Type 2 FYA
2590	635-A070		7	Each	Traffic Signal Head, Type 3
2600	635-A076		2	Each	Traffic Signal Head, Type 6
2610	636-B015		7,526	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 4 Conductor
2620	636-B016		2,983	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 5 Conductor
2630	636-B018		9,448	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 14, 8 Conductor
2640	636-B028		568	Linear Feet	Electric Cable, Underground in Conduit, IMSA 20-1, AWG 8, 2 Conductor
2650	636-B035		705	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #1, 4 Conductor
2660	636-B054		2,080	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #8, 3 Conductor
2670	637-A009		72	Each	Pull Box Enclosure, Type 2, Tier 22
2680	637-A011		18	Each	Pull Box Enclosure, Type 3, Tier 22
2690	637-A013		77	Each	Pull Box Enclosure, Type 4, Tier 22
2700	637-A015		17	Each	Pull Box Enclosure, Type 5, Tier 22
2710	637-C009		800	Linear Feet	Traffic Signal Conduit, Underground, Rolled Pipe, 2"
2720	637-C028		5,485	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 2"
2730	637-C030		316	Linear Feet	Traffic Signal Conduit, Underground, Type 4, 3"
2740	637-D002		1,877	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 2"
2750	637-D003		3,697	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 3"
2760	637-F005		2,540	Linear Feet	Traffic Signal Conduit, Aerial Supported, Type 1, 2"
2770	637-G006		40	Linear Feet	Traffic Signal Conduit, Underground Encased in Concrete, Type 3, 2"
2780	637-H001		22,455	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"
2790	637-H003		275	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 3 @ 2"
2800	637-I001		26,035	Linear Feet	Traffic Signal Conduit Bank, Underground, Drilled or Jacked, Rolled Pipe, 2 @ 2"
2810	637-I003		885	Linear Feet	Traffic Signal Conduit Bank, Underground, Drilled or Jacked, Rolled Pipe, 3 @ 2"
2820	638-A003		6	Each	Flashing Assembly, Be Prepared to Stop When Flashing
2830	639-A001		1	Each	Railroad Signal Preemption
2840	639-B001		32	Each	Optical Detector
2850	639-C001		8	Each	Multimode Phase Selector
2860	639-E001		8,622	Linear Feet	Optical Detector Cable

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
2870	640-B003		619	Linear Feet	Shielded Cable, AWG #14, 2 Conductor
2880	641-A002		32	Each	Signal Stop Bar Radar Detection, 1 Sensor, Type 2
2890	641-B002		16	Each	Signal Advanced Radar Detection, 1 Sensor, Type 2
2900	641-C001		16	Each	ITS Radar Detection, 1 Sensor
2910	641-D001		7,470	Linear Feet	Radar Detection Communication Cable
2920	646-C001		1	Each	LED Blank-Out Sign
2930	653-B003		321	Square Feet	Street Name Sign, Type III
2940	656-A001		3	Each	Dynamic Message Sign, Type 1
2950	660-A003		12	Each	Equipment Cabinet, Type B
2960	699-A001		1	Lump Sum	Roadway Construction Stakes
2970	804-B001	(S)	1,267	Cubic Yard	Box Bridge Concrete, Class B
2980	815-A007	(S)	5,371	Ton	Loose Riprap, Size 300
2990	815-B001	(S)	5,359	Square Yard	Grouted Riprap
3000	815-E001	(S)	14,698	Square Yard	Geotextile under Riprap
3010	815-F002	(S)	110	Ton	Sediment Control Stone
3020	907-250-A001		500	Pounds	Polyacrylamide (PAM)
3030	907-603-MK001	(S)	65	Linear Feet	12" Slotted Drain Pipe
3040	907-604-T001	(S)	40	Linear Feet	12" Trench Drain
3050	907-618-M1001		1	Lump Sum	Service Patrol
3060	907-619-S001		1,100	Linear Feet	Construction Safety Fence
3070	907-626-U002		32	Mile	4" Thermoplastic Traffic Stripe, Skip White, 40-mil min. TRAFFIC CONTROL
3080	907-626-V002		45	Mile	4" Thermoplastic Traffic Stripe, Continuous White, 40-mil min. TRAFFIC CONTROL
3090	907-626-X002		47	Mile	4" Thermoplastic Traffic Stripe, Continuous Yellow, 40-mil min. TRAFFIC CONTROL
3100	907-626-Y001		81,909	Linear Feet	Thermoplastic Detail Traffic Stripe, White, 4" Equivalent Length, 40-mil. min. TRAFFIC CONTROL
3110	907-626-Y003		1,442	Linear Feet	Thermoplastic Detail Traffic Stripe, Yellow, 4" Equivalent Length, 40-mil. min. TRAFFIC CONTROL
3120	907-626-Z001		19,409	Linear Feet	Thermoplastic Legend, White, 4" Equivalent Length, 40-mil. min. TRAFFIC CONTROL
3130	907-626-Z002		2,100	Square Feet	Thermoplastic Legend, White, 4" Equivalent Length, 40-mil. min. TRAFFIC CONTROL
3140	907-650-A002		36	Each	On Street Video Equipment, Fixed Type
3150	907-650-A003		12	Each	On Street Video Equipment, PTZ Type
3160	907-659-A001		1	Lump Sum	Traffic Management Center Modifications
3170	907-659-C001		1	Lump Sum	Traffic Management Center Modifications - Training
3180	907-661-A004		50,240	Linear Feet	Fiber Optic Cable, 72 SM
3190	907-661-B002		1,335	Linear Feet	Fiber Optic Drop Cable, 12 SM
3200	907-663-A001		8	Each	Network Switch, Type A

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
3210	907-663-A002		12	Each	Network Switch, Type B
3220	907-663-B001		7	Each	Terminal Server
3230	907-663-D001		805	Linear Feet	Category 6 Cable, Installed in Conduit
3240	907-899-A001		1	Lump Sum	Railway-Highway Provisions
3250	907-906001		1,040	Hours	Trainees ($5.00)
				ALTERNATE GROUP AA NUMBER 1	
3260	304-F001	(GT)	378,296	Ton	3/4" and Down Crushed Stone Base
				ALTERNATE GROUP AA NUMBER 2	
3270	304-F002	(GT)	378,296	Ton	Size 610 Crushed Stone Base
				ALTERNATE GROUP AA NUMBER 3	
3280	304-F003	(GT)	378,296	Ton	Size 825B Crushed Stone Base
				ALTERNATE GROUP BB NUMBER 1	
3290	605-W002	(GY)	7,843	Cubic Yard	Filter Material for Combination Storm Drain and/or Underdrains,Type B, FM
				ALTERNATE GROUP BB NUMBER 2	
3300	605-W003	(GY)	7,843	Cubic Yard	Filter Material for Combination Storm Drain and/or Underdrains,Type C, FM
				Bridge Items	
3310	202-B169		628	Linear Feet	Removal of Joint Material
3320	501-K001		5,966	Square Yard	Transverse Grooving
3330	803-B001		6	Each	Conventional Static Pile Load Test ($5000.00)
3340	803-C002	(S)	7,805	Linear Feet	14" x 14" Prestressed Concrete Piling
3350	803-C003	(S)	13,760	Linear Feet	16" x 16" Prestressed Concrete Piling
3360	803-D005	(S)	5,100	Linear Feet	HP 14 x 117 Steel Piling
3370	803-F008	(S)	3,109	Linear Feet	20" Pre-Formed Pile Hole
3380	803-I002	(S)	22	Each	PDA Test Pile, Concrete Pile
3390	803-I003	(S)	4	Each	PDA Test Pile, HP Steel Pile
3400	803-J001	(S)	12	Each	Pile Restrike
3410	804-A001	(S)	3,477	Cubic Yard	Bridge Concrete, Class AA
3420	804-C065	(S)	8,287	Linear Feet	40' Prestressed Concrete Beam, Type I+2
3430	804-C084	(S)	3,227	Linear Feet	60' Prestressed Concrete Beam, Type II+2
3440	805-A001	(S)	737,034	Pounds	Reinforcement
3450	808-A001	(S)	628	Linear Feet	Joint Preparation
3460	813-A001	(S)	3,046	Linear Feet	Concrete Railing
3470	815-A007	(S)	7,498	Ton	Loose Riprap, Size 300
3480	815-E001	(S)	10,756	Square Yard	Geotextile under Riprap
3490	907-823-A001		314	Linear Feet	Preformed Joint Seal, Type I
3500	907-823-B001		628	Linear Feet	Saw Cut, Type I
3510	907-824-PP006		60	Each	Bridge Repair, (Remove Existing Bearings & Install 1'-3"x9" Laminated Bearing Pads) Per Plans
3520	907-824-PP006		60	Each	Bridge Repair, (Remove Existing Bearings & Install 1'-7"x10"

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
					Laminated Bearing Pads) Per Plans

CONDITIONS FOR COMBINATION BID

If a bidder elects to submit a combined bid for two or more of the contracts listed for this month's letting, the bidder must complete and execute these sheets of the proposal in each of the individual proposals to constitute a combination bid. In addition to this requirement, each individual contract shall be completed, executed and submitted in the usual specified manner.

Failure to execute this Combination Bid Proposal in each of the contracts combined will be just cause for each proposal to be received and evaluated as a separate bid.

It is understood that the Mississippi Transportation Commission not only reserves the right to reject any and all proposals, but also the right to award contracts upon the basis of lowest separate bids or combination bids most advantageous to the State.

It is further understood and agreed that the Combination Bid Proposal is for comparison of bids only and that each contract shall operate in every respect as a separate contract in accordance with its proposal and contract documents.

I (We) agree to complete each contract on or before its specified completion date.

* *

COMBINATION BID PROPOSAL

This proposal is tendered as one part of a Combination Bid Proposal utilizing option ___* of Subsection 102.11 on the following contracts:

* Option to be shown as either (a), (b), or (c).

	Project No.	County		Project No.	County
1.	____________	____________	6.	____________	____________
2.	____________	____________	7.	____________	____________
3.	____________	____________	8.	____________	____________
4.	____________	____________	9.	____________	____________
5.	____________	____________	10.	____________	____________

(a) If Combination A has been selected, your Combination Bid is complete.

(b) If Combination B has been selected, then complete the following page.

SECTION 905 - COMBINATION BID PROPOSAL (Continued)

Project Number	Pay Item Number	Unit	Unit Price Reduction	Total Item Reduction	Total Contract Reduction
1. _____	_____	_____	_____	_____	
2. _____	_____	_____	_____	_____	
3. _____	_____	_____	_____	_____	
4. _____	_____	_____	_____	_____	
5. _____	_____	_____	_____	_____	
6. _____	_____	_____	_____	_____	
7. _____	_____	_____	_____	_____	
8. _____	_____	_____	_____	_____	

Project Number	Pay Item Number	Unit	Unit Price Reduction	Total Item Reduction	Total Contract Reduction
9. _____	_____ _____	_____ _____	_____ _____	_____ _____	
10. _____	_____ _____	_____ _____	_____ _____	_____ _____	

(c) If Combination C has been selected, then initial and complete ONE of the following.

_____ I (We) desire to be awarded work not to exceed a total monetary value of $ _____.

_____ I (We) desire to be awarded work not to exceed _____ number of contracts.

Certification with regard to the Performance of Previous Contracts or Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports

The Bidder hereby certifies that he has ____, has not ____, participated in a previous contract or subcontract subject to the Equal Opportunity Clause, as required by Executive Orders 10925, 11114, or 11246, and that he has ____, has not ____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

_____
(COMPANY)

DATE: _____

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the Equal Opportunity Clause. Contracts and Subcontracts which are exempt from the Equal Opportunity Clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime Contractors and Subcontractors who have participated in a previous contract or subcontract subject to the Executive orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such Contractors submit a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

CERTIFICATION

I,_____,
(Name of person signing bid)

individually, and in my capacity as_____ of
(Title of person signing bid)

_____do hereby certify under
(Name of Firm, partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that_____

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. **NH-0008-03(029)/ 102046301000**

in **Rankin** County(ies), Mississippi, has not either

directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in (b) above; and

d) Have not within a three-year period preceding this application/ proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Do exceptions exist and are made a part thereof? Yes / No

Any exceptions shall address to whom it applies, initiating agency and dates of such action.

Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

The bidder further certifies that the certification requirements contained in Section XI of Form FHWA 1273, will be or have been included in all subcontracts, material supply agreements, purchase orders, etc. except those procurement contracts for goods or services that are expected to be less than the Federal procurement small purchase threshold fixed at 10 U.S.C. 2304(g) and 41 U.S.C. 253(g) (currently $25,000) which are excluded from the certification requirements.

The bidder further certifies, to the best of his or her knowledge and belief, that:

1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this contract, Standard Form-LLL, Disclosure Form to Report Lobbying, in accordance with its instructions will be completed and submitted.

The certification contained in (1) and (2) above is a material representation of fact upon which reliance is placed and a prerequisite imposed by Section 1352, Title 31, U.S. Code prior to entering into this contract. Failure to comply shall be subject to a civil penalty of not less than $10,000 and not more than $100,000. The bidder shall include the language of the certification in all subcontracts exceeding $100,000 and all subcontractors shall certify and disclose accordingly.

All of the foregoing is true and correct.

Executed on _____ _____

Signature

(01/2016 F)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SAM.GOV Registration and DUNS Number

Bidders are advised that the Prime Contractor must maintain current registration in the **System for Award Management** (http://www.sam.gov) at all times during the project. A Dun and Bradstreet Data Universal Numbering System (DUNS) Number (http://www.dnb.com) is one of the requirements for registration in the System for Award Management.

Bidders are advised that prior to the award of this contract, they MUST be registered in the System for Award Management.

I (We) acknowledge that this contract cannot be awarded if I (We) are not registered in the System for Award Management prior to the award of this contract. _____ (Yes / No)

I (We) have a DUNS Number . _____ (Yes / No)

DUNS Number: _____

Company Name: _____

Company e-mail address: _____

(6/2015F)

SECTION 902

CONTRACT FOR **NH-0008-03(029)/ 102046301000**

LOCATED IN THE COUNTY(IES) OF **Rankin**

STATE OF MISSISSIPPI,
COUNTY OF HINDS

This contract entered into by and between the Mississippi Transportation Commission on one hand, and the undersigned contractor, on the other witnesseth;

That, in consideration of the payment by the Mississippi Transportation Commission of the prices set out in the proposal hereto attached, to the undersigned contractor, such payment to be made in the manner and at the time of times specified in the specifications and the special provisions, if any, the undersigned contractor hereby agrees to accept the prices stated in the proposal in full compensation for the furnishing of all materials and equipment and the executing of all the work contemplated in this contract.

It is understood and agreed that the advertising according to law, the Advertisement, the instructions to bidders, the proposal for the contract, the specifications, the revisions of the specifications, the special provisions, and also the plans for the work herein contemplated, said plans showing more particularly the details of the work to be done, shall be held to be, and are hereby made a part of this contract by specific reference thereto and with like effect as if each and all of said instruments had been set out fully herein in words and figures.

It is further agreed that for the same consideration the undersigned contractor shall be responsible for all loss or damage arising out of the nature of the work aforesaid; or from the action of the elements and unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the work, exceptions being those specifically set out in the contract; and for faithfully completing the whole work in good and workmanlike manner according to the approved Plans, Specifications, Special Provisions, Notice(s) to Bidders and requirements of the Mississippi Department of Transportation.

It is further agreed that the work shall be done under the direct supervision and to the complete satisfaction of the Executive Director of the Mississippi Department of Transportation, or his authorized representatives, and when Federal Funds are involved subject to inspection at all times and approval by the Federal Highway Administration, or its agents as the case may be, or the agents of any other Agency whose funds are involved in accordance with those Acts of the Legislature of the State of Mississippi approved by the Governor and such rules and regulations issued pursuant thereto by the Mississippi Transportation Commission and the authorized Federal Agencies.

The Contractor agrees that all labor as outlined in the Special Provisions may be secured from list furnished by

It is agreed and understood that each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and this contract shall be read and enforced as though it were included herein, and, if through mere mistake or otherwise any such provision is not inserted, then upon the application of either party hereto, the contract shall forthwith be physically amended to make such insertion.

The Contractor agrees that he has read each and every clause of this Contract, and fully understands the meaning of same and that he will comply with all the terms, covenants and agreements therein set forth.

Witness our signatures this the____ day of _____,_____.

_____
Contractor(s)

By_____

Title_____

Signed and sealed in the presence of:
(names and addresses of witnesses)

_____

MISSISSIPPI TRANSPORTATION COMMISSION

By_____
Executive Director

_____
Secretary to the Commission

Award authorized by the Mississippi Transportation Commission in session on the ____ day of _____,_____, Minute Book No. _____, Page No. _____.

Revised 8/06/2003

SECTION 903
PERFORMANCE AND PAYMENT BOND

CONTRACT BOND FOR: **NH-0008-03(029)/ 102046301000**

LOCATED IN THE COUNTY(IES) OF: **Rankin**

STATE OF MISSISSIPPI,
COUNTY OF HINDS

Know all men by these presents: that we, _____
(Contractor)
_____ Principal, a _____

residing at_____ in the State of _____

and _____
(Surety)
residing at _____ in the State of _____,

authorized to do business in the State of Mississippi, under the laws thereof, as surety, effective as of the contract date shown below, are held and firmly bound unto the State of Mississippi in the sum of _____

_____

($_____) Dollars, lawful money of the United States of America, to be paid to it for which payment well and truly to be made, we bind ourselves, our heirs, administrators, successors, or assigns jointly and severally by these presents.

The conditions of this bond are such, that whereas the said _____

_____

principal, has (have) entered into a contract with the Mississippi Transportation Commission, bearing the date of _____ day of _____ A.D. _____ hereto annexed, for the construction of certain projects(s) in the State of Mississippi as mentioned in said contract in accordance with the Contract Documents therefor, on file in the offices of the Mississippi Department of Transportation, Jackson, Mississippi.

Now therefore, if the above bounden _____
_____in all things shall stand to and abide by and well and truly observe, do keep and perform all and singular the terms, covenants, conditions, guarantees and agreements in said contract, contained on his (their) part to be observed, done, kept and performed and each of them, at the time and in the manner and form and furnish all of the material and equipment specified in said contract in strict accordance with the terms of said contract which said plans, specifications and special provisions are included in and form a part of said contract and shall maintain the said work contemplated until its final completion and acceptance as specified in Subsection 109.11 of the approved specifications, and save harmless said Mississippi Transportation Commission from any loss or damage arising out of or occasioned by the negligence, wrongful or criminal act, overcharge, fraud, or any other loss or damage whatsoever, on the part of said principal (s), his (their) agents, servants, or employees in the performance of said work or in any manner connected therewith, and shall be liable and responsible in a civil action instituted by the State at the instance of the Mississippi Transportation Commission or any officer of the State authorized in such cases, for double any amount in money or property, the State may lose or be overcharged or otherwise defrauded of, by reason of wrongful or criminal act, if any, of the Contractor(s), his (their) agents or employees, and shall promptly pay the said agents, servants and employees and all persons furnishing labor, material, equipment or supplies therefor, including premiums incurred, for Surety Bonds, Liability Insurance, and Workmen's Compensation Insurance; with the additional obligation that such Contractor shall promptly make payment of all taxes, licenses, assessments, contributions, damages,

any liquidated damages which may arise prior to any termination of said principal's contract, any liquidated damages which may arise after termination of the said principal's contract due to default on the part of said principal, penalties and interest thereon, when and as the same may be due this state, or any county, municipality, board, department, commission or political subdivision: in the course of the performance of said work and in accordance with Sections 31-5-51 et seq. Mississippi Code of 1972, and other State statutes applicable thereto, and shall carry out to the letter and to the satisfaction of the Executive Director of the Mississippi Department of Transportation, all, each and every one of the stipulations, obligations, conditions, covenants and agreements and terms of said contract in accordance with the terms thereof and all of the expense and cost and attorney's fee that may be incurred in the enforcement of the performance of said contract, or in the enforcement of the conditions and obligations of this bond, then this obligation shall be null and void, otherwise to be and remain in full force and virtue.

_____	_____
(Contractors) Principal	Surety
By _____	By _____
	(Signature) Attorney in Fact
	Address _____
	_____
Title _____	_____
(Contractor's Seal)	(Printed) MS Agent
	_____
	(Signature) MS Agent
	Address _____
	_____
	_____
	(Surety Seal)
	_____
	Mississippi Insurance ID Number

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we_____
Contractor

_____
Address

_____
City, State ZIP

As principal, hereinafter called the Principal, and _____
Surety

a corporation duly organized under the laws of the state of _____

as Surety, hereinafter called the Surety, are held and firmly bound unto **State of Mississippi, Jackson, Mississippi**

As Obligee, hereinafter called Obligee, in the sum of **Five Per Cent (5%) of Amount Bid**

Dollars($_____)

for the payment of which sum will and truly to be made, the said Principal and said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for **Reconstruction of US 49 from Florence to the Scale Area, known as Federal Aid Project No. NH-0008-03(029) / 102046301 in Rankin County.**

NOW THEREFORE, the condition of this obligation is such that if the aforesaid Principal shall be awarded the contract, the said Principal will, within the time required, enter into a formal contract and give a good and sufficient bond to secure the performance of the terms and conditions of the contract, then this obligation to be void; otherwise the Principal and Surety will pay unto the Obligee the difference in money between the amount of the bid of the said Principal and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former, but in no event shall liability hereunder exceed the penal sum hereof.

Signed and sealed this _____day of _____, 20___

_____
(Principal) (Seal)

_____ By:_____
(Witness) (Name) (Title)

_____
(Surety) (Seal)

_____ By:_____
(Witness) (Attorney-in-Fact)

_____
(MS Agent)

_____
Mississippi Insurance ID Number

OCR-485

REV. 1/2016

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
OFFICE OF CIVIL RIGHTS
JACKSON, MISSISSIPPI

LIST OF FIRMS SUBMITTING QUOTES

I/we received quotes from the following firms on: Letting Date: **August 22, 2017**

Project No: **NH-0008-03(029)/ 102046301000**

County: **Rankin**

Disadvantaged Business Enterprise (DBE) Regulations as stated in 49 CFR 26.11 require the Mississippi Department of Transportation (MDOT) to create and maintain a comprehensive list of all firms quoting/bidding subcontracts on prime contracts and quoting/bidding subcontracts on federally-funded transportation projects. For every firm, we require the following information:

Firm Name: ____________________
Contact Name/Title: ____________________
Firm Mailing Address: ____________________
Phone Number: ____________________
_______ DBE Firm _______ Non-DBE Firm

Firm Name: ____________________
Contact Name/Title: ____________________
Firm Mailing Address: ____________________
Phone Number: ____________________
_______ DBE Firm _______ Non-DBE Firm

Firm Name: ____________________
Contact Name/Title: ____________________
Firm Mailing Address: ____________________
Phone Number: ____________________
_______ DBE Firm _______ Non-DBE Firm

Firm Name: ____________________
Contact Name/Title: ____________________
Firm Mailing Address: ____________________
Phone Number: ____________________
_______ DBE Firm _______ Non-DBE Firm

Firm Name: ____________________
Contact Name/Title: ____________________
Firm Mailing Address: ____________________
Phone Number: ____________________
_______ DBE Firm _______ Non-DBE Firm

____
S

____

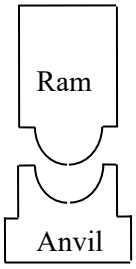
Rev. 6/98

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PILE AND DRIVING EQUIPMENT DATA FORM

Project No.: _____ Bridge No.: _____

Termini: _____ Pile Driving Contractor: _____

County: _____



Hammer

Manufacture: _____ Model No.: _____

Hammer Type: _____ Serial No.: _____

Manufacturers Maximum Rated Energy: _____ (Kip-ft.)

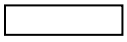
Stroke at Maximum Rated Energy: _____ (ft.)

Range in Operating Energy: _____ to _____ (Kip-ft.)

Range in Operating Stroke: _____ to _____ (ft.)

Modifications: _____

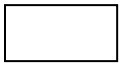
_____



Striker Plate

Weight: _____ (N) Diameter: _____ (in.)

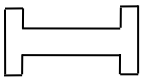
Thickness: _____ (mm)



Hammer Cushion

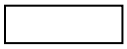
	Material #1	Material #2
	Name: _____	Name: _____
	Area: _____ ($in.^2$)	Area: _____ ($in.^2$)
	Thickness/Plate: _____ (in.)	Thickness/Plate: _____ (in.)
	No. of Plates: _____	No. of Plates: _____

Total Thickness of Hammer Cushion: _____ (in.)



Helmet (Drive Head)

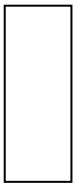
Weight: _____ (lbs.)



Pile Cushion

Material: _____

Area: _____ ($in.^2$) Total Thickness: _____ (in.)



Pile

Submitted By: _____ ***Date:*** _____

Telephone No.: _____