

MDOT Use Only

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26 -



SM No. CNH0015010601

PROPOSAL AND CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF
(EXEMPT)

26

Installing aesthetic lighting and ITS equipment on the River Bridge at Natchez, known as Federal Aid Project No. NH-0015-01(060) / 105243301, in the County of Adams, State of Mississippi, and Concordia Parish, Louisiana.

Project Completion: April 30, 2010

NOTICE

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

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

SECTION 900
OF THE CURRENT
(2004) STANDARD SPECIFICATIONS
FOR ROAD AND BRIDGE CONSTRUCTION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
JACKSON, MISSISSIPPI

**BIDDER CHECK LIST
(FOR INFORMATION ONLY)**

- _____ All unit prices and item totals have been entered in accordance with Subsection 102.06 of the Mississippi Standard Specifications for Road and Bridge Construction.
- _____ If the bid sheets were prepared using MDOT's Electronic Bid System, proposal sheets have been stapled and inserted into the proposal package.
- _____ First sheet of SECTION 905--PROPOSAL has been completed.
- _____ Second sheet of SECTION 905--PROPOSAL has been completed and signed.
- _____ Addenda, if any, have been acknowledged. Second sheet of Section 905 listing the addendum number has been substituted for the original second sheet of Section 905. Substituted second sheet of Section 905 has been properly completed, signed, and added to the proposal.
- _____ DBE/WBE percentage, when required by contract, has been entered on last sheet of the bid sheets of SECTION 905 - PROPOSAL.
- _____ Form OCR-485, when required by contract, has been completed and signed.
- _____ The last sheet of the bid sheets of SECTION 905--PROPOSAL has been signed.
- _____ Combination Bid Proposal of SECTION 905--PROPOSAL has been completed for each project which is to be considered in combination (See Subsection 102.11).
- _____ Equal Opportunity Clause Certification, when included in contract, has been completed and signed.
- | _____ The Certification regarding Non-Collusion, Debarment and Suspension, etc. has been executed in duplicate.
- _____ A certified check, cashier's check or bid bond payable to the State of Mississippi in the principal amount of 5% of the bid has been included with project number identified on same. Bid bond has been signed by the bidder and has also been signed or countersigned by a Mississippi Resident Agent for the Surety with Power of Attorney attached.
- | _____ Non-resident Bidders: ON STATE FUNDED PROJECTS ONLY, a copy of the current laws regarding any preference for local Contractors from State wherein domiciled has been included. See Subsection 103.01, Mississippi Standard Specifications for Road and Bridge Construction, and Section 31-7-47, MCA, 1972 regarding this matter.

Return the proposal and contract documents in its entirety in a sealed envelope. DO NOT remove any part of the contract documents; exception - an addendum requires substitution of second sheet of Section 905. A stripped proposal is considered as an irregular bid and will be rejected.

Failure to complete any or all of the applicable requirements will be cause for the proposal to be considered irregular.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

TABLE OF CONTENTS

PROJECT: NH-0015-01(060) / 105243301 -- Adams County

901--Advertisement

904--Notice to Bidders: Governing Specs. - # 1
Final Cleanup - # 3
Fiber Reinforced Concrete - # 640
Disadvantage Business Enterprise W/Supplement - # 696
On-The-Job Training Program - # 777
Payroll Requirements - # 883
Errata & Modifications to 2004 Standard Specifications - # 1405
Safety Apparel - # 1808
Minimum Wage Rate - # 1869
DBE Forms, Participation and Payment - # 1918
Non-Quality Control/Assurance Concrete - # 1922
Federal Bridge Formula - # 1928
Department of Labor Ruling - # 2239
Mississippi Resident Agent Requirement # 2361
Status of ROW, W/Attachments - # 2382
Removal of Haul Permit - # 2400
American Recovery and Reinvestment Act (ARRA) Sign - # 2438
Requirements Under Section 902 of the ARRA - # 2476
Special Reporting Criteria - # 2477
Petroleum Products Base Price - # 2496
Contract Time - # 2523
ITS General Requirements - # 2525

906: Required Federal Contract Provisions -- FHWA-1273, W/Supplement

907-104-1: Partnering Process
907-105-3: Cooperation By Contractors, W/Supplement
907-107-1: Liability Insurance, W/Supplement
907-107-6: Legal Relations & Responsibility to Public, W/Supplement
907-108-17: Prosecution and Progress
907-109-3: Partial Payment, W/Supplement
907-618-1: Additional Construction Signs, W/Supplement
907-637-2: ITS Equipment Cabinets
907-649-2: Video Vehicle Detection
907-650-2: On-Street Video Equipment
907-657-3: Fiber Optic Cable (OSP)
907-658-2: Hardened Network Switches and Terminal Servers
907-662-2: Video Communication Equipment

PAGE 2 NH-0015-01(060) / 105243301 -- Adams County

- 907-665-4: Aesthetic Lighting
- 907-668-1: Traffic Signal Conduit
- 907-681-2: Submittal Data
- 907-682-10: Branch Circuit Wire
- 907-683-9: Repair of Bridge Lighting Assembly
- 907-701-3: Hydraulic Cement, W/Supplement
- 907-711-3: Synthetic Structural Fiber Reinforcement
- 907-713-1: Admixtures for Concrete
- 907-714-5: Miscellaneous Materials, W/Supplement
- 907-804-8: Concrete Bridges and Structures, W/Supplement
- 906-3: MDOT On-the-Job Training Program
- 906-6: MDOT On-the-Job Training Program - Alternate Program

SECTION 905 - PROPOSAL,
PROPOSAL SHEET NOS. 2-1 THRU 2-5,
COMBINATION BID PROPOSAL,
CERTIFICATE OF PERFORMANCE - PRIOR FEDERAL-AID CONTRACTS,
NON-COLLUSION CERTIFICATE,
SECTION 902 - CONTRACT FORM, AND SECTION 903 - CONTRACT BOND FORM,
OCR-485.

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

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 901 - ADVERTISEMENT

Sealed bids will be received by the Mississippi Transportation Commission in the Office of the Contract Administration Engineer, Room 1013, Mississippi Department of Transportation Administration Building, 401 North West Street, Jackson, Mississippi, until 9:30 o'clock A.M., Tuesday, May 26, 2009; thereafter, bids will be received in the First Floor Auditorium of the Mississippi Department of Transportation Administration Building, Jackson, Mississippi, until 10:00 o'clock A.M., Tuesday, May 26, 2009, and shortly thereafter publicly opened for:

Installing aesthetic lighting and ITS equipment on the River Bridge at Natchez, known as Federal Aid Project No. NH-0015-01(060) / 105243301, in the County of Adams, State of Mississippi, and Concordia Parish, Louisiana.

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 87-58 1, 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 acquired from the MDOT Contract Administration Division. These proposals are available at a cost of Ten Dollars (\$10.00) per proposal. Specimen proposals are also available at the MDOT Contract Administration Division at a cost of Ten Dollars (\$10.00) per proposal, or can be viewed or downloaded at no cost at www.gomdot.com.

Plans may be acquired on a cost per sheet basis from MDOT Plans Print Shop, MDOT Shop Complex, Building C, Room 114, 2567 North West Street, Jackson, Mississippi 39216, Telephone (601) 359-7460 or e-mail at plans@mdot.state.ms.us or FAX (601) 359-7461. Plans will be shipped upon receipt of payment.

Bid bond, signed or countersigned by a Mississippi Resident Agent, with Power of Attorney attached or on file with the Contract Administration Engineer of the Department, 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.

LARRY L. "BUTCH" BROWN
EXECUTIVE DIRECTOR

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1

CODE: (IS)

DATE: 05/03/2004

SUBJECT: Governing Specifications

The current (2004) 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 herein. Copies of the specification book may be purchased from the MDOT Construction Division.

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 1990 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 2004 Edition of the Standard Specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3

CODE: (SP)

DATE: 05/03/2004

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 as 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. 640

CODE: (IS)

| DATE: 09/26/2005

SUBJECT: Fiber Reinforced Concrete

Bidders are hereby advised that synthetic structural fibers meeting the requirements of Subsection 907-711.04 may be used in lieu of wire mesh in some items of construction. Substitution of fibers for wire mesh will be allowed in the construction of paved ditches, paved flumes, paved inlet apron, driveways, guard rail anchors and pile encasements. Substitution in any other items of work must be approved by the State Construction Engineer prior to use.

SUPPLEMENT TO NOTICE TO BIDDERS NO. 696

DATE: 06/06/2008

The goal is 0 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 (<http://www.gomdot.com/applications/bidsystem/currentletting.aspx>) for results. Bid tabulations are usually posted by 3:00 pm on Letting Day.

Form OCR-481 is available at http://www.gomdot.com/Divisions/CivilRights/Resources/Forms/pdf/MDOT_OCR481.pdf or by calling 601-359-7466.

All OCR-481s must be returned within 10 days following the bid letting to the MDOT Office of Civil Rights, P.O. Box 1850, Jackson, MS 39215-1850.

For answers to questions, contact the MDOT Office of Civil Rights at (601) 359-7466.

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 "Safe, Accountable, Flexible, Efficient Transportation Equity Act, A Legacy For Users (SAFETEA-LU)" and "Part 26, Title 49, Code of Federal Regulation" that the bidder has made a good faith effort to meet the contract goal for DBE participation for which this proposal is submitted.

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.

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 DBE firm must be on the Department's list of "Certified DBE Contractors" that is posted online at the time the job is let and approved by MDOT to count towards meeting the DBE goal.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 696

CODE: (IS)

DATE: 12/20/2005

SUBJECT: DISADVANTAGED BUSINESS ENTERPRISES IN FEDERAL-AID HIGHWAY CONSTRUCTION

This contract is subject to the [Safe, Accountable, Flexible, Efficient Transportation Equity Act, A Legacy For Users \(SAFETEA-LU\)](#) 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 subrecipient or a Contractor, and each subcontract the Prime Contractor signs with a Subcontractor, includes the following assurances:

“The Contractor, subrecipient 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.

The percentage of the contract that is proposed for DBEs shall be so stated on the last bid sheet of the proposal.

The apparent lowest responsive bidder shall submit to the Contract Administration Division Form OCR-481, signed by the Prime Contractor and the DBE Subcontractors, no later than the 10th day after opening of the bids.

FORMS ARE AVAILABLE FROM THE CONTRACT ADMINISTRATION DIVISION

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, with the proposal, 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 with the bid proposal, 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 readvertised.

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.

DIRECTORY

Included with this Bid Proposal is a list of "Certified DBE Contractors" which have been certified as such by the Mississippi Department of Transportation and other Unified Certification Partners (UCP).

The DBE firm must be on the Department's list of "Certified DBE Contractors" that is attached to this proposal 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 awarded, 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:

- (a) 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.
- (b) Efforts to negotiate with certified DBE Contractors for specific items shall include as a minimum:
 - (1) The name, address, and telephone number of each DBE contacted;
 - (2) A description of the information provided about the plans and specifications for those portions of the work to be subcontracted; and
 - (3) A statement of why agreements were not reached.
- (c) For each DBE contacted that was rejected as unqualified, the reasons for such conclusion.
- (d) Efforts made to assist each DBE that needed assistance in obtaining bonding or insurance required by the Contractor.

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.

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 60 percent 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.

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 Contract Administration Division for approval, Form OCR-481 (DBE Commitment) no later than the 10th day after opening of the bids, or submit information with the bid proposal to satisfy the Department and that adequate good faith efforts have been made to meet the contract goal.
- (3) Bidder must submit **with the bid proposal** a list of all firms that submitted quotes for material supplies or items to be subcontracted. This information must be submitted on form OCR-485 in the back of the contract proposal.

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

The contract goal established by MDOT in this proposal 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: At the conclusion of the project the 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 each Contractor / Supplier. 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 Contractor will submit to the Project Engineer OCR-484 certifying payments to all Subcontractors.
- (5) OCR-485: The bidder must submit **with the bid proposal** a list of all firms that submitted quotes for material supplies or items to be subcontracted.
- (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 or CAD-725).

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 an amount equal to the unmet portion of the DBE goal

- (4) Recover an amount equal to the unmet contract goal
- (5) Debar the Contractor involved from bidding on Mississippi Department of Transportation projects.
- (6) Deduct from the Contractor's final estimate all or any combination of the following.

<u>Offense</u>	<u>Percentage of the monetary amount disallowed from (1) above</u>	<u>Lump Sum</u>
# 1	10%	\$ 5,000 or both
# 2	20%	\$ 10,000 or both
# 3	40%	\$ 20,000 & debarment

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. [777](#)

CODE: (IS)

| DATE: [04/13/2006](#)

SUBJECT: On-The-Job Training Program

| Payment for training hours will be handled as outlined in Special Provision 906-6. A pay item for trainees will not be included in individual construction projects. Payment for training individuals will be processed in accordance with the conditions in MDOT's ON-THE-JOB TRAINING PROGRAM (Special Provision 906-6).

| On Federal-Aid projects, failure on the part of the Contractor to carryout the terms of the Alternate Training Special Provision (Special Provision 906-6) will be considered grounds to preclude the Contractor from participating in the Alternate On-The-Job Training Program. In the event the Department is required to preclude the Contractor from participating in the program, the Contractor will be required to adhere to the requirements of the Training Special Provision (Special Provision 906-3), for which purpose the special provision is also made a part of this proposal.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 883

CODE: (IS)

DATE: 04/28/2006

SUBJECT: Payroll Requirements

Bidders are hereby advised that the Contractor and Subcontractor(s) are required to submit payroll information to the Project Engineers on a weekly basis.

On Federal-Aid Projects, CAD-880, CAD-881 and certified payroll submissions are required each week the Contractor or a Subcontractor performs work on the project. This is addressed in Section V, page 6 of Form FHWA-1273.

On State-Funded Projects, CAD-880 is required each week the Contractor or a Subcontractor performs work on the project.

When no work is performed on either Federal-Aid and State-Funded Projects, the Contractor should only submit CAD-880 showing no work activities.

The Contractor shall make all efforts necessary to submit this information to the Project Engineer in a timely manner. The Engineer will have the authority to suspend the work wholly or in part and to withhold payments because of the Contractor's failure to submit the required information. Submission of forms and payrolls shall be current through the first full week of the month for the estimate period in order for the Project Engineer to process an estimate.

Bidders are advised to review the requirements regarding payroll submissions in Section 110 of the Standard Specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1405

CODE: (IS)

DATE: 03/15/2007

SUBJECT: ERRATA AND MODIFICATIONS TO THE 2004 STANDARD SPECIFICATIONS

<u>Page</u>	<u>Subsection</u>	<u>Change</u>
101	201.01	In the second sentence of the first paragraph, change “salvable” to “salvageable”.
107	202.04	In the fourth sentence of the fourth paragraph, change “yard” to “feet”.
107	202.05	In the list of units measurements for 202-B, add “square foot”.
132	211.03.4	In the second sentence of the second paragraph, change “planted” to “plated”.
192	306.02.4	In the first line of the first paragraph, delete the word “be”.
200	307.03.7	In the fourth sentence of the second paragraph, change “lime-fly ash” to “treated”.
236	401.01	Change the header from “Section 403” to “Section 401”.
242	401.02.3.2	In the first sentence of the third full paragraph, add “1/8” in the blank before the inch mark.
250	401.02.6.3	In the second sentence of the first paragraph on page 250, change “rutting over ”” to “rutting over 1/8” ”.
253	401.02.6.4.2	In the paragraph preceding the table, change “91.0” to “89.0”.
259	401.03.1.4	In the first paragraph, change “92.0 percent” to “the specified percentage (92.0 or 93.0)”.
269	403.03.2	In the table at the top of page 269, change the PI requirement from “ = ” to “ ≤ ”.

- 278 404.04 In the second sentence, change the subsection from “401.04” to “403.04”.
- 283 409.02.2 Change “PG 64-22” to “PG 67-22”.
- 294 413.02 In the first sentence of the second paragraph, change “707.02.1.3” to “Subsection 707.02.1.3”.
- 340 511.04 In the second sentence of the second paragraph, change “412” to “512”.
- 349 601.03.3 In the first sentence, change “804.03.2” to “804.03.5”.
- 355 603.02 Change the subsection reference for Joint mortar from “707.03” to “714.11”.
- 369 604.04 In the first sentence, change “601.04” to “Subsection 601.04”.
- 427 619.04 Delete the second paragraph.
- 442 625.04 In the third paragraph, change “626.04” to “Subsection 626.04”.
- 444 626.03.1.2 Delete the third sentence of the first paragraph.
- 464 631.02 Change the subsection reference for Water from “714.01.0” to “714.01.1”.
- 570 682.03 Change the subsection number from “682-03” to “682.03”.
- 575 683.10.4 Change the subsection number from “683.10.4” to “683.04”.
- 575 683.10.5 Change the subsection number from “683.10.5” to “683.05”.
- 596 701.02 In the table under the column titled “Cementations material required”, change Class F, FA” to “Class F FA,”.
- 603 702.11 In the first sentence, change “702.12” to “Subsection 702.12”.
- 612 703.04.2 In the fifth paragraph, delete “Subsection 703.11 and”.
- 616 703.07.2 In the Percentage By Weight Passing Square Mesh Sieves table, change the No. 10 requirement for Class 7 material from “30 - 10” to “30 - 100”.

- 618 703.13.1 In the first sentence of the first paragraph, change “703.09” to “703.06”.
- 618 703.13.2 In the first sentence, change “703.09” to “703.06”.
- 671 712.06.2.2 In the first sentence, change “712.05.1” to “Subsection 712.05.1”.
- 689 714.11.2 In the first sentence, change “412” to “512”.
- 709 715.09.5 In the first sentence of the first paragraph, change “guage” to “gauge”.
- 717 717.02.3.4 In the top line of the tension table, change “1 1/2” to “1 1/8” and change “1 1/8” to “1 1/2”.
- 741 720.05.2.2 In the last sentence of this subsection, change “720.05.2.1” to “Subsection 720.05.2.1”.
- 827 803.03.2.3.7.5.2 In the first sentence of the second paragraph, change “803.03.5.4” to “803.03.2.3.4”.
- 833 803.03.2.6 In the first sentence, change “803.03.7” to “803.03.2.5”.
- 854 804.02.11 In the last sentence of the first paragraph, change “automatically” to “automatic”.
- 859 804.02.13.1.3 In the last sentence, change Subsection “804.02.12.1” to “804.02.12”.
- 879 804.03.19.3.2 In the first sentence of the third paragraph, change “listed on of Approved” to “listed on the Approved”.
- 879 804.03.19.3.2 In the last sentence of the last paragraph, change “804.03.19.3.1” to “Subsection 804.03.19.3.1”.
- 962 814.02.3 In the first sentence, change “710.03” to “Subsection 710.03”.
- 976 820.03.2.1 In the first sentence, change “803.02.6” to “803.03.1.7”.
- 976 820.03.2.2 In the first sentence, change “803.03.9.6” to “803.03.1.9.2”.
- 985 Index Change the subsection reference for Petroleum Asphalt Cement from “702.5” to “702.05”.

985	Index	Change the subsection reference for the Definition of Asphaltic Cement or Petroleum Asphalt from “700.2” to “700.02”.
985	Index	Change the subsection reference for Automatic Batchers from “501.03.2.4” to “804.02.10.4”.
986	Index	Delete “501.03.2” as a subsection reference for Batching Plant & Equipment.
988	Index	Change the subsection reference for the Central Mixed Concrete from “501.03.3.2” to “804.02.11”.
988	Index	Change the subsection reference for the Concrete Batching Plant & Equipment from “501.03.2” to “804.02.11”.
999	Index	Delete “501.03.3.3” as a subsection reference for Truck Mixers.
1001	Index	Change the subsection reference for Edge Drain Pipes from “605.3.5” to “605.03.5”.
1002	Index	Change the subsection reference for Metal Posts from “713.05.2” to “712.05.2”.
1007	Index	Change the subsection reference for Coarse Aggregate of Cement Concrete Table from “703.3” to “703.03”.
1007	Index	Change the subsection reference for Composite Gradation for Mechanically Stabilized Courses Table from “703.8” to “703.08”.
1009	Index	Delete “501.03.3.3” as a subsection reference for Truck Mixers and Truck Agitators.
1010	Index	Delete reference to “Working Day, Definition of”.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1808

CODE: (IS)

DATE: 09/09/2008

SUBJECT: Safety Apparel

Bidders are advised that the Code of Federal Regulations CFR 23 Part 634 final rule was adopted November 24, 2006 with an effective date of November 24, 2008. This rule requires that **"All workers within the right-of-way of a Federal-Aid Highway who are exposed either to traffic (vehicles using the highway for the purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel"**. High-visibility safety apparel is defined in the CFR as **"personnel protective safety clothing that is intended to provide conspicuity during both daytime and nighttime usage, and that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107-2004 publication entitled American National Standard for High-Visibility Safety Apparel and Headwear"**. All workers on Mississippi State Highway right-of-way shall comply with this Federal Regulation. Workers are defined by the CFR as **"people on foot whose duties place them within the right-of way of a Federal-Aid Highway, such as highway construction and maintenance forces, survey crews, utility crews, responders to incidents within the highway right-of-way, and law enforcement personnel when directing traffic, investigating crashes, and handling lane closures, obstructed roadways, and disasters within the right-of-way of a Federal-Aid Highway"**.

You can access this final rule at the following link:

<http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/pdf/E6-19910.pdf>

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1869

CODE: (SP)

DATE: 02/01/2008

SUBJECT: Minimum Wage Rate

Bidders are advised of an increase in the minimum federal wage rate established by the United States Department of Labor Wage and Hour Division beginning July 24, 2007. On July 24, 2007, the minimum wage rate was increased to \$5.85 per hour.

MDOT gets the minimum wage rates and classifications that are used in proposals from the Department of Labor website. Because of delays in posting to the website, the wages rates and classifications in this proposal may not contain the latest information regarding wage rates and classifications.

Bidders are advised that regardless of the wage rates listed in the Supplement to FHWA 1273, minimum federal wage rates must be paid.

Below are Federal minimum wage rates and effective dates.

Beginning July 24, 2007	\$ 5.85
Beginning July 25, 2008	\$ 6.55
Beginning July 24, 2009	\$ 7.25

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1918

CODE: (IS)

DATE: 03/26/2008

SUBJECT: DBE Forms, Participation and Payment

Bidders are hereby advised that the participation of a DBE Firm can not be counted towards the Prime Contractor's DBE goal until the amount being counted towards the goal has been paid to the DBE.

Form OCR-482 has been developed to comply with this requirement. Bidders are hereby advised that at the end of the job, the Prime Contractor will submit this form to the Project Engineer before the final estimate is paid and the project is closed out. This form certifies payments to all DBE Subcontractors over the life of the contract.

Form OCR-484 has also been developed to comply with this requirement. Bidders are hereby advised that each month, the Prime Contractors will submit this form to the Project Engineer no later than the 20th of each month. This form 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 this form to the monthly estimate before forwarding the estimate to the Contract Administration Division for processing.

Bidders are also advised that Form OCR-485 will be completed by **ALL BIDDERS** submitting a bid proposal and **must be signed and included in the bid proposal package**. Failure to include Form OCR-485 in the bid proposal package will cause the Contractor's bid to be considered **irregular**.

DBE Forms, including Forms OCR-482, OCR-484 and OCR-485, 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 *Business, Disadvantaged Enterprise, Applications and Forms for the DBE Program, MDOT Forms*.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1922

CODE: (SP)

DATE: 03/31/2008

SUBJECT: Non-Quality Control / Quality Assurance Concrete

Bidders are advised that the following pay items will not be accepted based on the Quality Control / Quality Assurance (QC/QA) requirements of Section 804 of the specifications. The acceptance of these pay items will be based on sampling and testing at the project site by MDOT forces. The Contractor is required to submit mix designs to accomplish this work in accordance with Section 804 and perform normal Quality Control functions at the concrete plant. Acceptance will be in accordance with the requirements of 907-601, Structural Concrete, and TMD-20-04-00-000. At the discretion of the Engineer, the Contractor may request that the concrete be accepted based on QC/QA requirements.

<u>Pay Item</u>	<u>Description</u>
221	Paved Ditches
601	Structural Concrete, Minor Structures - manholes, inlets, catch basins, junction boxes, pipe headwalls, and pipe collars.
606	Guardrail Anchors
607	Fence Post Footings
608	Sidewalks
609	Curb and Gutter
614	Driveways
616	Median and Island Pavement
630	Sign Footings, except Overhead Sign Supports

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. 1928

CODE: (IS)

| DATE: 04/14/2008

SUBJECT: Federal Bridge Formula

Bidders are hereby advised that Federal Highway Administration Publication No. FHWA-MC-94-007, **BRIDGE FORMULA WEIGHTS**, dated January 1994, 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://ops.fhwa.dot.gov/freight/sw/brdgcalf/calf_page.htm

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2239

CODE: (SP)

DATE: 01/06/2009

SUBJECT: Department of Labor Ruling

On December 19, 2008 the U.S. Department of Labor issued a final rule revising their regulations in 29 CFR Parts 3 and 5. This rule takes effect for all Federal funded contracts awarded after January 19, 2009.

The primary change in the rule is a provision that requires Contractors to limit the amount of personal information on the weekly payroll submissions. Personal addresses and full social security numbers may no longer be used. Contractors must use an ". . . individually identifying number for each employee (e.g., the last four digits of the employee's social security number)." Form FHWA-1273 - "Required Contract Provisions Federal-aid Construction Contracts" will eventually be revised to reflect this change.

Until the revised is made to FHWA-1273, bidders are advised to disregard any requirement in FHWA-1273 regarding the use of personal addresses and full social security numbers, such as in Section V, Paragraph 2b.

Bidders are also advised that the requirement for maintaining and submitting form FHWA-47, as referenced in FHWA-1273 Section VI, is no longer required on construction projects.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2361

CODE: (SP)

DATE: 01/26/2009

SUBJECT: Mississippi Resident Agent Requirement

Bidders are advised of new changes in the proposal bond forms and required signatures. Commencing with the February 2009 letting, non-resident agents **WILL NOT** be allowed to sign contract documents, including bonds and insurance. Qualified non-resident agents that were allowed to sign contract documents in the January 2009 letting will not be allowed in future contracts until further notice. Only Mississippi Resident Agents will be allowed to sign contract documents.

Another change for the February 2009 letting is that the new performance bond and new payment bond that was utilized in the January 2009 proposals has been replaced with the one contract bond used by MDOT prior to the January 2009 letting.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SECTION 904 - NOTICE TO BIDDERS NO. [2382](#)

CODE: (IS)

| DATE: [02/12/2009](#)

| SUBJECT: **Status of Right-of-Way**

Although it is desirable to have acquired all rights-of-way and completed all 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, relocatees and utilities which have not been completed.

| The status of right-of-way acquisition, utility adjustments, [encroachments](#), potentially contaminated sites [and asbestos containation](#) 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

STP-0015-01(060)

105243-301000

ADAMS COUNTY

March 27, 2009

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

NONE.

ASBESTOS CONTAMINATION STATUS OF BUILDINGS
TO BE REMOVED BY THE CONTRACTOR
STP-0015-01(060)
105243-301000
ADAMS COUNTY
January 15, 2009

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.

This project is for proposed construction of lighting within existing right of way.
There are no buildings in the contract to be removed.

STATUS OF POTENTIALLY CONTAMINATED SITES

STP-0015-01(060)

105243-301000

ADAMS COUNTY

January 15, 2009

THIS PROJECT IS FOR LIGHTING WITHIN EXISTING RIGHT OF WAY AND NO INITIAL SITE ASSESSMENT WILL BE PERFORMED. ANY CONTAMINATION DISCOVERED ON EXISTING RIGHT OF WAY WILL BE HANDLED BY THE DEPARTMENT.

ENCROACHMENT CERTIFICATION

NH-0015-01(060)

105243301

ADAMS COUNTY(IES)

March 26, 2009

This is to certify that the above captioned project has been inspected and no encroachments were found.

UTILITY STATUS REPORT

NH-0015-01(060)

105243301

ADAMS COUNTY(IES)

March 26, 2009

This is to certify that the above captioned project has been inspected and there are no known utilities in conflict with the project.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2400

CODE: (SP)

DATE: 02/19/2009

SUBJECT: Removal of Haul Permit

Bidders are advised that the Haul Permit that had been previously included in the back of the proposal is no longer included in MDOT contracts. The Contractor, Subcontractors, Suppliers, and others transporting loads exceeding the posted limit on bridges when making deliveries to and from the project will no longer be allowed. Bidders are advised that when a road is open to the traveling public, the posted weight limit will be enforced for everyone, including the successful bidder of the project. Bidders are advised to consider this when preparing their bid.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2438

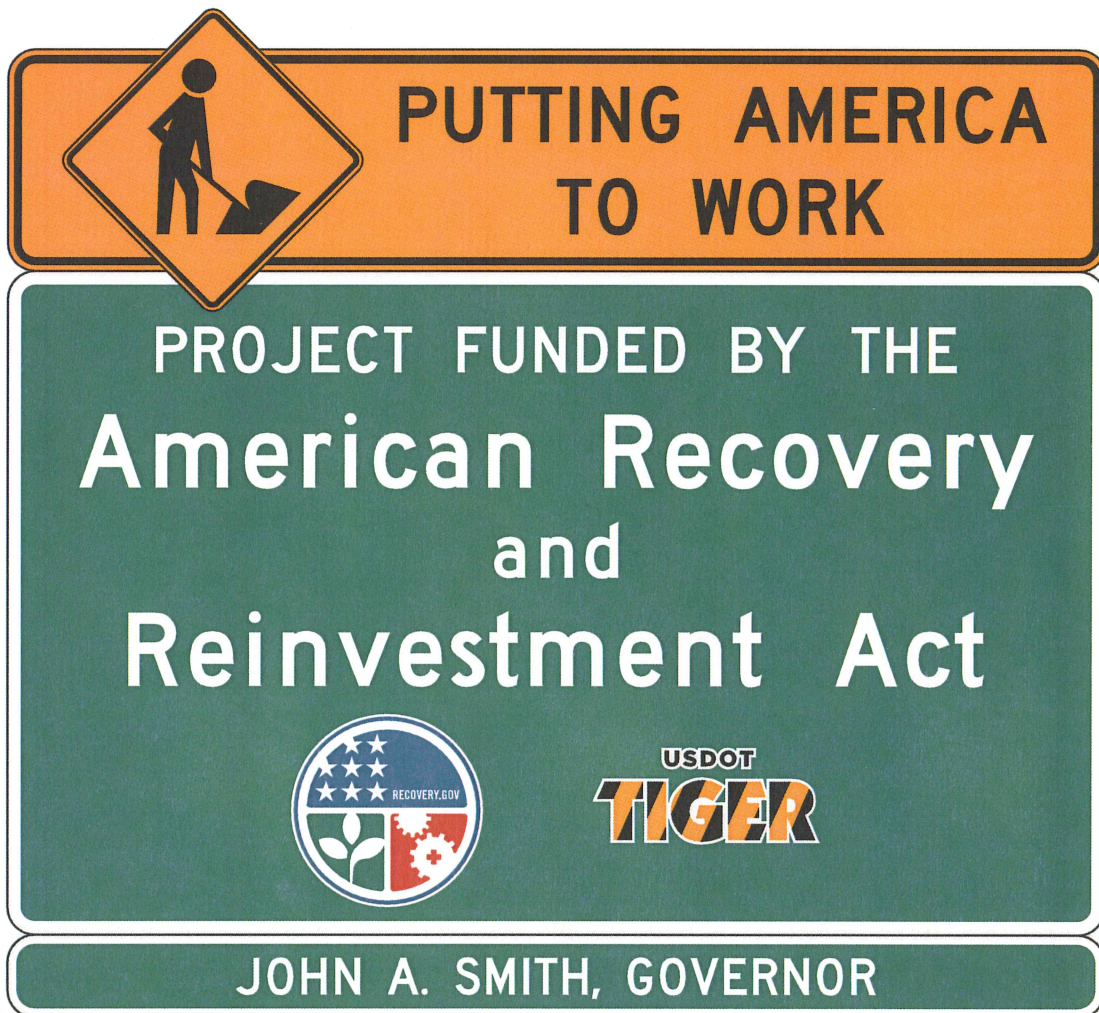
CODE: (SP)

DATE: 03/16/2009

SUBJECT: American Recovery and Reinvestment Act (ARRA) Sign

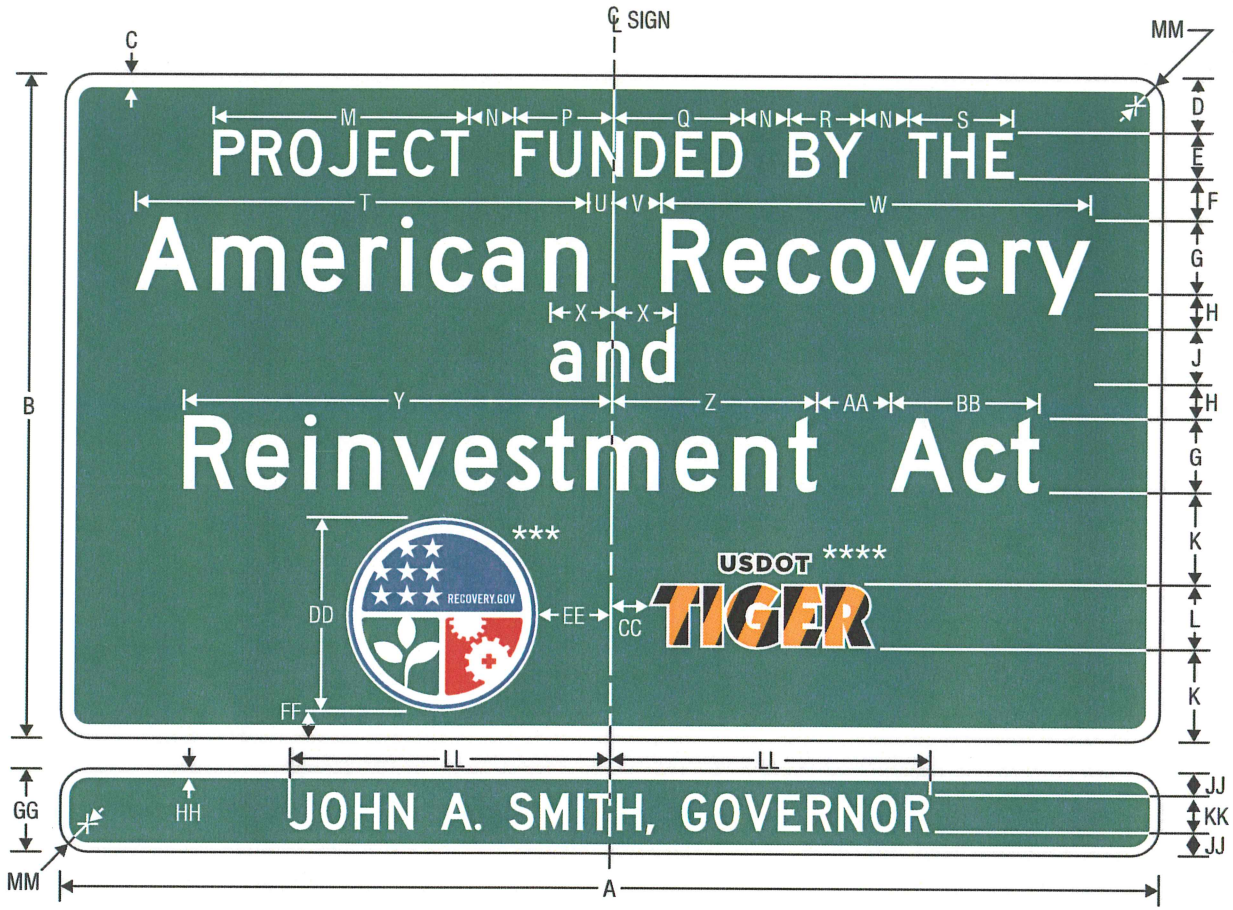
Bidders are hereby advised that the Contractor shall install, maintain, and remove two (2) economic recovery signs at the beginning (BOP) and end (EOP) of this project, unless otherwise directed by the Engineer. A picture of the signs and the dimensions of the signs are shown on the attached sheets. The signs shall be constructed, installed and maintained in accordance with the MUTCD, and Sections 618 & 619 of the Standard Specifications. These signs shall be fabricated from 0.125" sheet aluminum. Signs shall be mounted on three (3) - three pounds per linear foot (3 lbs. / ft.) U-Section posts. Each post shall be 14 feet long mounted onto another 14-foot U-Section post driven halfway into the ground. All cost of installing and maintaining the signs, including material, labor, posts, hardware, etc., will be measured and paid for under the pay item no. 619-D4.

**PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS**



PROJECT FUNDING SOURCE
SIGN ASSEMBLY

PROJECT FUNDING SOURCE SIGN ASSEMBLY AMERICAN RECOVERY AND REINVESTMENT ACT SIGN LAYOUT DETAILS



PROJECT FUNDING SOURCE SIGN AND OPTIONAL SUPPLEMENTAL PLAQUE

NOTE: SIGN SHALL NOT BE INSTALLED WITHOUT PROJECT FUNDING SOURCE PLAQUE (SEE SHEET 3).

NOTE: SEE SHEET NO. 6 FOR DETAILS OF SUPPLEMENTAL SIGN SHOWING COMMISSIONER'S NAMES.

A	B	C	D	E	F	G	H	J	K	L	M	N	P
84	54	1	5	4 C	3.5	6 C*	3	4D* (β LC)	7.25	5	19.047	4	7.362

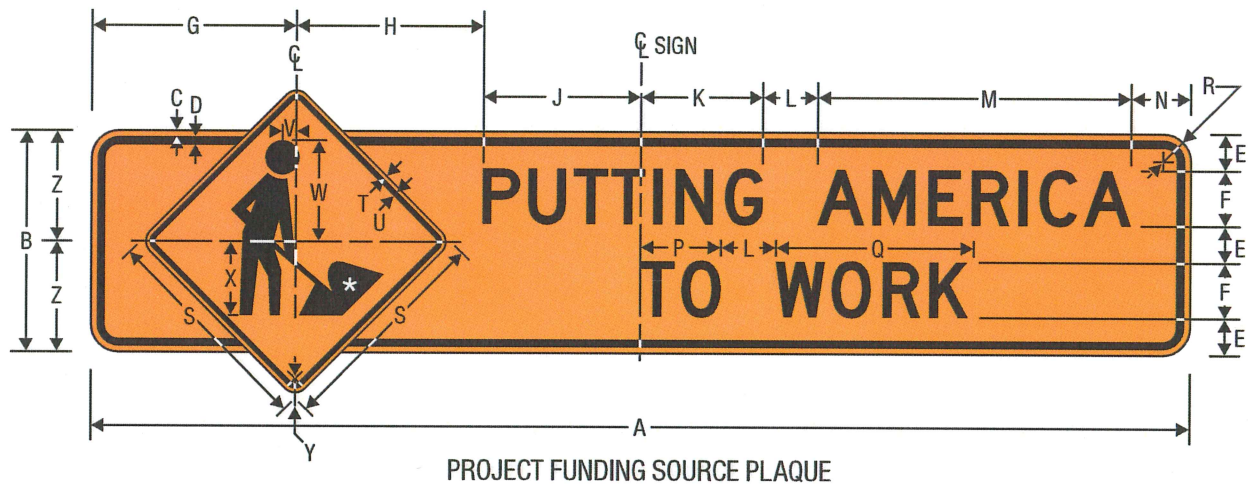
Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD
9.484	5.162	7.763	31.722	2.415	3.585	30.552	4.542	30.911	14.737	6	10.175	3	15

EE	FF	GG	HH	JJ	KK	LL	MM
6	2.25	9	.75	2.75	3.5 C	VAR	2.25

- * Increase character spacing 50%
- ** Series C may be used for longer legends
- *** See Pictograph page 4
- **** See Pictograph page 5

COLORS: LEGEND, BORDER — WHITE (RETROREFLECTIVE)
BACKGROUND — GREEN (RETROREFLECTIVE)

PROJECT FUNDING SOURCE SIGN ASSEMBLY AMERICAN RECOVERY AND REINVESTMENT ACT SIGN LAYOUT DETAILS



NOTE: PLAQUE SHALL NOT BE INSTALLED WITHOUT SIGN (SEE SHEET 2).

* See *Standard Highway Signs* Page 6-59 for symbol design.

A	B	C	D	E	F	G	H	J	K	L	M	N	P
84	18	0.375	0.625	3.5	4 D	16.607	15.686	9.707	10.667	4	22.813	5	5.843

Q	R	S	T	U	V	W	X	Y	Z
14.009	2.25	18	0.375	0.625	1	7	6	1.5	9

COLORS: LEGEND, BORDER — BLACK
BACKGROUND — ORANGE (RETROREFLECTIVE)

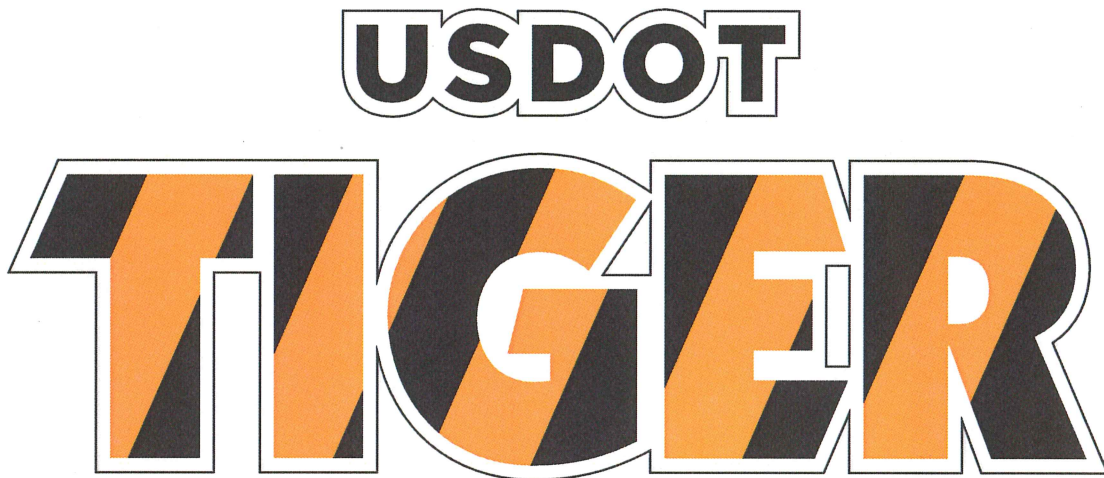
PROJECT FUNDING SOURCE SIGN ASSEMBLY AMERICAN RECOVERY AND REINVESTMENT ACT SIGN LAYOUT DETAILS



RECOVERY
Vector-Based, Vinyl-Ready Pictograph

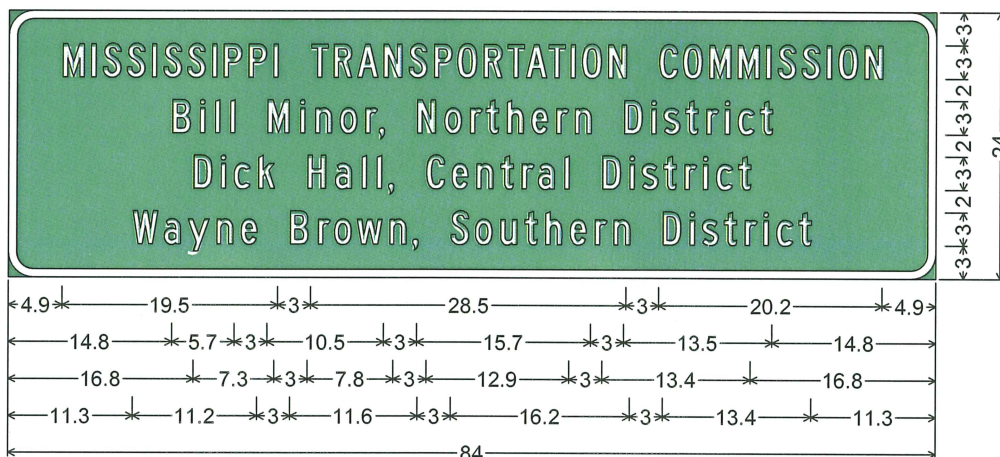
COLORS: LEGEND, OUTLINE	— WHITE (RETROREFLECTIVE)
BORDER	— BLUE (RETROREFLECTIVE)
BACKGROUND (UPPER)	— BLUE (RETROREFLECTIVE)
BACKGROUND (LOWER RIGHT)	— RED (RETROREFLECTIVE)
BACKGROUND (LOWER LEFT)	— GREEN (RETROREFLECTIVE)

**PROJECT FUNDING SOURCE SIGN ASSEMBLY
AMERICAN RECOVERY AND REINVESTMENT ACT
SIGN LAYOUT DETAILS**



USDOT TIGER
Vector-Based, Vinyl-Ready Pictograph

COLORS: OUTLINE — WHITE (RETROREFLECTIVE)
USDOT LEGEND — BLACK
TIGER DIAGONALS — BLACK,
ORANGE (RETROREFLECTIVE)



2.3" Radius, 0.8" Border, White on Green;
 "MISSISSIPPI TRANSPORTATION COMMISSION" C; "Bill Minor, Northern District" C;
 "Dick Hall, Central District" C; "Wayne Brown, Southern District" C;
 Table of distances between letter and object lefts.

4.9	M	I	S	S	I	S	S	I	P	P	I
2.5	1.1	2.1	2.3	1.1	2.1	2.3	1.0	2.3	2.3		
	T	R	A	N	S	P	O	R	T	A	T
3.4	2.0	2.2	2.3	2.3	2.3	2.1	2.4	2.2	1.6	2.1	2.0
	I	O	N								
4.6	2.2	2.3	2.6	2.6	1.1	2.1	2.3	1.0	2.4	1.6	4.9
14.8	B	I	I	I	M	I	N	O	R	,	N
2.5	1.4	1.4	3.4	2.9	1.4	2.2	2.3	1.3	3.4	2.5	2.3
	I	4	1.9	2.2	2.3	1.7	1.2	2.0	1.1	14.8	
	D	I	C	K	H	A	I	I	,	C	E
16.8	2.4	1.2	2.2	4.5	2.5	2.4	1.4	1.0	3.5	2.2	2.3
	D	I	S	T	R	I	C	T			
3.4	2.5	1.1	1.9	1.9	1.7	1.2	2.0	1.1	16.8		
11.3	W	A	Y	N	E	B	R	O	W	N	,
2.8	2.1	2.6	2.3	4.4	2.6	1.4	2.1	3.0	2.1	3.4	2.2
	S	O	U	T	H	E	R	N			
	2.3	2.3	2.1	2.0	2.2	2.2	1.7				
	D	I	S	T	R	I	C	T			
4.5	2.5	1.1	1.9	1.9	1.7	1.2	2.0	1.1	11.3		

COLORS: LEGEND, BORDER — WHITE (RETROREFLECTIVE)
 BACKGROUND — GREEN (RETROREFLECTIVE)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2476

CODE: (SP)

DATE: 03/26/2009

SUBJECT: Requirements Under Section 902 of the ARRA

Bidders are advised that Section 902 of the American Recovery and Reinvestment Act (ARRA) of 2009 requires that each contract awarded using ARRA funds must include a provision that provides the U.S. Comptroller General and his representatives with the authority to:

- (1) examine any records of the Contractor or any of its subcontractors, or any State or local agency administering such contract, that directly pertain to, and involve transactions relating to, the contract or subcontract; and
- (2) interview any officer or employee of the Contractor or any of its subcontractors, or of any State or local government agency administering the contract, regarding such transactions.

Accordingly, the Comptroller General and his representatives shall have the authority and rights as provided under Section 902 of the ARRA. Section 902 further states that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of the Comptroller General.

Additionally, Section 1515(a) of the ARRA provides authority for any representatives of the Inspector General to examine any records or interview any employee or officers working on this contract. The Contractor is advised that representatives of the Inspector General have the authority to examine any record and interview any employee or officer of the Contractor, its Subcontractors or other firms working on this contract. Section 1515(b) further provides that nothing in this section shall be interpreted to limit or restrict in any way any existing authority of an inspector general.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2477

CODE: (SP)

DATE: 03/26/2009

SUBJECT: **Special Reporting Criteria**

Bidders are advised that this project is using funds from the American Recovery and Reinvestment Act (ARRA) of 2009 and will require the Contractor to report certain information regarding the creation of new positions or employment resulting in the construction of this project. In addition to the Prime Contractor's information, the Prime Contractor will have to collect information from all Subcontractor(s) that were used during the construction of this project.

On a monthly basis, the Contractor shall complete a Department supplied FHWA-1589 reporting form. This form shall also be completed by all Subcontractors that were used during the construction of this project. After receiving the Subcontractor(s) form, the Prime Contractor shall submit the forms (Prime and Subcontractor), to the Project Engineer no later than the 4th of each month **The submission of this form will be required for processing the monthly estimate and the Engineer will withhold payments because of the Contractor's failure to submit the required form(s).**

Attached is a copy of the reporting instruction for FHWA-1589 along with a copy of the form.

THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009

REPORTING REQUIREMENTS

Federal Highway Administration
U.S. Department of Transportation

March 23, 2009

Version 1.0

Monthly Employment Report (Form: FHWA-1589)

This form is a guide for the States in providing employment information on each ARRA project. Monthly employment information on each ARRA project is used by States for meeting the reporting requirements of Sections 1201 and 1512. In order for States to fulfill their reporting obligations, the States must collect and analyze certain employment data for each ARRA funded contract. The data requirement in ARRA extends beyond the number of workers at the work site and, therefore, FHWA has produced a form for guidance to the States. This data to be reported is identified below and will be used by the States in developing Form 1587, which is to be submitted to FHWA. Since States may not currently collect this data, the States should develop a new specification for each ARRA-funded contract in order to obtain this information from contractors and consultants. In doing so, the States should use the provided model form and require the reporting of this data from the prime contractor or consultant. The prime contractor or consultant shall complete a report for each month from the date of the Notice to Proceed until completion of the contract or September, 2012 whichever occurs sooner. This report is only required for contracts that use ARRA funds. States should require contractors and consultants to provide the required information for their own workforce as well as the workforce of all subcontractors that were active on their ARRA funded project(s) for the reporting month. It will be up to each State to determine when they obtain the necessary data from their contractors or consultants, keeping in mind that the summary form is due from the State to the FHWA Division no later than the 20th day of each month for the preceding month's data.

It is the State DOT's responsibility to report the number of jobs on projects managed by funding recipients, such as other state agencies or local governments. The State DOT must make arrangements with each ARRA funding recipient to assure each recipient reports the required data in a timely manner.

The States shall require the following data be provided by each contractor, consultant and funding recipient working on an ARRA project. The primary contractor or consultant for each project shall be responsible for reporting their firm as well as all subcontractors data.

Format: The State, contractors, or consultant may use the FHWA provided model form, but the use of the model form is optional and at the discretion of the State.

Due date: As determined by the State, until September 2012.

Due to: To be sent by each ARRA funded project prime contractor or consultant to the designated office in each State DOT or Federal Lands Division Office.

Coding Instructions

BOX 1. **Report Month:** The month and year covered by the report, as *mm/yyyy* (e.g. "May 2009" would be coded as "05/2009").

BOX 2. **Contracting agency:** The name of the contracting agency. Enter "State" for State DOT projects. For non-State projects, enter the name of the contracting

- agency (other State agency, Federal agency, tribe, MPO, city, county, or other funding recipient).
- BOX 3. **Federal-aid project number:** The State assigned federal-aid project number, consistent with the format reported in FMIS.
- BOX 4. **State project number or identification number:** The project number or ID, as assigned by the State of its funding recipient, consistent with the format reported in FMIS.
- BOX 5. **Project location:** State where project occurs. If the project performed for Federal Lands, provide the FLH Division or Federal Land Managing Agency (FLMA) region.
- BOX 6. **Contractor name and address:** The name and address of the contracting or consulting firm shall include the name, street address, city, state, and zip code.
- BOX 7. **Contractor DUNS number:** The unique nine-digit number issued by Dun & Bradstreet. Followed by the optional 4 digit DUNS Plus number. Reported as "999999999.9999"
- BOX 8. **Employment data:** The prime contractor or consultant will report the direct, on-the-project jobs for their workforce and the workforce of their sub-contractors active during the reporting month. These jobs data include employees actively engaged in projects who work on the jobsite, in the project office, in the home office or telework from a home or other alternative office location. This also includes any engineering personnel, inspectors, sampling and testing technicians, and lab technicians performing work directly in support of the ARRA funded project. This does not include material suppliers such as steel, culverts, guardrail, and tool suppliers. States should include in their reports all direct labor associated with the ARRA project such as design, construction, and inspection. The States reports should include their own project labor, including permanent, temporary, and contract project staff. States are asked not to include estimated indirect labor, such as material testing, material production or estimated macro-economic impacts. FHWA will be estimating all indirect labor based on the information provided in this form along with other FHWA data. The form requests specifically:
- a. **Subcontractor name:** The name of each subcontractor or sub-consultant that was active on the project for the reporting month.
 - b. **Employees:** The number of project employees on the contractor's or consultant's workforce that month, and the number of project employees for each of the active subcontractors for the reporting month. Do not include material suppliers. Total field at bottom will be automatically calculated and reported as a whole number.
 - c. **Hours:** The total hours on the specified project for all employees reported on the contractor's or consultant's project workforce that month, and the total hours for all project employees reported for each of the active subcontractors that month. Total field at bottom will be automatically calculated and reported as a whole number.

- d. **Payroll:** The total dollar amount of wages paid by the contractor or consultant that month for employees on the specified project, and the total dollar amount of wages paid by each of the active subcontractors that month. Payroll only includes wages and does not include overhead or indirect costs. Total field at bottom will be automatically calculated and will be rounded to the nearest whole dollar and reported as a whole number.

BOX 9. Prepared by:

- a. **Name:** Indicate the person responsible for preparation of the form. By completing the form the person certifies that they are knowledgeable of the hours worked and employment status for all the employees. Contractors, consultants, and their subs are responsible to maintain data to support the employment form and make it available to the State should they request supporting materials.
- b. **Date:** The date that the contractor completed the employment form. Reported as "*mm/dd/yyyy*." (e.g. "May 1, 2009" would be coded as "05/01/2009").

**MONTHLY EMPLOYMENT REPORT
AMERICAN RECOVERY AND REINVESTMENT ACT**

1. Report Month: (mm/yyyy)		2. Contracting Agency	
3. Federal-Aid Project Number		4. State Project Number or ID Number	5. Project Location: State, County or Federal Region
6. CONTRACTOR NAME AND ADDRESS			
Name:			
Address:			
City:		State:	
Zip:			
7. Contractor/Subcontractor DUNS Number:			

8. Employment Data

	EMPLOYEES	HOURS	PAYROLL
Prime Contractor Direct, On-Project Jobs (see guidance for definitions)			
Subcontractor Direct, On-Project Jobs			
Subcontractor Name			
Prime and Subcontractor Totals	0	0	0.00

9. PREPARED BY CEO or Payroll Official:		DATE:
Name:		
Title:		

Form FHWA-1589

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 – NOTICE TO BIDDERS NO. 2496

CODE: (SP)

DATE: 4/8/2009

SUBJECT: Petroleum Products Base Prices For Contracts Let in May, 2009

REFERENCE: Subsection 109.07

The following base prices are to be used for adjustment in compensation due to changes in costs of petroleum products:

FUELS

	<u>Per Gallon</u>	<u>Per Liter</u>
Gasoline	\$1.7851	\$0.4716
Diesel	\$1.9052	\$0.5033

MATERIALS OF CONSTRUCTION

<u>ASPHALT CEMENT</u>	<u>Per Gallon</u>	<u>Per Ton</u>	<u>Per Liter</u>	<u>Per Metric Ton</u>
Viscosity Grade AC-5	\$1.7197	\$408.00	\$0.4543	\$449.74
Viscosity Grade AC-10	\$1.7282	\$410.00	\$0.4565	\$451.94
Viscosity Grade AC-20	\$1.6965	\$402.50	\$0.4482	\$443.67
Viscosity Grade AC-30	\$1.6755	\$397.50	\$0.4426	\$438.16
Grade PG 64-22	\$1.6679	\$395.71	\$0.4406	\$436.19
Grade PG 67-22	\$1.6739	\$397.14	\$0.4422	\$437.76
Grade PG 76-22	\$2.3183	\$550.00	\$0.6124	\$606.26
Grade PG 82-22	\$2.5360	\$601.67	\$0.6700	\$663.22

EMULSIFIED ASPHALTS, PRIMES, & TACK COATS

Grade EA-4 (SS-1)	\$2.1857	\$0.5774
Grade RS-2C (CRS-2)	\$1.8775	\$0.4960
Grade CRS-2P	\$2.2376	\$0.5911
Grade EA-1, MC-70 & AE-P	\$2.4113	\$0.6370
Grade SS-1 & 1H	\$2.1750	\$0.5746
Grade CSS-1 & 1H (Undiluted)	\$2.1850	\$0.5772
Grade CSS-1 & 1H (Diluted 1 to 1 Fog Seal)	\$1.3500	\$0.3566

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2523

CODE: (SP)

DATE: 04/15/2009

SUBJECT: Contract Time

PROJECT: NH-0015-01(060) / 105243301 -- Adams County

The calendar date for completion of work to be performed by the Contractor for this project shall be **April 30, 2010** which date or extended date as provided in Subsection 108.06 shall be the end of contract time. It is anticipated that the Notice of Award will be issued by not later than **June 9, 2009** and the effective date of the Notice to Proceed / Beginning of Contract Time will be **July 9, 2009**.

Should the Contractor request a Notice to Proceed earlier than **July 9, 2009**, the date the Notice to Proceed is issued will also be the Beginning of Contract Time date.

A progress schedule as referenced to in Subsection 108.03 will not be required for this contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2525

CODE: (SP)

DATE: 3/20/2009

SUBJECT: ITS General Requirements

PROJECT: NH-0015-01(060) / 105243101 – Adams County and Concordia Parish, LA

Bidders are hereby advised that the ITS system installed under this project is for the purpose of traffic and security surveillance on and around the Natchez North and South Mississippi River bridges. The ITS system has been designed as a standalone system pending future establishment of a communications link with the MDOT Statewide TMC located in Jackson. The Contractor is responsible for providing a fully functional CCTV and Video Detection System that can be operated and managed by utilizing vendor specific software from a laptop computer connected at the Type C Communications Hub Cabinet on the east approach.

SUPPLEMENT TO FORM FHWA-1273

The following MINIMUM HOURLY WAGE RATES have been predetermined by the Secretary of Labor in General Decision No. **MS20080174** dated January 16, 2009.

ADAMS COUNTY

<u>CLASSIFICATION</u>	<u>MINIMUM HOURLY WAGE RATE</u>
Carpenter, Including Form Work	11.42
Cement Mason / Concrete Finisher	10.30
Electrician	21.30
Ironworker, Reinforcing	11.30
Laborer, Common or General	7.60
Laborer, Pipelayer	9.68
Operator, Asphalt Paver and Asphalt Spreader	10.00
Operator, Backhoe / Excavator	11.32
Operator, Broom	10.17
Operator, Bulldozer	10.77
Operator, Crane	14.57
Operator, Grader / Blade	12.46
Operator, Loader	10.15
Operator, Mechanic	12.04
Operator, Oiler	12.33
Operator, Roller	9.31
Operator, Scraper	10.00
Operator, Tractor	7.79
Truck Driver	9.22

Authorized Payroll Code may be used in lieu of classification titles on weekly payrolls submitted to this Department. Codes or classification titles not conforming to those listed will not be acceptable.

SUPPLEMENT TO FORM FHWA-1273

DATE: 6/15/94

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 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.

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

	Page
I. General -----	1
II. Nondiscrimination -----	1
III. Nonsegregated Facilities -----	3
IV. Payment of Predetermined Minimum Wage -----	3
V. Statements and Payrolls -----	6
VI. Record of Materials, Supplies, and Labor-----	7
VII. Subletting or Assigning the Contract -----	7
VIII. Safety: Accident Prevention -----	7
IX. False Statements Concerning Highway Projects -----	8
X. Implementation of Clean Air Act and Federal Water Pollution Control Act-----	8
XI. Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion -----	8
XII. Certification Regarding Use of Contract Funds for Lobbying-----	10

ATTACHMENTS

- A. Employment Preference for Appalachian Contracts
(included in Appalachian contracts only)

I. GENERAL

1. 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.

2. Except as otherwise provided for in each section, the contractor shall insert in each subcontract all of the stipulations contained in these Required Contract Provisions, and further require their inclusion in any lower tier subcontract or purchase order that may in turn be made. The Required Contract Provisions shall not be incorporated by reference in any case. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with these Required Contract Provisions.

3. A breach of any of the stipulations contained in these Required Contract Provisions shall be sufficient grounds for termination of the contract.

4. A breach of the following clauses of the Required Contract Provisions may also be grounds for debarment as provided in 29 CFR 5.12:

- Section I, paragraph 2;
- Section IV, paragraphs 1, 2, 3, 4, and 7;
- Section V, paragraphs 1 and 2a through 2g.

5. Disputes arising out of the labor standards provisions of Section IV (except paragraph 5) and Section V of these Required Contract Provisions shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the U.S. Department of Labor (DOL) as set forth in 29 CFR 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 DOL, or the contractor's employees or their representatives.

6. **Selection of Labor:** During the performance of this contract, the contractor shall not:

a. discriminate against labor from any other State, possession, or territory of the United States (except for employment preference for Appalachian contracts, when applicable, as specified in Attachment A), or

b. employ convict labor for any purpose within the limits of the project unless it is labor performed by convicts who are on parole, supervised release, or probation.

II. NONDISCRIMINATION

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

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 and 41 CFR 60) 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 Equal Opportunity Construction Contract Specifications set forth under 41 CFR 60-4.3 and the provisions of the American 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 State highway agency (SHA) and the Federal Government in carrying out EEO obligations and in their review of his/her activities under the contract.

b. The contractor will accept as his 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, preapprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the SHA contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO 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 minority group employees.

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 minority groups 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 minority group applicants. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority group 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, he is expected to observe the provisions of that agreement to the extent that the system permits the contractor's compliance with EEO contract provisions. (The DOL has held that where implementation of such agreements have the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Executive Order 11246, as amended.)

c. The contractor will encourage his present employees to refer minority group applicants for employment. Information and procedures with regard to referring minority group 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 his 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 his avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minority group and women employees, and applicants for employment.

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. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.

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 minority group and women employees 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 his/her best efforts to obtain the cooperation of such unions to increase opportunities for minority groups and women within the unions, and to effect referrals by such unions of minority and female employees. 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 best efforts to develop, in cooperation with the unions, joint training programs aimed toward

qualifying more minority group members and women for membership in the unions and increasing the skills of minority group employees and women so that they may qualify for higher paying employment.

b. The contractor will use best 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 SHA 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 minority and women 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 minority group persons and women. (The DOL has held that it shall be no excuse that the union with which the contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority employees.) 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 SHA.

8. 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.

a. The contractor shall notify all potential subcontractors and suppliers of his/her EEO obligations under this contract.

b. Disadvantaged business enterprises (DBE), as defined in 49 CFR 23, shall have equal opportunity to compete for and perform subcontracts which the contractor enters into pursuant to this contract. The contractor will use his best efforts to solicit bids from and to utilize DBE subcontractors or subcontractors with meaningful minority group and female representation among their employees. Contractors shall obtain lists of DBE construction firms from SHA personnel.

c. The contractor will use his best efforts to ensure subcontractor compliance with their EEO obligations.

9. 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 completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the SHA and the FHWA.

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

(1) The number 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;

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minority and female employees; and

(4) The progress and efforts being made in securing the services of DBE subcontractors or subcontractors with meaningful minority and female representation among their employees.

b. The contractors will submit an annual report to the SHA 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. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.

III. NONSEGREGATED FACILITIES

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$10,000 or more.)

a. By submission of this bid, the execution of this contract or subcontract, or the consummation of this material supply agreement or purchase order, as appropriate, the bidder, Federal-aid construction contractor, subcontractor, material supplier, or vendor, as appropriate, certifies that the firm does not maintain or provide for its employees any segregated facilities at any of its establishments, and that the firm does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The firm agrees that a breach of this certification is a violation of the EEO provisions of this contract. The firm further certifies that no employee will be denied access to adequate facilities on the basis of sex or disability.

b. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive, or are, in fact, segregated on the basis of race, color, religion, national origin, age or disability, because of habit, local custom, or otherwise. The only exception will be for the disabled when the demands for accessibility override (e.g. disabled parking).

c. The contractor agrees that it has obtained or will obtain identical certification from proposed subcontractors or material suppliers prior to award of subcontracts or consummation of material supply agreements of \$10,000 or more and that it will retain such certifications in its files.

IV. PAYMENT OF PREDETERMINED MINIMUM WAGE

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural minor collectors, which are exempt.)

1. General:

a. All mechanics and laborers 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 (29 CFR 3) issued by the Secretary of Labor under the Copeland Act (40 U.S.C. 276c)] the full amounts of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment. The payment shall be computed at wage rates not less than those contained in the wage determination of the Secretary of Labor (hereinafter "the wage determination") which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor or its subcontractors and such laborers and mechanics. The wage determination (including any additional classifications and wage rates conformed under paragraph 2 of this Section IV and the DOL poster (WH-1321) or Form FHWA-1495) 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. For the purpose of this Section, contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act (40 U.S.C. 276a) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of Section IV, paragraph 3b, hereof. Also, for the purpose of this Section, 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 paragraphs 4 and 5 of this Section IV.

b. 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.

c. All rulings and interpretations of the Davis-Bacon Act and related acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.

2. Classification:

a. The SHA contracting officer shall require that any class of laborers or mechanics employed under the contract, which is not listed in the wage determination, shall be classified in conformance with the wage determination.

b. The contracting officer shall approve an additional classification, wage rate and fringe benefits only when the following criteria have been met:

(1) the work to be performed by the additional classification requested is not performed by a classification in the wage determination;

(2) the additional classification is utilized in the area by the construction industry;

(3) the proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) with respect to helpers, when such a classification prevails in the area in which the work is performed.

c. If the contractor or subcontractors, as appropriate, the laborers and mechanics (if known) to be employed in the additional classification 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 DOL, Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, D.C. 20210. The Wage and Hour 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.

d. In the event the contractor or subcontractors, as appropriate, the laborers or mechanics to be employed in the additional 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. Said 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.

e. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 2c or 2d of this Section IV shall be paid to all workers performing work in the additional classification from the first day on which work is performed in the classification.

3. Payment of Fringe Benefits:

a. 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 or subcontractors, as appropriate, shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly case equivalent thereof.

b. If the contractor or subcontractor, as appropriate, does not make payments to a trustee or other third person, he/she may consider as a 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.

4. Apprentices and Trainees (Programs of the U.S. DOL) and Helpers:

a. Apprentices:

(1) 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 DOL, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau, or if a person is employed in his/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 Bureau of Apprenticeship and Training or a State apprenticeship agency (where appropriate) to be eligible for probationary employment as an apprentice.

(2) The allowable ratio of apprentices to journeyman-level employees 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 employee 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 listed in 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 or subcontractor 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-level hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

(3) 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 journeyman-level 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 for the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

(4) In the event the Bureau of Apprenticeship and Training, or a State apprenticeship agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor or subcontractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the comparable work performed by regular employees until an acceptable program is approved.

b. Trainees:

(1) 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 DOL, Employment and Training Administration.

(2) The ratio of trainees to journeyman-level employees on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. 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.

(3) Every trainee must be paid at not less than the rate specified in the approved program for his/her level of progress, expressed as a percentage of the journeyman-level 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-level wage rate on the wage determination which provides for less than full fringe benefits for apprentices, in which case such trainees shall receive the same fringe benefits as apprentices.

(4) In the event the Employment and Training Administration withdraws approval of a training program, the contractor or subcontractor 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. Helpers:

Helpers will be permitted to work on a project if the helper classification is specified and defined on the applicable wage determination or is approved pursuant to the conformance procedure set forth in Section IV.2. Any worker listed on a payroll at a helper wage rate, who is not a helper under an approved definition, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed.

5. 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.

6. Withholding:

The SHA shall upon its own action or upon written request of an authorized representative of the DOL withhold, or cause to be withheld, from the contractor or subcontractor 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, as 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 SHA contracting officer 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.

7. Overtime Requirements:

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers, mechanics, watchmen, or guards (including apprentices, trainees, and helpers described in paragraphs 4 and 5 above) shall require or permit any laborer, mechanic, watchman, or guard in any workweek in which he/she is employed on such work, to work in excess of 40 hours in such workweek unless such laborer, mechanic, watchman, or guard receives compensation at a rate not less than one-and-one-half times his/her basic rate of pay for all hours worked in excess of 40 hours in such workweek.

8. Violation:

Liability for Unpaid Wages; Liquidated Damages: In the event of any violation of the clause set forth in paragraph 7 above, the contractor and any subcontractor responsible thereof shall be liable to the affected employee for his/her 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, mechanic, watchman, or guard employed in violation of the clause set forth in paragraph 7, in the sum of \$10 for each calendar day on which such employee was required or permitted to work in excess of the standard work week of 40 hours without payment of the overtime wages required by the clause set forth in paragraph 7.

9. Withholding for Unpaid Wages and Liquidated Damages:

The SHA shall upon its own action or upon written request of any authorized representative of the DOL withhold, or cause to be withheld, from any monies 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 8 above.

V. STATEMENTS AND PAYROLLS

(Applicable to all Federal-aid construction contracts exceeding \$2,000 and to all related subcontracts, except for projects located on roadways classified as local roads or rural collectors, which are exempt.)

1. Compliance with Copeland Regulations (29 CFR 3):

The contractor shall comply with the Copeland Regulations of the Secretary of Labor which are herein incorporated by reference.

2. Payrolls and Payroll Records:

a. Payrolls and basic records relating thereto shall be maintained by the contractor and each subcontractor during the course of the work and preserved for a period of 3 years from the date of completion of the contract for all laborers, mechanics, apprentices, trainees, watchmen, helpers, and guards working at the site of the work.

b. The payroll records shall contain the name, social security number, and address of each such employee; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalent thereof 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. In addition, for Appalachian contracts, the payroll records shall contain a notation indicating whether the employee does, or does not, normally reside in the labor area as defined in Attachment A, paragraph 1. Whenever the Secretary of Labor, pursuant to Section IV, paragraph 3b, has found 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 and each subcontractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, that the plan or program has been communicated in writing to the laborers or mechanics affected, and show the cost anticipated or the actual cost incurred in providing benefits. Contractors or subcontractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprentices and trainees, and ratios and wage rates prescribed in the applicable programs.

c. Each contractor and subcontractor shall furnish, each week in which any contract work is performed, to the SHA resident engineer a payroll of wages paid each of its employees (including apprentices, trainees, and helpers, described in Section IV, paragraphs 4 and 5, and watchmen and guards engaged on work during the preceding weekly payroll period). The payroll submitted required to be maintained under paragraph 2b of this Section V. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal stock number 029-005-0014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

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

(1) that the payroll for the payroll period contains the information required to be maintained under paragraph 2b of this Section V and that such information is correct and complete;

(2) that such 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 the Regulations, 29 CFR 3;

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

e. 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 2d of this Section V.

f. The falsification of any of the above certifications may subject the contractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 231.

g. The contractor or subcontractor shall make the records required under paragraph 2b of this Section V available for inspection, copying, or transcription by authorized representatives of the SHA, the FHWA, or the DOL, 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 SHA, the FHWA, the DOL, or all may, after written notice to the contractor, sponsor, applicant, or owner, take such actions 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.

VI. RECORD OF MATERIALS, SUPPLIES, AND LABOR

1. On all Federal-aid contracts on the National Highway System, except those which provide solely for the installation of protective devices at railroad grade crossings, those which are constructed on a force account or direct labor basis, highway beautification contracts, and contracts for which the total final construction cost for roadway and bridge is less than \$1,000,000 (23 CFR 635) the contractor shall:

a. Become familiar with the list of specific materials and supplies contained in Form FHWA-47, "Statement of Materials and Labor Used by Contractor of Highway Construction Involving Federal Funds," prior to the commencement of work under this contract.

b. Maintain a record of the total cost of all materials and supplies purchased for and incorporated in the work, and also of the quantities of those specific materials and supplies listed on Form FHWA-47, and in the units shown on Form FHWA-47.

c. Furnish, upon the completion of the contract, to the SHA resident engineer on Form FHWA-47 together with the data required in paragraph 1b relative to materials and supplies, a final labor summary of all contract work indicating the total hours worked and the total amount earned.

2. At the prime contractor's option, either a single report covering all contract work or separate reports for the contractor and for each subcontract shall be submitted.

VII. SUBLETTING OR ASSIGNING THE CONTRACT

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 State. 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).

a. "Its own organization" shall be construed to include only workers employed and paid directly 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, assignee, or agent of the prime contractor.

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 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 VII 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 SHA 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 SHA 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 SHA has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

VIII. SAFETY: ACCIDENT PREVENTION

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 SHA 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. 333).

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. 333).

IX. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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, the following notice 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:

NOTICE TO ALL PERSONNEL ENGAGED ON FEDERAL-AID HIGHWAY PROJECTS

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 not more than \$10,000 or imprisoned not more than 5 years or both."

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

(Applicable to all Federal-aid construction contracts and to all related subcontracts of \$100,000 or more.)

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

1. That any facility that is or will be utilized in the performance of this contract, unless such contract is exempt under the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub.L. 91-604), and under the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub.L. 92-500), Executive Order 11738, and regulations in implementation thereof (40 CFR 15) is not listed, on the date of contract award, on the U.S. Environmental Protection Agency (EPA) List of Violating Facilities pursuant to 40 CFR 15.20.

2. That the firm agrees to comply and remain in compliance with all the requirements of Section 114 of the Clean Air Act and Section 308 of the Federal Water Pollution Control Act and all regulations and guidelines listed thereunder.

3. That the firm shall promptly notify the SHA of the receipt of any communication from the Director, Office of Federal Activities, EPA, indicating that a facility that is or will be utilized for the contract is under consideration to be listed on the EPA List of Violating Facilities.

4. That the firm agrees to include or cause to be included the requirements of paragraph 1 through 4 of this Section X in every nonexempt subcontract, and further agrees to take such action as the government may direct as a means of enforcing such requirements.

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

1. Instructions for Certification - Primary Covered Transactions:

(Applicable to all Federal-aid contracts - 49 CFR 29)

a. By signing and submitting this proposal, the prospective primary 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 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 primary 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 department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause of default.

d. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if any time the prospective primary 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," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is submitted for assistance in obtaining a copy of those regulations.

f. The prospective primary 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 primary 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 Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration.

i. 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.

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.

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Primary Covered Transactions

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

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 3-year period preceding this proposal been convicted of or had a civil judgement 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 paragraph 1b of this certification; and

d. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary 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 Covered Transactions:

(Applicable to all subcontracts, purchase orders and other lower tier transactions of \$25,000 or more - 49 CFR 29)

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," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive

Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.

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.

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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.

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 Covered Transactions:

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 participation in this transaction 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.

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XII. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

(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 his or her bid or proposal that he or she 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 goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables	Goals for female participation in each trade (percent)
From April 1, 1978 until March 31, 1979	3.1
From April 1, 1979 until March 31, 1980	5.1
From April 1, 1980 until March 31, 1981	6.9

Until further notice	Goals for minority participation for each trade (percent)
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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
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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
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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
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Forrest, Lamar, Marion, Pearl River, Perry, Pike, Walthall -----	27.7
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Adams, Amite, Wilkinson-----	30.4
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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. 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

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-104-1

CODE: (IS)

DATE: 05/03/2004

SUBJECT: Partnering Process

Section 104, Scope of Work, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-104.01--Intent of Contract. At the end of Subsection 104.01 on Page 24, add the following:

907-104.01.1--Partnering Process.

COVENANT OF GOOD FAITH AND FAIR DEALING:

This contract imposes an obligation of good faith and fair dealing in its performance and enforcement.

The contractor and the Department, with a positive commitment to honesty and integrity, agree to the following mutual duties:

- A. Each will function within the laws and statutes applicable to their duties and responsibilities.
- B. Each will assist in the other's performance.
- C. Each will avoid hindering the other's performance.
- D. Each will proceed to fulfill its obligations diligently.
- E. Each will cooperate in the common endeavor of the contract.

VOLUNTARY PARTNERING:

The Mississippi Department of Transportation intends to encourage the foundation of a cohesive partnership with the contractor and its principal subcontractors and supplier. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient contract performance and completion within budget, on schedule, and in accordance with plans and specifications.

This partnership will be bilateral in make-up, and participation will be totally voluntary. Any cost associated with effectuating this partnering will be agreed to by both parties and will be shared equally.

To implement this partnering initiative prior to starting of work in accordance with the requirements of Subsection 108.02 Notice to Proceed and prior to the preconstruction conference, the contractor's management personnel and MDOT's District Engineer, will initiate a partnering development seminar/team building workshop. The Contractor working with the assistance of the District and the State Construction Engineer will make arrangements to determine attendees for the workshop, agenda of the workshop, duration, and location. Persons required to be in attendance will be the MDOT key project personnel, the contractor's on-site project manager and key project supervision personnel of both the prime and principal subcontractors and suppliers. The project design engineers, FHWA and key local government personnel will be also be invited to attend as necessary. The contractors and MDOT will also be required to have Regional/District and Corporate/State level managers on the project team.

Follow-up workshops may be held periodically throughout the duration of the contract as agreed by the contractor and Mississippi Department of Transportation.

The establishment of a partnership charter on a project will not change the legal relationship of the parties to the contract nor relieve either party from any of the terms of the contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-105-3

DATE: 03/31/2008

SUBJECT: Cooperation By Contractor

Delete the first sentence of the first paragraph under 907-105-05 on page 1, and substitute the following:

On projects that include erosion control pay items, the Contractor shall also designate a responsible person whose primary duty shall be to monitor and maintain the effectiveness of the erosion control plan, including NPDES permit requirements.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-105-3

CODE: (IS)

DATE: 02/14/2006

SUBJECT: Cooperation By Contractor

Section 105, Control of Work, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is modified as follows:

907-105.05--Cooperation by Contractor. In the third sentence of the second paragraph of Subsection 105.05 on page 35, change “Notice to Proceed” to “Notice of Award”.

Delete the fourth paragraph of Subsection 105.05 on page 35, and substitute the following.

The Contractor shall also designate a responsible person whose primary duty shall be to monitor and maintain the effectiveness of the erosion control plan, including NPDES permit requirements. This responsible person must be a Certified Erosion Control Person certified by an organization approved by the Department. Prior to or at the pre-construction conference, the Contractor shall designate in writing the Certified Erosion Control Person to the Project Engineer. The designated Certified Erosion Control Person shall be assigned to only one (1) project. When special conditions exist, such as two (2) adjoining projects or two (2) projects in close proximity, the Contractor may request in writing that the State Construction Engineer approve the use of one (1) Certified Erosion Control Person for both projects. The Contractor may request in writing that the Engineer authorize a substitute Certified Erosion Control Person to act in the absence of the Certified Erosion Control Person. The substitute Certified Erosion Control Person must also be certified by an organization approved by the Department. A copy of the Certified Erosion Control Person's certification must be included in the Contractor's Protection Plan as outlined in Subsection 907-107.22.1. This in no way modifies the requirements regarding the assignment and availability of the superintendent.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-107-1

DATE: 03/21/2006

SUBJECT: *Liability Insurance*

In the first sentence of the first paragraph of Subsection 907-107.14.2.1 on page 1, change "\$300,000 each occurrence" to "\$500,000 each occurrence".

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-107-1

CODE: (IS)

DATE: 05/03/2004

SUBJECT: Liability Insurance

Section 107, Legal Relations and Responsibility to Public, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-107.14.2--Liability Insurance. Delete in toto Subsection 107.14.2 beginning on page 60 and substitute:

907-107.14.2.1--General. The Contractor shall carry Contractor's liability, including subcontractors and contractual, with limits not less than: \$300,000 each occurrence; \$1,000,000 aggregate; automobile liability - \$500,000 combined single limit - each accident; Workers' Compensation and Employers' Liability - Statutory & \$100,000 each accident; \$100,000 each employee; \$500,000 policy limit. Each policy shall be signed or countersigned by a Mississippi Resident Agent of the insurance company.

The Contractor shall have certificates furnished to the Department from the insurance companies providing the required coverage. The certificates shall be on the form furnished by the Department and will show the types and limits of coverage.

907-107.14.2.2--Railroad Protective. The following provisions are applicable to all work performed under a contract on, over or under the rights-of-way of each railroad shown on the plans.

The Contractor shall assume all liability for any and all damages to work, employees, servants, equipment and materials caused by railroad traffic.

Prior to starting any work on railroad property, the Contractor shall furnish satisfactory evidence to the Department that insurance of the forms and amounts set out herein in paragraphs (a) and (b) has been obtained. Also, the Contractor shall furnish similar evidence to the Railroad Company that insurance has been obtained in accordance with the Standard Provisions for General Liability Policies and the Railroad Protective Liability Form as published in the Code of Federal Regulations, 23 CFR 646, Subpart A. Evidence to the Railroad Company shall be in the form of a Certificate of Insurance for coverages required in paragraph (b), and the original policy of the Railroad Protective Liability Insurance for coverage required in paragraph (a).

All insurance herein specified shall be carried until the contract is satisfactorily complete as evidenced by a release of maintenance from the Department.

The Railroad Company shall be given at least 30 days notice prior to cancellation of the Railroad Protective Liability Insurance policy.

For work within the limits set out in Subsection 107.18 and this subsection, the Contractor shall provide insurance for bodily injury liability, property damage liability and physical damage to property with coverages and limits no less than shown in paragraphs (a) and (b). Bodily injury shall mean bodily injury, sickness, or disease, including death at anytime resulting therefrom. Property damage shall mean damages because of physical injury to or destruction of property, including loss of use of any property due to such injury or destruction. Physical damage shall mean direct and accidental loss of or damage to rolling stock and their contents, mechanical construction equipment or motive power equipment.

(a) **Railroad Protective Liability Insurance** shall be purchased on behalf of the Railroad Company with limits of \$2,000,000 each occurrence; \$6,000,000 aggregate applying separately to each annual period for lines without passenger trains. If the line carries passenger train(s), railroad protective liability insurance shall be purchased on behalf of the Railroad Company with limits of \$5,000,000 each occurrence; \$10,000,000 aggregate applying separately to each annual period.

Coverage shall be limited to damage suffered by the railroad on account of occurrences arising out of the work of the Contractor on or about the railroad right-of-way, independent of the railroad's general supervision or control, except as noted in paragraph 4 below.

Coverage shall include:

- (1) death of or bodily injury to passengers of the railroad and employees of the railroad not covered by State workmen's compensation laws,
- (2) personal property owned by or in the care, custody or control of the railroads,
- (3) the Contractor, or any of the Contractor's agents or employees who suffer bodily injury or death as a result of acts of the railroad or its agents, regardless of the negligence of the railroads, and
- (4) negligence of only the following classes of railroad employees:
 - (i) any supervisory employee of the railroad at the job site
 - (ii) any employee of the railroad while operating, attached to, or engaged on, work trains or other railroad equipment at the job site which are assigned exclusively to the Contractor, or
 - (iii) any employee of the railroad not within (i) or (ii) above who is specifically loaned or assigned to the work of the Contractor for prevention of accidents or protection or property, the cost of whose services is borne specifically by the Contractor or Governmental authority.

(b) **Regular Contractor's Liability**, including subcontractors, XCU and railroad contractual with limits of \$1,000,000 each occurrence; \$2,000,000 aggregate. **Automobile** with limits of \$1,000,000 combined single limit any one accident; **Workers' Compensation and Employer's Liability** - statutory and \$100,000 each accident; \$100,000 each employee; \$500,000 policy limit. **Excess/Umbrella Liability** \$5,000,000 each occurrence; \$5,000,000 aggregate. All coverage to be issued in the name of the Contractor shall be so written as to furnish protection to the Contractor respecting the Contractor's operations in performing work covered by the contract. Coverage shall include protection from damages arising out of bodily injury or death and damage or destruction of property which may be suffered by persons other than the Contractor's own employees.

In addition, the Contractor shall provide for and on behalf of each subcontractor by means of a separate and individual liability and property damage policy to cover like liability imposed upon the subcontractor as a result of the subcontractor's operations in the same amounts as contained above; or, in the alternative each subcontractor shall provide same.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-107-6

DATE: 11/16/2007

SUBJECT: Legal Relations and Responsibility to Public

After Subsection 907-107.15 on page 1, add the following:

907-107.17--Contractor's Responsibility for Work. Delete the fifth sentence of the fifth paragraph of Subsection 107.17 on page 63 and substitute the following:

The eligible permanent items shall be limited to traffic signal systems, changeable message signs, roadway signs and sign supports, lighting items, guard rail items, delineators, impact attenuators, median barriers, bridge railing or pavement markings. The eligible temporary items shall be limited to changeable message signs, guard rail items, or median barriers.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SPECIAL PROVISION NO. 907-107-6

CODE: (IS)

| DATE: 07/03/2007

| SUBJECT: Legal Relations and Responsibility to Public

Section 107, Legal Relations and Responsibility to Public, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-107.02--Permits, Licenses and Taxes. Delete in toto Subsection 107.02 on page 49 and substitute the following:

The Contractor or any Subcontractor shall have the duty to determine any and all permits and licenses required and to procure all permits and licenses, pay all charges, fees and taxes and issue all notices necessary and incidental to the due and lawful prosecution of the work. At any time during the life of this contract, the Department may audit the Contractor's or Subcontractor's compliance with the requirements of this section.

The Contractor or any Subcontractor is advised that the "Mississippi Special Fuel Tax Law", Section 27-55-501, et seq. and the Mississippi Use Tax Law, Section 27-67-1, et seq., and their requirements and penalties, apply to any contract or subcontract for construction, reconstruction, maintenance or repairs, for contracts or subcontracts entered into with the State of Mississippi, any political subdivision of the State of Mississippi, or any Department, Agency, Institute of the State of Mississippi or any political subdivision thereof.

The Contractor or any Subcontractor will be subject to one or more audits by the Department during the life of this contract to make certain that all applicable fuel taxes, as outlined in Section 27-55-501, et seq., and any sales and/or use taxes, as outlined in Section 27-67-1, et seq. are being paid in compliance with the law. The Department will notify the Mississippi State Tax Commission of the names and addresses of any Contractors or Subcontractors.

| **907-107.15--Third Party Beneficiary Clause.** In the first sentence of the first paragraph of Subsection 107.15 on page 61, change "create the public" to "create in the public".

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

| SPECIAL PROVISION NO. 907-108-17

CODE: (IS)

| DATE: 06/11/2008

SUBJECT: Prosecution and Progress

Section 108, Prosecution and Progress, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-108.01--Subletting of Contract.

907-108.01.1--General. At the end of the last paragraph of Subsection 108.01.1 on page 73, add the following:

The Engineer will have the authority to suspend the work wholly or in part and to withhold payments because of the Contractor's failure to make prompt payment within 15 calendar days as required above, or failure to submit the required OCR-484 Form, Certification of Payments to Subcontractors, which is also designed to comply with prompt payment requirements.

907-108.02--Notice To Proceed. Delete the fourth paragraph of Subsection 108.02 on page 75 and substitute the following:

Upon written request from the Contractor and if circumstances permit, the Notice to Proceed may be issued at an earlier date subject to the conditions stated therein. The Contractor shall not be entitled to any monetary damages or extension of contract time for any delay claim or claim of inefficiency occurring between the early issuance Notice To Proceed date and the Notice to Proceed date stated in the contract.

907-108.06--Determination and Extension of Contract Time.

907-108.06.1--Based on Time Units.

907-108.06.1.2--Contract Time Assessment. At the end of the eighth paragraph of Subsection 108.06.1.2 on page 81, add the following:

When the approved progress schedule indicates that a controlling phase(s) is to be completed prior to December 1 and the physical features of the phase(s) have not been satisfactorily completed, beginning on December 1 the miscellaneous phase will be shown as the only active phase during the months of December, January, and February. Under this condition, time units, monthly time units divided by monthly calendar days, will be assessed in accordance with the applicable column in the TABLE OF TIME UNITS. If the physical features of the phase(s) have not been completed by March 1, the phase will resume as a controlling phase and time assessment will be made accordingly.

Delete the fourth and fifth sentence of the thirteenth paragraph of Subsection 108.06.1.2 on page 82, and substitute the following:

In the event mutual agreement cannot be reached, the Contractor will be allowed a maximum of 25 calendar days following the Contractor's receipt of the monthly report in question to file a protest Notice of Claim in accordance with the provisions of Subsection 105.17. Otherwise, the Engineer's assessment shall be final unless mathematical errors of assessment are subsequently found to exist.

907-108.06.2--Based on Calendar Date Completion. After Subsection 108.06.2.1 on page 85, add the following:

907-108.06.2.2--Cessation of Contract Time. When the Engineer by written notice schedules a final inspection, time will be suspended until the final inspection is conducted and for an additional 14 calendar days thereafter. If after the end of the 14-day suspension all necessary items of work have not been completed, time charges will resume. If the specified completion date had not been reached at the time the Contractor called for a final inspection, the calendar day difference between the specified completion date and the date the Contractor called for a final inspection will be added after the 14-day period before starting liquidation damages. If a project is on liquidated damages at the time a final inspection is scheduled, liquidated damages will be suspended until the final inspection is conducted and for seven (7) calendar days thereafter. If after the end of the 7-day suspension all necessary items of work have not been completed, liquidated damages will resume. When final inspection has been made by the Engineer as prescribed in Subsection 105.16 and all items of work have been completed, the daily time charge will cease.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-109-3

DATE: 11/21/2006

SUBJECT: Changes in Material Costs

After the last paragraph of Subsection 907-109.06.1 on page 1, add the following:

907-109.07--Changes in Material Costs. Delete the second sentence of the first paragraph of Subsection 109.07 on page 95, and substitute the following:

When a pay item on the bid sheets indicate that an adjustment is allowed and when a notice to bidders is included in the contract showing current monthly base prices, an adjustment will be provided as follows:

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-109-3

CODE: (IS)

DATE: 04/21/2006

SUBJECT: Partial Payment

Section 109, Measurement and Payment, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-109.04--Extra and Force Account Work. Delete the first sentence of the second paragraph of Subsection 109.04 under (d) on page 92 and substitute the following:

In the event an agreement cannot be reached for a particular piece of equipment, the book entitled "Rental Rate Blue Book For Construction Equipment" as published by EquipmentWatch® and is current at the time the force account work is authorized will be used to determine equipment ownership and operating expense rates.

907-109.06--Partial Payment.

907-109.06.1--General. Delete the fourth and fifth sentences of the third paragraph of Subsection 109.06.1 on page 94, and substitute the following:

In the event mutual agreement cannot be reached, the Contractor will be allowed a maximum of 25 calendar days following the Contractor's receipt of the monthly estimate in question to file in writing, a protest Notice of Claim in accordance with the provisions Subsection 105.17. Otherwise, the Engineer's estimated quantities shall be considered acceptable pending any changes made during the checking of final quantities.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

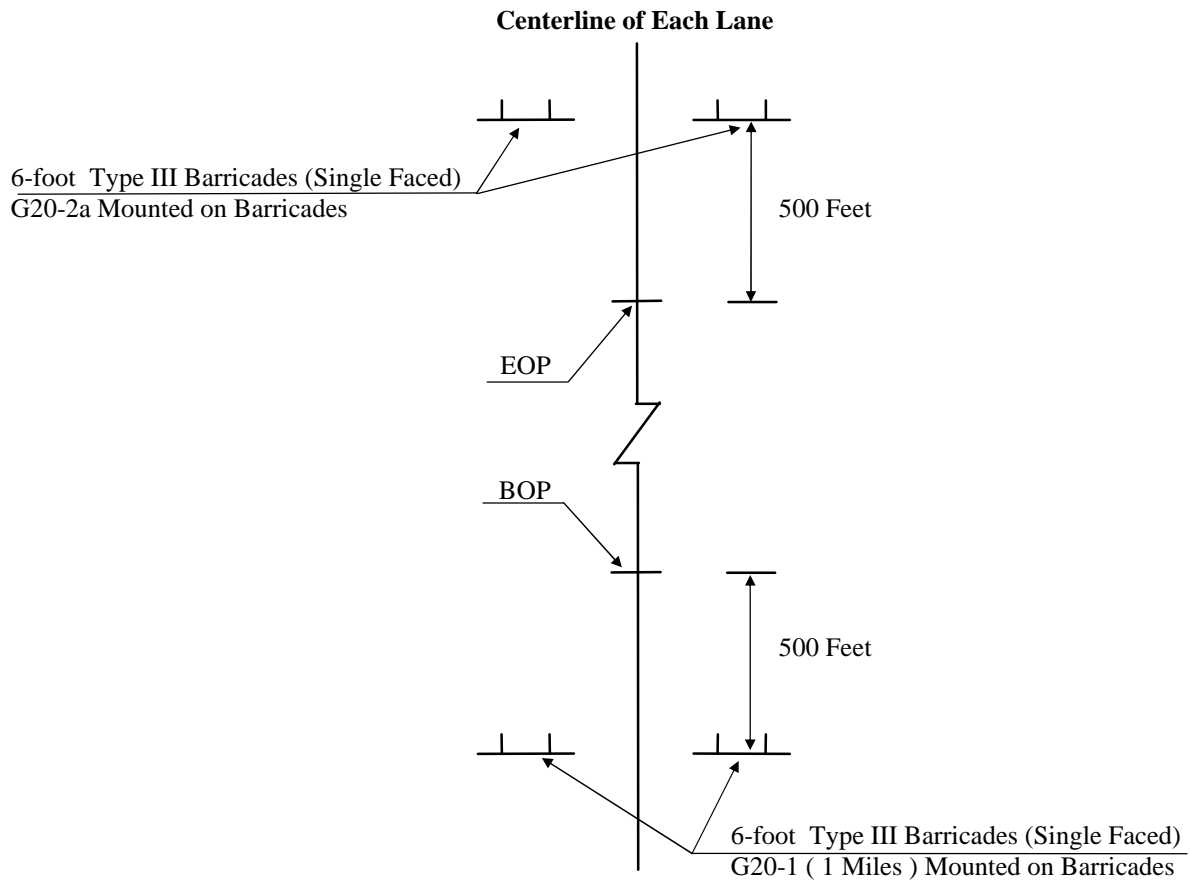
SUPPLEMENT TO SPECIAL PROVISION NO. 907-618-1

DATE: 04/15/2009

PROJECT: NH-0015-01(060) / 105243301 -- Adams County

After the first paragraph of Subsection 907-618.01.2 on page 1, add the following:

Additional signs will be required as follows:



All Construction signing is included in the bid for Pay Item 618-A, Maintenance of Traffic. Fluorescent orange sheeting shall be used on all construction and traffic control signs.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-618-1

CODE: (SP)

DATE: 04/29/2004

SUBJECT: Additional Signing Requirements

Section 618, Maintenance of Traffic and Traffic Control Plan, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-618.01.2--Traffic Control Plan. At the end of Subsection 618.01.2 on page 413, add the following:

For compliance with the traffic control plan, the Contractor will be required to install and maintain construction signs at various location throughout the project. Payment for these signs will be included in the price bid for pay item no. 618-A, Maintenance of Traffic per lump sum.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-637-2

CODE: (SP)

DATE: 04/01/2009

SUBJECT: ITS Equipment Cabinets

PROJECT: NH-0015-01(060) / 105243101 – Adams County and Concordia Parish, LA

Section 637, Equipment Cabinets, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in total Section 637 beginning on page 479, and substitute the following:

SECTION 907-637--ITS EQUIPMENT CABINETS

907-637.01--Description. This special provision specifies the minimum requirements for equipment cabinets furnished and installed for Mississippi Intelligent Transportation Projects. The cabinet will provide a protective outdoor housing enclosure in which to install field hardware required for ITS devices. Major elements of the equipment cabinet include the cabinet housing and equipment mounting hardware, interior wiring and termination facilities, power supplies, electrical accessories, and field installation.

907-637.02--Materials.

907-637.02.1--General. The Contractor shall only furnish equipment cabinets and integral materials recommended by the manufacturers for outside plant use and the intended application. This requirement includes wiring and electrical materials and configurations (including connector pin-outs) that are wholly or partially related to the field device applications (CCTV, VDS, RDS, etc.).

Equipment cabinets shall be furnished, configured and installed at locations as shown in the Plans. All equipment and materials for each specific location shall be furnished and configured as shown in the Plans.

Electrical system and components shall be UL-listings.

Unless otherwise specified, wire and cable shall be provided with stranded copper conductors, 75°/90° Celsius wet/dry rated insulation, and sized for the maximum voltage and current in the circuit.

907-637.02.2--Rail Mounted Components. Components specified as Rail-Mounted shall be DIN EN 50022 (NS35) component rails. Component rails shall be the perforated type and of sufficient length as to protrude beyond the mounted components for fastening to cabinet panels as specified herein. They shall be UL 1059, UL 486E, and NEMA ISC-4 rated.

Alternate Rail configurations may be submitted to the Engineer for consideration and approval.

907-637.02.3--Terminal Blocks and Component Terminals. Terminal blocks and component terminals shall be nickel-plated copper, copper alloy or brass.

Terminal blocks shall have voltage and current ratings greater than the ratings of the wires that are terminated, be able to terminate wires from #8 AWG to #1/0 AWG wiring, and shall be assembled into housing enclosures such that all exposed surfaces are touch-safe. Conductor fastening screws shall be captive.

Terminal block housings shall be colored as follows:

1. 120 VAC line/hot: black
2. 120 VAC neutral: white
3. 24 VDC positive: red
4. 24 VDC negative: gray
5. Communications: orange
6. Ground: green or green/yellow

907-637.02.4--Door Locks. Door locks shall be provided for all cabinet doors, keyed to MDOT standard Corbin No. 15481RS lock keyed to be operated with a traffic industry conventional No. 2 Key, Corbin No. 1R6380 made from heavy-duty blanks. Two (2) keys shall be provided with each cabinet.

907-637.02.5--Labels. All cabinets shall be labeled with the agency name, device name and ID. Labels shall meet the following minimum requirements:

1. Labels shall be flat black lettering on a reflective white background. Lettering shall be a minimum of one (1) inch in height.
2. Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO M268 Type 1.
3. The agency name labels shall be "MDOT ITS" in one continuous adhesive sheet.
4. The device ID labels shall include the device name as an acronym and a hyphen, and shall be one continuous adhesive sheet. Device name acronyms are "CCTV-", "RDS-", "VDS-" or "DMS-".
5. The device ID shall be numerals corresponding to the location and shall be installed adjacent to the acronym sheet. Multiple device IDs of the same type shall be on the same line separated with a space. Examples: "CCTV-73", "RDS-219 220", "VDS-303 304".
6. Labels shall be installed along the top of the cabinet door (front cabinet door on Type B and C cabinets), with MDOT ITS label at the top and the device ID labels immediately underneath.

All cabinets or enclosures shall be provided with a voltage label in accordance with the NEC labeling requirements. Voltage labels shall meet the following minimum requirements:

1. Labels shall be flat black lettering on a reflective yellow background. Lettering shall be a minimum of 1 inch in height.
2. Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO M268 Type 1.
3. Labels shall include the voltages entering the cabinet and shall be one continuous adhesive sheet. Examples are "120VAC" or "24VDC".
4. Labels shall be installed on all cabinet doors.

907-637.02.5--Type A Cabinet. All Type A cabinets shall be identical in manufacture and assembly, capable of supporting Radar Detection System units. A Type A cabinet shall be provided for outdoor use with a minimum NEMA 3R rating. The cabinet enclosure shall be manufactured from 0.125-inch aluminum. The cabinet shall provide a minimum of one ventilation louver on at least two sides. Any louver opening greater than 3/16 inch in any dimension shall be screened to prevent insect entry. The cabinet shall be intended for strapped pole-mounting; with all necessary mounting hardware, including 1/2-inch stainless steel mounting straps. The Type A cabinet enclosure shall be 18 inches (H) by 14 inches (W) by 8 inches (D) with a tolerance of ± 0.25 inches. Cabinet door shall reveal the entire front opening of the cabinet for accessibility. The hinge shall be designed to prevent the door from sagging. A single-piece 0.125-inch aluminum back panel shall be provided which covers no less than 90% of the cabinet back wall. Back panel shall be affixed to the enclosure with threaded fasteners and shall be removable from the enclosure with hand tools only and without requirement to remove the cabinet door, mounting straps, or any other components other than communications or device wiring. The cabinet shall be furnished with doorstops, which retain the doors open in a 90 degree and 120 degree positions. A grounding lug shall be provide on the back panel which is directly bonded to the back panel and capable of terminating #6 AWG wire.

907-637.02.5.1--RDS Communications Wiring. The RDS communication wiring shall meet the following:

1. Component rail physically and electrically fastened to the cabinet back panel.
2. Strain relief brackets for the RDS comm. cable(s) and the RDS unit harness cables.
3. Parallel-connection single-stage surge suppressors for the three wire RS-232 data signal for the RDS units with integral or separate terminals for a minimum of three RDS comm. Cables.
4. Parallel-connection zero-power dissipation surge suppressor for the 12-24VDC power supply for the RDS units with integral or separate terminals for a minimum of three RDS comm. cables and two RDS unit harness cables.
5. Connection/jumper wiring between the surge suppressors and the local/remote communications disconnect module(s) shall be of the same conductor size, type, and insulation color as in the RDS comm. cable.

907-637.02.6--Type B Cabinet. All Type B cabinets shall be identical in manufacture and assembly, and capable of supporting the field equipment as shown on the Plans. Type B cabinets installed on bridge piers shall be configured to reserve space for the future installation of one additional CCTV system. A complete Type B cabinet shall be an assembly consisting of a cabinet housing and electrical subsystems. Type B cabinet housing shall conform to the

standards for a Type 170 336S (approximate exterior dimensions 46 inches (H) x 24 inches (W) x 23 inches (D)), including standard EIA 19-inch rack cabinet cage, as defined in the latest version of the Caltrans Transportation Electrical Equipment Specifications (TEES). The minimum clear vertical inside dimension of the 19-inch rack for equipment mounting shall be 39.5 inches. Standard cabinet accessories for traffic signal operations, such as controller, power distribution assembly, input/output file and termination panels, and the police panel, are not required as part of this cabinet assembly.

907-637.02.6.1--Hardware. All mounting hardware necessary for base mounting cabinets shall be provided as shown in the plans. This includes hooks, welded to the inside of each cabinet door, for hanging a side-opening, resealable, opaque, heavy-duty plastic documentation pouch with metal or hard-plastic reinforced holes for the door hooks. One pouch shall be provided with each cabinet.

A rack-mounted cabinet sliding storage drawer shall be provided in accordance with the following:

- Approximate exterior dimensions 1.75 inches (H) x 16 inches (W) x 14 inches (D).
- Telescoping drawer guides to allow full extension from the rack cage.
- Opening storage compartment lid to access storage space for cabinet documentation and other items.
- Supports a weight of 25 lb when extended.
- Non-slip plastic laminate surface attached to the compartment lid which covers a minimum of 90% of the surface area of the lid.
- Mounted in the rack cage with the bottom surface approximately 9 inches above the bottom of the rack cage.

Hardware shall include side panels within the two sides of the rack cabinet cage, inserted and fastened from the inside of the cage. The side panels shall be fabricated from 0.125-inch, 5052 sheet aluminum alloy and sized to the full inside dimensions of the rack cabinet cage. Side panel surfaces for equipment mounting are denoted by cabinet side, with the “right” side being the cabinet door hinge side and by upper or lower as related to the sliding storage drawer. Upper right side panel (cabinet door hinge side of cabinet, above the drawer) and lower left side panel (opposite side from the cabinet door hinge side, below the drawer) are example side panel surface names. A 12-inch long DIN rail (for future components) shall be included and mounted in the horizontal and vertical center of the lower left side panel.

907-637.02.6.2--Electrical Subsystems. A Type B cabinet electrical subsystems shall be provided which consists of an electrical distribution module comprised of the following components:

1. Service entrance terminal block with positions for 120VAC line, neutral, and ground and capable of terminating minimally #6 through #8 AWG wire, located at one end of the mounting rail with an approximately 0.75-inch blank spacer module adjacent to the main cabinet breaker.

2. Main cabinet automatic overcurrent 15A circuit breaker that is UL-listed and of the mechanical-magnetic type rated for use from -18°C to 50°C minimum.
3. Main cabinet surge suppressor for single-phase 120VAC service entrance, parallel wired with a clamp voltage of approximately 280V and capable of a surge current of at least 20,000 amps.
4. Main cabinet filter for power line noise and switching transient suppression, integral to, or separate from and wired to, the main cabinet surge suppressor.
5. Electrical distribution terminal block for line and neutral conductors parallel wired to the main cabinet surge suppressor but non-filtered, with a minimum terminating capability of six conductors of #10 to #18 AWG. Label the terminal block as "ACCY POWER".
6. Electrical distribution terminal block for line and neutral conductors for circuits on the load/equipment side of the power line filter, with a minimum terminating capability of six conductors of #10 to #18 AWG. Label the block as "EQUIP POWER".
7. Electrical distribution terminal block for grounding and bonding conductors located on the same rail but separate from the service entrance terminal block and connected to the entrance ground with a #6 AWG green insulated wire. The grounding block shall have a minimum terminating capability of two #6 AWG conductors and ten #10 to #18 AWG conductors.
8. Ground fault interrupt duplex receptacle (NEMA 5-15R) with 2.5A circuit breaker connected to the ACCY POWER distribution block. Two red, orange or green/yellow labels with minimum 0.25-inch lettering with the legend "300 WATTS MAX" permanently affixed to the receptacle. This receptacle is for technician use only and shall not be used to power equipment.
9. Two duplex non-GFCI equipment power receptacles (NEMA 5-15R) connected to the EQUIP POWER distribution block mounted on the upper rear corner of the cabinet upper right side panel. Two red, orange or green/yellow labels with minimum 0.25-inch lettering with the legend "75 WATTS MAX" permanently affixed to the receptacle.
10. Interconnection wiring between all electrical distribution module components and the other systems included in or housed in the Type B cabinet.

907-637.02.6.3--Lighting Subsystem. A cabinet lighting subsystem shall be provided comprised of the following components:

1. One fluorescent lighting fixture, minimum 15 watt, mounted on the inside top front portion of the cabinet, with a cool white lamp with shatter-proof cover and operated by a normal power factor UL listed ballast.
2. A resistor-capacitor network noise suppressor installed across the light fixture power terminals.
3. Two door-actuated switches installed to turn on the cabinet light when either door is opened.
4. Powered from the ACCY POWER distribution block.

907-637.02.6.4--RDS Communications Subsystem. Where RDS are shown in the Plans, DIN rail-mounted components shall be provided that include the following:

1. Nominal 24VDC output power supply, capable of user setting between 23 and 28VDC minimum, with minimum 1A output rating and minimum operating temperature range of -25°C to +70°C. Power supply shall provide terminal facilities for a minimum of three sets of #14 AWG conductors (in the RDS comm cable). Maximum size of the power supply shall be one (1) inch (W) X seven (7) inches (H) X seven (7) inches (D). The power supply shall be connect to the EQUIP POWER distribution block for 120VAC input.
2. Surge suppressor for a RS232 data signal, wired between the video encoder and the RDS units. The surge suppressor shall protect the 4-wire RS232 data signal with hybrid multi-stage suppression components including gas tube and silicon avalanche diode. The surge suppressor shall have a response time no greater than 1 nanosecond. The surge suppressor shall provide terminal facilities for a minimum of four two-pair cables of #22 AWG conductors (in the RDS comm cable).

Interconnection wiring shall be provided between the RDS communications subsystem and the Terminal Server.

907-637.02.6.5--CCTV Subsystem. The requirements listed in Section 650 shall be met by installing the required CCTV support equipment in the Type B Cabinet.

907-637.02.7--Type C Communication Hub Cabinet. A complete Type C cabinet shall be an assembly consisting of a cabinet housing, base and electrical subsystems.

The Type C cabinet shall be an AASHTO/ITE/NEMA ITS Cabinet Standard specification Cabinet Housing #3 with two Cages #1. It shall be equipped with four (4) side mounting panels in the rack cabinet cages. The side mounting panels shall mount from inside the rack cabinet cage only. The side panels shall be fabricated from 5052 sheet aluminum alloy with a minimum thickness of 0.125-in with minimum dimensions of 50 inches (H) x 21 inches (W). Standard cabinet accessories for traffic signal operations, such as controller, power distribution assembly, input/output file and termination panels, and the police panel, are not required as part of this cabinet assembly.

A minimum of four (4) wiring pass-through holes shall be provided on the inside mounting panels to permit patch cords to pass between the two cabinet sides. Each pass-through hole shall be five (5) inches in diameter and shall be fully grommetted for patch cord protection, with the holes positioned with two (2) in the cabinet front and two (2) in the cabinet rear and aligning horizontally between the two side panels.

907-637.02.7.1--Hardware. The hardware shall consist of a minimum of 16 plastic-coated or rubber-coated J-hooks or D-rings, minimum 1-inch depth and height, on the inside rails of the rack cabinet cages, to organize patch cords passing between the two cabinet sides. The J-hooks shall be installed in horizontally-aligned pairs on the inside rails, with four (4) pairs in the cabinet front and four (4) pairs in the cabinet rear.

Hooks shall be welded to the inside of the two front cabinet doors for hanging the plastic documentation pouch. Two plastic documentation pouches shall be provided to store the cabinet and equipment documentation. Pouches shall be side-opening, resealable, opaque, and of a

heavy-duty plastic material. Pouches shall have metal or hard-plastic reinforced holes for hanging from hooks included on the cabinet door. The pouches shall be of the size and strength to easily hold all wiring diagrams, equipment documentation, maintenance logbooks, etc.

Two sliding drawers shall be installed that are aluminum storage compartments mounted in the rack assembly with the approximate following dimensions: 1.75 inches (H) x 16 inches (W) x 14 inches (D). The compartments shall have telescoping drawer guides to allow full extension from the rack assembly. When extended, the storage compartments shall open to provide storage space for cabinet documentation and other miscellaneous items. Storage compartment shall be of adequate construction to support a weight of 25 pounds when extended. The tops of the storage compartments shall have a non-slip plastic laminate attached which covers a minimum of 90% of the surface area of the top.

907-637.02.7.2--Electrical Systems. Type C cabinet electrical subsystems shall include an electrical distribution module comprised of the following components:

1. Service entrance terminal block with positions for 120VAC line, neutral, and ground and capable of terminating minimally #6 through #8 AWG wire, located at one end of the mounting rail with an approximately 0.75-inch blank spacer module adjacent to the main cabinet breaker.
2. Main cabinet automatic overcurrent minimum 30A circuit breaker that is UL-489 and CSA 22.2 approved and plainly marked with trip, frame sizes and ampere rating. All circuit breakers shall be quick-make, quick-break on either automatic or manual operation. Contacts shall be silver alloy and enclosed in an arc-quenching chamber. Overload tripping shall not be influenced by an ambient air temperature range from -18°C to 50°C. Minimum interrupting capacity shall be 5,000 amperes RMS.
3. Main cabinet surge suppressor for single-phase 120VAC service entrance, parallel wired with a clamp voltage of approximately 280V and capable of a surge current of at least 20,000 amps.
4. Main cabinet filter for power line noise and switching transient suppression, integral to, or separate from and wired to, the main cabinet surge suppressor.
5. Electrical distribution terminal block for line and neutral conductors parallel wired to the main cabinet surge suppressor but non-filtered, with a minimum terminating capability of six conductors of #10 to #18 AWG. The terminal block shall be label as "ACCY POWER".
6. Electrical distribution terminal block for line and neutral conductors for circuits on the load/equipment side of the power line filter, with a minimum terminating capability of six conductors of #10 to #18 AWG. The block shall be as "EQUIP POWER".
7. Electrical distribution terminal block for grounding and bonding conductors located on the same rail but separate from the service entrance terminal block and connected to the entrance ground with a #6 AWG green insulated wire. The grounding block shall have a minimum terminating capability of two #6 AWG conductors and ten #10 to #18 AWG conductors.
8. Ground fault interrupt duplex receptacle (NEMA 5-15R) with 2.5A circuit breaker connected to the ACCY POWER distribution block. Two red, orange or green/yellow labels with minimum 0.25 inch lettering with the legend "300 WATTS MAX" shall be

permanently affixed to the receptacle. This receptacle is for technician use only and shall not be used to power equipment.

9. Two duplex non-GFCI equipment power receptacles (NEMA 5-15R) shall be provided and connected to the EQUIP POWER distribution block mounted on the upper rear corner of the cabinet upper right side panel.

Interconnection wiring shall be installed between all electrical distribution module components and the other systems included in or housed in the Type C cabinet.

Rack mounted power strip outlets shall be connected to the EQUIP POWER distribution block, mounted near the top of the cabinet. The power strip shall incorporate eight (8) NEMA 5-15R receptacles. The power strip receptacle shall face the back of the cabinet and shall be recessed within the cabinet rack to provide a minimum spacing of three (3) inches between the outlet's face and the cabinet door when the door is closed.

Door open switches shall be provided on four doors and configure the switches so that any single door opening will provide a circuit closure. The assembly of switches shall be wired to a single two-position terminal block, with normally open circuit that closes upon a door opening.

Two cabinet ventilation fans shall be connected to the ACCY POWER distribution block, with a minimum capacity of 200 cubic feet of free air delivery per minute. The fan thermostat shall be set at its lowest limit or 70°F, whichever is greater.

Each of the four cabinet doors shall have an intake and filter as specified in Subsection 6.2.7.1 of the AASHTO/ITE/NEMA ITS Cabinet Standard specification.

907-637.02.7.3--Lighting Subsystem. The lighting subsystem shall be four (4) fluorescent lighting fixtures mounted inside the top portions of each cabinet side. A cool white lamp, covered and operated by a normal power factor UL listed ballast shall be included with the fixture. A RC network noise suppression filter shall be installed in the light circuit. Door actuated switches shall be installed in the front and rear of each cabinet side, configured to turn on all cabinet lights when any door is opened. The lighting fixtures shall be powered from the ACCY POWER distribution block.

907-637.03--Construction Requirements.

907-637.03.1--General Installation Requirements. The cabinet shall be installed and configured as shown in the Plans.

All cabinets shall be bonded to the pole grounding lug with minimum #6 AWG stranded copper bare or green-insulated cabinet grounding wire. Alternately on existing poles only, the cabinet grounding wire shall be bonded to an existing pole grounding wire with a cast brass or copper alloy threaded compression connector within four (4) inches of the existing pole grounding lug.

Do not install electrical service or electronic devices in the cabinet or connect to the cabinet until ground testing has been successfully completed and accepted, and the cabinet ground connection has been installed.

A cabinet wiring and interface diagram shall be provided and included with each cabinet. The documents shall be stored in the pouch on the cabinet door.

907-637.03.2--Type B and C. Equipment in the Type B and C cabinets shall be installed and configured in accordance with the requirements for that equipment, including VDS units, CCTV, fiber optic transceivers, Type A & B network switches, video encoders, fiber optic transceivers, communication cables and/or fiber distribution or drop panels.

Do not install electronic devices in the cabinet until electrical service has been installed and activated, and the cabinet ventilation fan is operational.

Type A and B network switches and rack-mount fiber optic transceivers shall be installed in the top most area of the cabinet rack. Panel-mounted fiber optic transceivers shall be installed in the top most area of the right side panel. The equipment receptacles shall be used for power.

Supporting equipment/electronics for CCTV and/or VDS shall be installed on the lower area of the cabinet upper left side panel. Ensure there is no physical or access conflict with the network switch and video encoder. The EQUIP POWER distribution block shall be used for the power source.

Fiber termination cabinets shall be rack mounted.

907-637.03.3--Testing. The Contractor shall conduct a project testing program for all equipment cabinets. The project testing program shall include but is not limited to the specific requirements in this subsection. All test results shall confirm physical and performance compliance with this Special Provision. All test results documentation shall be submitted to the Engineer within 14 days of completion of the tests. The Engineer will review test documentation.

907-637.03.3.1--Standalone Acceptance Test (SAT). A SAT shall be performed on all equipment cabinets on this project after field installation is complete, including but not limited to all field devices (VDS, CCTV, communications electronics, etc.) to be installed in or connected to that given cabinet.

A SAT for a given equipment cabinet shall only be performed in conjunction with the SAT for all devices installed in or connected to that given cabinet.

The installation shall be visually inspected. The cabinet documentation shall be inspected.

Functional test of all cabinet equipment, including circuit breaker, receptacles, fan and thermostat, and lights and door switches shall be performed.

907-637.04--Method of Measurement. Equipment Cabinet of the type specified will be measured per each. Such measurement shall include all items necessary to complete the installation.

907-637.05--Basis of Payment. Equipment Cabinet, measured as prescribed above, will be paid for at the contract price per each, which price shall include furnishing and installing the equipment cabinet and all related material and equipment specified in the Plans and this specifications, and all labor, system integration, testing, system documentation and miscellaneous materials necessary for a complete and accepted installation. The unit price shall also include but is not limited to the cabinet and all interior materials, mounting hardware, foundations and bases, external conduit entrances including conduit bodies and nipples, electrical service and pole grounding terminations. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work.

Payment will be made under:

907-637-A: Equipment Cabinet, Type ___ -per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-649-2

CODE: (SP)

DATE: 4/01/2009

SUBJECT: Video Vehicle Detection

PROJECT: NH-0015-01(060) I 105243101 -- Adams County and Concordia Parish, LA

Section 649, Video Vehicle Detection, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Deleted in total Subsection 649 beginning on page , and substitute the follows:

SECTION 907-649 -- VIDEO VEHICLE DETECTION

907-649.01--Description. This special provision specifies the minimum requirements for Video Detection Systems (VDS) furnished and installed in accordance with the design(s) for the location(s) designated on the project plans, in any related notice to bidders, or as directed. The work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, test, and operate VDS that are integrated with MDOT's Traffic Management/Operations Centers (TMC).

The Type 1 Video Detection System will provide roadway monitoring capabilities via digitized video images transmitted over an Ethernet network and will provide traffic data collection of vehicle parameters including, but not limited to, speed, presence, occupancy, volume, video snapshots and MPEG-4 streaming video of the intersection. All of the real-time data shall be reported locally or remotely and be viewable from a customized secure user-friendly website hosted by the VDS vendor. The Type 1 Video Detection System will be used at all intersections where traffic data collection is required. The work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, and test Video Detection Systems. This work consists of furnishing and installing video detection system equipment complete and ready for service.

The Type 2 Video Detection System will provide presence or pulse detection for Traffic Signal Controller inputs. The Type 2 Detection Systems will be used at intersections that only require presence detection for traffic signal control. The work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, and test Video Detection Systems. This work consists of furnishing and installing video detection system equipment complete and ready for service.

907-649.02--Materials.

907-649.02.1--Materials Type 1 Vehicle Detection System.

907-649.02.1.1--General. The video detection system hardware will typically consist of two major components:

- 1) Video Camera Sensors (color) with zoom lens (one sensor in each direction)
- 2) Video Detection System Processor (inside the sensor for Type 1 system)

907-649.02.1.2--Functional Requirements for Type 1 Detection System. The VDS shall be capable of monitoring vehicles on a roadway via processing of video images and providing discrete detection of vehicles and functional detection parameters on a per lane basis for each of the following:

- 1) Presence of moving or stopped vehicles (a vehicle that has not moved for a user-definable length of time)
- 2) Traffic volume (absolute number of discrete vehicles per time interval per lane)
- 3) Speed (average lane speed in mph)
- 4) Occupancy (individual lane occupancy measured in percent of time)
- 5) Density (average lane density volume/speed)
- 6) Headway (average time interval between vehicles by lane in seconds)
- 7) Vehicle classification and volumes per lane by user-selectable vehicle lengths (minimum four (4) bins)
- 8) Wrong Way vehicle detection
- 9) Alarms for the following:
 - a. wrong-way vehicles
 - b. speed threshold
 - c. vehicle classifications
- 10) Loop Emulation based on single or dual loops for a minimum of four (4) lanes.
- 11) Provide direct real-time iris and shutter speed control and be equipped with an integrated auto zoom/auto focus lens that can be changed using computer software.
- 12) Shall be fully IP-enabled and addressable from the video detection system processor, with all configuration, detection data, and encoded video stream available on a single Ethernet interface.
- 13) Shall provide MPEG-4 streaming video output.
- 14) Shall provide all data and video communications over the power supply conductors as shown on the Plans.

907-649.02.1.3--System Features. As a minimum, the system shall include the following features:

- 1) Shall be capable of detecting and storing discrete lane data for either approaching or receding vehicles in at least four (4) lanes and two (2) shoulders / emergency lanes.
- 2) When this function is required in the Plans, shall provide a contact closure interface to a traffic controller or other device, this interface shall accept eight (8) contact closure inputs (usually red and green control signals) and provide sixteen (16) contact closure outputs to a traffic signal controller. For a SDLC interface to a NEMA T52 traffic controller, this interface shall display 32 phase colors and emulate up to four (4) bus interface units (BIU).

- 3) Shall include software with the capability to define detectors through interactive graphics by placing lines and/or boxes or polygons defined by a minimum of four points.
- 4) Shall be a tracking based system or a system of detection zones (lines and/or boxes) which may assign logical functions to one detector or a group of detectors to accomplish directionality or classification.
- 5) Shall be capable of programming the expected flow direction of traffic to facilitate alarm generation for vehicles traveling in the wrong direction.
- 6) Shall be capable of operating as a stand-alone unit when communication to the central system is lost, calculating traffic parameters in real-time and storing data in its own non-volatile memory.
- 7) Shall be capable of compensating for camera movement attributable to temperature effects, wind shifts, pole sway, pole expansion, or vibration of the mount when attached to bridges, sign structures or other structures.
- 8) Shall allow for detection zone calibration for accommodating perspective variations due to varying camera heights and angles.
- 9) Shall provide for day and night operation.
- 10) Shall provide for communications interface to the video detection system processor through a cabinet-mounted interface panel that terminates the power/communications conductors to the processor and provides the Ethernet interface to the processor.

907-649.02.1.4--Detection Configurations. The VDS shall be programmable for the following detector configurations; at a minimum they shall perform the following functions:

- 1) Count Detector
- 2) Presence Detector
- 3) Speed Detector
- 4) Station Detector
- 5) Speed Alarm
- 6) Lane Detector
- 7) Tunnel Detector

The Speed Detector shall report vehicle speed and vehicle classification based on five user-defined length categories, satisfying the four generalized category requirement recommended by FUWA.

907-649.02.1.5--VDS Software Requirements. The VDS sensor shall store cumulative traffic statistics, internally in non-volatile memory, for later retrieval and analysis. The VDS sensor shall have at least 5 Mb of memory for data storage. Data collection shall not require additional modules or extra software.

The real-time traffic data and color video shall be viewable through a standard web browser using a data collection and management service (DCMS). The DCMS license will be for a twenty-four month period and start from the date of acceptance of the Final Inspection. The manufacturer shall display the data and streaming video real-time on a custom web-site which can be linked to MDOT's internal web-sites, MSTraffic.com & GoMDOT.com. The DCMS

provider must guarantee 95% uptime. All collected data (except video) shall be archived once a month and two electronic copies sent to MDOT. MDOT requires the ability to create and print custom data reports in Excel or HTML by accessing the manufacturer website and filtering data using reporting parameters. In addition, MDOT requires the capability of having all "raw" data sent directly to an MDOT owned data collection server.

The VDS shall have the capability of polling any and all video detector sensors through communication interfaces, including but not limited to, fiber, wireless, leased broad-band, and leased point to point Ti.

The DCMS Server shall be able to generate the following detail:

- 1) Microsoft Excel, SQL, XML, Jscript database technology
- 2) Microsoft .NET Framework, including support for ASP.NET
- 3) Custom, automated reports, alarms, ftp, and e-mail services.
- 4) Report Manager Graphic User interface (GUI) to customize data distribution and reporting.

907-649.02.1.6--Detection Requirements. Unless otherwise shown in the Plans, the Video Detection System shall detect vehicle passage and presence when the VDS camera assembly is mounted 40 feet or higher above the roadway, when the camera is located adjacent to or over the desired coverage area, and when the distance to the farthest detection zone locations are not greater than ten (10) times the mounting height of the camera.

Optimum accuracy shall be achieved when the length of the detection area or field of view is not greater than four (4) times the mounting height of the image sensor.

The camera shall not be required to be directly over the roadway to achieve minimum accuracy requirements.

The video detection system shall be able to use a single camera to view either approaching and/or receding traffic in the same field of view.

907-649.02.1.7--Accuracy Requirements and Measurement Methods. The accuracy will be measured under normal weather conditions (i.e., not during rain, snow, fog etc.) when the VDS sensor camera is mounted 40 feet or higher, or as otherwise shown in the Plans, above the travel lanes, when the image sensor is adjacent to desired coverage areas, and when the distance to the farthest detection zone is less than four (4) times the mounting height measured in a straight line along the center axis of the field of view.

The Video Detection System shall provide a level of accuracy of less than 5% error rate based on volume counts for the entire field of view compiled over multiple time intervals that contain a minimum of 300 vehicles.

Volume - The volume (count) of vehicles in each lane collected by the video detection system must be within five percent ($\pm 5\%$) of the manually counted volume for that lane. Provide these levels of accuracy during both day and night conditions. A minimum of three hundred (300)

vehicles must be used as a sample size for the entire field of view for volume counting accuracy checking.

Vehicle Classification - The vehicle classification feature must classify at least eighty percent (80%) of the vehicles correctly by classifying vehicles into one of four bins (FHWA categories) by vehicle length. This feature will be tested by manually classifying vehicles into cars, light trucks or tractor trailer or larger trucks using an observer (who does the classification) and video tape using the same samples as collected for the volume test. The manually collected classification data will be compared to the data collected by the system for each lane and the percent error will be calculated for the entire field of view.

Stopped Vehicle Detection - The vehicle detection system shall be capable of detecting 95% of all vehicles stopped on the shoulders or in lanes and triggering an alarm. Because of the possible dangers to motorists and workers during this test, the test will be completed after operation has been enabled. A vehicle will be sent to the location and stopped on a shoulder in an active detection zone. An inspector or TMC operator will observe to verify the detection of the stopped vehicle. This test will be performed on all of the video detection system installations up to five, or on a random sample of five if the total number of video detection system installations is greater than this. If all parameters are met for all locations tested, all that are installed on the project will be considered acceptable. If one or more locations fail, a second set of five locations will be examined. If a failure in the second set is recorded, the Contractor will be required to take remedial action until a pass of five locations is achieved.

Speed - The system shall provide an average vehicle speed measurement within ten percent ($\pm 10\%$) of actual speeds. Provide these levels of accuracies for traffic traveling between 20 and 75 mph. Provide these levels of accuracy during both day and night conditions. Personnel participating in and observing these tests will use either radar detectors or probe vehicles to conduct this accuracy demonstration. This test will be performed after the system is in operation as described in the stopped vehicle tests. Failure to achieve accuracy will require remedial/corrective action by the Contractor and repeated testing until accuracy is achieved.

Other Parameters (Occupancy, Flow Rate, Headway, Density) - If the measurements of speed and volume as described above fall within acceptable specified limits of accuracy, and the system is demonstrated to be able to provide the calculated values for these parameters, no further testing will be required. The formulas/algorithms used for the calculations by the system will be provided to the MDOT State Traffic Engineer as part of the documentation of the system.

907-649.02.1.8--Video Camera Sensor. The video camera sensor shall be compatible with the Video Detection System processor and as a minimum meet the following requirements:

- 1) Lens: The video camera sensor will be equipped with a 1 6X to 22X motor driven variable focal length zoom lens.
- 2) Image Sensor: Minimum resolution of 470H X 350V TV lines.
- 3) The Sensor's picture element shall be 768H pixels X 494V pixels or greater.
- 4) Input power: 115 VAC $\pm 15\%$, 60 Hz $\pm 10\%$ single phase power. Any required power conversion shall be contained within the VDS, the chassis, or facilitated by a power

- adapter provided.
- 5) Electromagnetic interference (EMI): The video camera sensor and associated connected equipment will comply with FCC Part 15, Subpart J, Class A device requirements.
 - 6) Video camera sensor enclosure: The video camera sensor shall be installed in a black colored enclosure⁷
 - a. The enclosure shall meet NEMA 250 Type 4 enclosure standards and shall be available un-pressurized or optionally pressurized types.
 - b. If the enclosure is pressurized, it shall be pressurized to at least 5 psi \pm 1 psi and a low pressure sensor with an alarm output to the Video Detection System processor and cabinet assembly will be provided.
 - c. Provide a sun shield visor on the front of the enclosure, which is sufficiently adjustable to divert water away from the video camera sensor lens and also to prevent direct sunlight from entering the iris when mounted in its installed position.
 - d. Install the sun shield so that it does not impede operation or performance accuracy of the video camera sensor or require removal of the video camera sensor enclosure for adjustment.
 - e. Use an enclosure that allows the video camera sensor horizon to be rotated in the field during installation.
 - 7) Weight: The standard video camera sensor will not weigh more than 10 lbs., including the mount, shield and camera. If a pressurized video camera sensor and housing is used, the unit including a standard mount, shield and camera will not weigh more than 13 lbs.
 - 8) Mounting: The video camera sensor assembly mounting and hardware shall be included as part of the system.
 - a. The video camera sensor horizon shall be adjustable without removing the camera, mounting bracket and enclosure, or sun shield.
 - b. The video camera sensor assembly shall be capable of sustained wind loading of 90 mph with a 30% gust factor.
 - 9) The video camera sensor assembly shall include all cabling, fasteners, conduit, connectors, etc., to provide power and connectivity to the VDS cabinet equipment for a fully functional system.

907-649.02.1.9--Video Detection System Processor. The Video Detection System processor shall meet the following requirements:

- 1) Shall be contained/integrated in the VDS sensor enclosure.
- 2) Shall process and make available for transmission (upload) to the TMC data stored in operator selectable time periods of 10, 20, or 30 seconds and 1, 5, 10, 15, 30, or 60 minutes (default setup by Contractor shall be 1 minute).
- 3) Shall be password protected to prohibit unauthorized changes, if enabled by user. A minimum of ten (10) different users may be authorized with different levels of authority.
- 4) Observation of detection operation only, without ability to edit configurations, may be allowed with no password. The VDS shall record time and date of each password usage.
- 5) Shall provide the data and MPEG-4 encoded video through a communications interface device via an Ethernet version 2.0 IEEE 802.3 compliant 10/100 Base-T Auto Sensing

- port in real-time.
- 6) The processor shall be IP-addressable using the user datagram protocol/IP or UDP/IP message packet and routing standard.
 - 7) A communications address shall be automatically assignable or manually configured to the unit during setup.
 - 8) Upon receiving a command with the appropriate address from the TMC central computer, the unit shall respond with the accumulated traffic parameter measurements from the period since the last request.
 - 9) Shall operate reliably in a typical roadway aerial mounting and under the following conditions:
 - a. Shall have an operating ambient temperature range: -29⁰F to 140⁰F (-2034~ C to 60⁰C)
 - b. Shall have an operating humidity tolerance of: 5% — 95% humidity per NEMA TS 1-1989 (R 1994).
 - c. Vibration: Provide a video camera sensor and enclosure that maintains its functional capability and physical integrity when subjected to a vibration of 5 to 30 Hz up to 0.5 gravity applied to each of three mutually perpendicular axes (NEMA TS 1-1989 (R 1994)).
 - d. Shock: Ensure the video camera sensor and enclosure can withstand a minimum 9G shock. Neither permanent physical deformation nor inoperability of the video camera sensor and enclosure shall be sustained from this shock level.
 - e. Acoustic Noise: Provide a video camera sensor and enclosure that can withstand a 150 dB for 30 minutes continuously, with no reduction in function or accuracy.
 - 10) Shall be capable of storing data for an extended period of time.
 - a. All traffic parameter data shall be stored in non-volatile memory within the video detection system processor.
 - b. All traffic parameter data shall be capable of being retrieved using the central computer and by means of an automatic polling client application.
 - c. Upon loss of communications, the system shall automatically store no less than seven (7) days of data in 30 second increments based on the default set-up required. At a minimum, data storage requirements apply to volume, speed and occupancy requirements.
 - 11) Shall be powered by input power: 115 VAC \pm 15%, 60 Hz \pm 10% single phase power. Any required power conversion shall be contained within the VDS, the chassis, or facilitated by a power adapter provided Total power for a single video camera sensor and the processor shall not exceed 15 watts with the camera heater in operation.
 - 12) Shall have transient protection that meets the requirements of NEMA TS 1-1989 (R 1994) and NEMA T52-1992 standards.
 - 13) Shall recover from power interruptions. Momentary interruptions in power to the processor shall not result in loss of function upon restoration of power.
 - 14) In the event of an interruption of power, the equipment shall automatically recover when power is restored. All detection zones, stations, and parameters shall be returned to their last configurations.
 - 15) Each VDS location shall be capable of simultaneously processing data and images from four separate video camera sensor installations for detection and analysis.
 - 16) The system shall be capable of detecting objects in EIA- 170 (monochrome) and NTSC

(color), or CCIR (monochrome) and PAL (color) video signals.

- 17) Shall allow still image capture (snapshot) from any of the video detection system processor's active video inputs and provide for downloading the image to the central computer for display or storage as a picture file; capture and transmit the still image to the central computer in one minute or less.

907-649.02.2--Materials Type 2 Vehicle Detection System.

The Type 2 video detection system shall consist of power supply, video cameras, all necessary video and power cabling with end connectors, mounting brackets, lightning protection as recommended by the manufacturer, video detection processors/extension modules capable of processing the number of camera and phase combination video sources shown on the project plans or in the purchase order. Provide sufficient number of cameras to process vehicle presence, passage and system detection zones as shown on the project plans or listed on the purchase order.

907-649.02.2.1--Functional Requirements for Type 2 Vehicle Detection System. The video detection system configuration shall utilize video processors with one or more video inputs and one video output, responding to specific site applications, camera locations and detection zones shown on the project plans. Video processors or interface modules shall be provided which plug directly into TS-1 and TS-2 detector racks without adapters. Extension modules which allow detection zones from one camera to be routed to other card slots shall also be provided. Remote programming and monitoring capability from a distant Traffic Management Center shall be mandatory. The system shall be Ethernet compatible with an RJ4S port.

907-649.02.2.2--Interface Type 2 Video Detection System. The Contractor shall provide the following:

- 1) video inputs that accept RS 170 (NTSC) signals from an external video source. A BNC type interface connector shall be provided and located on the front of the video processing unit.
- 2) a LED indicator to indicate the presence of the video signal. The LED shall illuminate upon valid video synchronization and turn off when the presence of a valid video signal is removed.
- 3) one video output per processor module. The video output shall be RS 170 compliant and shall pass through the input video signal. The video output shall have the capability to show text and graphical overlays to aid in system setup. The overlays shall display real-time actuation of detection zones upon vehicle detection or presence. Control of the overlays and video switching shall also be provided through the serial communications port. The video output interface connector shall be BNC or RCA type. If RCA connector is used, an RCA to BNC adapter shall be provided.
- 4) a serial communications port on the front panel. The serial port shall be compliant with RS-232 or RS-422 electrical interfaces and shall use a DB9 or RJ4S type connector. The serial communications interface shall allow the user to remotely configure the system and/or to extract calculated vehicle/roadway information.
- 5) interface software. The interface protocol shall support multi-drop or point-to-multipoint

communications. Each video detection system shall have the capability to be individually IP addressable either built in or with third party video server units.

- 6) open collector contact closure outputs meeting NEMA T52 requirements. The open collector output will be used for vehicle detection indicators as well as discrete outputs for alarm conditions.
- 7) LED status indicators on the front panel. The LED's shall illuminate when a contact closure output occurs. Provide one output LED for each contact closure output.
- 8) a mouse compatible port (PS-2 or USB) on the front panel of the video processing unit. The mouse port shall be used as part of the system setup and configuration. A compatible mouse shall be provided with each video detection system.

907-649.02.2.3--Functionality. Detection zones shall be programmed via an on-board menu displayed on a video monitor and a pointing device connected to the video detection processor. The menu shall facilitate placement of detection zones and setting of zone parameters or to view system parameters. The video detection processor shall detect vehicles in real time as they travel across each detection zone. The video detection processor shall have an RS-232 (DB9 or RJ4S) port for communications with an external computer. The video detection processor port shall be multi-drop capable.

It shall be possible to upload and save all configuration data including loop placement and save the file on a computer. It shall be possible to download a configuration file from a computer to the detection device.

The video detection processor shall accept new detection patterns from an external computer through the RS-232 port when the external computer uses the correct communications protocol for downloading detection patterns.

A WindowsTM based software designed for local and remote connection shall be provided for video capture, real-time detection indication and detection zone modification capability.

The video detection processor shall send its detection patterns to an external computer through the RS-232 port.

The video detection processor shall default to a safe condition, such as minimum recall, fixed recall or a constant call on each active detection channel, in the event of unacceptable interference with the video signal, low visibility conditions, or power failure.

A user-selected output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

907-649.02.2.4--Vehicle Detection. A minimum of 24 detection zones per camera input shall be possible, and each detection zone shall be capable of being sized to suit the site and the desired vehicle detection area.

A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may be ANDed together to indicate vehicle presence on a single phase of traffic movement.

Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the video detection processor and displayed on a video monitor, to draw the detection zones on the video image from each video camera. Detection zones created in this manner shall be compatible with the PC-based software provided with the system.

The video detection processor's memory shall be non-volatile to prevent data loss during power outages.

When a vehicle is detected crossing a detection zone, the corners or entire zone of the detection zone shall flash/change color on the video overlay display to confirm the detection of the vehicle. It shall be possible to record the operation of the unit in real time with the detection zones operating.

Detection shall be at least 98% accurate in all weather conditions, with slight degradation acceptable under adverse weather conditions (e.g. rain, snow, or fog) which reduce visibility.

The video detection processor shall maintain normal operation of existing detection zones when one zone is being added or modified.

The video detection processor shall output a constant call on any detector channel corresponding to a zone being modified and shall resume normal operation upon completion.

Detection zones shall be directional to reduce false detections from objects traveling in directions other than the desired direction of travel in the detection area.

The video detection processor shall process the video input from each camera using a microprocessor at 30 frames per second at one volt peak to peak 75 ohms or EIA 170 NTSC video standard.

The video detection processor shall output minimum recall, fixed recall or constant call for each enabled detector output channel if a loss of video signal occurs. The recall behavior shall be user selectable for each output. The video detection processor shall output a constant call during the background "learning" period.

Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds in increments of 0.1 seconds.

Up to six detection zones per camera view shall have the capability to count the number of vehicles detected, measure classification and speed. The data values shall be internally stored within the processor module for later retrieval through the RS-232 port. The data collection interval shall be user definable in periods of 5, 15, 30, or 60 minutes or by intersection cycle.

Real-time data shall be retrieved from the PC-based software provided with the system.

907-649.02.2.5--Camera. Cameras shall be completely compatible with the video detection processor and shall be certified by the manufacturer to ensure proper system operation.

The detection system shall produce accurate detector outputs under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.009 to 930 foot-candles (0.1 lux to 10,000 lux).

The camera shall use a color CCD sensing element with resolution of not less than 470 lines horizontal and 400 lines vertical.

The camera shall include mechanisms to compensate for changing of lighting by using an electronic shutter and/or auto-iris lens.

The camera shall include a variable focal length lens with factory preset focus that requires no field adjustment. Zooming of the camera lens to suit the site geometry by means of a portable interface device designed for that purpose. The horizontal field of view shall be adjustable from 8.1 to 44.3 degrees. Camera configuration shall be customized for each approach based on field site conditions and the project plans.

The camera electronics shall include automatic gain control (AGC) to produce a satisfactory image at night.

The camera shall be housed in a weather-tight sealed enclosure. The housing shall be field rotatable to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view.

The camera enclosure shall include a thermostatically controlled heater to assure proper operation of the lens shutter at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure. The heater shall directly heat the glass lens and require less than 5 watts over the temperature range.

Power consumption of the camera shall be 15 watts or less under all conditions.

The camera enclosure shall be equipped with separate, weather-tight connections for power and setup video cables at the rear of the enclosure. These connections shall allow diagnostic testing and viewing of video at the camera while the camera is installed on a mast arm or pole using a lens adjustment module furnished under this bid item.

The video signal output by the camera shall in accordance with NTSC standards.

All necessary mounting brackets shall be mounted to pole shafts, mast arms, or other structures

to mount cameras as indicated on the project plans. Mounting brackets shall result in a fixed-position mounting. Mounting Brackets shall be included at no additional cost.

907-649.02.2.6--Video Cable. The cable provided shall be as recommended by the manufacturer for optimal video detection performance. The cable shall be either multi-paired jacketed cable or coaxial cable. Coaxial cable can be used between the camera and the video detection processor in the traffic signal controller cabinet and shall be Belden 8281 or equivalent. The signal attenuation shall not exceed 0.78 dB per 100 feet at 10 MHz. Nominal outside diameter shall be approximately 0.305 inch. Coaxial cable shall be suitable for installation in conduit and in exposed sunlight environment. 75-ohm BNC plug connectors shall be used at both the camera and cabinet ends. The coaxial cable, BNC connector, and crimping tool recommended by the manufacturer of the video detection system shall be used and installed per the manufacturer's recommended instructions to ensure proper connection.

Multi-paired jacketed cable shall include a minimum of four individually paired No. 19 AWG communication cables with an overall shield. Pairs shall not be individually shielded. Paired cable and power cables may be installed under the same outer jacket.

907-649.02.2.7--Power Cable. Power cable for 120VAC cameras shall be rated for 90°C, 300 volt, 16 AWG, stranded, three-conductor cable with a nominal outside diameter of approximately 0.330 inch. Conductor insulation color code shall be black, white and green. Outside jacket shall be black.

Power cable for 24 Volt or other low voltage cameras shall be the cable recommended by the manufacturer.

Camera power cable shall be suitable for installation in conduit and in exposed sunlight environment, and UL listed.

The power and video cable may be installed under the same outer jacket.

907-649.02.2.8--Surge Protection. Surge protection devices shall be provided for all new or added video detection devices as recommended by the manufacturer.

Coaxial cable shall be protected with an inline surge suppressor as recommended by the manufacturer or a panel mounted surge suppressor as recommended by the manufacturer or approved equal, installed and grounded per video detection manufacturer's recommendations.

907-649.02.2.9--Physical and Environmental Specifications.

Video Detection System Processor: The video detection system processor shall operate reliably in a typical roadside traffic cabinet environment. Internal cabinet equipment and a video detection system processor shall be provided that meets the environmental requirements of NEMA T52-2003 Section 2. If the processor is located in the sensor, it shall meet the same requirements.

Video Camera Sensor: The operating ambient temperature range shall be -30°F to 140°F. Additionally, a heater shall be included to prevent the formation of ice and condensation in cold weather. Do not allow the heater to interfere with the operation of the video camera sensor electronics, or cause interference with the video signal.

Vibration: Vibrations shall meet the requirements of TS-2 2003 section 2.1.9.

Shock: Shock shall meet the requirements of TS-2 2003 section 2.1 .10.

Acoustic Noise: A video camera sensor and enclosure shall be provided that can withstand 150 dB for 30 minutes continuously, with no reduction in function or accuracy.

907-649.03--Construction Requirements. The Construction and testing requirements for Type 1 and Type 2 Video Detection Systems are the same.

907-649.03.1--General Requirements. The Contractor shall:

- 1) Install all video camera sensors, video detection system processors and associated enclosures and equipment at the locations specified in the Plans, in any related notice to bidders, or as directed.
- 2) Install all cabinet-mounted equipment in the intersection equipment cabinet or as specified in the Plans.
- 3) Cabling from video camera sensors shall be provided and installed in accordance with the video detection system manufacturer's recommendations.
- 4) Make all necessary adjustments and modifications to the total VDS prior to requesting inspection for system/device acceptance.
- 5) Mount the camera approximately two (2) feet below the top of the extension pole or separate pole or as shown in the Plans.
- 6) The camera shall be mounted so as to view approaching traffic unless otherwise directed.
- 7) The camera location and zone of detection shall be optimized as directed by the MDOT State Traffic Engineer, or authorized designee.
- 8) Adjust the video camera sensor zoom lens to match the width of the road/detection area, and minimize lane vehicle occlusion.
- 9) Fasten all other cabinet components, with hex-head or Phillips-head machine screws insulated with nuts (with locking washer or insert) or into tapped and threaded holes. Do not use self-tapping or self-threading fasteners.
- 10) Provide electrical cables for video, communications signaling and power supply between the cabinet and the VDS image sensor cameras as recommended by the video detection system manufacturer, and as required for a fully functional VDS.

907-649.03.2--Contractor Training. Installation of the video detection system shall be as recommended by the supplier and performed by a Contractor trained and certified by the supplier. Where time does not reasonably permit training of the installing Contractor, a supplier factory representative shall supervise and assist a Contractor during installation of the video detection system.

907-649.03.3--Test Requirements. The Contractor shall conduct a Project Testing Program as required below. All costs associated with the Project Testing Program shall be included in overall contract prices; no separate payment will be made for any testing.

907-649.03.3.1--General Requirements. The Contractor is responsible for planning, coordinating, conducting and documenting all aspects of the Project Testing Program. The Project Engineer and/or authorized representatives are only responsible for attending and observing each test, and reviewing and approving the Contractor's test results documentation. The Project Engineer and/or authorized representatives reserve the right to attend and observe all tests.

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 definitely 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.

No testing shall be scheduled until approval of all project submittals and approval of the test procedures for the given test.

The Contractor shall provide all ancillary equipment and materials as required in the approved test procedures.

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.

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.

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 Manager.

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.

907-649.03.3.2--Factory Acceptance Test (FAT). Factory Acceptance Tests shall be conducted at the Manufacturer or Contractor facility or at a facility acceptable to all parties. All equipment to be utilized for this project shall be subject to tests that demonstrate the suitability of the design and compliance with the contract requirements, unless an exception for an equipment item is granted by the Project Engineer. The tests shall be performed on production units identified to be delivered under this contract.

The FAT procedure shall demonstrate all requirements defined in these specifications are met, including, but not limited to: functional/system performance requirements, electrical requirements, data transmission/communication requirements, safety/password requirements, environmental requirements, and interface requirements with other components of the project system.

The Project Engineer reserves the right to waive FATs which are deemed to be unnecessary and reserves the right to witness all FATs that are determined to be critical to the project. At a minimum, the Project Engineer and/or authorized representative will be in attendance at the FAT for the first three (3) units tested. The FAT for the first three (3) units shall be conducted during the same period. The Project Engineer shall be notified a minimum of forty-five (45) calendar days in advance of such tests. Salary and travel expenses of the Project Engineer and authorized representatives will be the responsibility of MDOT. In case of equipment or other failures that make a retest necessary, travel expenses of the Project Engineer and authorized representatives shall be the responsibility of the Contractor. These costs shall be deducted from payment due the Contractor.

The vendor must complete the FAT on all remaining units on their own and submit documentation to the Project Engineer that the FATs were completed. The Project Engineer reserves the right to randomly attend those FAT tests.

No equipment for which a FAT is required shall be shipped to the project site without successful completion of factory acceptance testing as approved by the Project Engineer and the Engineer's approval to ship.

907-649.03.3.3--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. A 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.

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.

All SATs will include videos of the approach with detection zones overlaid showing detector activations.

- 1) One hour videos shall be made of each approach and compared to actual detection calls.
- 2) Thirty minute videos shall be made starting 15 minutes prior to sunrise and sunset for each approach and compared to actual detection calls.
- 3) All videos shall be date and time stamped.
- 4) Provide all videos to the Engineer with a summary of the results included total calls, missed calls and false calls.
- 5) All test results must meet a 98% accuracy requirement.

After a sixty (60) day burn-in period, the Contractor must demonstrate the accuracy requirements specified in Subsection 907-649.02.1.7 at selected intersections. The intersections to be tested will be randomly selected by the Project Engineer.

907-649.03.4--Warranty. The video detection system shall be warranted to be free of manufacturer defects in materials and workmanship for a period of one year from the date of final acceptance. Equipment covered by the manufacturer's warranties shall have the registration of that component placed in MDOT's name prior to final inspection. The Contractor is responsible for ensuring that the vendors and/or manufacturers supplying the components and providing the equipment warranties recognize MDOT as the original purchaser and owner/end user of the components from new. During the warranty period, the supplier 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 supplier's factory or authorized warranty site. Products repaired or replaced under warranty by the supplier shall be returned prepaid by the supplier.

During the warranty period, technical support shall be available from the supplier via telephone within four hours of the time a call is made by the Department, and this support shall be available from factory certified personnel. During the warranty period, updates and corrections to control unit software shall be made available to the Department by the supplier at no additional cost.

907-649.03.5--MDOT Employee Training. The Contractor shall submit to the Project Engineer for approval a detailed Training Plan including course agendas, detailed description of functions to be demonstrated and a schedule. The Contractor must also submit the Trainer's qualifications to the Project Engineer for approval prior to scheduling any training. The training must include both classroom style training and hands-on training in the field of the maintenance and troubleshooting procedures required for each component. The training should also consist of a hands-on demonstration of all software configuration and functionality where applicable.

The supplier of the video detection system shall, at a minimum, provide a sixteen-hour operations and maintenance training class with suitable documentation for up to eight (8) persons selected by the Department. The operations and maintenance class shall be scheduled at a mutually acceptable time and location.

907-649.03.6--Maintenance and Technical Support. The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. Spare parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale of said spare parts.

The suppliers shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone or via personnel sent to the installation site upon placement of an acceptable order at the supplier's then current pricing and terms of sale of said technical support services.

907-649.04--Method of Measurement. Video Detection System, and Video Detection-Data Collection & Management License will be measured as a unit per each.

Video Detection Training will be measured per lump sum after the completion of all training.

907-649.05--Basis of Payment. Video Detection System, and Video Detection-Data Collection & Management License, measured as prescribed above, will be paid for at the contract price per each, which price shall include installation, system integration, documentation, and testing of a complete video detection system site including video camera sensor/processor, the sensor environmental enclosure, all cables between cameras and the cabinet, attachment hardware and brackets, completion of all testing requirements and all work, equipment and appurtenances as required to provide and install a complete video detection system. The price bid shall also include all system documentation including: shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other materials necessary to document the operation of the video detection system. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work.

Video Detection Training, measured as prescribed above, will be paid for at the contract lump sum price, which price shall be full compensation for all training costs.

Payment will be made under:

- 907-649-A: Video Detection System, Type ___ - per each
- 907-649-B: Video Detection-Data Collection & Management License - per each
- 907-649-C: Video Detection Training - lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-650-2

CODE: (SP)

DATE: 4/29/2009

SUBJECT: On-Street Video Equipment

PROJECT: NH-0015-01(060) / 105243101 – Adams County and Concordia Parish, LA

Section 650, On-Street Video Equipment, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in total Section 650 beginning on page 537, and substitute the following:

907-650.01--Description. This Section specifies the minimum requirements for CCTV Camera System furnished and installed on this project. The CCTV Camera System will provide TMC personnel with live streaming video of the roadway network via CCTV Camera Systems installed at locations shown in the Plans.

907-650.02--Materials. All materials furnished, assembled, fabricated or installed shall be new, corrosion resistant and in strict accordance with all of the details shown in the Plans and described in this Special Provision.

Support equipment for the CCTV Camera System shall be provided in Type B and Type C ITS Equipment Cabinets as described in Section 637 of these specifications and as shown on the Plans.

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) Cameras shall be placed at fixed locations as shown on the Plans. The locations of bridge mounted cameras are approximate and should be adjusted by the Contractor to provide an optimum views.
- 2) The CCTV Camera System components shall be compatible with each other and be of rugged design and suitable for reliable operation when mounted in the configuration as specified in this Special Provision and the Plans.
- 3) The CCTV Camera System shall be capable of attended and unattended, continuous 24 hours per day operation at the sites as shown on the Plans.
- 4) The CCTV Cameras shall be capable of being remotely controlled and programmed.

907-650.02.2--Camera Module. The minimum Camera Unit requirements include:

- 1) The camera shall be provided with a CCD Image Sensor employing digital video signal processing (DSP) technology.
- 2) Image Size: 1/4" Format
- 3) Image Resolution: 540 horizontal and 350 vertical minimum
- 4) Picture Elements: 811 (H) x 508 (V) minimum
- 5) Video Output: NTSC, 1 V p-p @ 75 ohms, unbalanced.
- 6) Maximum Lens Aperture: f/1.4 (wide) to f/4.2 (tele)
- 7) Optical Zoom Range: 35X min
- 8) Digital Zoom Range: 1X through 10X providing a smooth transition from optical to digital Zoom
- 9) Effective Digital Focal Length: approximately 120mm to 1200mm
- 10) Optical Zoom Speed: Two speeds, from approximately 3 seconds to 6 seconds full range
- 11) Horizontal Angle of View: Optical: approximately 56° to 1.7°; At 10X Digital: approximately 56° to 0.17°.
- 12) Minimum Focus Distance: 40" in tele, 0.4" in wide angle.
- 13) Electronic Stabilization: Two-motion-frequency (5Hz or 16Hz) selectable stabilization method
- 14) Auto Focus: Selectable Auto/Manual; Minimum Scene Illumination for Reliable Auto Focus, 30% video
- 15) Manual Focus Speed: One speed, approximately 2.0 seconds to full range.
- 16) Long Term Integration Range: Shall provide manual selection of integration duration for enhanced sensitivity. Integration times shall be 1/2 second, 1/4 second, 1/8 second, 1/15 second or 1/30 second. Frame Store video output provides continuous video output, updated at the integration rate.
- 17) Manual Shutter: Selectable shutter speeds shall be 1/60; 1/120; 1/180; 1/250; 1/500; 1/1,000; 1/2,000; 1/4,000; 1/10,000; 1/30,000 second.
- 18) Auto Iris; Iris shall automatically adjust to compensate for changes in scene illumination to maintain constant video level output within sensitivity specifications.
- 19) Gamma: 0.45 AGC: 0 to 28 dB
- 20) Color Balance: Auto Tracking Color balance/Manual with adjustable Red and Blue Levels
- 21) Signal to Noise Ratio: >50 dB
- 22) Synchronization: Crystal or Phase-Adjust Line Lock on 60Hz.
- 23) Sensitivity: Scene Illumination @ F1.4
 - a. 1.0 Lux @ 1/60 shutter, color mode
 - b. 0.1 Lux @ 1/4 shutter, color mode
 - c. 0.01 Lux @ 1/4 shutter, mono mode

907-650.02.3--Positioning Drive. The camera system shall be capable of the following:

- 1) Pan Movement: 360 degrees continuous rotation
- 2) Pan Speed: Variable from 0.25 to >80 degrees/second.
- 3) Pan Repeatability: ± 0.25 degree precision
- 4) Pan Preset Speed: >140 degrees/sec

- 5) Tilt Movement: Minimum of +90 to -90 degrees
- 6) Tilt Speed: Variable from 0.25 to >40 degrees/second.
- 7) Tilt Repeatability: \pm 0.25 degree precision
- 8) Tilt Preset Speed: >140 degrees/sec
- 9) Pan/Tilt Modes: The Camera Module shall provide selectable modes of operation for user control flexibility:
- 10) Variable Proportional: Allows variable pan/tilt speed based on zoom position. This shall scale the maximum pan/tilt speed, while maintaining variable speed capability, throughout the zoom range of the camera.
- 11) Proportional: Allows variable speed pan/tilt control based on pan/tilt joystick deflection without factoring zoom position
- 12) Fixed: Allows scaled fixed speed pan/tilt control based on level of zoom depth

907-650.02.4--Operational Characteristics. The camera system shall be contain the following operational characteristics.

- 1) Presets: Minimum of 64, with each preset consisting of a pan, tilt, zoom and focus coordinate.
 - a. Video Freeze between presets; Allow selection of freeze or live video during preset movements.
- 2) Preset Tours: Minimum 8 tours required, each tour shall consist of up to 32 pre-programmed presets, with individual dwell time property per preset per tour.
 - a. Tour presets shall be useable in any order
 - b. Presets may be used multiple times in tour
 - c. Tours shall stop upon receipt of any pan/tilt positioning command.
 - d. Tour data shall be stored in non-volatile memory and shall not be lost if a power failure occurs.
- 3) Sector Zones: Provide a minimum of up to 16 user defined sector zones with each zone having a unique 24 character ASCII title programmed for description purposes.
- 4) Privacy Zones: Provide a minimum of up to 8 user defined privacy zones with each zone having a unique 24 character ASCII title programmed for description purposes.
- 5) Camera Site ID: Provide up to 2 lines of up to 24 ASCII characters each on video for user site description ID. If both lines are programmed, line 1 of ID shall always appear above line 2 regardless of top or bottom selection
- 6) Preset ID: Provide 1 line of up to 24 ASCII characters on video for Preset ID description. When a preset position is recalled the corresponding preset ID shall be displayed. The preset ID shall remain displayed until a pan, tilt, zoom, manual focus, auto focus select, or another preset command is received.
- 7) Compass/Direction ID: Provide ID on video for indication of viewing direction. User definable settings shall include;
 - a. 8 point or 16 point compass annotation from defined true north position.
 - i. Display shall include North, NE, East, SE, South, SW, West, and NW.
 - b. ID position shall grouped with the site location ID or separate from site location ID.
 - c. Provide for selectable 3-second time out or permanent display with global enable/disable setting of ID

- 8) Azimuth and Elevation ID: Provide ID on video for indication of absolute position of DPS positioning drive.
 - a. Position ID shall be displayed in 0 - 359 degrees for AZ position and +90 to - 90 in EL elevation.
 - b. Provide for selectable 3-second time out or permanent display with global enable/disable setting of ID
- 9) Low Pressure Indicator: Provide "Low Pressure" ID message on video for indication insufficient pressure in DPS.
 - a. Message can be displayed in "blinking" or "non-blinking" mode
 - b. Message shall be enabled or disabled by user
 - c. Provide user threshold set points for variations in altitudes.
- 10) Internal Temperature Indicator: 1 line, in degrees Celsius numeric messages can be displayed in "blinking" or "non-blinking" mode. Message shall be enabled or disabled.
- 11) Scalable Zoom: Variable speed pan/tilt ranges based off of zoom position. This adds the capability of limiting the maximum pan/tilt speed, while maintaining variable speed capability, throughout the zoom range of the camera.
- 12) Flash Memory: Update firmware and new features via RS422 serial communication channel.

907-650.02.5--I/O. The camera system shall have the following:

- 1) Video: Provide for one analog 1 V p-p unbalanced 75-ohm video output.
- 2) Control Data: Provide one (1) half duplex 4-wire RS422 channel for setup and system camera control functions.
 - a. Protocol: The system shall provide Cohu I-series, Pelco D & P, A/D RS422, Vicon Surveyor, and Ultrak as a minimum, without using additional plug-in option cards. The system shall support the NTCIP 1205 v1.08 communication protocol and be compatible with the MDOT TMC Camera control software.
 - b. Transients: Provide minimum of two levels of protection with use of transorb and opto-isolated data transmission circuits.

907-650.02.6--Electrical. The system shall fully comply with and include independent laboratory test results confirming compliance with the following electrical operating conditions:

- 1) Power: <100 Watts Maximum
- 2) Operating Voltage: Per NEMA-TS2 para 2.1.2 and 2.1.3, 89 to 135Vac +/-3hz
- 3) Power Interruption: Per NEMA-TS2 para 2.1.4
- 4) Transients: Per NEMA-TS2 para 2.1.6

907-650.02.7--Mechanical. The camera system shall have the following:

- 1) Connectors: 18 Pin MS style PT06E-14-18S(SR) weatherproof non-corrosion type or equal
- 2) Weight: Maximum 18.5lbs
- 3) Dimensions: 13.3" x 11.4" x 6.7"

- 4) Construction: Powder Coated 6061 T6 aluminum; all internal and external parts corrosion protected, stainless steel fasteners, and use only optically perfect flat glass lens seals on camera housing.
- 5) Camera Mount: 4 Mounting holes at bottom of camera module. Pigtail cable connector (minimum 24") from camera module to be included and attached at the factory to the camera system assembly.
- 6) A camera module sun shield extension must be included to protect the camera from sun and rain.

907-650.02.8--Environmental. The system shall fully comply with and include independent laboratory test results confirming compliance with the following environmental operating conditions:

- 1) Temperature: Per NEMA-TS2 para 2.1.5, -34C to 74C tested across low and high voltage ranges per NEMA-TS2 para 2.1.2 and 2.1.3.
- 2) Vibration: Per NEMA-TS2 para 2.1.9, 2.2.3, 5-30Hz sweep @ 0.5g applied in each of 3 mutually perpendicular planes.
- 3) Shock: Per NEMA-TS2 para 2.1.10, 2.2.4, 10g applied in each of 3 mutually perpendicular planes.
- 4) Water Spray: Per IEC 60529+A1, 1999, Para 14.2.6, Solid water stream delivered thru 12.5mm nozzle @ 25 gallons/minute @ 9ft for 3 minutes
- 5) External Icing: Per NEMA-TS2 250-2003, para. 5.6
- 6) Corrosion Protection: Per NEMA 250-2003, para 5.10
- 7) Humidity: 0-100% N.C per MIL-E-5400T, para 3.2.24.4
- 8) Standards: IP66, IP67, ASTM-B117 Marine

907-637.02.9--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 solid 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.

907-637.02.10-- 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. Electrical: GDT/SAD/hybrid technology
 - b. Insertion Loss: 0.1dB @20 MHz, typical
 - c. Input/Output Impedance: 75 ohms nominal
 - d. Operating and Clamping Voltages: as recommended by the CCTV manufacturer
 - e. Peak Surge Current: 20,000-amperes
 - f. Operating Temperature: -20 to 75 degrees C
- 6) Low Voltage/Signal Cable Surge protectors for data/signal/control cable shall meet/provide the following functionality:
 - a. Electrical: GDT/SAD/hybrid technology
 - b. Peak Surge Current: 10,000-amperes for an 8x20 microsecond waveform
 - c. Low capacitance
 - d. Clamping Voltage: as recommended by the CCTV manufacturer
 - e. Operating Temperature: -20 to 75 degree C
 - f. Response Time: 1 nanosecond or less
 - g. 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. Electrical: MOV/SAD/inductor/hybrid technology with noise filtering
 - b. Clamping Voltage: as recommended by the CCTV manufacturer
 - c. Operating Temperature: -20 to 75 degree C
 - d. Peak Surge Current: 10000-amperes for an 8x20 microsecond waveform
 - e. Response Time: <5 nanoseconds

907-650.03--Construction Requirements. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

- 1) Materials and associated accessories/adapters shall not be applied contrary to the manufacturer's recommendations and standard practices.
- 2) Shall include all materials needed to permanently mount the CCTV camera to the support structure as indicated in the plans.
- 3) 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.
- 4) Verify all wiring meets NEC requirements where applicable.
- 5) All above requirements apply to both new CCTV sites as well as sites where an existing CCTV is being replaced under the contract.

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 and/or the Project Engineer's representatives are only responsible for attending and observing each test, and reviewing and approving the Contractor's test results documentation. The Project Engineer and/or the Project Engineer's representatives reserve the right to attend and observe all tests.
- 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 definitely 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 Manager.
- 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.

907-650.04--Method of Measurement. On-Street Video Equipment will be measured per each camera installation. Such measurement shall be inclusive of camera module, housing, positioning drive, receiver/driver, mounting hardware and any components necessary to provide a fully operational CCTV system. It shall also include any items necessary to mount the camera unit to a mast arm pole, steel strain pole, pole extension pipe, etc.

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, 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.

Payment will be made under:

907-650-A: On-Street Video Equipment - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-657-3

CODE: (SP)

DATE: 4/01/2009

SUBJECT: Fiber Optic Cable (OSP)

PROJECT: NH-0015-01(060) / 105243101 - Adams County and Concordia Parish, LA

Section 657, Fiber Optic Cable (OSP), of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete in total Section 657 beginning on page 541, and substitute the following:

SECTION 907-657 -- FIBER OPTIC CABLE (OSP)

907-657.01--Description. The work shall consist of the installation of fiber optic cable, fiber optic splices, fiber optic termination cabinets, fiber optic patch cables and other infrastructure to make a complete fiber optic communications system.

This may also consist of furnished and installed a fiber optic transceivers which will be utilized to transmit video and data over a single fiber optic strand from field device cabinets to communication hub cabinets.

907-657.02--Materials.

907-657.02.1--Single Mode Fiber Optic Cable (FO Cable). The Contractor shall provide 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
- Fiber cables over 24 fibers shall utilize 12 individual stranded fibers per buffer tube and cables less than 24 fibers shall utilize 6 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 Corning ALTOS All-Dielectric, Pirelli FlexLink, OFS MiDia, or approved equivalent cable. 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 -30°C to +70°C and installation temperature range of -30°C to +60°C.

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" - "XXF SM"

where "XX" designates the number of fibers in the cable.

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"

907-657.02.2--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
- Corning Freedom LST All-Dielectric, Pirelli Centralink, or approved equivalent cables shall be provided. 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 -30°C to +70°C and an installation temperature range of -10°C to +60°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

907-657.02.3--Single Mode Fiber Optic Drop Cable (FO Drop Cable). The Contractor shall provide 12-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, ST compatible, heat cured epoxy connectors with an operational temperature of -40°C to +70°C. 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 >-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
- Corning Freedom LST All-Dielectric, Pirelli Centralink, or approved equivalent cables shall be used. 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 -30°C to +70°C and an installation temperature range of -10°C to +60°C.

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

907-657.02.4--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.

907-657.02.5--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 ST compatible connectors for all fiber

optic infrastructures.

The Contractor shall provide only factory-installed connectors of a type other than ST when required by the Network Switches Type A or Type B.

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°C to +75°C shall be used.

Simplex connectors for all male ST 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.

907-657.02.6--Fiber Optic Termination Cabinet (FO Termination Cabinet). Fiber optic termination cabinets shall be provided at locations as shown in the Plans for termination of fiber optic outside plant (OSP) cable.

The Contractor shall provide rack mount termination cabinets equipped with fiber optic connector modules in a 12-fiber configuration. These will be used in field equipment and communication cabinet locations as shown on the plans.

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 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. Termination cabinets shall provide storage of all trunk fiber-to-connector pigtail fusion splices in splice trays.

The maximum dimensions of a complete 72-fiber rack-mount termination cabinet shall be 7-rack units, 12.25 inches high by 16 inches deep. The maximum dimensions of a complete 12-fiber rack-mount termination cabinet shall be 1-rack unit, 1.75 inches high by 14 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 fusion splices in 12 or 24-splice increments.

For 72-fiber termination cabinets, the Contractor shall provide termination cabinets with fiber optic connector modules in a configuration of twelve vertical six (6) fiber connector coupler panels.

For 12-fiber termination cabinets, the Contractor shall provide termination cabinets with fiber optic connector modules in a configuration of one (1) row of two (2) horizontal connector coupler panels.

Connector modules shall include clearly legible and permanent labeling of each of the fiber connector couplers, and shall be labeled and identified as shown in the Plans.

The Contractor shall fusion splice all outside plant cable fibers to the factory installed connector pigtails on the rear of the connector modules.

The Contractor shall use termination interconnect cables for 72-fiber termination cabinets. 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.

907-657.02.7--OSP Closures for Aerial, Pole Mount, Pedestal and Hand Hold Environments. OSP closures for aerial, pole mount, pedestal and hand hold 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.

907-657.02.8--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.

907-657.02.9--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 907-657-A and 907-657-B.

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- μ m buffered fiber, aramid yam 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/kin @ 1550.

907-657.02.10-- 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.

907-657.02.11--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 unless shown otherwise on the plans.

907-657.02.12--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.

907-657.02.13--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)

907-657.02.14--Fiber Optic Transceiver. All materials furnished, assembled, fabricated or installed shall be new, corrosion resistant and in strict accordance with all of the details shown in the plans and described herein.

Fiber Optic Transceivers shall be installed in Type B and Type C ITS Equipment Cabinets as detailed on the Plans.

The Fiber Optic Transceivers shall comply with the following minimum materials specifications:

Fiber Optic Transceiver capabilities and performance requirements include the following:

- 1) Fiber Optic Transceivers must transmit video from the camera to a communications hub site, and transmit bi-directional data for PTZ control from the communications hub site to the camera, using one single-mode fiber for each link. Fiber Optic Transceivers shall be fully compatible with all CCTV Camera Assemblies installed on the project.

The units must meet or exceed the following minimum specifications:

- a) Video Encoding: 10-bit digital, RS-250C short-haul
 - b) Bandwidth: 6 MHz minimum
 - c) Impedance: 75 ohms
 - d) I/O voltage: 1 V p-p
 - e) Video S/N ratio: 60 dB, minimum
 - f) Wavelength: 1310/1550 nm single-mode
 - g) Connectors: Optical - ST. Video: BNC with gold-plated center pin for video. Data: terminal block or D-shell for data
 - h) Data Formats: RS-232, RS-422 and RS-485
 - i) Operating temperature including power supply: -34 to +74 degree C; tested to NEMA TS2-2003 or approved equivalent
 - j) Fiber Optic Transceivers mounted in Type B cabinets shall be surface mount.
 - k) Fiber Optic Transceivers mounted in Type C cabinets shall be rack mount.
- 2) Provide a 19-inch rack mount card cage for installation of the Fiber Optic Transceivers in Type C communications hub cabinets as shown in the Plans. Card cages shall have integral power supplies mounted within the cage chassis; card cage power supplies shall power all units mounted in the cage. Fiber Optic Transceiver mounted in Type C cabinets shall be hot swappable.
 - 3) Use coaxial video patch cords that are 75-ohm precision high-flex double-shielded cables with tinned copper braid shield and minimum #22AWG solid copper stranded center conductor. Use BNC connectors with gold-plated center pins at both ends. Provide factory-assembled and connectorized patch cords with mechanical cable strain relief and protective boots and that are 100% sweep tested.

- 4) Use serial data patch cords that are high-flex foil-shielded twisted pair cables with tinned solid copper stranded conductors. Provide factory-assembled and connectorized patch cords with mechanical cable strain relief and protective boots/shields on connectors, except where conductors are connected directly into terminal blocks.
- 5) Use fiber patch cords in accordance with the requirements in Section 907-657-3 – FIBER OPTIC CABLE.

907-657.03--Construction Requirements.

907-657.03.1--General. 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.

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 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.

Drop cable shall be routed to the controller cabinets via conduit 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- μ m 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- μ m buffering, intrinsic to the cable in the case of tight buffered fibers, or in the case of 250- μ m coated fibers, a fan-out body and 900- μ m 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 \pm 18 inches from the centerline of the optical cable. Warning tape shall be at least two inches wide and colored orange.

907-657.03.2--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.

907-657.03.3--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.

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 as shown in the Plans.

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.

907-657.03.4--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 department. 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 cabinet.

907-657.03.5--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

907-657.03.6--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.

907-657.03.7--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 907-657-A and 907-657-B.

907-657.03.8--Fiber Optic Connections at Existing OTN Node Huts. 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 907-657-A and 907-657-B.

907-657.03.9--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 (Subsection 907-657.02.8) 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 ST/ST 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.

907-657.03.10--Testing Requirements.

907-657.03.10.1--General. 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.

907-657.03.10.2--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 his or her own protection, it should be documented and provided to the Engineer.

907-657.03.10.3--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 can not start until the Traffic Engineering ITS Department is satisfied with the installation.

907-657.03.11--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 MDOT 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 MDOT 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

907-657.03.12--Training and Equipment. 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.

907-657.03.13--Fiber Optic Transceiver. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

- 1) The Contractor shall install the Fiber Optic Transceiver units within the field cabinets as shown on the Plans.
- 2) Provide all necessary patch cords with equipment for all interconnection. Fiber connections must be made to the fiber patch panels, network switches, and other equipment as detailed in the Plans.
- 3) Provide blank cover panels for all unused positions in the card cage.
- 4) Provide all materials and work associated with furnishing, installing, interconnecting, integrating and testing Fiber Optic Transceivers including but not limited to all units,

power cables, power supplies, rack mount card cages, coaxial video patch cords, serial data patch cords, fiber optic patch cords, fiber optic attenuator patch cords (if needed), mounting hardware, and all work, equipment, incidentals and appurtenances as required to provide fully functional Fiber Optic Transceivers.

907-657.04--Method of Measurement. Fiber optic cable of the type specified will be measured by the linear foot, measured horizontally along the conduit or aerially along the messenger cable. No differentiation will be made for cable installed underground or aerially.

Fiber optic drop cable and of the type specified will be measured by the linear foot from the trunk line to the controller cabinet.

The cost for all fiber optic work and equipment shall be included in the bid price for pay items 907-657-A and 907-657-B.

All required cabinet facilities shall not be measured for separate payment. All connectors, termination cabinets, patch cords, raceways, splicing devices, splicing, detection wire, warning tape, above ground markers, backplane facilities required for the fiber optic system shall be included in the price bid.

Fiber optic transceiver of the type specified will be measured as a unit per each, which shall include all wiring, hardware, card cage racks, power supplies, and other equipment and incidentals necessary to complete the work.

907-657.05--Basis of Payment. Fiber optic cable, fiber optic drop cable, and fiber optic video drop 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.

Fiber optic transceiver, measured as prescribed above, will be paid for at the contract unit price per each, which price shall be full compensation for furnishing all materials, construction installing, connecting, testing, and for all equipment, tools, labor and incidentals required to complete the work.

Payment will be made under:

- 907-657-A: Fiber Optic Cable, _____ - per linear foot
- 907-657-B: Fiber Optic Drop Cable, _____ - per linear foot
- 907-657-C: Fiber Optic Transceiver * - per each

* Additional information may be shown

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-658-2

CODE: (SP)

DATE: 4/01/2009

SUBJECT: Hardened Network Switches and Terminal Servers

PROJECT: NH-0015-01(060) / 105243101 – Adams County and Concordia Parish, LA

Section 658, Hardened Network Switch, is hereby added to and becomes part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-658 -- HARDENED NETWORK SWITCH

907-658.01--Description. This section specifies the minimum requirements for network switches furnished and installed. Switches will be in support of 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.

907-658.02--Materials. Network Switches Type A and Type B, Terminal Servers and associated cabling will be placed in the field device cabinets and shall meet the following requirements:

907-658.02.1--Type A Network Switch.

- 1) Minimum of six 10/100 Base-TX ports. Each port shall connect via RJ-45 connector.
- 2) Minimum of two (2) 1000 Base Gigabit Ethernet Long Reach GBIC optical ports with the following optical requirements:
- 3) The minimum optical budget between transmit and received ports shall be 19dB.
- 4) Shall include ST, SC and LC connector options.
- 5) Optical receiver maximum input power level shall not be exceeded.
- 6) 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.
- 7) 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.
- 8) Operate between -34 to +74 degree Celsius, including power supply.
- 9) Operate from 100 VAC to 200 VAC.
- 10) Operate from 10% to 90% non-condensing humidity.
- 11) Meet the IEEE 802.3 (10Mbps Ethernet) standard.
- 12) Meet the IEEE 802.3u (Fast Ethernet 100 Mbps) standard.
- 13) Meet the IEEE 802.3x (Full Duplex with Flow Control) standard.

- 14) Meet the IEEE 802.1p (Priority Queuing) standard.
- 15) Meet the IEEE 802.1Q (VLAN) standard per port for up to four VLAN's.
- 16) The switch shall meet the IEEE 802.1D (Spanning Tree Protocol) and IEEE 802.1w (Rapid Spanning Tree Protocol) standards.
- 17) Meet the IEEE 802.3ad (Port Trunking) standard for a minimum of two groups of four ports.
- 18) Capable of mirroring any port to any other port within the switch.
- 19) Password manageable through:
 - a. SNMP
 - b. Telnet/CLI
 - c. HTTP (Embedded Web Server) with Secure Sockets Layer (SSL)
 - d. Console/terminal portEach configuration method above, including HTTP and SNMP, shall allow complete and unconstrained read/write access to every configurable parameter and read status object in the unit. Printed and ASCII file documentation, including the manufacturer's custom/enterprise SNMP MIB, shall be provided.
- 20) Full implementation of SNMPv1, SNMPv2c and SNMPv3.
- 21) Full implementation of RMON I and RMON II.
- 22) Full implementation of GVRP (Generic VLAN Registration Protocol).
- 23) Full implementation of IGMPv2 and IGMP snooping.
- 24) Minimum MTBF of 100,000 hrs using Bellcore TS-332 standard.
- 25) Full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.
- 26) UL approved.
- 27) 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.
- 28) 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.
- 29) Unused ports (copper and optical) shall be covered with rubber or plastic dust caps/cover.

907-658.02.2--Type B Network Switch.

- 1) Minimum of twelve 10/100 Base-TX ports. Each port shall connect via RJ-45 connector.
- 2) Minimum of two (2) 1000 Base Gigabit Ethernet Long Reach GBIC optical ports with the following optical requirements:
- 3) The minimum optical budget between transmit and received ports shall be 19dB.
- 4) Shall include ST, SC and LC connector options
- 5) Optical receiver maximum input power level shall not be exceeded.
- 6) 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.
- 7) 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.
- 8) Operate between -34 to +74 degree Celsius, including power supply.

- 9) Operate from 100 VAC to 200 VAC.
- 10) Operate from 10% to 90% non-condensing humidity.
- 11) Meet the IEEE 802.3 (10Mbps Ethernet) standard.
- 12) Meet the IEEE 802.3u (Fast Ethernet 100 Mbps) standard.
- 13) Meet the IEEE 802.3x (Full Duplex with Flow Control) standard.
- 14) Meet the IEEE 802.1p (Priority Queuing) standard.
- 15) Meet the IEEE 802.1Q (VLAN) standard per port for up to four VLAN's.
- 16) The switch shall meet the IEEE 802.1D (Spanning Tree Protocol) and IEEE 802.1w (Rapid Spanning Tree Protocol) standards.
- 17) Meet the IEEE 802.3ad (Port Trunking) standard for a minimum of two groups of four ports.
- 18) Capable of mirroring any port to any other port within the switch.
- 19) Password manageable through:
 - a. SNMP
 - b. Telnet/CLI
 - c. HTTP (Embedded Web Server) with Secure Sockets Layer (SSL)
 - d. Console/terminal portEach configuration method above, including HTTP and SNMP, shall allow complete and unconstrained read/write access to every configurable parameter and read status object in the unit. Printed and ASCII file documentation, including the manufacturer's custom/enterpriseSNMP MIB, shall be provided.
- 20) Full implementation of SNMPv1, SNMPv2c and SNMPv3.
- 21) Full implementation of RMON I and RMON II.
- 22) Full implementation of GVRP (Generic VLAN Registration Protocol).
- 23) Full implementation of IGMPv2 and IGMP snooping.
- 24) Minimum MTBF of 100,000 hrs using Bellcore TS-332 standard.
- 25) Full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.
- 26) UL approved.
- 27) 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.
- 28) 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.
- 29) Unused ports (copper and optical) shall be covered with rubber or plastic dust caps/cover.

907-658.02.3--Terminal Server.

- 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).

907-658.02.4--Cat 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) Shall incorporate four (4) pair 24 AWG stranded PVC Category 6.
- 3) Shall be factory made; contractor or vendor assembled patch cords are not permitted.
- 4) Shall be TIA/EIA 568-B.2-1 compliant. Patch Cords shall be compliant to T568B pin configuration.
- 5) Certified by the manufacturer for Category 6 performance criteria.
- 6) Length as needed. Excessive slack is not permitted.

907-658.02.5--Project Submittal Program Requirements. The Contractor shall provide project submittals for network switches including scheduling requirements. The project submittals for network switches and terminal servers shall include but are not limited to the specific requirements in this subsection.

- 1) 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.
- 2) The Contractor shall submit documentation and proof of manufacturer-recommended training and certification for the installation and configuration of network switches.
- 3) 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.

907-658.03--Construction Requirements. The Contractor shall adhere to the following installation requirements:

- 1) Network switches shall only be configured and installed by the switch manufacturer trained personnel.
- 2) Network switches shall be installed in accordance with manufacturer's guidelines and requirements.
- 3) 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.
- 4) The Contractor shall provide as needed the necessary Cat 6 patch cords and fiber optic patch cords for a complete and functional installation.
- 5) 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 658.03.3 of this document.

907-658.03.1--Switch Configuration Requirements. The Contractor shall configure Network Switch using the parameters provided by the Department.

907-658.03.2--Documentation. The Contractor shall submit documentation and proof of manufacturer-recommended training and certification for the installation and configuration of network switches.

As-built Plans showing switch configuration and connections shall be provided to the Project Engineer in electronic format.

907-658.03.3--Training and Equipment. 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 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.

- 1) Prior to training, submit resume and references of instructor(s). Also submit an outline of the training course in a Training Plan. Submit the Training Plan within 90 days of Contract Notice-to-Proceed. Obtain approval of the Plan from the Engineer and the Traffic Engineering ITS Department. Explain in detail the contents of the course and the time schedule of when the training will be given.
- 2) Furnish all handouts, manuals and product information.
- 3) For the training, use the same models of equipment furnished for the project. Furnish all media and test equipment needed to present the training.
- 4) Training shall be conducted in the Jackson area.
- 5) Training instructor(s) shall be manufacturer-certified, experienced in the skill of training others.

- 6) 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.

907658-.04--Method of Measurement. Hardened Network Switches of the type specified will be measured per each. Terminal Server will be measured in units of each

907-658.05--Basis of Payment. Hardened Network Switches, measured as prescribed above, will be paid for at the contract price per each, which price shall include 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, and all incidental components, attachment hardware, mounting shelf and hardware, testing and training requirements, and all work, equipment and appurtenances as required to provide a fully functional switch ready for use. The price bid shall also include 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. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work.

Terminal Servers, measured as prescribed above, will be paid for at the contract price per each, which price bid shall include 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 work, equipment and appurtenances as required to provide a fully functional Terminal Server ready for use. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work.

Payment will be made under:

- 907-658-A: Hardened Network Switch, Type ___ -per each
- 907-658-B: Terminal Server -per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-662-2

CODE: (SP)

DATE: 04/01/2009

SUBJECT: Video Communication Equipment

PROJECT: NH-0015-01(060) / 105243101 – Adams County and Concordia Parish, LA

Section 907-662, Video Communication Equipment, is hereby added to and made a part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

907-662.01--Description. This Section specifies the minimum requirements for video communications equipment furnished and installed on this project. The work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, and test a Video Communications System for this project.

The Video Communication equipment will transport digitized video signals and full duplex data communications for the CCTV Camera System over the IP-based Ethernet network utilizing video encoders and decoders.

The Contractor shall supply, install, test and integrate the video equipment as indicated on the Plans and as specified in this section.

907-662.02--Materials. All proposed encoding and decoding equipment and software shall comply with the following minimum requirements:

907-662.02.1--General Requirements. All digital Video Encoders (VE) and Video Decoders (VD) provided on this project shall support the following general requirements:

- 1) New VE and VD shall be provided under this Project and shall be from the same manufacturer and be fully compatible and interoperable with each type provided, the network equipment and the MDOT central video control system.
- 2) Interoperability: The VE shall fully interoperate with the VD (hardware and/or software) as defined in these Special Provisions.
- 3) Mean Time Between Failures (MTBF): The VE shall have a minimum MTBF of 20,000 hours
- 4) Latency: The end-to-end system latency between the VE appliance and the VD appliance shall be no more than 300 msec, not including network delays. The VE shall support various frame adjustments to minimize latency.
- 5) Remote Control: VE shall be remotely adjustable via a video management system or command set so that a technician can adjust image quality controls for contrast, brightness, hue and color levels.

- 6) Decoding: The Contractor shall provide encoders from a manufacturer that also has hardware and software products capable of auto-detecting the compression, resolution and bit rate and capable of decoding the encoded digitized video signal .
- 7) Video equipment shall support the NTSC signal format.

907-662.02.2--Type A – Video Encoder/Decoder Requirements. The minimum Type A – Video Encoder (VE) and Video Decoder (VD) requirements are as follows:

907-662.02.2.1--Video and Data Requirements. The Type A VE/VD shall meet the following minimum video and data requirements:

- 1) Video Compression Technology: Moving Picture Experts Group (MPEG-4).
- 2) VE shall be a hardware-based network device able to accept a minimum of one analog National Television System Committee (NTSC) video input and digitize it for transport across IP networks.
- 3) VE and VD shall be specifically designed for network operation, and adhere to ISO 14496-2:1999 standard for MPEG-4 technology.
- 4) VE MPEG-4 video streams shall be compatible with Jupiter video wall controller MPEG IV video cards or as approved by the Engineer.
- 5) Support the following minimum encoded resolutions:
 - a. NTSC - Full D1
 - b. CIF/SIF
 - c. QCIF/QSIF
- 6) Dynamic bandwidth control: Provide up to 3 Mbps or greater rates. The data rate shall be defined as the maximum committed bandwidth to be utilized, which includes data bursting.
- 7) Bandwidth increments shall be user configurable via the network. The minimum bandwidth setting shall be 56Kbs or less.
- 8) The default bandwidth for the VE as furnished shall be set to 2Mbps.
- 9) Provide on-board buffered video memory for protection against potential network disruptions.
- 10) There shall be a software decoder that is compatible with the provided hardware VE.

907-662.02.2.2--Serial Data Interface Requirements. The Type A VE/VD shall meet the following minimum serial data interface requirements:

- 1) The VE/VD shall provide bi-directional serial communications over Ethernet 10/100 Base-TX via the following methods:
 - a. VE serial port to VD serial port data stream.
 - b. IP socket to VE/VD serial port by TCP protocol.
 - c. The serial interface shall be transparent to the device (i.e. no additional or special protocols shall be used to communicate between the CCTV control interface).
- 2) Category 6 or higher quality patch cords shall be used between VE/VD and the network device (i.e., Ethernet switch/router, etc.).
- 3) The video equipment shall provide the ability to establish an IP connection directly from an Operator Workstation or server application to any VE IP address and socket number transport serial data.

- 4) Each VE/VD shall have a minimum of one serial port that can be configured to provide EIA-232/422/485 serial interface port.
- 5) Each serial port shall provide full-duplex serial interface and data rates up to 115.2 Kbps (minimum).
- 6) Serial port shall be software configurable, locally 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., baud rate, the number of bits, parity, stop bits, flow control, etc.) via the management software provided.
- 7) No serial adaptors or interface converters shall be permitted.
- 8) Each VE shall provide encapsulation of the video streams in a UDP packet for network transmission.
- 9) Each VE shall use the serial interface port to support PTZ camera control functions.
- 10) VE serial port shall provide IP addressing and socket number selection.
- 11) The video equipment shall provide the capability to establish an IP connection directly from an Operator Workstation to any VE IP address and socket number to transport serial data, independent of whether or not the video stream for that VE is being viewed.

907-662.02.2.3--Network Interface Requirements. The Type A VE/VD shall meet the following minimum network interface requirements:

- 1) Network connection shall be Ethernet Compliant IEEE 802.3, 802.3u, and 802.3x; 10/100 Mbps or higher, auto sensing full/half-duplex operations.
- 2) The VE/VD shall connect to a network device (i.e., media converter, Ethernet switch/router, IP wireless device, etc.) via a RJ-45 connector through Category 6.
- 3) All Category 6 ports shall be compliant with T568 pin-outs and shall be rated at 10/100Mbps.
- 4) The 10/100Base-TX, as required in the IEEE 802.3 standards and amendments shall be the network connection to the network devices with Type RJ-45 connectors.
- 5) All VE and VD included within this project shall be fully interoperable without customization or the addition of appliances within either the remote or primary communications network. All devices shall be fully interoperable with the backbone communications network.

907-662.02.2.4--Physical and Environmental Requirements. The Type A VE/VD shall meet the following minimum physical and environmental requirements:

- 1) The Video Encoder/Decoder shall have the following ports:
 - a. Network: 10/100 Mbps RJ-45 or as directed by MDOT.
 - b. Video Connector: BNC
 - c. Serial Data Interface: One (1) minimum RJ-45 ports/connector. Serial port may utilize D-sub connectors or screw terminals as approved by the MDOT.
- 2) The video input performance measures shall comply with NTSC and EIA requirements, including the EIA-170 standard, with a nominal composite video of 1 volt peak-to-peak (Vp-p). The equipment shall have an electrical impedance of 75 ohms
- 3) The VE shall operate under the following conditions: Temperature range from -20°C to +70°C (-4°F to +158°F) and relative humidity between 10% and 90% non-condensing.

- 4) VE shall be installed in a field cabinet with protection from moisture and airborne contaminants, blowing rain, wind, blowing sand, blowing dust, humidity, roadside pollutants, vandalism, and theft.
- 5) The VE shall be resistant to vibration and shock, and conforms to Sections 2.1.9 and 2.1.10, respectively, of the NEMA TS 2 standard.
- 6) The VD shall operate under the following conditions: Temperature range from 0°C to +50°C (+32°F to +122°F) and relative humidity between 10% to 90% non-condensing.
- 7) VE shall be PCB conformal coated to provide a level of protection from humidity, contaminants, dust, pollution, etc.
- 8) VE/VD shall provide a local status display capability for video, data, network interfaces and power. Status indicators shall be LED.
- 9) Cable connections (data/video/power) shall require basic tools for installation or removal and be designed with positive locking devices such that they will not vibrate loose.
- 10) Provide external markings for all connectors and indicators. Replaceable components shall be permanently marked and traceable to the supplied documentation, including schematics and parts list. The external markings shall include the product function name, model number, serial number, and manufacturer's name.
- 11) All parts required for a completed video system shall be made of corrosion-resistant materials, such as stainless steel, anodized aluminum, brass, or gold-plated metal.
- 12) All VE shall be shelf, rack/module, or DIN rail mountable. Other mounting options may be submitted for review and approval by the Engineer.

907-662.02.2.5--On-Screen Display Requirements. The minimum on-screen text insertion and display requirements include:

- 1) VE / VD shall support a static text insertion capability and shall be capable of inserting a minimum of one (1) user configurable text messages of up to 20 characters in length.
- 2) VE / VD shall be able to generate a date and time stamp in the video stream and shall be synchronized to a time-server on the network.
- 3) VE / VD shall be able to display camera title in the video stream.
- 4) VE / VD shall have the option to display or not display the on-screen text.

907-662.02.2.6--Management Requirements. The minimum management system requirements shall include:

- 1) The VE/VD shall be manageable through SNMP (v2), HTTP, FTP/TFTP, and/or Telnet/CLI.
- 2) The management system shall be provided to remotely configure and diagnose the VE/VD.
- 3) Have capability to reset/reboot and firmware upload via the methods listed above.
- 4) The Contractor shall work with the MDOT to provide graphical icons of video devices and groups of devices, which can be displayed on a GIS map and accessed and provide real-time color-coded status information.
- 5) Have the capability to remotely change any of the device configuration settings including bit rates, image resolution and compression settings and serial interface type.
- 6) Provide for screen text insertion of user messages.
- 7) Provide pre-defined optimized MPEG settings for various bit rates.

- 8) Provide update capability for the firmware in the VE from the central site. Ability to access the serial number, firmware number, IP address and equipment configuration. Have the capability to upload firmware to multiple units automatically.
- 9) Provide ability for remote firmware upgrades.

907-662.02.2.7--Electrical Requirements. The minimum electrical/power requirements include:

- 1) Power: nominal input voltage of 120 VAC, 60 Hz. ± 3 Hz
- 2) The equipment shall operate within a voltage range of 89 VAC to 135 VAC.
- 3) If the device requires operating voltages of less than 120 VAC, supply the appropriate voltage converter. All voltage conversion devices shall also be temperature hardened as specified herein for location (field or central).
- 4) Power Consumption shall not exceed 30 Watts for each video device.
- 5) The VE/VD shall provide for automatic recovery from an over or under voltage condition when prime power has returned to the tolerance values specified herein. All configuration parameters shall be stored in non-volatile memory and no reprogramming or manual adjustments shall be required upon power recovery.
- 6) The VE/VD shall be provided with surge protection for a 100% over voltage condition for a 10 ms duration and with a response time of 1 ps or less.
- 7) Plug type transformer/power supplies shall be provided with a fastening device that shall securely attach the unit to the power outlet. No plug-in types will be accepted without a fastening mechanism. All corded transformers shall be mountable with the ability to neatly secure power cords.
- 8) Include UL listing.

907-662.03--Construction Requirements. All video equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

- 1) The Contractor shall furnish and install auxiliary video equipment in support of a communications network that will transport video as specified in the Special Provisions.
- 2) Materials and associated accessories/adapters shall not be applied contrary to the manufacturer's recommendations and standard practices.
- 3) The Contractor shall furnish all tools, equipment, materials, supplies, and manufactured hardware, and shall perform all operations and equipment integration necessary to provide complete, fully operational video equipment as specified herein, within the Plan set, and/or in the Contract Documents.
- 4) The Contractor shall provide the MDOT with a written inventory of items received and the condition in which they were received. Once received, the equipment becomes the Contractor's responsibility. The Contractor shall provide all labor and equipment necessary to move inventory out of the designated storage facility and to transport it to the installation location. All equipment shall be installed according to the manufacturer's recommendations or as directed by the MDOT.

907-662.03.1--Testing Requirements. Testing shall include, but not be limited to, the following:

907-662.03.1.1--Testing General Requirements. The Contractor shall conduct a project testing program for all VE and VD provided on this project. The project testing program for VE/VD shall include but is not limited to the specific requirements in this subsection.

All test results shall confirm physical and performance compliance with these Special Provisions.

Submit all test results documentation to the Engineer for review within 14 calendar days of completion of the tests.

All test results shall be reviewed and approved prior to continuing with further tests and deployment activities.

907-662.03.1.2--Stand Alone Acceptance Test (SAT). The Contractor shall perform a complete SAT on all video equipment and materials associated with the field device site, including but not limited to electrical service, fiber optic infrastructure, cable, etc. A SAT shall be conducted at every field device site with video equipment.

The SAT shall demonstrate that all video equipment and materials are in full compliance with all MDOT project requirements and fully functional as installed and in final configuration. The SAT shall demonstrate full compliance with all operational and performance requirements of the project requirements including communications and control from the TMC. All SATs also include a visual inspection of the cabinet and all construction elements at the site to ensure they are compliant with the Special Provisions. The SATs for each site type shall include but are not limited to the following:

- 1) Verify that physical construction has been completed as detailed in the plans.
- 2) Inspect the quality and tightness of ground and surge protector connections.
- 3) Verify proper voltages for all power supplies and related power circuits.
- 4) Connect devices to the power sources.
- 5) Verify all connections, including correct installation of communication and power cables.
- 6) Verify video image is present and free from over-saturation and any other image defect in both color and monochrome mode.
- 7) Verify network connection to the VE through ping and telnet session from a remote PC.
- 8) Verify serial data transmission (for Type A devices) through the VE serial ports.
- 9) Verify support of unicast, multicast and network management features.

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) on-site warranty for VE and VD and all other installed and/or attached appurtenances.
- 3) The 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.

907-662.04--Method of Measurement. Video Encoders and Decoders will be measured in units of each.

907-662.05--Basis of Payment. Video Encoders and Decoders will be paid for at the contract price per each, which price shall include furnishing, installing, warranties, full operation and configuring the Video Encoder and Video Decoder in accordance with applicable Standards, Specifications, and requirements. The price bid shall also include the mounting hardware, Cat-5e patch cords, power cable, user manuals, testing, warranties, serial cable/port converters as necessary, and any and all other equipment required to complete installation of the unit. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work.

Payment will be made under:

907-662-A: Video Encoder, Type ___ - per each

907-662-B: Video Decoder, Type ___ - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-665-4

CODE: (SP)

DATE: 03/19/2009

SUBJECT: Aesthetic Lighting

PROJECT: NH-0015-01(060) / 105243301 – Adams County & Concordia Parrish, LA

Section 907-665, Aesthetic Lighting, is hereby added to and made a part of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-665--AESTHETIC LIGHTING

907-665.01--Description. This work shall consist of furnishing and installing all electrical items necessary to provide a complete and functional aesthetic lighting system as shown on the plans and as specified herein. This work shall include but not be limited to service entrance disconnect switch, feeder conductors, raceways, lighting controller, branch circuit conductors, connectors, junction boxes and luminaires.

907-665.02--Materials. All electrical construction and materials shall be in accordance with the applicable requirements of Sections 681, 682 and 723 of the Standard Specifications and the following:

907-665.02.1--Electric Service. Secondary electrical service shall be 277/480 volts, three phase, 4 wire, 60 Hz. The contractor shall provide the conduit and conductor connection and any other equipment required by the utility company. Except as listed below, all work shall comply with Section 682 of the Standard Specifications.

907-656.02.2--Surface Mounted Junction Boxes. Surface mounted junction boxes shall be cast iron, inside flanged and gasketed for a NEMA 4 rating. Boxes shall be of size and characteristics as indicated on the plans.

907-665.02.3--Lighting Controller. The Controller shall be rated NEMA 3R and constructed of aluminum or stainless steel, minimum 12 gauge. The cabinet shall be of clean cut design having no sharp edges, corners or projections. Nominal size of 48" high by 48" wide by 18" deep with mounted base.

Permanently attached hinged meter cover to open 180 degrees to rest position allowing full side access to meter socket area. Meter socket to be approved by the local power company. Cabinet shall be divided into meter compartment, lighting compartment and utility compartment. The meter compartment and the lighting compartment to have fully hinged doors. All doors shall have suitable means of padlocking. In addition to the hinged door, the roadway light compartment to have a dead front panel. The controller shall provide room to house a Lighting

Control Module which will provide programmable control for automatic on/off control. The Controller shall be U.L. listed and shall be installed in a neat workman like manner.

The Lighting Control Module shall be a single self-contained unit with a basic Controller/Clock and four (4) relay module. The Controller/Clock shall receive all power from the power supply, integral to the Lighting Control Module. The Controller/Clock shall distribute power to all connected devices and accessories as required. The Controller/Clock shall be pre-installed into the cabinet by the factory.

The Lighting Control Module shall provide the following functions, features and certifications:

- Integrated astronomical time clock
- Relays rated for all light sources as well as motors
- Relays individually replaceable
- Single pole and two pole relays fit in the same space
- Cabinet is prewired and tested
- Standard power supply has inputs for 277-Volt circuits
- Cabinets may be surface mounted
- Relays rated at 20A for N/O or N/C continuous use lighting loads
- 10-year warranty on relay cards
- UL 924
- UL and CUL Listed
- CEC Title 24 Compliant
- ASHRAE 90.1 Compliant

The Controller/Clock shall provide the following functions and features:

- Integrated astronomic time clock (ATC) automates switching with up to 999 user-defined events and 999 holiday schedules.
- ATC events may be triggered by time of day or by a time offset from either sunrise or sunset.
- System location is programmable by specifying your location.
- ATC automatically adjusts for daylight savings time and leap year
- Programmable "blink warn" and user programmable refresh time.
- Overrides available at cabinet for controls, time clock, and relays.
- Located in the cabinet for easy access.
- Eight (8) low voltage switches
- Emergency sensing control power loss circuitry
- Prioritization of switch inputs and TOD schedules
- Switch input timers
- Timed overrides
- Master override (On/Auto/Off)
 - Individual override switch per relay

Lighting Control Module shall have a modem for telephone communication. The modem shall provide touch-tone remote control from an incoming caller.

907-665.02.4--Aesthetic Up-light Luminaires. Luminaires shall be constructed of marine grade die-cast aluminum alloy with integrally cast heat dissipating fins and a built-in aiming device. Marine grade alloy is defined as having less than 4/10% (0.4%) copper content in the aluminum alloy. Standard finish shall be gray Ultra-Clad polyester powder coating, 2.5-mil nominal thickness, electrostatically applied and oven cured.

The reflector shall be composed of individual segments that have not been machine-formed to ensure maximum efficiency. The optical assembly shall be sealed and dust tight (constructed to IP65 standards) and shall not have weep holes, filters or any other route for direct exchange with outside air. The lens assembly shall consist of a minimum of 7/32" thick tempered glass mounted to a die cast frame and then sealed to the luminaire housing with a continuous extruded gasket and attached to the luminaire housing with multiple stainless steel screws.

The lamp shall be accessed from below through a removable socket assembly that does not require unfastening or disturbing the lens, lens gasket, lens frame positioning or luminaire aiming. A Stabilux ceramic fabric insulated retainer shall be used to support the glass end of the lamp to provide precise photometric alignment within the reflector and resist breakage due to mechanical shock and vibration.

The ballast shall be a pulse start, metal halide to power a 1000-watt lamp at 277 volts. The ballast shall be isolated from the optical housing and be arranged on the luminaire as separate but integral components. Core and coil assembly shall be encapsulated in silica-filled polyester epoxy resin to assure quiet operation, maximum heat dissipation and protection from moisture and corrosion. The capacitor, and starting aids where required, shall be located in the ballast enclosure but not imbedded in the encapsulated to facilitate field maintenance.

Luminaire shall be UL 1598 listed as suitable for wet locations with no special provisions for above horizontal aiming; UL 1598A Marine listing shall be available as an option. Luminaire shall carry a full Seven-Year Warranty against defects in workmanship. Luminaire shall be manufactured in an ISO 9001 Certified facility. Luminaire shall be rated for 3 Gs vibration.

The luminaire shall be Widelite F Series Industrial Floodlight with Type C reflector or approved equal.

907-665.02.5--Pier Luminaires. The housing shall be a one-piece die-cast, low copper aluminum in a cylindrical shape with integral cooling fins over the entire length and 1/8-inch minimum wall thickness. The door frame shall have a one-piece extruded and vulcanized silicone gasket between housing and the frame, concealed when fixture is closed.

The frame shall be connected with concealed integral cast slip hinges with stainless steel pins. The housing shall be secured to the electrical compartment by four stainless steel hex head bolts and sealed by a one-piece silicone gasket.

The door frame shall be one-piece die-cast, low copper aluminum with integral cooling fins, 1/8" minimum wall thickness. A removable stop-arm shall be provided to limit door frame opening. Three sixteenths-inch (3/16") thick clear tempered glass lens shall be sealed to the lens frame by a one-piece molded silicone gasket. The door frame shall be secured to the housing by four stainless steel recessed captive allen-head screws.

The ballast shall be a pulse start, metal halide to power a 1000-watt lamp at 277 volts. The ballast shall be isolated from the optical housing and be arranged on the luminaire as separate but integral components. The ballast compartment shall be heavy wall cast aluminum body and cover. Access cover shall be secured with four stainless steel hex socket cap screws and provided with hanger wire for support during servicing. The reflector assemblies shall be specular Alzak® aluminum rigidly mounted in a clear anodized aluminum frame which attaches to the housing as a one-piece assembly.

The fixture shall be finished with super TGIC thermoset polyester powder coat paint, 2.5-mil nominal thickness, applied over a titanated zirconium conversion coating; 2500-hour salt spray test endurance rating. Color shall be Light Gray.

907-665.03--Construction Requirements. All components of the bridge aesthetic lighting shall be installed in accordance with the plans and specifications.

The lighting controller foundation shall be placed in a single pour against firm ground, as indicated on the Plans. The exposed portions shall be formed and finished to present a neat appearance. Forms shall be true to line and grade and rigidly and securely braced in place. Ground rods, conduit ends, and anchor bolts shall be placed in their proper positions and to the proper heights. Both the forms and the ground which will be in contact with the concrete shall be thoroughly moistened before placing concrete. Concrete shall conform to requirements for Class A concrete.

907-665.04--Method of Measurement. Bridge Aesthetic Lighting will be measured for payment as a lump sum price, which includes all items necessary to complete the installation.

907-665.05--Basis of Payment. Bridge Aesthetic Lighting, measured as prescribed above, will be paid for at the contract lump sum price bid, which price shall be full compensation for furnishing and installing all cable, conduits, transformers, boxes, controllers, light fixtures and lamps, supports, and for all labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under the following pay item:

907-665-B: Bridge Aesthetic Lighting

- lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-668-1

CODE: (SP)

DATE: 04/01/2009

SUBJECT: Traffic Signal Conduit

PROJECT: NH-0015-01(060) / 105243101 – Adams County and Concordia Parish, LA

Section 668, Traffic Signal Conduit, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-668.03--Construction Requirements. After the last paragraph of Subsection 668.03.1 on page 556 add the following:

- (i) Where indicated on the plans, individual conduits shall be configured into a continuous duct bank from terminal to terminal.

907-668.04--Method of Measurement. Delete Subsection 668.04 on page 559 and substitute the following:

Traffic signal conduit or conduit bank will be measured by the linear foot computed horizontally along the signal conduit or conduit bank, such measurement being made from the point of beginning to the point of termination of all sections of conduit or conduit bank, in trench, under roadways, or supported on structures.

Jacking, drilling, excavating, backfilling and replacement of sod will not be measured for separate payment, but shall be incidental to and included in the contract unit prices for Direct Burial and Jacked or Drilled underground installations as applicable.

Messenger cable and other supporting devices for aerial supported signal conduit or conduit bank will not be measured for separate payment but shall be incidental to and included in the contract unit price for traffic signal conduit, aerial supported.

When a “conduit bank” is specified, the per linear foot price of the conduit bank shall include the total number of conduits specified. Each conduit is NOT paid for separately.

The bid price for underground conduit shall be the same regardless of whether it is installed by trenching, plowing or boring, except for locations specifically identified as “Bored” in the contract plans and those items shall be paid for under the drilled or jacked pay item.

907-668.05--Basis of Payment. Delete the first paragraph of Subsection 668.05 on page 559, and substitute the following:

Traffic signal conduit or conduit bank, measured as prescribed above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for furnishing, laying, placing, forming, curing, connecting, supporting aerially, cleaning and testing all conduit, pull boxes, junction boxes not specified on plans or ordered, and incidental materials; for all excavating, backfilling, boring, drilling and/or jacking necessary for subsurface installations; for replacing sod; encasement in concrete; final cleaning up; and for all labor, equipment, tools and incidentals necessary to complete the work.

After the last Pay Item on page 560, add the following Pay Items:

- 907-668-E: Traffic Signal Conduit Bank, Underground, Type,
Size and Number - per linear foot
- 907-668-F: Traffic Signal Conduit Bank, Underground Drilled or Jacked,
Type, Size and Number - per linear foot
- 907-668-G: Traffic Signal Conduit Bank, Aerial Supported, Type,
Size and Number - per linear foot
- 907-668-H: Traffic Signal Conduit Bank, Underground Encased in Concrete,
Type, Size and Number - per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-681-2

CODE: (IS)

DATE: 12/02/2004

SUBJECT: Submittal Data

Section 681, Roadway Lighting System, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete the first paragraph of Subsection 681.04.2 on page 568 and substitute the following:

907-681.04--Basic Materials and Methods. The Contractor shall submit to the Engineer eight (8) copies of submittal data for all electrical materials and equipment proposed for use not later than forty-five (45) days prior to beginning any lighting work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-682-10

CODE: (SP)

DATE: 03/05/2009

SUBJECT: Branch Circuit Wire

PROJECT: NH-0015-01(060) / 105243/301 – Adams County & Concordia Parrish, LA

Section 682, Electrical Distribution System, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-682.01--Description. After the last paragraph of Subsection 682.01 on page 570, add the following:

Where called for on the plans, some installations (both underground and structure mounted) will require only conductors. Branch circuit wire will consist of disconnecting and removal of existing conductors and grounds, repair or replacement of short sections of conduit, cleaning the conduit, installing, testing and connecting new wire and any additional hardware necessary to complete the work.

907-682.03--Construction.

907-682.03.2--Secondary Distribution. At the end of Subsection 682.03.2 on page 572, add the following:

Branch circuit wire shall consist of disconnecting and removal of any existing conductors and ground, repair or replacement of conduit, cleaning the existing conduit, installation of new wire of the type and size specified on the plans, and connecting the new wire. All conductors shall be tested in accordance with Subsection 681.02.1. All hardware, tools and materials for a complete and functioning branch circuit install shall be furnished by the Contractor.

907-682.05--Basis of Payment. After the last pay item listed in Subsection 682.05 on page 573, add the following:

907-682-A1: Branch Circuit Wire, Size, No. of Conductors - per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-683-9

CODE: (SP)

DATE: 03/05/2009

SUBJECT: Repair of Bridge Lighting Assembly

PROJECT: NH-0015-01(060) / 105243301 – Adams County & Concordia Parrish, LA

Section 683, Lighting Assemblies, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as amended by this special provision is applicable for Repair of Bridge Lighting Assemblies Only.

907-683.01--Description. In addition to the requirements set forth in Section 681, the existing bridge lighting assemblies shall be repaired and restored to complete and working order. The existing wiring, luminaires and other components shall be removed and replaced with new equipment that meets current MDOT specifications.

907-683.02--Materials.

907-683.02.1--Bridge Lighting Assemblies. Bridge lighting assemblies referred to in this special provision shall consist of luminaire, mast arm (mounted to the bridge structure), junction box, remote ballast, conduit and all items associated with a specific luminaire and separate from the bridge electrical distribution system.

All existing bridge lighting assemblies are to be repaired. All existing roadway luminaires shall be removed and become the property of the Contractor. They shall be replaced with new metal halide luminaires. All mast arms, conduits and junction boxes shall remain and be inspected for signs of rust or corrosion. Any defects that are found shall be repaired. The areas of corrosion shall be, as a minimum, cleaned and repainted with a zinc rich (cold galvanizing) paint to protect them from further corrosion. These areas shall also have a final coat of paint colored to match the rest of the surface.

Damaged conduit and junction boxes shall be repaired and/or replaced.

Missing bolts and parts of the junction box shall be replaced. Missing bolts and parts of the mast arms shall be replaced.

Each bridge lighting assembly shall be marked with a number. These numbers shall be a minimum of three inches (3”) tall and applied using retroreflective stick-on numbers. Coordinate with MDOT maintenance in the selection and positioning of the numbers.

907-683.02.2--Luminaires. New bridge luminaires shall be mast arm mounted with 250 watt or 400 watt metal halide lamps as required on the plans. Luminaires shall have an external ballast as described below and as shown on the plans. The luminaires shall be rated for 3 Gs vibration.

907-683.02.2.1--General. The bridge luminaires shall be a roadway type luminaire as shown on the plans. The luminaire shall include a precision die-cast aluminum upper and lower housing with an electrocoat gray paint finish. The lower housing shall be hinged and separable and shall hold the refractor in place. The internal slip fitter shall contain two (2) bolts which do not pass through the housing but tighten from below when the lower housing is in the dropped position.

907-683.02.2.2--Ballast. The ballast for luminaires shall be enclosed in an external weather tight housing. The ballast shall be fused with inline fuses sized as per manufacturer's recommendations. The ballast shall be copper wound. The ballast shall reliably start and operate the lamp in ambient temperatures down to -20°F. Luminaire and ballast shall be from the same manufacturer.

Electrical characteristics shall closely conform to the following:

	<u>400-watt</u>	<u>250-watt</u>
Ballast Type	Lead	Lead
Primary Voltage	480V	480V
Secondary Voltage (open circuit)	215V	222V
Power Factor	over 90%	over 90%
Input Watts	465W	295W
Wattage Regulation	<u>±10% at 10% line volt variation</u>	
Minimum Ambient Starting Temperature	-20°F	-20°F
Operating Line Current	1.1A	0.63A

907-683.02.2.3--Mounting. The mounting for bridge luminaires shall be with an adjustable slipfitter for a 2-inch pipe bracket.

Mounting for the external ballast shall be as shown on the plans.

907-683.02.2.4--Lamp Socket. The lamp socket shall be heavy-duty, nickel-plated, porcelain enclosed.

907-683.02.2.5--Photometrics. The luminaire shall provide Illuminating Engineering Society (I.E.S.) Type III medium cutoff distribution as shown on the plans and shall have an output efficiency of 60% bare lamp lumens.

The lamp arc tube shall be optically shielded above 90 degrees from the nadir.

Test reports with illumination data for each type distribution may be requested with luminaire submittals. These reports must be certified, or conducted by an independent testing laboratory.

907-683.02.3--Lamps. Lamps for bridge luminaires shall be universal burning 250-watt or 400-watt metal halide. The lamp shall be mogul base and ET-18 bulb designation. The lamp shall meet or exceed the following criteria:

	<u>400-watt</u>	<u>250-watt</u>
Mean Lumens	23,500	18,100
Initial Lumens	36,000	20,500
Rated Average Life at 10 hr/start	20,000	20,000

907-683.02.4--Miscellaneous. Wiring from the luminaire to the ballast and from the ballast to the electrical distribution system shall be #10 AWG, THHN. Fuses and fuse holders on bridge lighting assemblies shall be replaced.

Other materials shall be provided as per plans to provide a complete and operating lighting assembly. These items shall be included in the bid price to repair the bridge lighting assembly and are not a separate pay item.

All incidental items necessary for complete and working lighting assemblies shall be provided whether or not mentioned in these specifications.

907-683.03--Construction Requirements. All components of the bridge lighting assemblies shall be installed as shown in the plans, as per manufacturer’s guidelines, or in accordance with this specification.

907-683.03.1--Field Assembly of All Components. Repair work will require luminaires to be taken down and new luminaires, along with additional electrical equipment to be installed. Due care and caution will be taken to accomplish this. Use qualified workmen only.

Wiring, luminaires, and all electrical components shall be installed as per manufacturer's guidelines.

907-683.04--Method of Measurement. Repair of Bridge Lighting Assembly will be measured as a unit per each, and will include repairs to existing bridge lighting assemblies within the project. This will include purchasing, installing and testing all items needed to return all bridge lighting assemblies to full service.

907-683.05--Basis of Payment. Repair of Bridge Lighting Assembly, measured as prescribed above, shall be paid for at the contract price per each, which price shall be full compensation for various work needed on each bridge lighting assembly; for furnishing all materials; for constructing, erecting, installing, connecting and testing; for luminaires, ballasts, lamps, conduits, wire, fuses, fuse holders and other hardware; for final clean up; and for all equipment, labor, tools and incidentals necessary for completion of the work.

Payment will be made under:

907-683-H4: Repair of Bridge Lighting Assembly, Type - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-701-3

DATE: 10/01/2008

SUBJECT: Hydraulic Cement

In Subsection 907-701.02.2.1 on page 3, delete the line in Table 1 addressing Severe Soluble Sulfate Conditions, and substitute the following:

Severe	0.20 - 2.00	1,500 - 10,000	Type I cement with a replacement by weight of 50% GGBFS, or Type II ** cement with one of the following replacements of cement by weight: 25% Class F fly ash, 50% GGBFS, 10% metakaolin, or 8% silica fume
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MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-701-3

CODE: (IS)

DATE: 11/30/2007

SUBJECT: Hydraulic Cement

Section 701, Hydraulic Cement, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete Subsection 701.01 on pages 595 & 596, and substitute the following:

907-701.01--General. The following requirements shall be applicable to hydraulic cement:

Only hydraulic cements conforming to Section 701 shall be used. Hydraulic cements shall not be listed or designated as meeting more than one AASHTO or Department type.

Different brands of hydraulic cement, or the same brand of hydraulic cement from different mills, shall not be mixed or used alternately in any one class of construction or structure, without written permission from the Engineer; except that this requirement will not be applicable to hydraulic cement treatment of design soils, or bases.

The Contractor shall provide suitable means for storing and protecting the hydraulic cement against dampness. Hydraulic cement, which for any reason, has become partially set or which contains lumps of caked hydraulic cement will be rejected. Hydraulic cement salvaged from discarded or used bags shall not be used.

The temperature of bulk hydraulic cement shall not be greater than 165°F at the time of incorporation in the mix.

Acceptance of hydraulic cement will be based on the certification program as described in the Department's Materials Division Inspection, Testing, and Certification Manual and job control sampling and testing as established by Department SOP.

Retests of hydraulic cement may be made for soundness and expansion within 28 days of test failure and, if the hydraulic cement passes, it may be accepted. Hydraulic cement shall not be rejected due to failure to meet the fineness requirements if upon retests after drying at 212°F for one hour, it meets such requirements.

Delete Subsection 701.02 on page 596, and substitute the following:

907-701.02--Portland Cement.

907-701.02.1--General.

907-701.02.1.1--Types of Portland Cement. Portland cement (cement) shall be either Type I or Type II conforming to AASHTO Designation: M85 or Type I(MS), as defined by the description below Table 1. Type III cement conforming to AASHTO Designation: M85 or Type III(MS), as defined by the description below Table 1, may be used for the production of precast or precast-prestressed concrete members.

907-701.02.1.2--Alkali Content. All cement types in this Subsection shall meet the Equivalent alkali content requirement for low-alkali cements listed in AASHTO Designation: M85, Table 2.

907-701.02.2--Replacement by Other Cementitious Materials. The maximum replacement of cement by weight is 25% for fly ash or 50% for ground granulated blast furnace slag (GGBFS). The minimum tolerance for replacement shall be 5% below the maximum replacement content. Replacement contents below this minimum tolerance by fly ash or GGBFS may be used, but shall not be given any special considerations, like the maximum acceptance temperature for Portland cement concrete containing pozzolans. Special considerations shall only apply for replacement of cement by fly ash or GGBFS.

907-701.02.2.1--Portland Cement Concrete Exposed to Soluble Sulfate Conditions or Seawater. When Portland cement concrete is exposed to moderate or severe soluble sulfate conditions, or to seawater, cement types and replacement of cement by Class F fly ash, GGBFS, metakaolin, or silica fume shall be as follows in Table 1.

Table 1- Cementitious Materials for Soluble Sulfate Conditions

Sulfate Exposure	Water-soluble sulfate (SO ₄) in soil, % by mass	Sulfate (SO ₄) in water, ppm	Cementitious material required*
Moderate and Seawater	0.10 - 0.20	150 - 1,500	Type II **, ***, **** cement, or Type I cement with one of the following replacements of cement by weight: 25% Class F fly ash, 50% GGBFS, 10% metakaolin, or 8% silica fume
Severe	0.20 - 2.00	1,500 - 10,000	Type II ** cement with one of the following replacements of cement by weight: 25% Class F fly ash, 50% GGBFS, 10% metakaolin, or 8% silica fume

* The values listed in this table for replacement of Portland cement by the cementitious materials listed are maximums and shall not be exceeded. The minimum tolerance for replacement shall be 0.5% below the maximum replacement content. Replacement contents below this minimum tolerance by the cementitious materials listed in this table do not meet the requirements for the exposure conditions listed and shall not be allowed.

** Type I cement conforming to AASHTO Designation: M85 with a maximum 8% tricalcium aluminate (C₃A) may be used in lieu of Type II cement; this cement is given the designation "Type I(MS)". Type III cement conforming to AASHTO Designation: M85 with a maximum 8% tricalcium aluminate (C₃A) may be used in lieu of Type II cement as allowed in Subsection 907-701.02.1; this cement is given the designation "Type III(MS)".

*** Blended cement meeting the sulfate resistance requirements of Subsection 907-701.04 may be used in lieu of Type II as allowed in Subsection 907-701.04. No additional cementitious materials shall be added to or as a replacement for blended cement.

**** Class F fly ash or GGBFS may be added as a replacement for cement as allowed in Subsection 907-701.02.2.

Class C fly ash shall not be used as a replacement for cement in any of the sulfate exposure conditions listed above.

907-701.02.2.2--Cement for Soil Stabilization Exposed to Soluble Sulfate Conditions or Seawater. When Portland cement for use in soil stabilization is exposed to moderate or severe soluble sulfate conditions, or to seawater, cement types and replacement of cement by Class F fly ash or GGBFS shall meet the requirements of Subsection 907-701.02.2.1. Neither metakaolin nor silica fume shall be used to bring the cementitious materials into compliance with the requirements of Table 1.

Delete Subsection 701.03 on page 596, and substitute the following:

907-701.03--Masonry Cement. Masonry cement shall conform to ASTM Designation: C 91 and shall only be used in masonry applications.

Delete Subsection 701.04 on page 596, and substitute the following:

907-701.04--Blended Hydraulic Cement.

907-701.04.1--General.

907-701.04.1.1--Types of Blended Cement. Blended hydraulic cements (blended cements) shall be of the following types and conform to AASHTO Designation: M 240:

- Type I(SM) – Slag-modified Portland cement
- Type IS – Portland blast-furnace slag cement
- Type I(PM) – Pozzolan-modified Portland cement
- Type IP – Portland-pozzolan cement

Blended cement for use in Portland cement concrete or soil stabilization exposed to the moderate soluble sulfate condition or exposure to seawater as defined in Table 1 shall meet the Sulfate resistance requirement listed in AASHTO Designation: M 240, Table 2 and the “(MS)” suffix shall be added to the type designation.

907-701.04.1.2--Alkali Content. All blended cement types in this Subsection shall meet the Mortar expansion requirements listed in AASHTO Designation: M 240, Table 2.

907-701.04.2--Replacement by Other Cementitious Materials. No additional cementitious materials, such as Portland cement, performance hydraulic cement, fly ash, GGBFS, metakaolin, or others, shall be added to or as a replacement for blended cement.

907-701.04.3--Exposure to Soluble Sulfate Conditions or Seawater. When Portland cement concrete or blended cement for soil stabilization is exposed to moderate soluble sulfate conditions or to seawater, where the moderate soluble sulfate condition is defined in Table 1, the

blended cement shall meet the sulfate resistance requirement listed in AASHTO Designation: M 240, Table 2.

When Portland cement concrete or blended cement for soil stabilization is exposed to severe soluble sulfate conditions, where the severe soluble sulfate condition is defined in Table 1, blended cements shall not be used.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-711-3

CODE: (IS)

DATE: 09/26/2005

SUBJECT: Synthetic Structural Fiber Reinforcement

Section 711, Reinforcement and Wire Rope, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

After Subsection 711.03.4.3 on page 665, add the following:

907-711.04--Synthetic Structural Fiber. Synthetic structural fibers shall meet the requirements of ASTM Designation: C 1116, Section 4.1.3, Note 3. The fibers shall be monofilament made of polypropylene or polypropylene/polyethylene blend meeting the following conditions:

<u>Property</u>	<u>Results</u>
Length, minimum	1.5 inches
Aspect Ratio (length / equivalent diameter)	90
Breaking tenacity, minimum *	530 mN/tex
(Tensile Strength, minimum	70 ksi)
Chord modulus, minimum *	980 cN/tex
(Modulus of Elasticity, minimum	1,300 ksi)

* When tested in accordance with ASTM Designation: D 3822

The dosage rate for the fibers shall be a minimum of three pounds per cubic yard (3 lb / yd³). The dosage rate for the fibers when used in pile encasements shall be a minimum of four pounds per cubic yard (4 lb / yd³).

The manufacturer shall furnish the Engineer three copies of the certified test report(s) showing results of all required tests, and certification that the material meets the specifications.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-713-1

CODE: (IS)

DATE: 12/11/2007

SUBJECT: Admixtures for Concrete

Section 713, Concrete Curing Materials and Admixtures, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

After the second paragraph of Subsection 713.01.2 on page 676, add the following.

Type 1-D compound may be used on bridge rails, median barriers, and other structures requiring a spray finish. When Type 1-D compound is used, it will be the Contractor's responsibility to assure that the compound has dissipated from the structure prior to applying the spray finish and that the spray finish adheres soundly to the structure.

Delete Subsection 713.02 on pages 676 & 677, and substitute the following:

907-713.02--Admixtures for Portland Cement Concrete. Admixtures shall only be approved by the Department for classification as a single type following the applicable types from AASTHO Designation: M 154 or M 194, or the definition of a mid-range water reducer listed below with the following exception: when requested by the manufacturer the Department will consider classifying an admixture as both a Type A and a Type D. Admixtures shall only be used in accordance with the manufacturer's recommended dosage range for that type. Where an admixture is classified as both a Type A and Type D, the dosage range for use as a Type A shall not overlap the dosage range for use as a Type D.

Air-entraining admixtures shall comply with AASHTO Designation: M 154. Set-retarding, accelerating, and/or water-reducing admixtures shall comply with AASHTO Designation: M 194. Mid-range water-reducers are classified as water-reducing admixtures that reduce the mix water a minimum of 8% when compared to a control mix with no admixtures when tested in accordance with the requirements in AASHTO Designation: M 194. The type designation for admixtures approved by the Department and classified as meeting the requirements of a mid-range water-reducer shall be "MR".

907-713.02.1--Source Approval. In order to obtain approval of an admixture, the Producer/Suppliers shall submit to the State Materials Engineer the following for review: certified test reports, made by an acceptable independent laboratory regularly inspected by the Cement and Concrete Reference Laboratory of the National Institutes of Standards and Technology, which show that the admixture meets all the requirements of the applicable AASHTO or Department Specification for the specific type and the dosage range for the specific type of admixture.

907-713.02.2--Specific Requirements. Admixtures containing chlorides will not be permitted.

907-713.02.3--Acceptance. The Department reserves the right to sample, for check tests, any shipment or lot of admixture delivered to a project.

The Department reserves the right to require tests of the material to be furnished, using the specific cement and aggregates proposed for use on the project, as suggested in AASHTO Designation: M 154 and outlined in AASHTO Designation: M 194.

Failure to maintain compliance with any requirement of these specifications shall be cause for rejection of any previously approved source or brand of admixture.

With each new lot of material shipped the Contractor shall submit to the State Materials Engineer, a notarized certification from the manufacturer showing that the material complies with the requirements of the applicable AASHTO or Department Specification.

When an admixture is used, it shall be the responsibility of the Contractor to produce satisfactory results.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-714-5

DATE: 04/21/2009

SUBJECT: Miscellaneous Materials

Delete the second exception under the first paragraph in Subsection 907-714.05.2 regarding the strength activity index.

Delete Subsection 907-714.11.6 on page 5, and substitute the following:

Delete Subsection 714.11.6 on pages 690 and 691, and substitute the following:

907-714.11.6--Rapid Setting Cementitious Patching Compounds for Concrete Repair.

Rapid setting concrete patching compounds must be approved for listing in the Department's "Approved Sources of Materials" prior to use. Upon approval, a product must be recertified every four (4) years to remain on the "Approved Sources of Materials" list. Each product shall be pre-measured and packaged dry by the manufacturer. All liquid solutions included by the manufacturer as components of the packaged material shall be packaged in a watertight container. The manufacturer may include aggregates in the packaged material or recommend the addition of Contractor furnished aggregates.

The type, size and quantity of aggregates, if any, to be added at the job site shall be in accordance with the manufacturer's recommendations and shall meet the requirements of Subsection 703.02 for fine aggregate and Subsection 703.03 for coarse aggregate. Required mixing water to be added at the job site shall meet the requirements of Subsection 714.01.2.

Only those bonding agents, if any, recommended by the manufacturer of the grout or patching compounds may be used for increasing the bond to old concrete or mortar surfaces.

Patching compounds containing soluble chlorides will not be permitted when in contact with steel.

Site preparation, proportioning of materials, mixing, placing and curing shall be performed in accordance with the manufacturer's recommendation for the specific type of application, and the Contractor shall furnish a copy of these recommendations to the Engineer.

Rapid setting cementitious concrete patching compounds, including components to be added at the job site, shall conform to the following physical requirements:

Non-shrink cementitious grouts shall not be permitted for use.

Compressive strength shall equal or exceed 3000 psi in 24 hours in accordance with ASTM C 928 for Type R2 concrete or mortar.

Bond strength shall equal or exceed 1000 psi in 24 hours in accordance with ASTM C 928 for Type R2 concrete or mortar.

The material shall have a maximum length change of $\pm 0.15\%$ in accordance with ASTM C 928 for Type R2 concrete or mortar.

The Contractor shall furnish to the Engineer three copies of the manufacturer's certified test report(s) showing results of all required tests and certification that the material meets the specifications when mixed and placed in accordance with the manufacturer's instructions. When the mixture is to be placed in contact with steel, the certification shall further state that the packaged material contains no chlorides. Certified test report(s) and certification shall be furnished for each lot in a shipment.

The proportioning of materials must be approved by the State Materials Engineer and any subsequent change in proportioning must also be approved. A sample of each component shall be submitted to the Engineer along with the quantity or percentage of each to be blended. At least 45 days must be allowed for initial approval.

The proportioning of materials for subsequent lots may be approved by the State Materials Engineer upon receipt of certification from the manufacturer that the new lot of material is the same composition as that originally approved by the Department and that the material has not been changed or altered in any way.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-714-5

CODE: (IS)

DATE: 06/18/2008

SUBJECT: Miscellaneous Materials

Section 714, Miscellaneous Materials, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-714.05--Fly Ash. Delete Subsections 714.05.1 & 714.05.2 on pages 680 & 681, and substitute the following:

907-714.05.1--General. The fly ash source must be approved for listing in the Department's "Approved Sources of Materials" prior to use. The acceptance of fly ash shall be based on certified test reports, certification of shipment from the supplier, and tests performed on samples obtained after delivery in accordance with the Department's Materials Division Inspection, Testing, and Certification Manual and Department SOP.

Different classes of fly ash or different sources of the same class shall not be mixed or used in the construction of a structure or unit of a structure without written permission from the Engineer.

The Contractor shall provide suitable means for storing and protecting the fly ash from dampness. Separate storage silos, bins, or containers shall be provided for fly ash. Fly ash which has become partially set or contains lumps of caked fly ash shall not be used.

The temperature of the bulk fly ash shall not be greater than 165°F at the time of incorporation into the work.

All classes of fly ash shall meet the supplementary option chemical requirement for available alkalis listed in AASHTO Designation: M 295, Table 2. **Class F fly ash shall have a calcium oxide (CaO) content of less than 6.0%. Class C fly ash shall have a CaO content of greater than or equal to 6.0%.**

The replacement of Portland cement with fly ash shall be in accordance with the applicable replacement content specified in Subsection 907-701.02.2.

In addition to these requirements, fly ash shall meet the following specific requirements for the intended use.

907-714.05.2--Fly Ash for Use in Concrete. When used with Portland cement in the production of concrete or grout, the fly ash shall meet the requirements of AASHTO Designation: M 295, Class C or F, with the following exceptions:

The loss on ignition shall not exceed 6.0 percent.

The strength activity index with Portland cement shall be at least 55 percent of the control mix at seven days.

No additional cementitious materials, such as blended hydraulic cement, GGBFS, metakaolin, or others, shall be added to or as a replacement for Portland cement when used with fly ash.

907-714.06--Ground Granulated Blast Furnace Slag (GGBFS). Delete Subsection 714.06.1 on page 681, and substitute the following:

907-714.06.1--General. The GGBFS source must be approved for listing in the Department's "Approved Sources of Materials" prior to use. The acceptance of GGBFS shall be based on certified test reports, certification of shipment from the supplier, and tests performed on samples obtained after delivery in accordance with the Department's Materials Division Inspection, Testing, and Certification Manual and Department SOP.

The Contractor shall provide suitable means for storing and protecting the GGBFS against dampness and contamination. Separate storage silos, bins, or containers shall be provided for GGBFS. GGBFS which has become partially set, caked or contains lumps shall not be used.

The State Materials Engineer shall be notified in writing of the nature, amount and identity of any processing or other additions made to the GGBFS during production.

GGBFS from different mills shall not be mixed or used alternately in any one class of construction or structure without written permission from the Engineer; except that this requirement will not be applicable to cement treatment of design soils or bases.

No additional cementitious materials, such as blended hydraulic cement, fly ash, metakaolin, or others, shall be added to or as a replacement for Portland cement when used with GGBFS in the production of concrete. The replacement of Portland cement with GGBFS shall be in accordance with the applicable replacement content specified in Subsection 907-701.02.2.

Delete Subsection 714.07 on page 682, and substitute the following:

907-714.07--Additional Cementitious Materials.

907-714.07.1--Metakaolin.

907-714.07.1.1--General. Metakaolin shall only be used as a supplementary cementitious material in Portland cement concrete for compliance with the requirements for cementitious materials exposed to soluble sulfate conditions. Metakaolin from different sources shall not be mixed or used alternately in any one class of construction or structure without written permission from the Engineer. No additional cementitious materials, such as blended hydraulic cement, fly ash, GGBFS, or others, shall be added to or as a replacement for Portland cement when used with metakaolin in the production of concrete.

The State Materials Engineer shall be notified in writing of the nature, amount and identity of any processing, or other additions made to the metakaolin during production.

907-714.07.1.2--Source Approval. The approval of each metakaolin source shall be on a case by case basis as determined by the State Materials Engineer. In order to obtain approval of a metakaolin source, the Producer/Suppliers shall submit to the State Materials Engineer the following for review: certified test reports, made by an acceptable, independent laboratory regularly inspected by the Cement and Concrete Reference Laboratory of the National Institutes of Standards and Technology, which show that the metakaolin meets all the requirements of AASHTO Designation: M295, including the Effectiveness in contributing to sulfate resistance, Procedure A, listed in AASHTO Designation: M295, Table 4 for Supplementary Optional Physical Requirements, and other requirements listed herein.

In order to demonstrate effectiveness in contributing to sulfate resistance, included in this test data shall be results of metakaolin from the proposed source tested in accordance with ASTM Designation: C 1012. There shall be two sets of test specimens per the following:

- a. One set of test specimens shall be prepared using a Type I Portland cement meeting the requirements of AASHTO Designation: M85 and having a tricalcium aluminate (C_3A) content of more than 8.0%,
- b. One set of test specimens shall be prepared using a Type II Portland cement meeting the requirements of AASHTO Designation: M85.
- c. The proposed metakaolin shall be incorporated at the rate of 10% cement replacement in each set of test specimens and shall meet both of the acceptance criteria listed below for source approval.

The requirement for acceptance of the test sample using Type I Portland cement is an expansion of 0.10% or less at the end of six months. The requirement for acceptance of the test sample using Type II Portland cement is an expansion of 0.05% or less at the end of six months.

907-714.07.1.3--Storage. The Contractor shall provide suitable means for storing and protecting the metakaolin against dampness and contamination. Metakaolin which has become partially set, caked, or contains lumps shall not be used.

907-714.07.1.4--Specific Requirements. Metakaolin shall meet the requirements of AASHTO Designation: M 295, Class N with the following modifications:

1. The sum of $SiO_2 + Al_2O_3 + Fe_2O_3$ shall be at least 85%. The Material Safety Data Sheet shall indicate that the amount of crystalline silica, as measured by National Institute of Occupation Safety and Health (NIOSH) 7500 method, after removal of the mica interference, is less than 1.0%.
2. The loss on ignition shall be less than 3.0%.
3. The available alkalies, as equivalent Na_2O , shall not exceed 1.0%.
4. The amount of material retained on a No. 325 mesh sieve shall not exceed 1.0%.
5. The strength activity index at seven (7) days shall be at least 85%.

907-714.07.1.5--Acceptance. With each new lot of material shipped the Contractor shall submit to the State Materials Engineer a certified test report from the manufacturer showing that the material meets the requirements AASHTO Designation: M295, Class N and the requirements of this Subsection.

The Department reserves the right to sample, for check tests, any shipment or lot of metakaolin delivered to a project.

907-714.07.2--Silica Fume.

907-714.07.2.1--General. Silica fume shall only be used as a supplementary cementitious material in Portland cement concrete for compliance with the requirements for cementitious materials exposed to soluble sulfate conditions. Silica fume from different sources shall not be mixed or used alternately in any one class of construction or structure without written permission from the Engineer. No additional cementitious materials, such as blended hydraulic cement, performance hydraulic cement, fly ash, GGBFS, or others, shall be added to or as a replacement for Portland cement when used with silica fume in the production of concrete.

The State Materials Engineer shall be notified in writing of the nature, amount and identity of any processing, or other additions made to the silica fume during production.

907-714.07.2.2--Source Approval. The approval of each silica fume source shall be on a case by case basis as determined by the State Materials Engineer. In order to obtain approval of a silica fume source, the Producer/Suppliers shall submit to the State Materials Engineer the following for review: certified test reports, made by an acceptable, independent laboratory regularly inspected by the Cement and Concrete Reference Laboratory of the National Institutes of Standards and Technology, which show that the silica fume meets all the requirements of AASHTO Designation: M307, Table 3, including the Sulfate resistance expansion, listed in the table for Optional Physical Requirements, and other requirements listed herein.

In order to demonstrate effectiveness in contributing to sulfate resistance, included in this test data shall be results of silica fume from the proposed source tested in accordance with ASTM Designation: C 1012. There shall be two sets of test specimens per the following:

- a. One set of test specimens shall be prepared using a Type I Portland cement meeting the requirements of AASHTO Designation: M85 and having a tricalcium aluminate (C_3A) content of more than 8.0%,
- b. One set of test specimens shall be prepared using a Type II Portland cement meeting the requirements of AASHTO Designation: M85.
- c. The proposed silica fume shall be incorporated at the rate of 8% cement replacement in each set of test specimens and shall meet both of the acceptance criteria listed below for source approval.

The requirement for acceptance of the test sample using Type I Portland cement is an expansion of 0.10% or less at the end of six months. The requirement for acceptance of the test sample using Type II Portland cement is an expansion of 0.05% or less at the end of six months.

907-714.07.2.3--Storage. The Contractor shall provide suitable means for storing and protecting the silica fume against dampness and contamination. Silica fume which has become partially set, caked, or contains lumps shall not be used.

907-714.07.2.4--Acceptance. With each new lot of material shipped, the Contractor shall submit to the State Materials Engineer a certified test report from the manufacturer showing that the material meets the Chemical and Physical Requirements of AASHTO Designation: M307.

The Department reserves the right to sample, for check tests, any shipment or lot of silica fume delivered to a project.

907-714.11.6--Rapid Setting Commercial Grouts and Concrete Patching Compounds. Delete the first sentence of the first paragraph of Subsection 714.11.6 on page 690 and substitute the following:

Rapid setting commercial grouts and concrete patching compounds must be approved for listing in the Department's "Approved Sources of Materials" prior to use. Upon approval, a product must be recertified every four (4) years to remain on the "Approved Sources of Materials" list. Each product shall be pre-measured and packaged dry by the manufacturer.

907-714.11.7--Commercial Grout for Anchoring Doweled Tie Bars in Concrete. Before Subsection 714.11.7.1 on page 691, add the following:

Approved Non-"Fast Set" Epoxy anchor systems as specified below may be used for the repair of concrete pavements that do not involve permanent sustained tension applications or overhead applications.

"*Fast Set Epoxy*" may not be used for any Adhesive Anchor Applications. Adhesive Anchor Systems (Fast Set epoxy or otherwise) shall not be used for permanent sustained tension applications or overhead applications. "Fast Set Epoxy" refers to an epoxy produced by the Sika Corporation called Sikadur AnchorFix-3 and repackaged for sale under a variety of names/companies listed at the Federal Highway Administration web site at the following link:

<http://www.fhwa.dot.gov/Bridge/adhesives.cfm>

907-714.11.7.4--Acceptance Procedure. After the last sentence of the first paragraph of Subsection 714.11.4 on page 691, add the following:

Upon approval, a product must be recertified every four (4) years to remain on the "Approved Sources of Materials" list.

907-714.11.8--Epoxy Joint Repair System.

907-714.11.8.1--General. After the last sentence of the first paragraph of Subsection 714.11.8.1 on page 692, add the following:

Upon approval, a product must be recertified every four (4) years to remain on the "Approved Sources of Materials" list.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-804-8

DATE: 06/09/2008

SUBJECT: Concrete Bridges and Structures

Before the first sentence of 907-804.02.1 on page 1, add the following:

Delete the third and fourth sentences of the first paragraph of Subsection 804.02.1 on page 846, and substitute the following:

For projects with 1000 cubic yards and more, quality control and acceptance shall be achieved through statistical evaluation of test results. For projects of more than 200 but less than 1000 cubic yards, quality control and acceptance shall be achieved by individual test results.

Before the first sentence of Subsection 907-804.02.10 on page 2, add the following:

Delete the first sentence of the first paragraph of Subsection 804.02.10 on page 850 and substitute the following:

At least 30 days prior to production of concrete, the Contractor shall submit to the Engineer proposed concrete mix designs complying with the Department's *Concrete Field Manual*.

Delete the second paragraph of Subsection 907-804.02.11 on page 3 and substitute the following:

For projects with 1000 cubic yards and more, the concrete batch plant shall meet the requirements for an automatic system capable of recording batch weights. It shall also have automatic moisture compensation for the fine aggregate. For projects of more than 200 but less than 1000 cubic yards the plant can be equipped for manual batching with a fine aggregate moisture meter visible to the plant operator.

Delete Subsection 907-804.02.13 on page 4 and substitute the following:

907-804.02.13--Quality Assurance Sampling and Testing. Delete subparagraph c) in Subsection 804.02.13 on page 858 and substitute the following:

- c) For concrete, the Contractor's QC and Department's QA testing of concrete compressive strengths compare when using the data comparison computer program with an alpha value of 0.01 for projects with 1000 cubic yards and more; or, strength comparisons are within 990 psi for projects of more than 200 but less than 1000 cubic yards.

In Table 5 of Subsection 804.02.13 on page 858, delete "and FM" from the requirements on line A.3.

After Subsection 907-804.02.13.1.4 on page 4, add the following:

907-804.02.13.1.5--Compressive Strength. Delete the heading of the second paragraph of Subsection 804.02.13.1.5 on page 860 and substitute the following:

Projects with 1000 Cubic Yards and More.

Delete the second heading in Subsection 804.02.13.1.5 on page 860 and substitute the following:

Projects of More Than 200 but Less Than 1000 Cubic Yards.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-804-8

CODE: (IS)

DATE: 02/05/2008

SUBJECT: Concrete Bridges And Structures

Section 804, Concrete Bridges And Structures, of the 2004 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-804.02-- Materials.

907-804.02.1--General. Add the following materials to the list of materials in Subsection 804.02.1 on page 847.

Blended Cement..... 907-701.01 and 907-701.04
 Ground Granulated Blast Furnace Slag (GGBFS)..... 907-714.06
 Metakaolin 907-714.07
 Silica Fume 907-714.07.2

907-804.02.8--Laboratory Accreditation. In Table 1 of Subsection 804.02.8 on page 849, substitute AASHTO: R 39 - Making and Curing Concrete Test Specimens in the Laboratory for AASHTO: T 126 - Making and Curing Concrete Test Specimens in the Laboratory.

907-804.02.9--Testing Personnel. Delete Table 2 in this subsection and replace it with the following.

Table 2

Concrete Technician's Tasks	Test Method Required	Certification Required**
Sampling or Testing of Plastic Concrete	AASHTO Designation:T 23, T 119, T 121, T 141, T 152, T 196, and ASTM Designation: C 1064	MDOT Class I certification
Compressive Strength Testing of Concrete Cylinders	AASHTO Designation: T 22 and T 231	MDOT Concrete Strength Testing Technician certification
Sampling of Aggregates	AASHTO Designation: T 2	Work under the supervision of an MDOT Class II certified technician
Testing of Aggregates	AASHTO Designation: T 19, T 27, T 84, T 85, T 248, and T 255	MDOT Class II certification
Proportioning of Concrete Mixtures*	AASHTO Designation: M 157 and R 39	MDOT Class III
Interpretation and Application of Maturity Meter Readings	AASHTO Designation: T 325 and ASTM Designation: C 1074	MDOT Class III or Two hours maturity method training

- * Technicians making concrete test specimens for meeting the requirements of Subsection 804.02.10.1.2 shall be MDOT Class I certified and under the direct supervision of an MDOT Class III certified technician.
- ** MDOT Class I certification encompasses the same test procedures and specifications as ACI Concrete Field Testing Technician Grade I. MDOT Class II certification encompasses the same test procedures and specifications as ACI Aggregate Testing Technician - Level 1. MDOT Concrete Strength Testing Technician encompasses the same test procedures and specifications as ACI Concrete Strength Testing certification.

For specifics about the requirements for each level of certification, please refer to the latest edition of the Department's *Concrete Field Manual*. Technicians holding current MDOT Class I, MDOT Class II and/or MDOT Class III certifications shall be acceptable until those certifications expire. Upon a current certification expiration, recertification with the certifications listed in Table 2 shall be required. Technicians currently performing either specific gravity testing of aggregates or compressive strength tests shall be required to either:

- have the required MDOT certification listed in Table 2, or
- have a current MDOT Class III certification or work under the direct supervision of current MDOT Class III technician, and have demonstrated the specific gravity and/or compressive strength test during the inspection of laboratory equipment by the Materials Division, Concrete Section.

907-804.02.10--Portland Cement Concrete Mix Design. Delete the Notes under Table 3 of Subsection 804.02.10 on pages 850 & 851, and substitute the following:

- * Maximum size aggregate shall conform to the concrete mix design for the specified aggregate.
- ** The replacement limits of Portland cement by weight by other cementitious materials (such as fly ash, GGBFS, metakaolin, silica fume, or others) shall be in accordance with the values in Subsection 907-701.02. Other hydraulic cements may be used in accordance with the specifications listed in Section 701.
- *** The slump may be increased up to six (6) inches with an approved mid-range water reducer or up to eight (8) inches with an approved type F or G high range water reducer, in accordance with 907-713.02. Minus slump requirements shall meet those set forth in Table 3 of AASHTO M157 specifications.
- **** Entrained air is not required except for concrete exposed to seawater. For concrete exposed to seawater, the total air content shall be 3.0 % to 6.0%. For concrete not exposed to seawater, the total air content shall not exceed 6.0%.
- ***** Class DS Concrete for drilled shafts shall have an 8 ± 1 -inch slump.

Delete the last paragraph of Subsection 804.02.10 on page 851 and substitute the following:

Either Type A, D, F, G or mid-range chemical admixture, shall be used in all classes of concrete. Any combinations of water reducing admixtures shall be approved by the Engineer before their use.

907-804.02.10.1.1--Proportioning on the Basis of Previous Field Experience of Trial Mixtures. Delete the first sentence of the first paragraph of Subsection 804.02.10.1.1 on page 851, and substitute the following:

Where a concrete production facility has a record, based on at least 10 consecutive strength tests from at least 10 different batches within the past 12 months from a mixture not previously used on Department projects, the standard deviation shall be calculated.

907-804.02.10.3--Field Verification of Concrete Mix Design. Delete the third sentence of the third paragraph of Subsection 804.02.10.3 on page 853, and substitute the following:

If the requirements of yield, slump, or total air content are not met within three (3) production days after the first placement, subsequent field verification testing shall not be permitted on department projects, and the mix design shall not be used until the requirements listed above are met

907-804.02.10.4--Adjustments of Mixture Proportions. Delete the paragraph in Subsection 804.02.10.4 on page 854, and substitute the following:

The mixture may be adjusted by the Class III Certified Technician representing the Contractor in accordance with the allowable revisions listed in the Department's Concrete Field Manual, paragraph 5.7. Written notification shall be submitted to the Engineer a minimum of seven (7) days prior to any source or brand of material change, aggregate size change, allowable material type change, or decrease in any cementitious material content. Any adjustments of the concrete mixture design shall necessitate repeat of field verification procedure as described in Subsection 804.02.10.3 and approval by the Engineer.

907-804.02.11--Concrete Batch Plants. Delete the first three paragraphs of Subsection 804.02.11 on page 854, and substitute the following:

The concrete batch plant shall meet the requirements of the National Ready Mixed Concrete Association *Quality Control Manual, Section 3, Plant Certification Checklist* as outlined in the latest edition of the Department's *Concrete Field Manual*. The Contractor shall submit a copy of the approved checklist along with proof of calibration of batching equipment, i.e., scales, water meter, and admixture dispenser, to the Engineer 30 days prior to the production of concrete.

For large volume projects the concrete batch plant shall meet the requirements for an automatic system capable of recording batch weights. It shall also have automatic moisture compensation for the fine aggregate. For small volume projects, the concrete batch plant can be equipped for manual batching with a fine aggregate moisture meter visible to the plant operator.

The concrete batch plant shall have available adequate facilities to cool concrete during hot weather.

Mixer trucks to be used on the project are to be listed in the checklist and shall meet the requirements of the checklist.

907-804.02.12--Contractor's Quality Control. Delete the fourth paragraph of Subsection 804.02.12 on page 854 & 855, and substitute the following:

The Contractor's Quality Control program shall encompass the requirements of AASHTO Designation: M 157 into concrete production and control, equipment requirements, testing, and batch ticket information. The requirement of AASHTO Designation: M 157, Section 11.7 shall

be followed except, on arrival to the job site, a maximum of 1½ gallons per cubic yard is allowed to be added. Water shall not be added at a later time. If the maximum permitted slump is exceeded after the addition of water at the job site, the concrete shall be rejected.

907-804.02.12.3--Documentation. After the second sentence of the second paragraph of Subsection 804.02.12.3 on page 856, add the following:

Batch tickets and gradation data shall be documented in accordance with Department requirements. Batch tickets shall contain all the information in AASHTO Designation: M157, Section 16 including the additional information in Subsection 16.2 with the following exception: the information listed in paragraphs 16.2.7 and 16.2.8 is not required. Batch tickets shall also contain the concrete producer's permanent unique mix number assigned to the concrete mix design.

907-804.02.12.5--Non-Conforming Materials. In Table 4 of Subsection 804.02.12.5 on page 857, delete “/ FM” from the requirements on line B.3.a.

907-804.02.13--Quality Assurance Sampling and Testing. In Table 5 of Subsection 804.02.13 on page 858, delete “and FM” from the requirements on line A.3.

907-804.02.13.1.4--Temperature. Delete the first paragraph of Subsection 804.02.13.1.4 on pages 859 & 860, and substitute the following:

Cold weather concreting shall follow the requirements of Subsection 907-804.03.16.1. Hot weather concreting shall follow the requirements of Subsection 804.03.16.2 with a maximum temperature of 95°F for Class DS concrete or for concrete mixes containing cementitious materials meeting the requirements of Subsection 907-701.02.2 as a replacement of Portland cement. For other concrete mixes, the maximum concrete temperature shall be 90°F. Concrete with a temperature more than the maximum allowable temperature shall be rejected and not used in Department work.

907-804.03--Construction Requirements.

907-804.03.15--Removal of Falsework, Forms, and Housing. Delete the first sentence of the second paragraph of Subsection 804.03.15 on page 871, and substitute the following:

Concrete in the last pour of a continuous superstructure shall have attained a compressive strength of 2,400 psi, as determined by cylinder tests or maturity meter probe, prior to striking any falsework.

Delete the first sentence of the third paragraph of Subsection 804.03.15 on page 871, and substitute the following:

At the Contractor's option and with the approval of the Engineer, the time for removal of forms may be determined by cylinder tests, in accordance with the requirements listed in Table 6, in which case the Contractor shall furnish facilities for testing the cylinders.

Delete the fourth and fifth paragraphs of Subsection 804.03.15 on pages 871 & 872, and substitute the following:

The cylinders shall be cured under conditions which are not more favorable than those existing for the portions of the structure which they represent.

Delete the table in Subsection 804.03.15 on page 872, and substitute the following:

Table 6
Minimum Compressive Strength Requirements for Form Removal

Forms:

Columns	1000 psi
Side of Beams	1000 psi
Walls not under pressure	1000 psi
Floor Slabs, overhead	2000 psi
Floor Slabs, between beams	2000 psi
Slab Spans	2400 psi
Other Parts	1000 psi

Centering:

Under Beams	2400 psi
Under Bent Caps	2000 psi

Limitation for Placing Beams on:

Pile Bents, pile under beam	2000 psi
Frame Bents, two or more columns	2200 psi
Frame Bents, single column	2400 psi

In lieu of using concrete strength cylinders to determine when falsework, forms, and housings can be removed, an approved maturity meter may be used to determine concrete strengths by inserting probes into concrete placed in a structure. The minimum number of maturity meter probes required for each structural component shall be in accordance with Table 7. Falsework, forms, and housings may be removed when maturity meter readings indicate that the required concrete strength is achieved. Procedures for using the maturity meter and developing the strength/maturity relationship shall follow the requirements of AASHTO Designation: T 325 and ASTM Designation: C 1074 specifications. Technicians using the maturity meter or calculating strength/maturity graphs shall be required to have at least two hours of training prior to using the maturity equipment.

Table 7
Requirements for use of Maturity Meter Probes

Structure Component	Quantity of Concrete	No. of Probes
Slabs, beams, walls, & miscellaneous items	0 - 30 yd ³	2
	> 30 to 60 yd ³	3
	> 60 to 90 yd ³	4
	> 90 yd ³	5
Footings, Columns & Caps	0 - 13 yd ³	2
	> 13 yd ³	3
Pavement, Pavement Overlays	1200 yd ²	2
Pavement Repairs	Per repair or 900 yd ² Whichever is smaller	2

907-804.03.16--Cold or Hot Weather Concreting.

907-804.03.16.1--Cold Weather Concreting. After the third paragraph of Subsection 804.03.16.1 on page 873, add the following:

In lieu of the protection and curing of concrete in cold weather, at the option of the Contractor with the approval of the Engineer, when concrete is placed during cold weather and there is a probability of ambient temperatures lower than 40°F, an approved maturity meter may be used to determine concrete strengths by inserting probes into concrete placed in a structure. The minimum number of maturity meter probes required for each structural component shall be in accordance with Table 7. An approved insulating blanketing material shall be used to protect the work when ambient temperatures are less than 40°F and shall remain in place until the required concrete strength in Table 6 is achieved. Procedures for using the maturity meter and developing the strength/maturity relationship shall follow the requirements of AASHTO Designation: T 325 and ASTM Designation: C 1074 specifications. Technicians using the maturity meter or calculating strength/maturity graphs shall be required to have at least two hours of training prior to using the maturity equipment.

Rename the Table in Subsection 804.03.16.1 on page 874 from “Table 6” to “Table 8”.

907-804.03.19--Finishing Concrete Surfaces.

907-804.03.19.7--Finishing Bridge Floors.

907-804.03.19.7.4--Acceptance Procedure for Bridge Deck Smoothness. After the first sentence of the second paragraph of Subsection 804.03.19.7.4 on page 886, add the following:

Auxiliary lanes, tapers, shoulders and other areas that are not checked with the profilograph, shall meet a 1/8 inch in 10-foot straightedge check made transversely and longitudinally across the deck or slab.

907-804.05--Basis of Payment. Add the "907" prefix to the pay items listed on page 898.

SPECIAL PROVISION NO. 906-3

Training Special Provisions

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).

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 trainees 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, he shall determine how many, if any, of the trainees 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 highway agency for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him 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 he has taken 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 has successfully completed a training course leading to journeyman status or in which he 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 highway 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. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents 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. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, 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 his 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 his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A

Contractor will have fulfilled his responsibilities under this Training Special Provision if he 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 he will follow 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 documenting his performance under this Training Special Provision.

SPECIAL PROVISION NO. 906-6

MISSISSIPPI DEPARTMENT OF TRANSPORTATION ON-THE-JOB TRAINING PROGRAM

ALTERNATE TRAINING SPECIAL PROVISION

PURPOSE

The purpose of the On-The-Job Training (OJT) Program is to provide training for minority, female and economically disadvantaged individuals in order that they may develop marketable skills and gain journey status in the skilled craft classifications in which they are being trained.

INTRODUCTION

This voluntary OJT Program has been developed through the partnering efforts of the Road Builders of Mississippi, the Federal Highway Administration (FHWA) and the Mississippi Department of Transportation (MDOT).

The OJT Program has been designed for use by participating contractors and subcontractors in meeting their training needs. The objective of the OJT Program is to develop skilled workers in the skilled craft trade areas of highway construction who are sufficiently trained to be productive employees in the highway construction industry work force.

The success of the OJT Program will require that contractors and subcontractors take part in the program and follow uniform procedures in training and in tracking trainee's progress.

FUNDING

MDOT will establish an annual OJT Fund from which, contractors and subcontractors may bill the Department directly for hours worked by trainees. The funding source of this money will be state and federal funds for MDOT's OJT Program.

DISBURSEMENT OF FUNDS

MDOT will pay \$3.00 per hour toward the trainee's salary for each hour of training performed by each trainee in an approved training program. Program reimbursements will be made directly to the prime or sub contractor. Requests for payment will be submitted to the Office of Civil Rights for approval.

Contractors must provide a signed invoice providing the following information to be reimbursed.

- Contractor's Name
- Mailing Address
- Trainee Name
- Social Security Number

- Race
- Sex
- Project Number
- Job Classification
- Total Number of Hours Completed

TRAINING PROGRAM APPROVAL

A. To use the OJT Program on highway construction projects, the contractor will notify the Department Office of Civil Rights using the On-the-Job Trainee Schedule Form. The notification must include the following information:

- Trainee Starting Date
- Project number (s) trainee starting on
- Training program (classification) to be used; and
- Number of Training Hours Required

B. If a contractor chooses to use a training program different from those listed in the OJT Program Manual, or desires to train in a different classification, the training program must be submitted in its entirety for approval by the Department and FHWA. The training proposal must include the following:

1. The primary objective of the program: To provide training for minority, female and economically disadvantaged individuals for development to full journey status in the work classifications in which they are being trained.
2. The minimum number of hours and type of training the trainee will receive as it relates to each specific task required to achieve journey status.
3. No less than minimum wage.
4. Trainee certification of completion.
5. Records and reports submitted to the Office of Civil Rights on a monthly basis.

DEPARTMENT RESPONSIBILITY

1. Department project staff will monitor trainees on the project. They will monitor payrolls for payment of correct wage rates and fringe benefits. The Office of Civil Rights will maintain a master list by contractor name, project number, trainee name and trainee social security number to aid project staff in monitoring trainees who work on multiple projects.
2. The Office of Civil Rights may elect to interview trainees periodically during the training period to assess their performance and training program.

CONTRACTOR RESPONSIBILITY

1. Trainees must be identified on payrolls (i.e. dragline trainee).
2. When any trainee completes a program, or is terminated for a reason or reasons other than successful completion, the contractor must include the date of completion or an explanation for the termination and date of termination on the OJT Termination Report.
3. The contractor will assign each trainee to a particular person--either a supervisor or a journeyman/woman who is proficient in the craft the trainee is being trained in, to ensure that timely instructional experience is received by the trainee. This person, cooperating with the appropriate company personnel, will see that proper records and the total intended training hours are completed during the allocated number of hours set up in the classification criteria.
4. The contractor has the prerogative of terminating the training period of the trainee and advancing the trainee to journey status. Approval requests must be submitted to the Office of Civil Rights with an explanation (*refer to 2 above*).
5. Upon notification from the contractor, the Department will issue a skill verification card and certificate of training to the trainee.
6. Trainees may be transferred to state-aid highway construction projects in order to complete the training program. If transfers are made the Office of Civil Rights must be notified on the Monthly Trainee Form. All of the training hours completed by trainees will count toward overall program completion.
7. Program reimbursements will be made directly to the prime or sub contractor.

WAGE RATE

The wage rate for all trainees is [the current Minimum Federal Wage Rate](#), during their OJT training program. Trainees shall be paid full fringe benefit amounts, where applicable. At the completion of the training program, the trainee shall receive the wages of a skilled journey.

RECRUITMENT AND SELECTION PROCEDURES

A. Prerequisites for Trainees

To be qualified for enrollment in the OJT Program, trainees must possess basic physical fitness for the work to be performed, dependability, willingness to learn and ability to follow instructions.

B. Licenses

Truck driver trainees must possess appropriate driver permits or licenses for the operation of Class A, B and C trucks. However, when an instructional permit is used in lieu of a license, the trainee must be accompanied by an operator who:

1. Holds a license corresponding to the vehicle being operated;
2. Has had at least one year of driving experience; and
3. Is occupying the seat next to the driver.

C. Recruitment

1. Notices and posters setting forth the contractor's Equal Employment Opportunity Policy and availability of training programs will be placed in areas readily accessible to employees, applicants for employment and potential employees.
2. The contractor must target minority, female or economically disadvantaged trainees.
3. The contractor will conduct systematic and direct recruitment through public and private employee referral sources. Contractors must submit the trainee's name and completed application form to the Office of Civil Rights for review and approval. Approval must be obtained before the trainee can begin work under the training program.
4. Present employees will be screened for upgrading.

D. Selection

1. The selection and employment of a person by participating contractor shall qualify the person for the OJT Program.
 2. Selection will be made without regard to race, color, religion, sex, age or national origin and shall be completely nondiscriminatory.
 3. Employment of trainees will be in accordance with the work force requirements of the contractor. Each contractor will hire and train the trainees for uses in their own organization.
 4. Written certification of individuals under the category of economically disadvantaged can be provided to the contractor at the time of the interview. This certification must then be provided to the Office of Civil Rights with the other required information as part of the approval process for trainees.
- **NOTE:** The OJT Program is to provide training for minority, female and economically disadvantaged individuals in order that they may develop marketable skills and gain journey status in the skilled craft classifications in which they are being trained. However, this program does not exclude trainees that are not members of the above groups.

SECTION 905 - PROPOSAL

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 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.

Attached hereto is a certified check, cashier's check or Proposal Guaranty Bond in the amount as required in the Advertisement (or, by law).

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.

SECTION 905 -- PROPOSAL (CONTINUED)

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) enclose 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.

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.

Installing aesthetic lighting and ITS equipment on the River Bridge at Natchez, known as Federal Aid Project No. NH-0015-01(060) / 105243301, in the County of Adams, State of Mississippi, and Concordia Parish, Louisiana.

I (We) agree to complete the entire project within the specified contract time.

***** SPECIAL NOTICE TO BIDDERS *****

**BIDS WILL NOT BE CONSIDERED UNLESS BOTH UNIT PRICES AND ITEM TOTALS ARE ENTERED.
 BIDS WILL NOT BE CONSIDERED UNLESS THE BID CERTIFICATION LOCATED AT THE END OF THE BID SHEETS IS SIGNED**

*****BID SCHEDULE*****

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Item Amount	
						Dollar	Ct	Dollar	Ct
Roadway Items									
0010	202-B100		4	Each	Removal of Existing Lighting Controllers				
0020	618-A001		1	Lump Sum	Maintenance of Traffic	XXXXXXXX	XXX		
0030	618-B001		1	Square Feet	Additional Construction Signs	10.	00	10.	00
0040	619-D4001		116	Square Feet	Directional Signs				
0050	639-A032		1	Each	Traffic Signal Equipment Pole, Type II, 20' Shaft, 32' Arm				
0060	639-A037		1	Each	Traffic Signal Equipment Pole, Type II, 20' Shaft, 40' Arm				
0070	639-A180		1	Each	Traffic Signal Equipment Pole, Type II, 20' Shaft, 28' Arm				
0080	639-A181		1	Each	Traffic Signal Equipment Pole, Type II, 20' Shaft, 36' Arm				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0090	647-A003		6	Each	Pullbox, Type 4				
0100	647-A004		2	Each	Pullbox, Type 5				
0110	647-A005		5	Each	Pullbox, Type 2				
0120	666-B038		155	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #4, 3 Conductor				
0130	666-B039		30	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #10, 3 Conductor				
0140	666-D016		4,270	Linear Feet	Electric Cable, Aerial Supported in Conduit, THHN, AWG #4, 3 Conductor				
0150	668-A029		105	Linear Feet	Traffic Signal Conduit, Underground, Rolled Pipe, 2"				
0160	668-B024		60	Linear Feet	Traffic Signal Conduit, Underground Drilled or Jacked, Rolled Pipe, 2"				
0170	682-F001		4	Each	Secondary Power Controllers				
0180	907-637-A001		4	Each	Equipment Cabinet, Type B				
0190	907-637-A002		1	Each	Equipment Cabinet, Type C				
0200	907-649-A002		2	Each	Video Detection System, Type 1				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0210	907-649-B001		2	Each	Video Detection-Data Collection and Reporting Tool License				
0220	907-650-A001		7	Each	On Street Video Equipment				
0230	907-657-A001		4,860	Linear Feet	Fiber Optic Cable, 72 SM				
0240	907-657-A002		4,465	Linear Feet	Fiber Optic Cable, 12 SM				
0250	907-657-C001		10	Each	Fiber Optic Transceiver				
0260	907-658-A001		1	Each	Hardened Network Switch, Type A				
0270	907-658-A002		1	Each	Hardened Network Switch, Type B				
0280	907-662-A001		7	Each	Video Encoder, Type A				
0290	907-665-B001		1	Lump Sum	Bridge Aesthetic Lighting	XXXXXXXX	XXX		
0300	907-668-E002		285	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"				
0310	907-668-G001		4,220	Linear Feet	Traffic Signal Conduit Bank, Aerial Supported, Type I, 3 @ 2"				
0320	907-682-A1001		90	Linear Feet	Branch Circuit Wire, AWG #1, 3 Conductor				

Line No.	Item Code	Adj Code	Quantity	Units	Description	Unit Price		Bid Amount	
0330	907-682-A1002		735	Linear Feet	Branch Circuit Wire, AWG #1/0, 3 Conductor				
0340	907-682-A1004		550	Linear Feet	Branch Circuit Wire, AWG #2, 3 Conductor				
0350	907-682-A1011		6,000	Linear Feet	Branch Circuit Wire, AWG #6, 3 Conductor				
0360	907-682-A1013		1,237	Linear Feet	Branch Circuit Wire, AWG #8, 3 Conductor				
0370	907-682-A1014		3,800	Linear Feet	Branch Circuit Wire, AWG #8, 5 Conductor				
0380	907-682-A1034		7,800	Linear Feet	Branch Circuit Wire, AWG #10, 3 Conductor				
0390	907-683-H4001		18	Each	Repair of Bridge Lighting Assembly, 400 Watt Cobrahead				
0400	907-683-H4002		46	Each	Repair of Bridge Lighting Assembly, 250 Watt Cobrahead				

*** BID CERTIFICATION ***

TOTAL BID.....\$_____

*** DBE/WBE SECTION ***

Complete item nos. 1, 2, and/or 3 as appropriate. See Notice to Bidders addressing Disadvantaged Business Enterprises in Highway Construction.

1. I/We agree that no less than _____ percent shall be expended with small business concerns owned and controlled by socially and economically disadvantaged individuals (DBE and WBE).
2. Classification of Bidder: Small Business (DBE)_____ Small Business (WBE)_____
3. A joint venture with a Small Business (DBE/WBE): _____

*** SIGNATURE STATEMENT ***

BIDDER ACKNOWLEDGES THAT HE/SHE HAS CHECKED ALL ITEMS IN THIS PROPOSAL FOR ACCURACY AND CERTIFIED THAT THE FIGURES SHOWN THEREIN CONSTITUTE THEIR OFFICIAL BID.

BIDDER'S SIGNATURE

BIDDER'S COMPANY

BIDDER'S FEDERAL TAX ID NUMBER

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.

COMBINATION BID PROPOSAL

I. 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).

<u>Project No.</u>	<u>County</u>	<u>Project No.</u>	<u>County</u>
1. _____	_____	6. _____	_____
2. _____	_____	7. _____	_____
3. _____	_____	8. _____	_____
4. _____	_____	9. _____	_____
5. _____	_____	10. _____	_____

A. If option (a) has been selected, then go to II, and sign Combination Bid Proposal.

B. If option (b) has been selected, then complete the following, go to II, and sign Combination Bid Proposal.

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. _____	_____ _____	_____ _____	_____ _____	_____ _____	

SECTION 905 - COMBINATION BID PROPOSAL (Continued)

Project Number	Pay Item Number	Unit	Unit Price Reduction	Total Item Reduction	Total Contract Reduction
9. _____	_____ _____	_____ _____	_____ _____	_____ _____	
10. _____	_____ _____	_____ _____	_____ _____	_____ _____	

C. If option (c) has been selected, then initial and complete one of the following, go to II. and sign Combination Bid Proposal.

_____ 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.

II. 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), the undersigned, agree to complete each contract on or before its specified completion date.

SIGNED _____

**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 _____, proposed Subcontractor _____, 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)

BY _____

(TITLE)

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 (Execute in duplicate)

I, _____,
(Name of person signing certification)

individually, and in my capacity as _____ of
(Title)

_____ 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-0015-01(060) / 105243301

in Adams 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.

Initial here "_____" if exceptions are attached and made a part thereof. 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 and attachments (when indicated) is true and correct.

Executed on _____
Signature

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

CERTIFICATION (Execute in duplicate)

I, _____,
(Name of person signing certification)

individually, and in my capacity as _____ of
(Title)

_____ 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-0015-01(060) / 105243301**

in **Adams** 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.

Initial here "_____" if exceptions are attached and made a part thereof. 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 and attachments (when indicated) is true and correct.

Executed on _____
Signature

S E C T I O N 9 0 2

CONTRACT FOR NH-0015-01(060) / 105243301

LOCATED IN THE COUNTY(IES) OF Adams

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 _____

MISSISSIPPI TRANSPORTATION COMMISSION

Title _____

By _____

Signed and sealed in the presence of:
(names and addresses of witnesses)

Executive Director

Secretary to the Commission

Award authorized by the Mississippi Transportation Commission in session on the ____ day of _____, _____, Minute Book No. _____, Page No. _____.

S E C T I O N 9 0 3

CONTRACT BOND FOR: NH-0015-01(060) / 105243301

LOCATED IN THE COUNTY(IES) OF: Adams

STATE OF MISSISSIPPI,

COUNTY OF HINDS

Know all men by these presents: that we, _____

_____ Principal, a _____

residing at _____ in the State of _____

and _____

residing at _____ in the State of _____,

authorized to do business in the State of Mississippi, under the laws thereof, as surety, 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.

Signed and sealed this the ____ day of _____ A.D. _____.

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

SECTION 903 - CONTINUED

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.

Witness our signatures and seals this the _____ day of _____ A.D. _____.

_____	_____
(Contractors) Principal	Surety
By _____	By _____
	(Signature) Attorney in Fact
	Address _____

Title _____	_____
(Contractor's Seal)	Mississippi Resident Agent

	(Signature) Mississippi Resident Agent
	Address _____

	(Surety Seal)



BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____
Contractor

Address

City, State ZIP

as Principal, hereinafter called the Principal, and _____

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 **Installing aesthetic lighting and ITS equipment on the River Bridge at Natchez, known as Federal Aid Project No. NH-0015-01(060) / 105243301, in the County of Adams, State of Mississippi, and Concordia Parish, Louisiana.**

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 _____, 2009

(Principal) (Seal)

(Witness)

By: _____
(Name) (Title)

(Surety) (Seal)

(Witness)

By: _____
(Attorney-in-Fact)

MS Resident Agent

Mississippi Insurance ID Number

Bid bond must be signed or countersigned by a qualified Mississippi resident agent and the bidder as per Section 102.08 of the Mississippi Standard Specifications for Road and Bridge Construction, 2004 edition.

