MDOT Use Only
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01 -

SM No. CNHPP0008040851

PROPOSAL AND CONTRACT DOCUMENTS

FOR THE CONSTRUCTION OF

01
Pavement Restoration on US 49 from Madison County Line to 0.8 miles North of Old Highway 49, known as Federal Aid Project No. NHPP-0008-04(085) / 108150304 in Yazoo County.

Project Completion: 07/15/2027

(STATE DELEGATED)

NOTICE

BIDDERS MUST COMPLETE AN ONLINE REQUEST FOR PERMISSION TO BID THIS PROJECT.

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

SECTION 900

OF THE CURRENT 2017 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

JACKSON, MISSISSIPPI

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
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Section 905 - Proposal, Proposal Bid Items, Combination Bid Proposal

PROJECT: NHPP-0008-04(085)/108150304 - Yazoo

Certification of Performance - Prior Federal-Aid Contracts
Certification Regarding Non-Collusion, Debarment and Suspension
SAM.GOV Registration and Unique Entity ID
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(REVISIONS TO THE ABOVE WILL BE INDICATED ON THE SECOND SHEET OF SECTION 905 AS ADDENDA)

03/19/2026 04:54 PM

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 901 - ADVERTISEMENT

Electronic bids will be received by the Mississippi Transportation Commission at 10:00 o'clock A.M., Friday, April 10, 2026, from the Bid Express Service and shorty thereafter publicly read in the Construction Division For:

Pavement Restoration on US 49 from Madison County Line to 0.8 miles North of Old Highway 49, known as Federal Aid Project No. NHPP-0008-04(085) / 108150304 in Yazoo County.

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

The specifications are on file in the offices of the Mississippi Department of Transportation.

Contractors may request permission to bid online at http://shop.mdot.ms.gov at no cost. Upon approval, Contractors shall be eligible to submit a bid using Bid Express at http://bidx.com. Specimen proposals may be viewed and downloaded online at no cost at http://mdot.ms.gov or purchased online at http://shop.mdot.ms.gov at a cost of Ten Dollars ($10.00) per proposal plus a small convenience fee. Cash or checks will not be accepted as payment.

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

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

BRAD WHITE
EXECUTIVE DIRECTOR

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO NOTICE TO BIDDERS NO. 1

DATE: **06/08/2021**

SUBJECT: **Governing Specifications**

Change the web address at the end of the first paragraph to the following.

https://shop.mdot.ms.gov/default.aspx?StoreIndex=1

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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

DATE: 03/01/2017

SUBJECT: Governing Specifications

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

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

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

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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

DATE: 03/01/2017

SUBJECT: Status of Right-of-Way

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

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

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

STATUS OF RIGHT-OF-WAY
NHPP-0008-04(085)
108150/304000
Yazoo County

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

None.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Inter-Departmental Memorandum

To:	Right of Way Division Don Drake	**Date:**	December 11, 2025
From:	Pre-Construction Engineer District 3 Adam Boggan	**Project No:**	108150/304000 NHPP-0008-04(085)
		County:	Yazoo

DISTRICT STATUS REPORT

1. **STATUS OF RIGHT OF WAY:** All work to be done within existing ROW.
2. **RIGHT OF WAY CLEARANCE:** There are no encroachments.
3. **STATUS OF AFFECTED RAILROAD OPERATING FACILITIES:** None affected.
4. **STATUS OF REQUIRED UTILITY RELOCATIONS:** No utility conflicts.
5. **STATUS OF CONSTRUCTION AGREEMENT:** None required.

AB:ab

pc: Joel Bellipanni (District Three)
James Burks (District Three)
Alex Zivic (Construction Division)
Sir Johnathan Rucker (Construction Utility & Permitting)
Don Drake (Right of Way)
File

ASBESTOS ABATEMENT STATUS REPORT

NHPP-0008-04(085) 108150-304000

Yazoo County

December 11, 2025

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

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

There is no right-of-way required for this project, and the contractor will not need to remove any buildings.

STATUS OF POTENTIALLY CONTAMINATED SITES REPORT

NHPP-0008-04(085) 108150-304000

Yazoo County

December 11, 2025

THERE IS NO RIGHT-OF-WAY REQUIRED FOR THIS PROJECT. NO INITIAL SITE ASSESSMENT WILL BE PERFORMED. IF CONTAMINATION ON THE EXISTING RIGHT-OF-WAY IS DISCOVERED, IT WILL BE HANDLED BY THE DEPARTMENT.

IMPROVEMENTS STATUS REPORT

Improvements to be included in the Notice to Bidders to be removed by the Construction Contractor

FMS Construction Project No: 108150-304000

FMS ROW Project No:

External ROW No: NHPP-0008-04(085)

Parcel No:
Station No:
Property Owner:
Description/Pictures:

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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

DATE: 01/17/2017

SUBJECT: Final Clean-Up

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

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

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

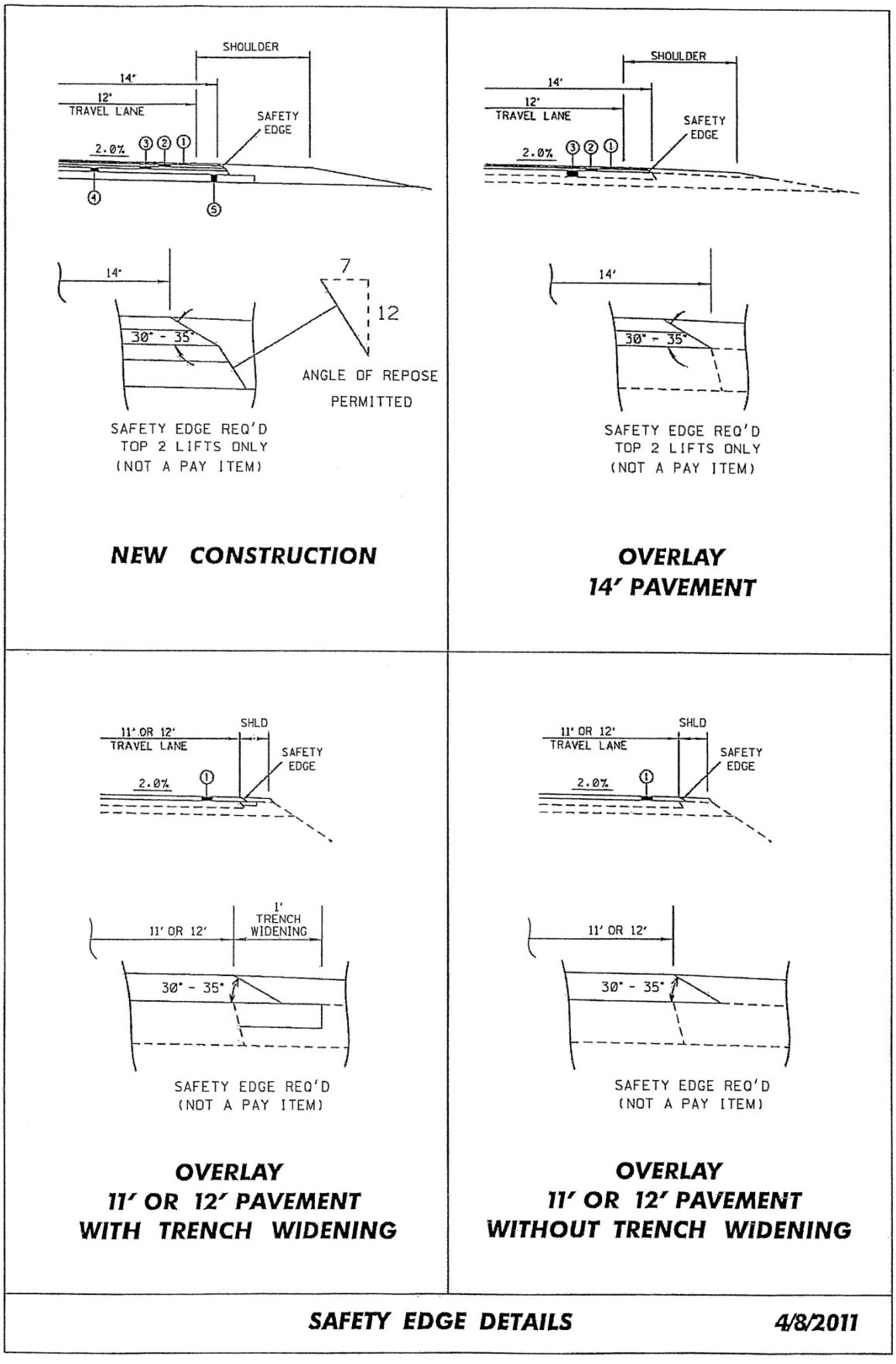
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 13 **CODE: (IS)**

DATE: 03/01/2017

SUBJECT: Safety Edge

Bidders are hereby advised that the Shoulder Wedge (Safety Edge) specified in Section 401, Asphalt Pavements, shall only apply to the top two (2) lifts of asphalt. Open Graded Friction Courses (OGFC) are not to be considered a lift as it pertains to safety edge. Attached is a drawing showing the safety edge. Note that the shoulder dimensions in the bottom two drawings will be less than three feet (3').


SHOULDER
14'
12'
TRAVEL LANE
SAFETY EDGE
2.0%
3
2
1
4
5
14'
7
12
30° - 35°
ANGLE OF REPOSE PERMITTED
SAFETY EDGE REQ'D TOP 2 LIFTS ONLY (NOT A PAY ITEM)
NEW CONSTRUCTION
SHOULDER
14'
12'
TRAVEL LANE
SAFETY EDGE
2.0%
3
2
1
14'
30° - 35°
SAFETY EDGE REQ'D TOP 2 LIFTS ONLY (NOT A PAY ITEM)
OVERLAY 14' PAVEMENT
11' OR 12'
TRAVEL LANE
SHLD
SAFETY EDGE
2.0%
1
1' TRENCH WIDENING
11' OR 12'
30° - 35°
SAFETY EDGE REQ'D (NOT A PAY ITEM)
OVERLAY 11' OR 12' PAVEMENT WITH TRENCH WIDENING
11' OR 12'
TRAVEL LANE
SHLD
SAFETY EDGE
2.0%
1
11' OR 12'
30° - 35°
SAFETY EDGE REQ'D (NOT A PAY ITEM)
OVERLAY 11' OR 12' PAVEMENT WITHOUT TRENCH WIDENING
SAFETY EDGE DETAILS
4/8/2011

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO NOTICE TO BIDDERS NO. 14

DATE: 3/13/2026

PROJECT: NHPP-0008-04(085) / 108150304 – YAZOO COUNTY

After the second paragraph on page 1, add the following:

Name Insured: *CN Railroad*

Description and Designation: *US 49 @ Bridge Nos. 187.3A&B, near Bentonia, MS*

Mile Post: *Approximately 1.05 miles north of MS 433*

After the fourth paragraph on page 1, add the following:

CN Railroad
Josh Gordon
2665 N Mill Street
Jackson, MS 39202
601-914-2658

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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

DATE: 01/17/2017

SUBJECT: Railway-Highway Provisions

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

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

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

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

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

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

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

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

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

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

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 296 **CODE: (SP)**

DATE: 07/25/2017

SUBJECT: Reduced Speed Limit Signs

Bidders are advised that when the plans or contract documents require the speed limit on a project to be reduced, the Contractor shall begin work within 48 hours of installing the reduced speed limit signs. Should the Contractor not start work or have no plans to start work within 48 hours of installing the signs, the reduced speed limit signs shall be covered and existing speed limit signs uncovered.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 445 **CODE: (SP)**

DATE: 10/10/2017

SUBJECT: Mississippi Agent or Qualified Nonresident Agent

Bidders are hereby advised of the requirements of Subsections 102.08, 103.05.2, and 107.14.2.1 of the *2017 Standard Specifications for Road and Bridge Construction* as it refers to bonding agents. Proposal guaranties, bonds, and liability insurance policies must be signed by a **Mississippi Agent or Qualified Nonresident Agent.**

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 446 **CODE: (SP)**

DATE: 10/18/2017

SUBJECT: Traffic on Milled Surface in Urban Areas

Bidders are hereby advised that when the main lanes of a roadway are fine milled, traffic will be allowed to run on a milled surfaces for up to five (5) calendar days. The Contractor will be assessed a penalty of **$5,000 per calendar day** afterwards until the milled surfaces are covered with the next lift of asphalt. It shall be the Contractor's responsibility to ensure that the milling operations do not commence until such time as forecasted weather conditions are suitable enough to allow the placement of the asphalt pavement after the milling operations.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 516 **CODE: (IS)**

DATE: 11/28/2017

SUBJECT: Errata and Modifications to the 2017 Standard Specifications

Page	Subsection	Change
16	102.06	In the seventh full paragraph, change "Engineer" to "Director."
33	105.05.1	In the sixth sentence, change "Contract Administration Engineer" to "Contract Administration Director."
34	105.05.2.1	In subparagraph 2, change "SWPPP, ECP" to "SWPPP and the ECP"
35	105.05.2.2	In subparagraphs 2, add " and" to the end of the sentence. In subparagraph 3, remove ", and" and add ".".
90	109.04.2	In the last paragraph of subparagraph (a), place a period "." at the end of the sentence.
93	109.04.2	In the last paragraph of subparagraph (g), place a period "." at the end of the sentence. Also, in the first paragraph of subparagraph (h), place a period "." at the end of the sentence.
97	109.07	Under ADJUSTMENT CODE, subparagraph (A1), change "HMA mixture" to "Asphalt mixtures."
98	109.11	In the third sentence, change "Engineer" to "Director."
219	308.04	In the last sentence of the last paragraph, change "Contractor's decision" to "Engineer's decision."
300	405.02.5.9	In the first sentence of the second paragraph, change "Hot Mix Asphalt" to "Asphalt Mixtures."
502	630.01.1	In the first paragraph, change "AASHTO" to "AASHTO's LRFD".
636	646.05	Change "each" to "per each" for the pay item units of payment.
640	656.02.6.2	In item 7), change "down stream" to "downstream".
688	630.03.2	Change the subsection number from "630.03.2" to "680.03.2."

725	702.08.3	In the second sentence of the first paragraph, change "hot-mix" to "asphalt."
954	804.02.13.1.6	In the definition for "M" in the % Reduction formulas, change "paragraph 7.3" to "paragraph 5.3."

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1226 **CODE: (IS)**

DATE: 11/16/2018

SUBJECT: Material Storage Under Bridges

Bidders are advised that Subsection 106.08 of the Standard Specifications allows the Contractor to store materials and equipment on portions of the right-of-way. However, the Contractor will not be allowed to store or stockpile materials under bridges without written permission from the Project Engineer. The Contractor shall submit a detailed request of all proposed materials to be stored under bridges to the Engineer a minimum of 14 calendar days prior to anticipated storage. This detail shall include, but not limited to, bridge location, material type, material quantity, and duration of storage. The Project Engineer and any other needed Division will review this information and determine whether to grant approval. The Contractor shall not store any material under any bridge without written approval from the Project Engineer.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1241 **CODE: (IS)**

DATE: 11/27/2018

SUBJECT: Fuel and Material Adjustments

Bidder's attention is brought to the last paragraph of Subsection 109.07 of the Standard Specifications which states that no fuel or material adjustment will be made after the completion of contract time. Any fuels consumed or materials incorporated into the work during the monthly estimate period falling wholly after the expiration of contract time will not be subject a fuel or material adjustment.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 1963 **CODE: (SP)**

DATE: 9/23/2019

SUBJECT: Guardrail Pads

Bidders are hereby advised that prior to construction of the guardrail pads, the Contractor shall coordinate with the guardrail Subcontractor to determine the guardrail pad dimensions necessary to meet MASH compliance.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2206 **CODE: (IS)**

DATE: 01/14/2020

SUBJECT: MASH Compliant Devices

Bidders are hereby advised that compliance associated with the requirements of meeting either the National Cooperative Highway Research Program (NCHRP) Report 350 or the Manual for Assessing Safety Hardware (MASH) for installations of certain traffic control devices and permanent safety hardware devices (guardrails, guardrail terminals, permanent portable barriers, cast-in-place barriers, all other permanent longitudinal barriers, crash cushions, cable barriers, cable barrier terminals, bridge rails, bridge rail transitions, all other terminals, sign supports, and all other breakaway hardware) as listed throughout the Standard Specifications and/or the Standard Drawings, or both, is now replaced with the requirements of meeting the 2016 version of MASH after December 31, 2019. This change applies to new permanent installations and to full replacements of existing installations.

At the preconstruction conference or prior to starting any work on the project, the Contractor shall submit a letter stating that the traffic control devices and permanent safety hardware devices as outlined within the paragraph above that are to be used on the project are certified to meet MASH 2016.

When a MASH 2016-compliant device does not exist for the new permanent installations and/or full replacement installations of permanent safety hardware devices, as listed above, a MASH 2009-compliant or a NCHRP 350-compliant device may be proposed by the Contractor for the project. A written request for such instances must be submitted by the Contractor either at the preconstruction conference or prior to starting any work on the project. The Contractor shall submit the following items to the Project Engineer: (1) a detailed list of the proposed devices and locations thereof; and (2) certification letters indicating that the proposed devices are compliant with either MASH 2009 or NCHRP 350.

When a MASH 2016-compliant device does not exist for the temporary work zone traffic control devices (Category 1, Category 2, and Category 3 devices) , a MASH 2009-compliant or a NCHRP 350-compliant device may be proposed by the Contractor for the project. Temporary work zone traffic control devices (Category 1, Category 2, and Category 3 devices) that are MASH 2009-compliant or NCHRP 350–compliant that have been in use prior to December 31, 2019, and that have a remaining service life may be proposed for use throughout their normal service life on the project by the Contractor. For either of these scenarios for temporary work zone traffic control devices, a written request must be submitted by the Contractor either at the preconstruction conference or prior to starting any work on the project. The Contractor shall submit the following items to the Project Engineer: (1) a detailed list of the proposed devices and locations thereof; and (2) certification letters indicating that the proposed devices are compliant with either MASH 2009 or NCHRP 350.

Work will only be allowed to proceed after the Department has granted written concurrence(s) with the proposed request(s) as listed above.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2273 **CODE: (SP)**

DATE: 02/12/2020

SUBJECT: Mississippi Special Fuel Tax Law

Bidder's attention is brought to the second paragraph of Subsection 107.02 of the Standard Specifications which states that all Contractors and Subcontractors must comply with all requirements contained in the Mississippi Special Fuel Tax Law, Section 27-55-501, *et seq*. Attached are two Fact Sheets provided by the Mississippi Department of Revenue (MDOR) with additional information.

DEPARTMENT OF REVENUE
STATE OF MISSISSIPPI

Gasoline and Dyed Diesel Used for Non-Highway Purposes

Mississippi provides a reduced rate for gasoline and dyed diesel used for non-highway purposes. The reduced rates are 6.44 cents per gallon and 5.75 cents per gallon of gasoline or dyed diesel. These fuels are generally taxed at 18 cents per gallon if for on road use.

Gasoline Used for Non-Highway Purposes

You may be entitled to a refund of 11.56 cents per gallon (making this an equivalent to a tax rate of 6.44 cents per gallon) if you desire to purchase gasoline to be used off road. The gasoline must be used for agricultural, maritime, industrial, manufacturing, domestic or non-highway purposes only.

Examples of non-highway include gasoline used in boats, golf carts, machinery used for manufacturing or farm equipment used exclusively in plowing, planting or harvesting farm products.

Refund Gasoline User

The refund is based on the amount of gallons used. Before a refund is issued, you are required to…

1. Obtain a refund gasoline user's permit and a certificate for refund booklet from the Department of Revenue;
2. Have a storage tank marked "REFUND GASOLINE"; and,
3. Purchase the gasoline from someone who holds a refund gasoline dealer's permit.

No refund will be allowed for gasoline used in motor vehicles owned or operated by a government entity or used in Mississippi government contracts.

Refund Gasoline Dealer

You must obtain a refund gasoline dealer's permit from the Department of Revenue before selling refund gasoline. At no time should the gasoline be delivered to a tank that is not properly marked. The gasoline must be dyed a distinctive mahogany color at the time of delivery.

The Department of Revenue may waive the dye requirement if the dye may cause damage to the equipment. The refund gasoline user is required to obtain the waiver from the Department of Revenue.

Dyed Diesel Used for Non-Highway Purposes

Unlike gasoline, you are not required to apply for a refund if you desire to purchase dyed diesel to be used off road. Mississippi provides a reduced rate of 5.75 cents per gallon on dyed diesel used off road. Diesel used on road is subjected to 18 cents per gallon. Dyed diesel used in motor vehicles owned or operated by a government entity or used in Mississippi government contracts will be subjected to 18 cents per gallon.

Dyed Diesel Used on the Highway

Any person who purchases, receives, acquires or uses dyed diesel for highway use will be liable to pay 18 cents per gallon and subject to a penalty in the amount of $1000.

Identifying Dyed Diesel

Storage facilities for dyed diesel must be plainly marked "NONHIGHWAY DIESEL FUEL" or "NONHIGHWAY KEROSENE". Retailers are also required to mark all pumps or dispensing equipment.

This fact sheet is intended to help you become more familiar with Mississippi tax laws and your rights and responsibilities under the laws. Nothing in this fact sheet supersedes, alters, or otherwise changes any provisions of the tax law, regulations, court decisions, or notices.

Petroleum Tax Bureau
P. O. Box 1033
Jackson, MS 39215-1033
Phone: (601) 923-7150

DEPARTMENT OF REVENUE
STATE OF MISSISSIPPI

Special Fuel Used on Government Contracts

State and Local Government Contracts

Special fuel purchased, acquired or used in performing contracts with the State of Mississippi, counties, municipalities or any political subdivision is taxed at a rate of 18 cents per gallon. Special fuel includes but is not limited to the following:

- Dyed diesel fuel;
- Kerosene;
- Undyed diesel fuel; and,
- Fuel oil.

State and local government contracts include construction, reconstruction and maintenance or repairs of projects such as roads, bridges, water systems, sewer systems, buildings, drainage canals and recreational facilities. The Department of Revenue may require contractors to remit the excise tax directly to the state in lieu of paying the tax to a distributor.

Special Fuel Direct Pay Permit

Contractors that remit the excise tax to the state will be issued a Special Fuel Direct Pay Permit. This permit relieves the distributor from collecting the tax and requires the contractor to file a monthly special fuel return. The distributor should include the contractor's permit number on all invoices that are related to tax-free sales.

The contractor is required to furnish a surety or cash bond guaranteeing the payment of the excise tax prior to receiving the Special Fuel Direct Pay Permit. The Department of Revenue may accept a contractors tax bond if the bond covers the excise tax levied on special fuel.

Special Fuel Distributors

If the contractor does not have a Special Fuel Direct Pay Permit, distributors are required to collect the 18 cents excise tax and remit the tax to the Department of Revenue. The additional 12.25 cents levied on special fuel (excluding undyed diesel) should be reported on schedules 5F and 5G of the special fuel return.

Environmental Protection Fee

Special fuel distributors are required to collect the environmental protection fee even if the contractor has a Special Fuel Direct Pay Permit. The fee is levied at 4/10^{ths} of a cent per gallon. The fee is suspended or reinstated when the trust fund has exceeded or fallen below the obligatory balance.

Penalties

Any person who knowingly and willfully purchases untaxed fuel for use in equipment utilized on a road or highway construction site in this state is guilty of a misdemeanor and, upon conviction, shall be fined not less than $1,000 or more than $100,000, or imprisoned in the county jail for not more than one year, or both.

This fact sheet is intended to help you become more familiar with Mississippi tax laws and your rights and responsibilities under the laws. Nothing in this fact sheet supersedes, alters, or otherwise changes any provisions of the tax law, regulations, court decisions, or notices.

Petroleum Tax Bureau
P. O. Box 1033
Jackson, MS 39215-1033
Phone: (601) 923-7150

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2812 **CODE; (SP)**

DATE: 09/01/2020

SUBJECT: Traffic Signal and ITS Components

Bidders are hereby advised that all products selected for use on this project shall be in compliance with 2 CFR 200.216. No telecommunication and video surveillance equipment or services shall be manufactured by the following companies: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities.

The Contractor shall provide a Certification Statement that the referenced product(s) is not manufactured by any of the following: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities. (as per 2 CFR 200.216)

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MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2895 **CODE: (SP)**

DATE: 10/14/2020

SUBJECT: Exploratory Joint Cleanout

Bidders are hereby advised that work on this project shall consist of exploratory investigation of bridge joints to determine the appropriate level of repair and will include removal of any trash and debris (including, but not limited to, compacted dirt, vegetation and trash) located at any depth within the joint. Costs of this work will be absorbed in the cost of other items of work if further joint repair work is not required.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 2954 **CODE: (IS)**

DATE: **12/01/2020**

SUBJECT: **Reflective Sheeting for Signs**

Bidders are hereby advised that the retroreflective sign sheeting used for signs on this project shall be as listed below and shall meet the requirements of Subsection 721.06.

Temporary Construction Signs

Temporary traffic control (orange) sign sheeting shall be a minimum Type IX Fluorescent Orange sheeting as shown in Special Provision 907-721.

Permanent Signs

Permanent signs, except signs on traffic signal poles/mast arms, shall be as follows:

- Brown background sheeting on guide signs shall be a minimum Type VIII sheeting,
- Green and blue background sheeting on guide signs shall be a minimum Type IX sheeting, and
- All white, yellow, red, fluorescent yellow, and fluorescent yellow/green sheeting shall be Type XI sheeting.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3600 **CODE: (SP)**

DATE: **08/17/2021**

SUBJECT: **Canadian National / Illinois Central Railroad Construction Requirements**

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

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

The Bidder should review the requirements set forth in the attached APPENDIX as it relates to right-of-entry, insurance, and safety training. The Contractor will be required to follow the requirements in the Appendix.

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

John W. Dinning
Manager Public Works
2151 North Mill Street
Jackson MS 39202
T 601.914.2658
F 601.592.1815
Email: john.dinning@cn.ca

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

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

ICRR right-of-way. All personnel who must enter upon the ICRR right-of-way must check in and out with the EIC and be logged in and out of the site.

All personnel who must work within the ICRR right-of-way at any time shall be trained and certified as a ICRR "Roadway Worker" and must at all times have their certification card with them and available for random inspection. The Contractor will be responsible for providing this training for Contractor employees or any subcontractor(s) employees. The Contractor shall contact www.contractororientation.com for approximate fees and scheduling the necessary training sessions. The Contractor shall also contact the MDOT Project Engineer to see if any MDOT employees need this training. If so, the Contractor shall include the MDOT employees in the list of participates for training. The Contractor shall bear the cost of training the MDOT employees. Costs for training the MDOT employees will be reimbursed to the Contractor by supplemental agreement.

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

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

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

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

APPENDIX

Right of Entry (ROE) License Agreement Information

Railroad Company requires everyone (contractor, consultants, etc.) working on Railroad Company property to have a Right-of-Entry (ROE) License Agreement. ROE license agreement applications are handled by email. Once Railroad Company receives the information requested below, and if application is approved, Railroad Company will draw up a ROE License Agreement, and will forward electronic copy by email for applicant's execution. Applicant must return one (1) executed original copy, a check for the application cost, and proof of insurance, together in one package to the address above. Application and ROE License Agreement will be delayed if Railroad Company receives the required documents separately, incomplete, or inaccurate. Railroad Company will return a fully executed digital copy of the ROE License Agreement by email for Applicant's files and records. No work may occur on Railroad Company property nor will flagging protection be provided until ROE License Agreement has been fully executed by both parties and returned.

Please use this form and return by email to submit application request for a Right of Entry agreement.

Contact name –
Name of Applicant/contractor -
Street Address –
City, State, Zip –
Telephone –
Reason for ROE –
Duration of ROE –
Public Agency's Project No. –
Public agency Easement No. (if known) –
Location of project –
FRA/AAR/DOT Crossing No. –

If unable to locate this number at jobsite, please use following links to obtain:
http://safetydata.fra.dot.gov/officeofsafety/publicsite/crossing/xingqryloc.aspx

In Illinois http://www.icc.illinois.gov/railroad/advanced.aspx?

If project job site does not have a FRA/AAR/DOT Crossing Number, please attach an aerial snapshot to help identify specific location.

ROE may take up to 4+ weeks to obtain

FAQ

What are the insurance requirements?

Railroad Company allows outside parties to come onto Railroad Company property to perform work, such as survey or inspection work, installation of pipelines and wirelines, and other work for projects necessitating the occupancy of Railroad Company. Before commencing work, and until the license of allowing such occupancy ends or is terminated, outside parties shall provide and maintain the following insurance in form and amount with companies satisfactory to and as approved by Railroad Company.

1. Minimum insurance required of outside party:

   A. Statutory Workers Compensation and Employer's Liability Insurance.

   B. Automobile Liability Insurance in an amount not less than $1,000,000 combined single limit.

   C. Commercial General Liability Insurance (Occurrence Form) in an amount not less than $5,000,000 per occurrence, with an aggregate limit of not less than $10,000,000. The policy must name "All Operating Subsidiaries of North American Railways, Inc." as additional insureds in the following form:

      All Operating Subsidiaries of North American Railways, Inc.
      Attn: Mgr Insurance, Insurance Department
      935 de La Gauchetiere St W
      Montreal, Quebec H3B 2M9, Canada
      514-399-6411 (office); 514-399-4296 (FAX)

      The policy must remove any provisions excluding coverage for injury, loss or damage arising out of or resulting from doing business or undertaking construction or demolition on, near, or adjacent to railroad track or facilities using endorsement CG 2417 10 01 or equivalent approved by Railroad Company.

   D. When outside party is required by Railroad Company or Governing Authority to purchase Railroad Protective Liability Insurance to cover work on, near or adjacent to railroad track or facilities, and outside party is not being hired for this project by Railroad Company, outside party must procure Railroad Protective Liability Insurance in the following form;

      This coverage shall be written on an Occurrence Form with limits of not less than $5,000,000 per occurrence for Bodily Injury, Personal Injury and Physical Damage to Property, with an aggregate limit of not less than $10,000,000. The policy must name:

      Name of site specific Railroad Company (applicant must contact CN to determine)
      Attn: Mgr Insurance, Insurance Department
      935 de La Gauchetiere St W
      Montreal, Quebec H3B 2M9, Canada
      514-399-6411 (office); 514-399-4296 (FAX)

   E. In the event the privileges provided herein to Applicant involve any work that could result in the discharge, spillage, disposal, release or escape of any Hazardous Material or petroleum product onto the Railroad Company's property, Applicant shall purchase and maintain in effect at all times during the term of this License a Contractor's Pollution Liability policy in an amount not

less than two million dollars ($2,000,000) combined single limit (and with a deductible not to exceed $50,000) insuring Railroad against any and all damages, costs, liabilities and expenses resulting from on- or off-site bodily injury (including death to any person), on or off- site loss, damage or destruction of property (including that belonging to the parties hereto), and on-or off-site cleanup costs (including expenses incurred in the investigation, removal, remediation, neutralization, or immobilization of contaminated soils, surface water, groundwater or any other contamination) growing out of or incidental to any discharge, spillage, disposal, release, or escape of any Hazardous Material or petroleum product arising therefrom. For purposes of this Agreement, the term "Hazardous Material" shall include, without limit, any flammable explosives, radioactive materials, hazardous materials, hazardous wastes, hazardous or toxic substances, or related materials defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. §§9601, et seq.), the Hazardous Material Transportation Act, as amended (49 U.S.C. §§ 1801, et seq.), the Resource Conservation and Recovery Act, as amended (42 U.S.C. §§ 6901 et seq.), the Toxic Substances Control Act, as amended (15 U.S.C. §§ 2601, et seq.), similar laws or ordinances enacted by any state, county or municipality in which the Property is located, or in the regulations adopted and publications promulgated pursuant to any of the above, as such laws or regulations now exist or may exist in the future.

Applicant is required to advise Railroad Company by thirty (30) day advance written notice when any work to be per formed under this License may require Pollution Liability Insurance pursuant to the previous paragraph.

F. All policies described above must include description of operations, Railroad Company milepost, highway or street name, city and state of location, project number, and Railroad Company contact person on the certificate.

2. Before commencing work, outside party shall deliver to Railroad Company a certificate of insurance evidencing the foregoing coverages and, if requested by Railroad Company, true and complete copies of the policies described above. If the policy is being issued in conjunction with, or as a result of, a city, county or state contract, the policy should be initially submitted to the respective city, county or state agency that will review it first and then forward it to Railroad Company.

3. Common Policy Provisions. Each policy described in paragraph 1, parts A through E above, must include the following provisions:

   A. Each policy shall include a waiver by the insurer of any right of subrogation against any recovery by or on behalf of any insured.

   B. Each policy shall provide for not less than thirty (30) days prior written notice to r ailroad Company at the address listed above of cancellation of or any material change in that policy.

4. It is understood and agreed that the foregoing insurance coverage requirements, and outside party's compliance with those requirements, is not intended to, and shall not, relieve outside party from, or serve to limit, outside party's liability and indemnity obligations under the provisions herein.

5. Railroad Company shall have the right, from time to time, to revise the amount or form of insurance coverage required as circumstances or changing economic conditions may require. Railroad Company shall give outside party written notice of any such requested change at least thirty

(30) days before the date of expiration of the then-existing policy or policies, outside party agrees to, and shall, thereupon provide Railroad Company with such revised policy or policies.

6. Insurance required of SUBCONTRACTOR:

   A. If a SUBCONTRACTOR is to be employed by outside party to perform work on Railroad Company under or by the permission for occupancy granted to outside party by Railroad Company, before commencing work, the SUBCONTRACTOR shall provide and thereafter maintain all of the insurance described in paragraph 1, parts A through E, above, in the same forms and amounts as provided for above and subject to the other terms and conditions provided for in paragraphs 2 through 4 above.

   B. In the alternative, before the SUBCONTRACTOR commences work for outside party on Railroad Company, outside party may provide and t hereafter maintain all of the insurance described in paragraph 1, parts A through E, above, in the same forms and amounts as provided for above and subject to the other terms and conditions provided for in paragraphs 2 through 5 above, provided that all such insurance names SUBCONTRACTOR as an additional insured and all such insurance provides coverage to all additional insureds, including Railroad Company, for any liability arising out of work performed by all other additional insureds, including SUBCONTRACTOR.

Is safety training required?

Prior to any entry onto Railroad Company's property, the employees and/or subcontractors of a Contractor, Grantee, Licensee, or Permittee shall determine by the guidelines hereinafter provided and by the work to be performed the level of safety training to be required.

All employees and/or subcontractors of a Contractor, Grantee, Licensee, or Permittee not hired by Railroad Company that will work on CN property are required to have minimum www.contractororientation.com.

a. EXCEPTION: Railroad Company has exempted those it classifies as "Delivery Persons" from this training. This will include contractors such as UPS, FedEx, trucking companies, etc. who merely access the property to supply materials or equipment.

All employees and/or subcontractors of a Contractor, Grantee, Licensee, or Permittee hired by Railroad Company which will work on Railroad Company property are required to have minimum CN Safety and Security Awareness training, in addition to undergoing a background check. This training and background check must be obtained through the eRailSafe.com website. If not done before, the contractor must contact e-RailSafe at 855-383-7434 to be issued a vendor number prior to accessing the noted website. Minimum information required of a Contractor, Grantee, Licensee, or Permittee and/or their contractor when contacting e-RailSafe is Name, Address, Telephone, Contact Person for State Projects, DOT Contract Number, and the AAR/DOT Number. This training is good for a period of two years.

a. EXCEPTION: Railroad Company has exempted those employees of contractors providing paving services at a road crossing under construction or repair from this requirement.

b. EXCEPTION: Railroad Company has exempted those it classifies as "Delivery Persons" from this training. This will include contractors such as UPS, FedEx, trucking companies, etc. who merely access the property to supply materials or equipment.

All employees and/or subcontractors of a Contractor, Grantee, Licensee, or Permittee hired by Railroad Company, whose duties include and who are engaged in the inspection, construction, maintenance, or repair of railroad track, bridges, roadway, signal and communication systems, roadway facilities, or roadway machinery that will work foul of or have the potential to foul a live track are considered Roadway Workers under FRA regulations and CN Policy. They must complete the On-Track Safety Training course approved by Railroad Company and provided by R.R. Safety – AMR, P.O. Box 75, Lomira, WI 53048, telephone (920) 517-1677, email rrsafetytraining@yahoo.com. This training must be repeated at least once each calendar year.

a. EXCEPTION: Railroad Company has exempted those employees of contractors providing paving services at a road crossing under construction or repair from this requirement.

b. EXCEPTION: Railroad Company has exempted those it classifies as "Delivery Persons" from this training. This will include contractors such as UPS, FedEx, trucking companies, etc. who merely access the property to supply materials or equipment.

c. All the employees and/or subcontractors of a Contractor, Grantee, Licensee, or Permittee who will operate on-track machinery or those who will provide protection for other employees and/or subcontractors of a Contractor, Grantee, Licensee, or Permittee must also be trained on CN US Operating Rules pertaining to their duties. They must take and pass the required examination. This training is good for a period of two years.

d. "Potential to foul a live track" is considered, at a minimum, to be working within twenty-five (25) feet of the track; or as otherwise to be determined by CN Design & Construction Department.

The employees, subcontractors, and/or agents of the Licensee and/or its contractor shall qualify for, and make available for inspection to Railroad Company's employees or other authorized personnel at all times while on Railroad Company property, a photo identification issued by www.e-railsafe.com, along with at least one other government-issued form of identification. Licensee and/or their contractor shall bear all costs of compliance with the requirements of this Section. Railroad Company reserves the right to bar any of employees or agents of a Contractor, Grantee, Licensee, or Permittee and/or their contractor from Railroad Company's property at any time for any reason.

Email the above back to john.dinning@cn.ca

Revised 2016-11-01

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3676 **CODE: (SP)**

DATE: 09/21/2021

SUBJECT: Asphalt Gyratory Compactor Internal Angle Calibration

Bidders are advised that by March 1, 2022, all asphalt gyratory compactors shall be calibrated to an internal angle of 1.16° ±0.02°. This requirement will be reflected in updates made to MT-78, MT-80, and MT-83. This calibration requirement also extends to all QC/QA testing.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 3875 **CODE: (IS)**

DATE: 12/15/2021

SUBJECT: ITS General Requirements

For this Notice to Bidders, the "Engineer" shall mean the Project Engineer and/or their designee(s) throughout the rest of this NTB, unless stated otherwise.

Submittals
All submittals covered under this section shall be made electronically to the Project Engineer and to the ITS Engineer, shall clearly state the project name and project number, and should be in as few separate submittals as possible.

All products selected for use on this project shall be in compliance with 2 CFR 200.216, in addition to all other contract requirements as outlined throughout the specifications, special provisions and plans. No telecommunication and video surveillance equipment or services shall be manufactured by the following companies: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities.

Product Data. Manufacturers' product data including specifications/cut-sheets, design guides, installation manuals, operating manuals, and maintenance/service manuals shall be submitted by the Contractor for each component of the ITS system, including but not limited to cabinets, controllers, sensors, conduit, pull boxes, hardware, and all other parts of the system selected for installation.

The complete information for the original product data submittal shall be contained in as few submittals as possible and be in an organized fashion.

The product data submittal shall be accompanied by a specification checklist. At a minimum, this checklist shall clearly state the following:

1) The project name and project number
2) The date of the submittal
3) The pay item number and description
4) The part and/or model number, matching the cut-sheet
5) The manufacturer
6) A Certification Statement that the referenced product is not manufactured by any of the following: Huawei Technologies Company, ZTE Corporation, Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, Dahua Technology Company, and any subsidiary or affiliate of these entities. (as per 2 CFR 200.216)
7) Every material requirement as stated in in this Notice to Bidders and as outlined elsewhere within this contract.

8) A statement of whether the product complies with the requirements set forth in the specifications, special provisions, plans and NTB. If product is not compliant, an explanation of non-compliance shall be provided.

All subsections of a particular section may be omitted if the section heading is included, is indicated to be not applicable, and that it is evident that all subsections being omitted are also not applicable.

It shall be the responsibility of the Contractor to guarantee the accuracy of the checklist.

Other Submittals. The following submittals shall be required:

1) Shop Drawings
2) Cabinet wiring diagrams with system labeling schedule.
3) Site wiring/connection drawings.
4) Rack diagrams showing rack mounted equipment.
5) All documentation as described in the Project Testing Plan Requirements section below.
6) Project Record Drawings:
   a. The purpose of Project Record Drawings is to provide factual information regarding all aspects of the Work, to enable future service, modifications, and additions to the Work.
   b. Project Record Drawings are an important element of this Work. Contractor shall accurately maintain Project Record Drawings throughout the course of this project.
   c. Project Record Drawings shall include documentation of all Work, including the conduit locations, pull box locations, equipment locations, foundation details, setup parameters and wiring and block diagrams.
   d. Project Record Drawings shall accurately show the physical placement of the following:
      i. Cabinets, sensors, pull boxes, and other materials installed at each site.
      ii. Conduit runs and splicing information.
   e. Project Record Drawings shall show the physical placement of each system component installed during the project at each site. Where the plan details do not depict actual field conditions, the Contractor shall amend the construction plan as required.
7) Upon completion of Work, and prior to Final Acceptance, the Contractor shall prepare and submit the final record set of Project Record Drawings. This set shall reflect the installed Work.
8) Closeout Submittals - A set of Project Record Drawings shall be provided to the Project Engineer and ITS Engineer for any items that changed or were not previously submitted, including:
   a. Project Record Drawings
   b. Product Data
   c. Installation Manuals
   d. Operating Manuals
   e. Maintenance/Service Manuals

As-Built Plans. The Contractor shall provide GPS locations of all pull boxes, splices,

termination equipment cabinets, ITS field locations and all pole locations. The Contractor shall record and submit 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 provide a site location inventory of ITS devices to include manufacturer model, serial numbers, MAC addresses, and IP addresses (as applicable) for all installed devices. All documentation will be due to the Department a minimum of thirty (30) calendar days after the installation.

Additional Quality Assurance Measures

The project shall be constructed in such a manner as to comply with environmental regulations and erosion control as specified in the plans and elsewhere in MDOT standard specifications.

At the completion of the Work, the site shall be cleaned, restored, grassed and otherwise stabilized to a condition consistent with conditions before work began. This work shall be paid for under other items of work.

All disturbed signs, guardrail, markers, fencing, and other roadway appurtenances shall be restored. Disturbed roadway appurtenances that require complete removal and replacement will be identified within the contract and will have separate pay items and quantities set forth for such work.

The Contractor shall clean-up debris caused by Contractor's activities on a daily basis as the work progresses. This work shall be paid for under other items of work.

All work-related accidents shall be reported immediately to the Project Engineer or his/her representative.

Maintenance and Technical Support. The supplier must provide and have a parts support system capable of providing parts for the length of the warranty period.

Project Testing Plan Requirements

The Contractor shall conduct a Project Testing Plan as required below in addition to all other project testing and acceptance procedures required elsewhere in the specifications and Plans. Some specifications contain details regarding the testing for individual device types or attributes, but this section outlines the overall testing plans for the entire project as a whole. The Project Testing Plan shall include a series of tests on all project materials occurring at various stages in the project. All costs associated with the Project Testing Plan shall be absorbed in contract pay items; no separate payment will be made for any testing.

General Requirements. The Contractor is responsible for planning, coordinating, conducting and documenting all aspects of the Project Testing Plan as detailed below and providing all required equipment for the tests. The Engineer reserves the right to attend and observe all tests.

Each test shall be an individual and separate event for each type of test and for each type of equipment as defined elsewhere within this NTB. The Contractor shall follow the testing sequence as described in this NTB and shall perform the required tests on all applicable

devices and infrastructure.

Test procedures shall be submitted and approved for each test as part of the project submittals programs. Test procedures shall include every action necessary to fully demonstrate that the material under test is clearly and definitively in full compliance with all project requirements. Test procedure actions shall cross-reference to the specifications or Plans requirement that is the subject of the test action. Test procedure actions shall cross-reference the applicable sections of the final approved Project Submittal Compliance Form and the submittal materials for the subject of the test action. Test procedures shall contain test setup and block/wiring diagrams showing all materials being tested and all test and measurement equipment, with calibration documentation, and shall contain documentation regarding the equipment configurations and programming. Test procedures shall include checkoff blanks for each project requirement included in that test and shall include forms for the documentation of all measured test results.

No testing shall be scheduled until approval of all project submittals for all materials covered under a given test and approval of the test procedures for the given test has been granted.

Unless otherwise required herein, the Contractor shall request in writing the 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 material to be tested. The Engineer reserves the right to reschedule tests if needed.

For any series of tests on different installations of a given material (e.g., different sections of cable), the Contractor shall request in writing the Engineer's approval for the first test occurrence of the series a minimum of 14 days prior to the requested test date, regardless of the notification requirements for subsequent test occurrences.

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

All test results shall be documented in writing by the Contractor in accordance with the test procedure and submitted to the Engineer within seven (7) days of the completion of the test. Any given test session is considered incomplete until the Engineer has approved the documentation for that test session.

The Contractor shall provide test results documentation in electronic format and printed format (3 copies). Electronic formats shall be provided in both PDF and Microsoft Excel or other approved application. Printed copies shall be bound and organized by test, equipment type, and individual unit.

- Two sets are for the Traffic Engineering ITS Department
- One set is for the Engineer

All test results shall be provided in English units of measure.

All test results deemed by the Engineer to be unsatisfactorily completed shall be repeated by the Contractor, following all test requirements as defined elsewhere in this NTB and contract specifications. This shall include a request in writing for the Engineer's approval for the repeated test a minimum of 14 days prior to the requested test date, unless this requirement is waived by the Engineer. 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. Any revisions to the test procedures for a repeated test occurrence shall meet all requirements for the original test procedures, including review and approval by the Engineer.

The satisfactory completion of any test shall not relieve the Contractor of his responsibility to provide a completely acceptable and operating system that meets all requirements of this project.

It is possible for the Contractor to schedule multiple test dates and revise the actual test being performed on a particular day if; 1) the Engineer approves of the change, 2) all test scheduling requirements above have still been met for the actual test to be performed on the date, and 3) there is not an unreasonable change of location, time, duration, or requirement of the Engineer.

Factory Acceptance Test (FAT). FATs shall be conducted at the Manufacturer or Contractor's facility or at a facility acceptable to all parties prior to shipping from the factory. The goal of the FAT is to verify that the equipment meets the requirements of the specifications. All equipment to be utilized for this project shall be subject to tests that demonstrate the suitability of the design and manufacturing procedures and compliance with the contract requirements, unless an exception for a specific equipment item is granted by the Engineer. The tests shall be performed on production units identified to be delivered under this Contract. As a minimum, a FAT is required for each of the following project materials:

- Dynamic Message Signs

The FAT testing procedures and results for specifically identified materials shall demonstrate that all testing requirements as outlined within the contract (standard specifications, plans, special provisions, and notice to bidders) 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 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 the Engineer's discretion, the Engineer may be in attendance at the FAT for any units tested. The FAT for the first three (3) units shall be conducted during the same time period and shall be completed before additional units are produced.

The Engineer shall be notified a minimum of 45 calendar days in advance of such tests. Salary and travel expenses of the Engineer and his/her representatives will be the responsibility of the Department. In case of equipment or other failures that make a retest necessary, travel expenses associated with retests for the Engineer and his/her representatives shall be the responsibility of

the Contractor. The travel expenses shall include all costs associated with having a two-person Engineer review team on site, including but not limited to airfare, automobile rental, lodging, and per diem. These costs, excluding airfare, shall not exceed $500.00 per representative, per day. These costs shall be deducted from the payments due or charged to the withholding account of the Contractor when the project is terminated.

The vendor must complete the FAT on all remaining units on their own and submit documentation to the Engineer that the FATs were completed. The 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 Engineer and the Engineer's approval to ship.

Bench Test Components (BTC). The Contractor shall perform a complete BTC on the lesser of the full contract quantity of units of equipment and materials or the number of units required as specified in this subsection below. The quantity listed in the subsection below is a "minimum" quantity and the Engineer reserves the right to require testing of additional quantities if the initial testing is not deemed adequate. The Contractor shall provide the testing location and facility, which shall be in Mississippi and within a 25-mile radius of the project limits. The test location must be approved by the Engineer as part of the BTC test procedure submittal.

The BTC shall demonstrate that all equipment and materials are in full compliance with all project requirements and works "out of the box" by visual inspection, setup and operation "on the bench", functional testing of the component including manufacturer's recommended startup diagnostics, and testing prior to any field installation of that equipment or material. Test results documentation shall be provided for each equipment item and material in the full contract quantity; test results documentation shall include the manufacturer's serial number and the project location ID for each item.

As a minimum, a BTC is required for each of the following project materials for quantities as shown.

- Closed Circuit Television Equipment, 4 PTZ units & 6 fixed units
- Dynamic Message Sign, 2 complete units of each type
- Travel Time Signs, 2 compete units
- Network Switches Type A, 4 units
- Network Switches Type B & F, 2 units each
- Network Switches, Type C, D, & E, 1 unit each
- ITS Radar Vehicle Detection Sensors, 6 units
- Highway Advisory Radios, 2 units
- Radio Interconnect System, 4 units of each type
- Bluetooth Detection System, 6 units
- DSRC devices, 6 units
- Roadway Weather Information System, 2 complete units
- Traveler Information Video Kiosk, 2 complete units

- Smart Work Zone System
  - Portable CCTV station, 2 complete units
  - Non-Intrusive Vehicle Detection Devices / Portable Traffic Sensors, 4 complete units
  - Highway Advisory Radio, 2 complete units
  - Portable Changeable Message Signs, 2 complete units
  - Portable Traffic Signal, 2 complete units
- Off-the-shelf and Vendor Software, all necessary
- Equipment Cabinet (Type A), 2 cabinets
- Equipment Cabinet (Type B), 4 cabinets
- Equipment Cabinet (Type C), 2 cabinets

Pre-Installation Tests (PIT). The Contractor shall perform Pre-Installation Tests (PIT) on all device quantities that are not included in the BTC. The Contractor shall provide the testing location and facility, which shall be within a 25-mile radius of the project limits or as approved by the Engineer. The test location must be approved by the Engineer as part of the PIT test procedure submittal. The PIT shall be a shortened version of the BTC to ensure the equipment will power up, operate, and was not damaged during shipment. The Engineer reserves the right to attend any PIT as desired; however, the contractor shall submit documentation of the PITs whether the Engineer is present or not. In addition to these requirements, see the DMS, TTS, and Fiber Optic Cable Special Provisions for more details.

Stand Alone Site Tests (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 infrastructure (fiber, leased copper, wireless), cable, poles, camera lowering devices, device communication cables, cabinet apparatus, etc. The goal of the SAT is to verify that the equipment has been properly installed and commissioned according to the manufacturer requirements. A SAT shall be conducted at every field device site including communications hubs. A SAT shall be conducted for a fully installed and completed control center in the TMC as described in the TMC modification NTB. A SAT shall be conducted for all fiber optic infrastructure.

The SAT shall demonstrate that all equipment and materials are in full compliance with all project requirements, are fully functional as installed, and are in their final configuration. As part of this demonstration, SATs shall include but are not limited to the following:

- A visual inspection of the cabinet and all construction elements at the site to ensure they are compliant with the Specifications and have no physical damage or deformities.
- The inspection of the cabinet at each site shall include the functional test of all cabinet equipment, including circuit breaker, receptacles, fan and thermostat, lights, and door switches.
- Verify that manufacturer documentation for each device is present.
- A measurement of the DC power supply shall be made at the cabinet when it is operating under full load.
- Verify that all equipment has proper power, surge protector, and grounding connections.
- Inspect the integrity of all cable connections and terminations and verify that the cables are

connected and terminated as specified in the Plans.

The SATs for each site type shall include but are not limited to the following:

- *CCTV Stand Alone Site Test*: Shall be conducted at the CCTV Cabinet and shall demonstrate the complete operation of the CCTV, Network Switch, and the link(s) to any devices that are connected to the Power Supply in the CCTV Cabinet. The SAT shall include a 5-minute recording of each PTZ and Fixed camera showing the field of view and video quality. Two copies of the recording shall be provided to the Engineer on USB flash drives. The recording will start at the preset default position(s) and will demonstrate the full zoom capabilities of the cameras, as well as the full range of the pan and tilt functions of PTZ cameras. This recording shall be in a format playable with Windows Media Player or pre-approved by the Engineer.
- *ITS Communications HUT Stand Alone Site Test:* Shall be conducted at the HUT and shall demonstrate the complete operation of all equipment inside the HUT including Network Switches. This also includes visual inspection of the Site elements associated with the HUT.
- *ITS Termination Cabinet Stand Alone Site Test:* Shall be conducted at the termination cabinet and shall demonstrate the complete operation of all equipment inside the cabinet including Network Switches. This also includes visual inspection of the Site elements associated with the termination cabinet.
- *Radio Interconnect System Stand Alone Site Test:* Shall be conducted from the cabinets at both ends of the communications link (even if one end consists of existing equipment) and shall demonstrate that the radios, the antennas, the entire link, the Network Switch, and the transmission of video and/or data are fully operational. See Radio Interconnect Special Provision for more details.
- *Highway Advisory Radio Site Test:* Shall be conducted at the HAR cabinet, antenna, and advisory signs and shall demonstrate complete operation of recordings, transmissions, and remote flashing beacon unit(s). See HAR Special Provision for more details.
- *Fiber Optic Cable Stand Alone Site Test*: Shall be conducted at each Cabinet and at each HUB and shall include both power meter tests and OTDR tests. See Fiber Optic Special Provision for more details.
- *Conduit Detection Wire Stand Alone Site Test*: Shall be conducted at each pull box and shall demonstrate that a continuous run of conduit detection wire was installed between pull boxes, vaults, cabinets, and structures as required.
- *ITS Radar Vehicle Detection Stand Alone Site Test*: Shall be conducted at the IRVD Cabinet and shall demonstrate the complete operation, proper configuration, and verification of detection for each lane of traffic or zone of the IRVD unit(s).
- *BDS Stand Alone Site Test*: Shall be conducted at the Device Cabinet and shall demonstrate the complete operation and proper configuration of the unit(s), verify network connection to the BDS through ping and telnet sessions from a remote PC, and confirm that the system is fully functional by detecting Bluetooth devices at a sample rate approved by the Engineer.
- *RWIS Stand Alone Site Test*: Shall be conducted at the RWIS Cabinet and shall demonstrate the complete operation and proper configuration of the RWIS and shall verify that the remote flashing beacon unit(s) on the warning signs are activated properly as

specified and will de-activate automatically without renewal at preset intervals.

- *SWZ Stand Alone Site Test*: Shall be conducted at each device at its initial location and shall demonstrate the complete operation and proper configuration of the device as described in the Smart Work Zone Special Provision and NTB. At any subsequent locations, at a minimum, a document verifying that the device is configured for the new location shall be submitted to the Engineer.
- *Kiosk Stand Alone Site Test*: Shall be conducted at the device, verify all required video layouts and displays, demonstrate all required software features, and demonstrate the complete operation of the device and Network Switch. Refer to the Traveler Information Video Kiosk specification for more details.
  DMS & TTS Stand Alone Site Test: Shall be conducted at the Device Cabinet, verify that all pixels are operational, verify that the sign can be controlled locally through both the serial and Ethernet ports, and demonstrate the complete operation of the device and Network Switch. The signs shall be delivered with and tested using default fonts and sizes that are provided by the MDOT ATMS drivers.

The Contractor shall request in writing the Engineer's approval for each test occurrence a minimum of 14 days prior to the requested test date. The Contractor shall arrange, at no additional expense to the State, the attendance of a qualified technical representative of the equipment manufacturer to attend each test until a minimum of two (2) sites of that type are approved.

Sub-System Test (SST). The Contractor shall perform an SST on each DMS and TTS to verify and document that all remote TTS and DMS functions and alarms are operational from the TMC.

An SST is required for at least ten percent (10%) of each of the following devices being placed for the project, taken by a random sampling: BDS, Network Switch, IRVD, HAR, Radio, CCTV, Video Vehicle Detection, and RWIS including beacons. The SST will require the Contractor to demonstrate and document that all functions and alarms are operational from the TMC.

An SST is required for each Traveler Information Kiosk in the project and will require the Contractor to demonstrate and document the features demonstrated in the Kiosk SAT using remote access from the TMC.

An SST is required for each Smart Work Zone device in the project and will require the Contractor to demonstrate and document the connection between the device and the central data/video collection site. Once a Smart Work Zone device has been verified to be properly configured, working, and communicating at its current location, the device can be utilized without further testing. The Conditional System Acceptance Test, Burn-in period, Final Inspection, or Final System Acceptance is not required for a device being solely utilized as part of the temporary Smart Work Zone System. Devices moved to a new location do require verification that they are still working as intended in the new location.

The Contractor shall coordinate the SST to be performed with the Project Engineer or designee present. The Contractor shall provide an SST plan to the Project Engineer for review and approval a minimum of two weeks in advance of tests being performed.

Conditional System Acceptance Test. The Contractor shall perform a complete conditional system acceptance test on all equipment and materials in the project. The Contractor shall not request the conditional system acceptance test until the SATs have been satisfactorily completed, all as-built documentation has been submitted and approved, and all other project work has been completed to the satisfaction of the Engineer. Prior to a Conditional System Acceptance Test, the Contractor shall provide advance notice of and written test results documenting that the Contractor has performed a dry-run of the conditional system acceptance test. The Engineer reserves the right to attend a dry-run test session.

The Contractor shall coordinate the CSAT with the Engineer. The Contractor shall provide a CSAT plan to the Engineer and be approved a minimum of fourteen (14) calendar days in advance of tests being performed. The CSAT plan shall be inclusive of steps and procedures to be performed and scheduled times to perform test procedures.

The Contractor shall test all project systems simultaneously from the State TMC in a manner equivalent to the normal day-to-day operation of the system. The Conditional System Acceptance Test shall demonstrate that all equipment and materials in the network are in full compliance with all project requirements and fully functional as installed and in final configuration, communicating with and being controlled through the control center at the State TMC. If pre-processing systems (e.g., edge computing) or post-processing systems (e.g., video image processing and analytics, detection in one device triggering an alarm or event in another device, etc.) are present, these shall be tested, verified, and documented as working as intended during the CSAT. Edge computing is where data-handling activities, such as analysis and event-triggering, takes place near the physical location that the data is collected.

The Engineer reserves the right to require, at no additional expense to the State, the attendance of a qualified technical representative of the equipment and/or software manufacturers to attend any given Conditional System Acceptance Test.

Upon completion and full approval of the Conditional System Acceptance Test for all equipment in all phases, Conditional System Acceptance will be given and the Burn-in Period will begin.

Burn-In Period. Following the Engineer's written notice of successful completion of the Conditional System Acceptance Test, the entire newly installed system must operate successfully for a thirty (30) day burn-in period. The Contractor shall be responsible for the full maintenance of the newly installed equipment during the burn-in period. This maintenance includes all troubleshooting and repairs as well as providing preventive maintenance that meets the equipment manufacturer's recommendations. However, no separate payment will be made during the burn-in period. Successful completion of the burn-in period will occur at the end of thirty (30) complete days of operation without a system failure attributable to hardware, software or communications components. Each system failure during the burn-in period will require an additional thirty (30) days of successful operation prior to being eligible for Final Acceptance (i.e., if the initial burn-in period is thirty (30) days and there are two (2) system failures during this time, the burn-in period would be increased to ninety (90) days).

Burn-In General Requirements:

- Determination of a system failure shall be at the sole discretion of the Engineer.
- System failure is defined as a condition under which the system is unable to function as a whole or in significant part to provide the services as designed. While a single component failure will not constitute a system failure, chronic failure of that component or component type may be sufficient to be considered a system failure. Chronic failure of a component or component type is defined as three (3) or more failures for the same component during the burn-in period.
- Components are defined as contract items or major material elements in a contract item. For electrical and electronic contract items, components are defined as the complete assembly of materials that makes up the contract item.
- Specifically exempted as system failures are failures caused by accident, acts of God, or other external forces that are beyond the control of the Contractor. However, failure of the contractor to respond to the repair request for that failure within 24 hours may be considered a system failure.
- The Department will advise the Contractor in writing when it considers that a system failure has occurred or chronic failure exists.
- If multiple system and/or chronic failures continue to occur throughout the burn-in period due to a single component type, the Contractor may be required to replace all units of that component type with a different model or manufacturer.
- The Contractor shall document all failures and subsequent diagnosis and repair. The repair documentation shall include as a minimum:
    - Description of the problem
    - Troubleshooting and diagnosis steps
    - Repairs made
    - List of all equipment and materials changed including serial numbers.
    - Update of the equipment inventory where needed.
    - The Contractor shall provide the repair documentation to the Engineer within two (2) days of completing the repair; failure to provide acceptable documentation as required shall be reason to not approve the repair as complete. The Engineer will provide acceptance or rejection of the repair and documentation within seven (7) days of receiving the repair documentation.
    - The Engineer reserves the right to require, at no additional expense to the State, the presence of a qualified technical representative of the equipment and/or software manufacturers as related to the diagnosis and/or repair of any system failure.
- During the burn-in period, the Contractor shall perform incidental work such as touching up, cleaning of exposed surfaces, leveling and repair of sites, sodding/grassing and other maintenance work as may be deemed necessary by the Engineer to ensure the effectiveness and neat appearance of the work sites.
- During the burn-in period, the Engineer shall maintain a "burn-in period punch list" that contains required Contractor actions but that the Engineer does not define as a system failure. Each burn-in period punch list action item shall be completed by the Contractor to the Engineer's satisfaction within seven (7) days of Contractor notification of the action item.
- During the burn-in period, the Contractor is required to meet the following response times

once notified there is a problem. A response is defined as being on-site to begin diagnosing the problem.
    - Monday thru Friday: The Contractor shall respond no later than 9:00 a.m. the following morning after being notified.
    - Weekends: If the Contractor is notified on Friday afternoon or during the weekend, the Contractor shall respond by 9:00 a.m. on Monday morning.
- During the burn-in period, the Contractor shall provide all labor, materials, equipment and replacement parts to completely maintain, troubleshoot and repair all items installed under this contract. No separate payment will be made for any labor, materials, equipment, or replacement parts needed during the burn-in period.
- The overall burn-in period will be considered complete upon the successful completion of the burn-in time periods, the Engineer's acceptance of all repairs and repair documentation, completion of all burn-in period punch list actions, and a final inspection as described below.

Contract time will not cease during the burn-in period(s). Contract time for the burn-in period was considered when determining the original contract time.

Final Inspection. Upon successful completion of the burn-in period, the entire project shall be eligible for Final Inspection. The Final Inspection will be conducted provided the burn-in period has demonstrated the entire system is operating successfully. The Final Inspection shall include but is not limited to:

1. monitoring of all system functions at the State TMC to demonstrate the overall system is operational
2. a field visit to each site to ensure all field components are in their correct final configuration
3. verification that all burn-in punch list items have been completed
4. verification that all final cleanup requirements have been completed
5. approval of final as-built documentation

Prior to conducting the Final Inspection, the burn-in period shall demonstrate that all requirements defined in the specifications have been 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 system.

The Contractor shall request in writing the Engineer's approval to start the Final Inspection a minimum of 14 days prior to the requested start date. The Engineer reserves the right to reschedule the start date if needed. The start date for the Final Inspection cannot be prior to the successful completion of the overall burn-in period.

An unsuccessful or incomplete Final Inspection shall require a new Final Inspection after the Contractor has made the necessary corrections. Up to 14 days shall be allowed for the Engineer to conduct a Final Inspection. The presence of the MDOT ITS Engineer or his/her designee is required during the final inspection.

The Engineer reserves the right to require, at no additional expense to the State, the attendance of a qualified technical representative of the equipment and/or software manufacturers to attend a portion of a Final Inspection.

The Contractor shall be responsible for the full maintenance of all project equipment and materials during the entire time period from the successful completion of the burn-in period until Final System Acceptance is granted.

Final System Acceptance. Upon successful completion of the Final Inspection and all other items of work on the project, the Engineer will grant Final System Acceptance in accordance with Subsection 105.20 of the Standard Specifications.

Beneficial Use of Dynamic Message Signs During Construction. Each DMS shall be roadside controllable (by sign vendor software) within 30 days of attachment to structures (visible to motorists). The Contractor's construction schedule shall clearly identify when installation of the signs over the roadway shall occur, and when roadside control shall be established for each sign. The Contractor shall not install a DMS over the roadway until all ancillary and infrastructure elements, including cabinets, controllers, conduits, cabling, etc. necessary to operate the sign are in place and functional. Once roadside controllable, the Contractor shall display emergency, special event, construction, safety or traveler information messages approved by MDOT, only when requested by MDOT, at no additional cost to MDOT. Normal diagnostic messaging for the purpose of installation and testing shall be determined by the Contractor but shall not be allowed to the extent that excessive power consumption or distraction to motorists occurs as determined by the Engineer. Any beneficial use of the signs to MDOT and the public prior to Final Acceptance does not constitute MDOT acceptance or waive any Contractor testing requirements. The cost that may be incurred by the Contractor to display messages as described above during this construction contract shall be considered incidental and included in the cost of other items.

Warranties

The following components of the Project shall be warranted against manufacturing defects and workmanship for a period of at least one (1) year:

- Radio interconnect system components as listed under SP 907-662-2
- Layer 2, Type A; Layer 3, Type C, Type C4, Type E1, and Type E2 Network Switches; and Network Terminal Server & Network Cellular Modem as listed under SP 907-663-5
- Communication Node Hut & Hut Modifications under SP 907-664-4
- Video Communication Equipment components under SP 907-665-1
- Bluetooth Detection System components under SP 907-666-3
- Roadway Weather Information System & Warning Signs with Flashing Beacon under SP 907-670-3
- Kiosk Monitoring Camera under SP 907-671-1
- Travel Time Sign under SP 907-674-1
- ITS Radar Vehicle Detector under SP 907-641-2
- On Street Video Equipment under SP 907-650-4;
- Highway Advisory System components under SP 907-655-2;
- Dynamic Message Signs under SP 907-656-1.

The following components of the Project shall be warranted against manufacturing defects and workmanship for a period as listed below for each respective item from the date of Final Maintenance Release.

- *Fiber Optic Cable*: Ten (10) year warranty on materials and workmanship
- *Traveler Information Video Kiosk*: Two (2) year extended warranty on materials/hardware
- *TMC Modification*: Two (2) year warranty on hardware and one (1) year warranty on software
- *Type C1, C2, & C3 Network Switches*: Five (5) year warranty on hardware
- *Type D, E, & F Network Switches*: Five (5) year warranty on hardware

The Contractor shall supply the warranties in writing with the Final Maintenance Release date documented on them. These warranties shall cover complete replacement at no charge for the equipment. The Contractor will be responsible for all labor, shipping, insurance and other charges until Final System Acceptance. Equipment covered by the manufacturers' warranties shall have the registration of that component placed in the Department's name prior to Final Inspection. The Contractor is responsible for ensuring that the vendors 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 material of equal or greater kind and quality and meeting all of the applicable specifications herein, 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 Contractor via telephone within four (4) hours of the time a call is made by the Department. If it is deemed necessary by the Engineer, technical support shall be available from factory certified personnel of the supplier via telephone within eight (8) hours of the time of the initial call made by the Department. During the warranty period, updates, patches, performance improvements, and corrections to all software and firmware used during the project shall be made available to the Department by the supplier at no additional cost.

Training

After the Stand Alone Site Tests have been conducted but prior to Conditional System Acceptance, the Contractor shall provide separate training sessions for each subsystem training pay item included in the project. The training sessions may require multiple classes as noted below) and shall accommodate from six (6) to twelve (12) personnel per class. Additional sessions for additional personnel may be required if the make and model of the subject component is not currently in the MDOT system.

The training must include formal classroom and "hands-on" operations training with a complete demonstration of the configuration, operation, and capabilities of each component in the system. The training should also consist of a hands-on demonstration of all software configuration and functionality where applicable. Each training day shall include a mixture of classroom style

training in equipment operations, hands-on operator training using the same models of equipment furnished for the project, and question and answer sessions.

During the burn-in period, the Contractor shall also provide two (2) identical non-consecutive training sessions on the maintenance of the overall system. The training shall be provided for at least ten (10) personnel with individual copies of all training materials provided to each participant. 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. Additional sessions for additional personnel may be required if the make and model of certain components are not currently in the MDOT system.

Prior to scheduling the training, the Contractor shall submit resume and references of the training instructor(s) to the Engineer for approval. The qualifications of the trainers must meet, at a minimum, the recommended qualifications of the equipment manufacturer with a minimum of four years of experience in training personnel. If qualified personnel are not on the Contractor's staff, a representative of the manufacturer shall provide the training.

The training shall be provided at an agreed upon location. If training requires travel on the part of training instructors, then the cost of travel shall be included.

The Contractor shall provide individual copies of documentation, training, and maintenance materials for each participant. These materials shall include detailed specifications and information pertaining to each device in the system. The documentation shall include details of the technical and operational aspects of the completed system. This shall include operational and maintenance manuals, system diagrams, cabling diagrams and mounting/positioning details. The Contractor shall supply emergency contact information and necessary procedures for obtaining vital replacement parts within a designated, agreed upon time frame.

The Contractor shall submit a detailed Training Plan including course agendas, detailed description of functions to be demonstrated, and a general schedule to the Engineer for approval within 90 days of Contract Notice-to-Proceed. The exact date of the training shall be submitted to the Engineer for approval at least four (4) weeks ahead of the date.

Grounding

The Contractor shall provide a grounding and lightning protection system to protect from electrical power surges caused by lightning or disruptions in the power supply system. Ground rods, ground conductor, lightning collectors and appurtenances shall be as detailed on the plans and as required by these specifications.

General. All non-current carrying metal parts of the site shall be grounded according to NEC specifications. In addition, all non-current carrying metal parts shall have a voltage potential of zero relative to reference ground. This reference ground shall be achieved via the equipment-grounding conductor.

Support cable, metallic cable sheaths, conduit, metal poles, pedestals, and communication building shall be made mechanically and electrically secure and grounded. Bonding and grounding jumpers

shall be properly sized according to the NEC and in no case shall they be smaller than a #6 AWG copper wire. Ground pole-mounted accessories to the pole. Equipment on wood poles shall be grounded.

Permanently ground the poles by bonding the No. 6 AWG solid copper wire to a separate ground rod.

Metal raceways, metal enclosures of electrical devices, lighting fixtures, panelboards, and other non-current carrying metallic parts of equipment shall be securely grounded.

Ground rods shall be installed according to plan details. A length of copper conductor shall be attached to the ground rod, utilizing the specified grounding methods, and connected to the grounding system. Do not ground to a permanent water system instead of the driven ground rod. Ensure that grounding devices conform to the requirements of the NEC and NEMA.

Cabinet Grounding. A single-point grounding system shall be constructed.

All grounds for the cabinet shall be installed on the side of the building that utilities, communication cables, and fiber enter. All earth grounds shall be connected to this point, including the grounding system for Surge Protection Devices (SPD). All connections to SPDs shall be made according to the manufacturer's recommendations.

A single ground bus bar shall be mounted on the side of the cabinet wall adjacent to the power panel for the connection of AC neutral wires and chassis ground wires.

The Contractor shall ensure that communication cables, AC power, emergency generator, and equipment frames are connected by the shortest practical route to the grounding system. The lead lengths from each device to the SPD shall be protected. Electrical continuity of all connections shall be verified. All non-conducting surface coatings shall be removed before each connection is made. Ground conductors shall be downward coursing, vertical, and as short and straight as possible. Sharp bends and multiple bends shall be avoided in grounding conductors.

Surge Suppressor

Surge protection device (SPD) shall be provided to protect electronics from lightning, transient voltage surges, and induced current. All SPDs shall be installed at the top and bottom of each pole to provide reliable lightning protection. SPDs shall be installed on all power, data, video and any other conductive circuit.

SPD for 120 Volt or 120/240 Volt Power. A SPD shall be installed at the utility disconnect to the cabinet. The SPD at the utility disconnect shall include L-N, L-G, and N-G protection. The SPD shall meet the requirements of UL 1449, Third Edition and be listed by a NRTL.

A SPD shall be provided where the supply circuit enters the cabinet. The SPD shall be located on the load side of the main disconnect and ahead of any and all electronic devices and connected in parallel with the AC supply. The SPD in the cabinet shall include L-N, L-G, and N-G protection. The SPD shall meet the requirements of UL 1449, Third Edition and be listed by a NRTL.

The SPD shall have a visual indication system that monitors the weakest link in each mode and shows normal operation or failure status and also provides one set of normally open (NO)/normally closed (NC) Form C contacts for remote alarm monitoring. The enclosure for a SPD shall have a NEMA 4 rating

SPDs for Low-Voltage Power, Control, Data and Signal Systems. A specialized SPD shall be installed on all conductive circuits including, but not limited to, data communication cables, coaxial video cables, and low-voltage power cables. These devices shall comply with recommendations from the device manufacturer.

SPD at Point of Use. A SPD shall be installed at the point the ITS devices receive 120 volt power and connected in series with the circuits. SPDs shall be selected and installed according to recommendation from the device manufacturer. The units shall be rated at 15 or 20 amps load and configured with receptacles. These units shall have internal fuse protection and provide common mode (L+N-G) protection.

SPDs shall meet the requirements of UL 497B or UL 497C, as applicable, and are listed by a NRTL.

Solar Power Systems

The Contractor shall provide a solar power system meeting the following requirements:

1. The supplier shall provide documentation specifying approximate daily power generation, power consumption, storage capacity, and charge rates representing an optimal power source to the satisfaction and approval of the Project Engineer.
2. Shall include a solar controller with automatic battery temperature compensation and automatic charging circuitry to prevent overcharging.
3. The battery back-up system chargers shall meet all specified requirements while operating between -40 °C to +74 °C (-40 °F to +165 °F), and 95% relative humidity.
4. Shall include metering for voltage and charging current.
5. Solar panels shall be Jet Propulsion Laboratory Block-5 tested and approved.
6. Solar panels shall be compliant with IEC 61215 and IEEE 1262.
7. Solar panels shall be break-resistant and sealed.
8. Battery shall be maintenance-free, sealed, gel-cell.
9. The Contractor shall test the battery for faulty irregularities and provide documentation to the Project Engineer stating the battery's voltage, and resistance. The battery voltage and resistance shall meet the manufacturer's specifications.

The Solar Power Systems for each site type shall include but are not limited to the following:

- *HAR Flashing Beacons*:
  1. A performance design study shall be conducted and submitted for approval for the proposed solar power system. The solar power system shall be designed on the performance design study.
  2. The solar system shall, at a minimum, operate the flashing beacons continuously at

full power for at least three (3) days with no sunlight. This must be accomplished without an auxiliary generator or AC power connection.

3. Solar panels shall have a power rating of 80-watts.
4. The Solar power system shall include a separate aluminum NEMA 3R enclosure to house the battery. This enclosure shall be designed to provide protection from rain, sleet, snow and corrosion.
    a. The enclosure shall be constructed from 0.125" thick aluminum alloy type 5052- H32.
    b. The enclosure shall be lockable.
    c. The enclosure door shall include a EDPM rubber or equivalent closed-cell gasket

- *Type A BDS*:
    1. All solar panels shall be in accordance with UL1703, or equivalent.
    2. The solar cell shall have a minimum power capacity of 30 watts.
    3. The battery shall provide sufficient power for all BDS component operation for a minimum of 168 hours (7 days).
    4. Should solar power be specified with the Type A BDS, the NEMA 4 enclosure shall be sized appropriately for the solar power components.

Performance Design Study. A performance design study shall be conducted where required before the installation of a Solar Power System. The performance design study shall include, but is not limited to:

1. The daily Solar Insulation data averaged on a monthly basis.
2. The correct Tilt Angle for the solar array.
3. The daily Array Output, in Amp-Hours, averaged on a monthly basis.
4. The total Daily Load requirement, in Amp Hours, averaged on a monthly basis.
5. A monthly Loss of Load Probability (LOLP) of the designed power supply.
6. The number of Battery Reserve Days, averaged on a monthly basis.
7. The monthly Average Battery State of Charge.
8. The statistical Interval to Loss of Load, in years.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4113 **CODE: (SP)**

DATE: **03/23/2022**

SUBJECT: **Unique Entity ID (SAM) Requirement for Federal Funded Projects**

Bidders are advised that the Prime Contractor must register and maintain a current registration in the System for Award Management (http://sam.gov) at all times during this project. Upon registration, the Contractor will be assigned a SAM Unique Entity ID.

Bidders are also advised that prior to the award of this contract, they MUST be registered, active, and have no active exclusions in the System for Award Management.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 4702 **CODE: (SP)**

DATE: 11/22/2022

SUBJECT: App for Traffic Control Reports

Bidders are advised that the Department has created a smart phone App for completing and submitting traffic control reports (Form CSD-762) required on this project. The Contractor who monitors traffic control activities and completes traffic control reports will be required to download and use this App when completing and submitting traffic control reports. The reports will then be readily available to all persons who need access to the forms. The App is free and is available for downloading at the following location.

https://extacctmgmt.mdot.state.ms.us/

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 5086 **CODE: (SP)**

DATE: 05/02/2023

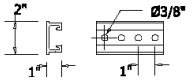
SUBJECT: Detail of Square Tube Sign Posts

Bidders are advised that the following drawings shall be used in the manufacture and installation of square tube sign posts, unless otherwise directed by the Engineer.

FHWA CON:

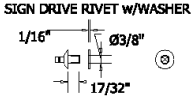
STATE	PROJECT NO.
MISS.	

FLAT PANEL SIGN BRACE



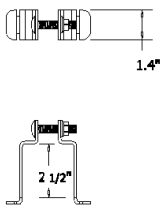
6061-T6 ALUMINUM ALLOY; 2" MOUNTING SURFACE x 7/8" DEPTH x 1/8" NOMINAL WALL THICKNESS. 3/8" HOLES ON 1" CENTERS, CENTERED ALONG ENTIRE LENGTH OF THE BRACE. A MINIMUM OF TWO HORIZONTAL BRACES MUST BE USED.

SIGN DRIVE RIVET w/WASHER



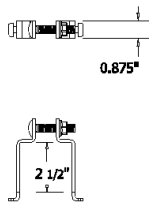
3/8" ALUMINUM SHELL / STEEL CORE RIVET WITH NYLON WASHER. MAXIMUM DISTANCE BETWEEN RIVETS SHOULD BE 12". WASHER MUST BE PRE-INSTALLED AND FIT INTO SIGN BRACE TO SECURE ALUMINUM SIGN PANEL. ALL EXTRUDED PANEL SIGNS SHALL USE 3/16"x3/8" GRIP RANGE ALUMINUM POP RIVITS (#66).

FLAT PANEL SIGN CLAMP



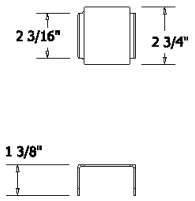
MATERIALS: 1.4" WIDE x 11ga. TYPE 304, #2B FINISHED STAINLESS STEEL BRACKET. INCLUDES STAINLESS STEEL 3/8"-16 x 2" CARRIAGE BOLT AND SERRATED FLANGED NUT. ONE CLAMP REQUIRED FOR EACH BRACE TO POST JUNCTION.

EXTRUDED PANEL SIGN CLAMP



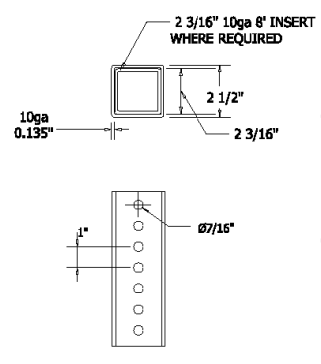
MATERIALS: 1.4" WIDE x 11ga. TYPE 304, #2B FINISHED STAINLESS STEEL BRACKET. INCLUDES STAINLESS STEEL 3/8"-16 x 2" CARRIAGE BOLT AND SERRATED FLANGED NUT. ONE CLAMP REQUIRED FOR EACH BRACE TO POST JUNCTION.

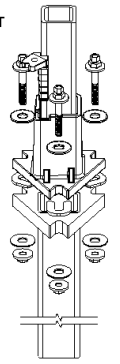
POST CAP



MADE OF 16GA PREGALVANIZED STEEL WITH AN ID CAPABLE OF FITTING INTO THE INSIDE OF A 2-1/2" SQUARE STEEL POST WITHOUT ANY FASTENERS. A CAST ALUMINUM FRICTION FIT CAP MAY ALSO BE USED.

SIGN POSTS



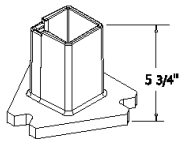


example slip base assembly (detailed below)

NOTES:

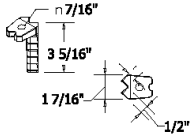
A. CONCRETE FOOTING MUST BE 12" DIAMETER x 36" DEEP.
B. BRASS SHIMS MAY BE USED BETWEEN SLIP PLATES TO LEVEL THE UPPER SLIP PLANE.
C. SLIP BASE IS FHWA ACCEPTED, MEETING CURRENT AASHTO & NCHRP 350 REQUIREMENTS.
D. SIGN BRACE CLAMPS ALLOW SIGN BRACE TO BE ADJUSTED UP, DOWN, LEFT OR RIGHT IN ORDER TO ACHIEVE PERFECT POSITION OF SIGN PANEL.
E. USE INSTALLATION INSTRUCTION RT280U-SQ1.
F. PRODUCT MUST MEET FHWA's MADE IN AMERICA CLAUSE.
G. PAID BY LENGTH OF POST, 36" STUB TO BE ABSORBED.

2-1/2" SQUARE POST RECEIVER



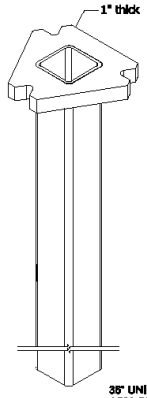
RECEIVER TO BE CAST FROM DUCTILE IRON ASTM A536 CLASS 65-45-12, GALVANIZED PER ASTM A153.

POST LOCKING WEDGE



LOCKING WEDGE FORGED FROM SAE 1035 STEEL AND GALVANIZED PER ASTM A153.

UNIBASE ANCHOR STUB



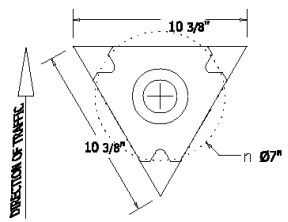
35" UNIBASE ANCHOR A500 GRADE B TUBE WELDED TO A572 SLIP PLATE. GALVANIZED PER ASTM A153.

SIGN CENTROID	2-1/2" x 10ga PSST	2-1/2" x 10ga & 2-3/16" x 10ga Inserted PSST	Sign Bracing**
16'	24.82	43.46	18" maximum distance between braces
15'	26.48	46.36	18" maximum distance between braces
14'	28.38	49.66	18" maximum distance between braces
13'	30.56	53.48	18" maximum distance between braces
12'	33.10	57.94	18" maximum distance between braces
11'	36.12	63.20	18" maximum distance between braces

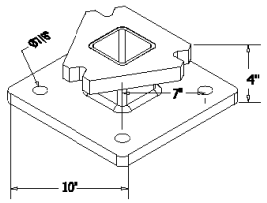
* based on two legs per sign
** Minimum of two braces per flat panel sign

NOTE: Sign area is in square feet.

SLIP PLATE DIMENSION



SURFACE MOUNT BASE



A572 SLIP PLATE WELDED TO A500 GRADE B TUBE WELDED TO A572 MOUNTING PLATE. GALVANIZED PER ASTM A153.

	1/2"-13 x 3" GRADE 8, DOUBLE HEX BOLT, GALVANIZE PER ASTM B695 (3 EACH PER KIT)
	5/8" U.S.S. FLAT WASHER ANSI B 18.22.1, TYPE A WIDE, GALVANIZE PER ASTM B695 (6 EACH PER KIT)
	1-3/4" SQUARE x 3/16" THICK TEFLON COATED, HARDENED SLIP WASHER (6 EACH PER KIT)
	1/2"-13 GRADE 8 LARGE FLANGE NUT GALVANIZE PER ASTM B695 (6 EACH PER KIT)
SLIP BASE MATCH PLATE HARDWARE KIT	

BY | REVISION | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

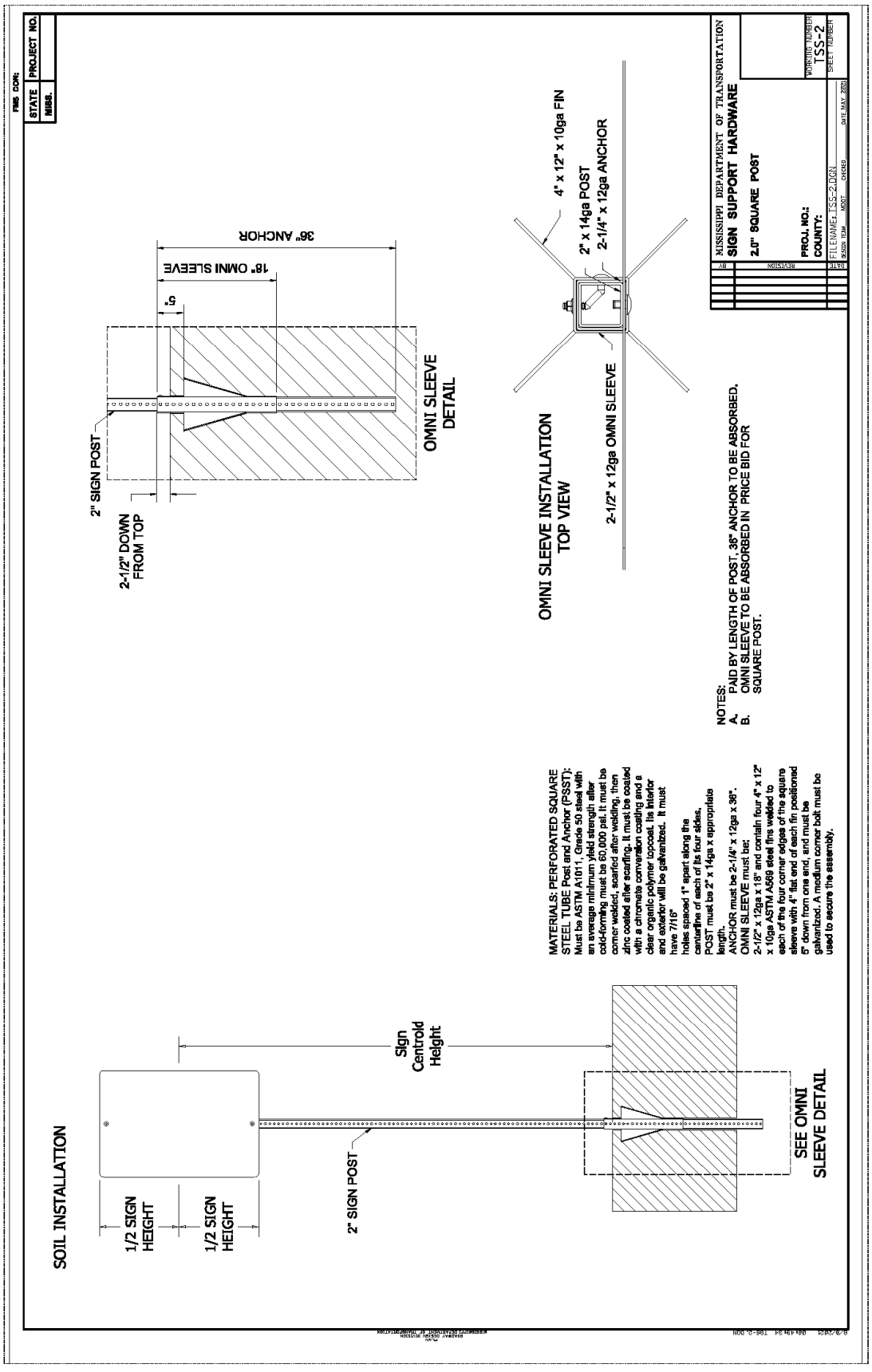
SIGN SUPPORT HARDWARE

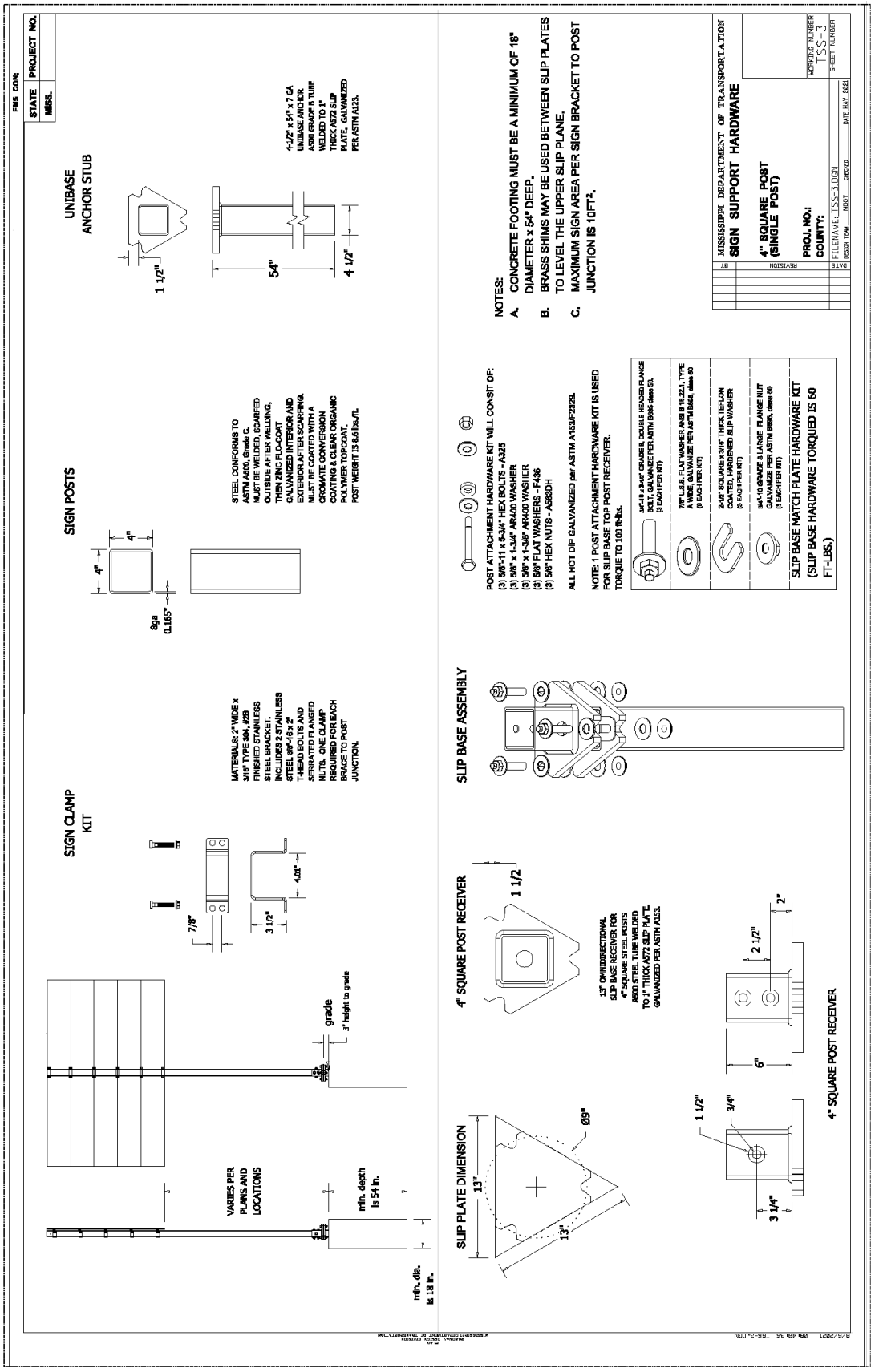
2.5" SQUARE POST

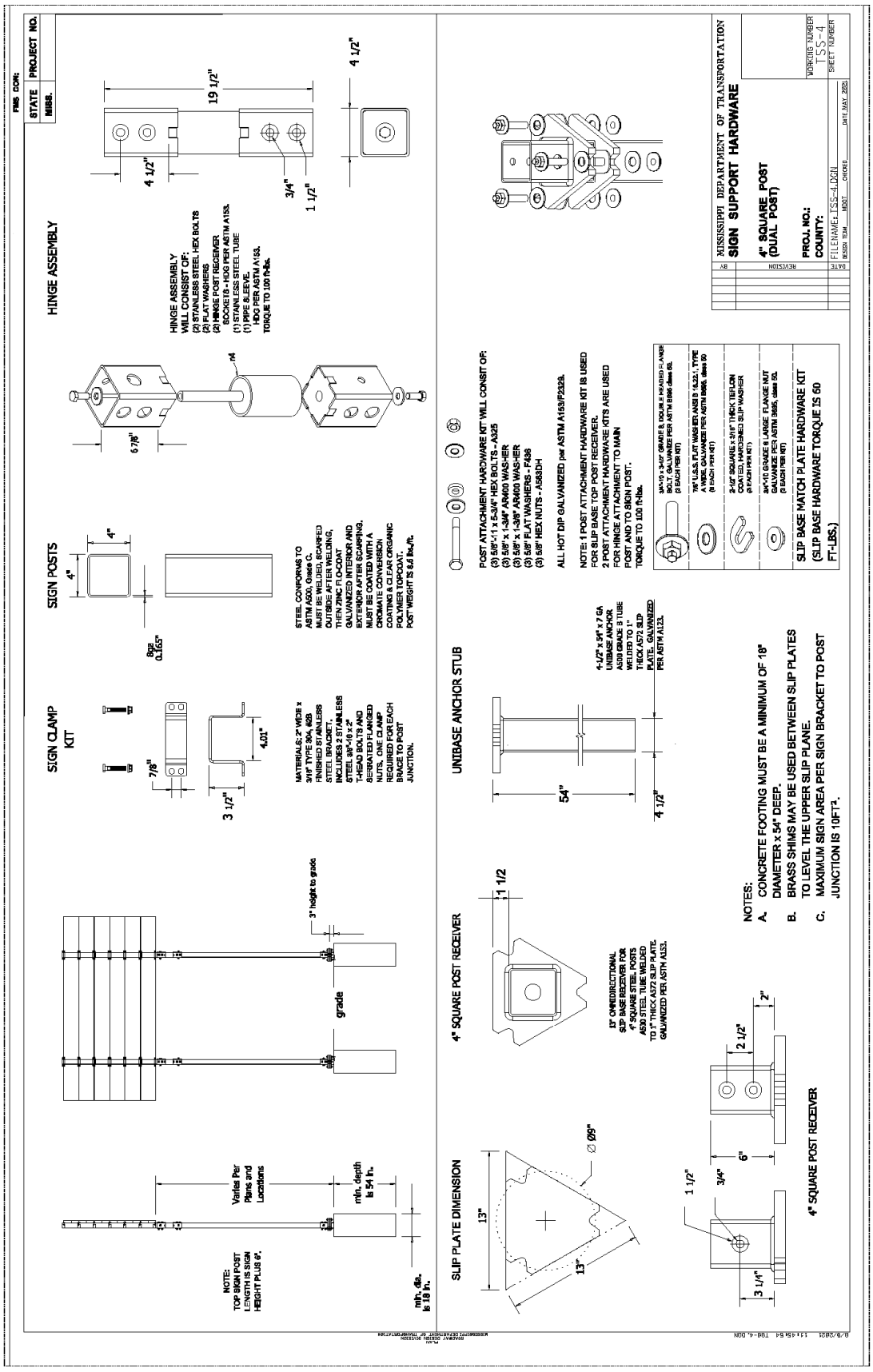
PROJ. NO.:
COUNTY:

WORKING NUMBER: TSS-1
SHEET NUMBER

FILENAME: TSS-1.DGN
DESIGN TEAM: MDOT CHECKED: DATE: MAY, 2021


FHWA CON:
STATE
MISS.
PROJECT NO.
SOIL INSTALLATION
1/2 SIGN HEIGHT
1/2 SIGN HEIGHT
Sign Centroid Height
2" SIGN POST
SEE OMNI SLEEVE DETAIL
MATERIALS: PERFORATED SQUARE STEEL TUBE Post and Anchor (PSST): Must be ASTM A1011, Grade 50 steel with an average minimum yield strength after cold-forming must be 60,000 psi. It must be corner welded, scarfed after welding, then zinc coated after scarfing. It must be coated with a chromate conversion coating and a clear organic polymer topcoat. Its interior and exterior will be galvanized. It must have 7/16" holes spaced 1" apart along the centerline of each of its four sides.
POST must be 2" x 14ga x appropriate length.
ANCHOR must be 2-1/4" x 12ga x 36".
OMNI SLEEVE must be:
2-1/2" x 12ga x 18" and contain four 4" x 12" x 10ga ASTM A569 steel fins welded to each of the four corner edges of the square sleeve with 4" flat end of each fin positioned 5" down from one end, and must be galvanized. A medium corner bolt must be used to secure the assembly.
NOTES:
A. PAID BY LENGTH OF POST. 36" ANCHOR TO BE ABSORBED.
B. OMNI SLEEVE TO BE ABSORBED IN PRICE BID FOR SQUARE POST.
OMNI SLEEVE INSTALLATION TOP VIEW
4" x 12" x 10ga FIN
2" x 14ga POST
2-1/4" x 12ga ANCHOR
2-1/2" x 12ga OMNI SLEEVE
2" SIGN POST
2-1/2" DOWN FROM TOP
5"
18" OMNI SLEEVE
36" ANCHOR
OMNI SLEEVE DETAIL
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
SIGN SUPPORT HARDWARE
2.0" SQUARE POST
REVISION
BY
DATE
PROJ. NO.:
COUNTY:
FILENAME: TSS-2.DGN
DESIGN ITEM
DRAWN
CHECKED
DATE: MAY 2005
WORKING NUMBER
TSS-2
SHEET NUMBER


FHWA CON:
STATE
PROJECT NO.
MISS.
UNIBASE
ANCHOR STUB
1 1/2"
54"
4 1/2"
4-1/2" x 5" x 7 GA UNIBASE ANCHOR, A500 GRADE B TUBE WELDED TO 1" THICK A572 SLIP PLATE, GALVANIZED PER ASTM A123.
SIGN POSTS
4"
4"
8ga 0.165"
STEEL CONFORMS TO ASTM A500, Grade C. MUST BE WELDED, SCARFED OUTSIDE AFTER WELDING, THEN ZINC FLO-COAT GALVANIZED INTERIOR AND EXTERIOR AFTER SCARFING. MUST BE COATED WITH A CROMATE CONVERSION COATING & CLEAR ORGANIC POLYMER TOPCOAT. POST WEIGHT IS 9.6 lbs./ft.
SIGN CLAMP
KIT
MATERIAL-2" WIDE x 3/16" TYPE 304 #2B FINISHED STAINLESS STEEL BRACKET. INCLUDES 2 STAINLESS STEEL 3/8"-16 x 2" T-HEAD BOLTS AND SERRATED FLANGED NUTS. ONE CLAMP REQUIRED FOR EACH BRACE TO POST JUNCTION.
7/8"
3 1/2"
4.01"
SLIP BASE ASSEMBLY
POST ATTACHMENT HARDWARE KIT WILL CONSIST OF:
(3) 5/8"-11 x 5-3/4" HEX BOLTS - A325
(3) 5/8" x 1-3/4" AR400 WASHER
(3) 5/8" x 1-3/8" AR400 WASHER
(3) 5/8" FLAT WASHERS - F436
(3) 5/8" HEX NUTS - A563DH
ALL HOT DIP GALVANIZED per ASTM A153/F2329.
NOTE: 1 POST ATTACHMENT HARDWARE KIT IS USED FOR SLIP BASE TOP POST RECEIVER. TORQUE TO 100 ft/lbs.
3/4"-10 x 3-1/2" GRADE B, DOUBLE HEXAGED FLANGE BOLT, GALVANIZED PER ASTM B695 class 55. (2 EACH PER KIT)
7/8" U.S.S. FLAT WASHER ANSI B 18.22.1, TYPE A WIDE, GALVANIZED PER ASTM B695 class 55 (2 EACH PER KIT)
2-1/8" SQUARE x 3/16" THICK TEFLON COATED, HARDENED SLIP WASHER (2 EACH PER KIT)
3/4"-10 GRADE A LARGE FLANGE NUT GALVANIZED PER ASTM B695, class 55 (2 EACH PER KIT)
SLIP BASE MATCH PLATE HARDWARE KIT
(SLIP BASE HARDWARE TORQUED IS 60 FT-LBS.)
NOTES:
A. CONCRETE FOOTING MUST BE A MINIMUM OF 18" DIAMETER x 54" DEEP.
B. BRASS SHIMS MAY BE USED BETWEEN SLIP PLATES TO LEVEL THE UPPER SLIP PLANE.
C. MAXIMUM SIGN AREA PER SIGN BRACKET TO POST JUNCTION IS 10FT².
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
SIGN SUPPORT HARDWARE
4" SQUARE POST (SINGLE POST)
PROJ. NO.:
COUNTY:
FILENAME: TSS-3.DGN
DESIGN TEAM
MOOT
CHECKED
DATE MAY 2021
WORKTAB NUMBER TSS-3
SHEET NUMBER
DATE
REVISION
BY
VARIES PER PLANS AND LOCATIONS
grade
3" height to grade
mtn. depth is 54 in.
mtn. dia. is 18 in.
SLIP PLATE DIMENSION
13"
13"
69°
4" SQUARE POST RECEIVER
1 1/2
13" OMNIDIRECTIONAL SLIP BASE RECEIVER FOR 4" SQUARE STEEL POSTS A500 STEEL TUBE WELDED TO 1" THICK A572 SLIP PLATE, GALVANIZED PER ASTM A123.
4" SQUARE POST RECEIVER
1 1/2"
3/4"
6"
2 1/2"
2"
3 1/4"


HINGE ASSEMBLY
SIGN POSTS
SIGN CLAMP KIT
UNIBASE ANCHOR STUB
4" SQUARE POST RECEIVER
SLIP PLATE DIMENSION
4" SQUARE POST RECEIVER
NOTES:
A. CONCRETE FOOTING MUST BE A MINIMUM OF 18" DIAMETER x 54" DEEP.
B. BRASS SHIMS MAY BE USED BETWEEN SLIP PLATES TO LEVEL THE UPPER SLIP PLANE.
C. MAXIMUM SIGN AREA PER SIGN BRACKET TO POST JUNCTION IS 10FT².
SLIP BASE MATCH PLATE HARDWARE KIT (SLIP BASE HARDWARE TORQUE IS 60 FT-LBS.)
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
SIGN SUPPORT HARDWARE
4" SQUARE POST (DUAL POST)
PROJ. NO.:
COUNTY:
WORKING NUMBER TSS-4
SHEET NUMBER
FILENAME: TSS-4.DGN
DATE MAY, 2021

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 5551 **CODE: (IS)**

DATE: **12/06/2023**

SUBJECT: **Federal Bridge Formula**

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

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

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

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

or

https://ops.fhwa.dot.gov/freight/publications/brdg_frm_wghts/

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 – NOTICE TO BIDDERS NO. 7578 **CODE: (IS)**

DATE: 12/16/2025

SUBJECT: Obligation Date

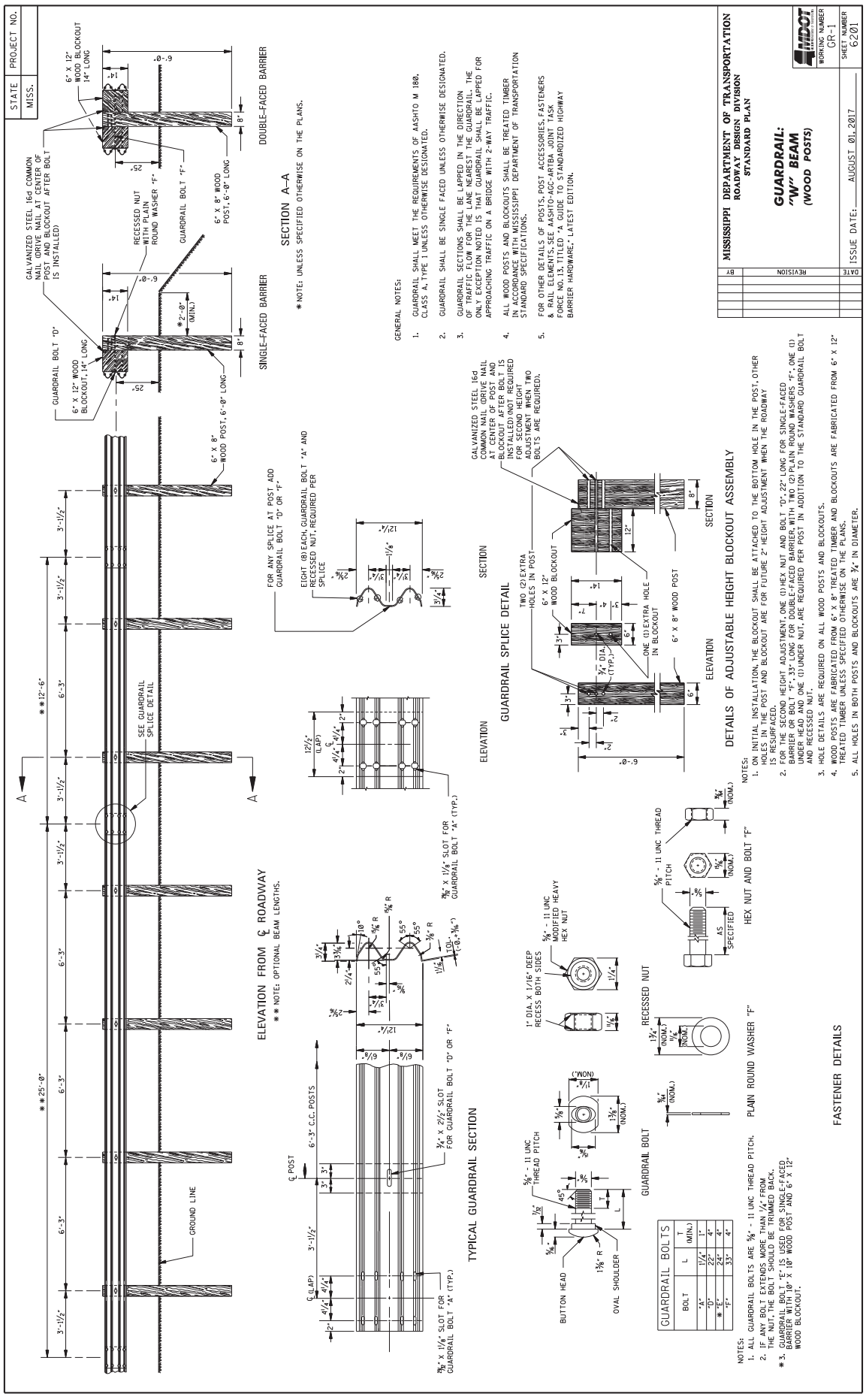
With respect to the obligation date referenced in Special Provision No. 907-700-2 (Materials and Tests), bidders are advised that this project will be obligated on or after October 1, 2025, and before October 1, 2026.

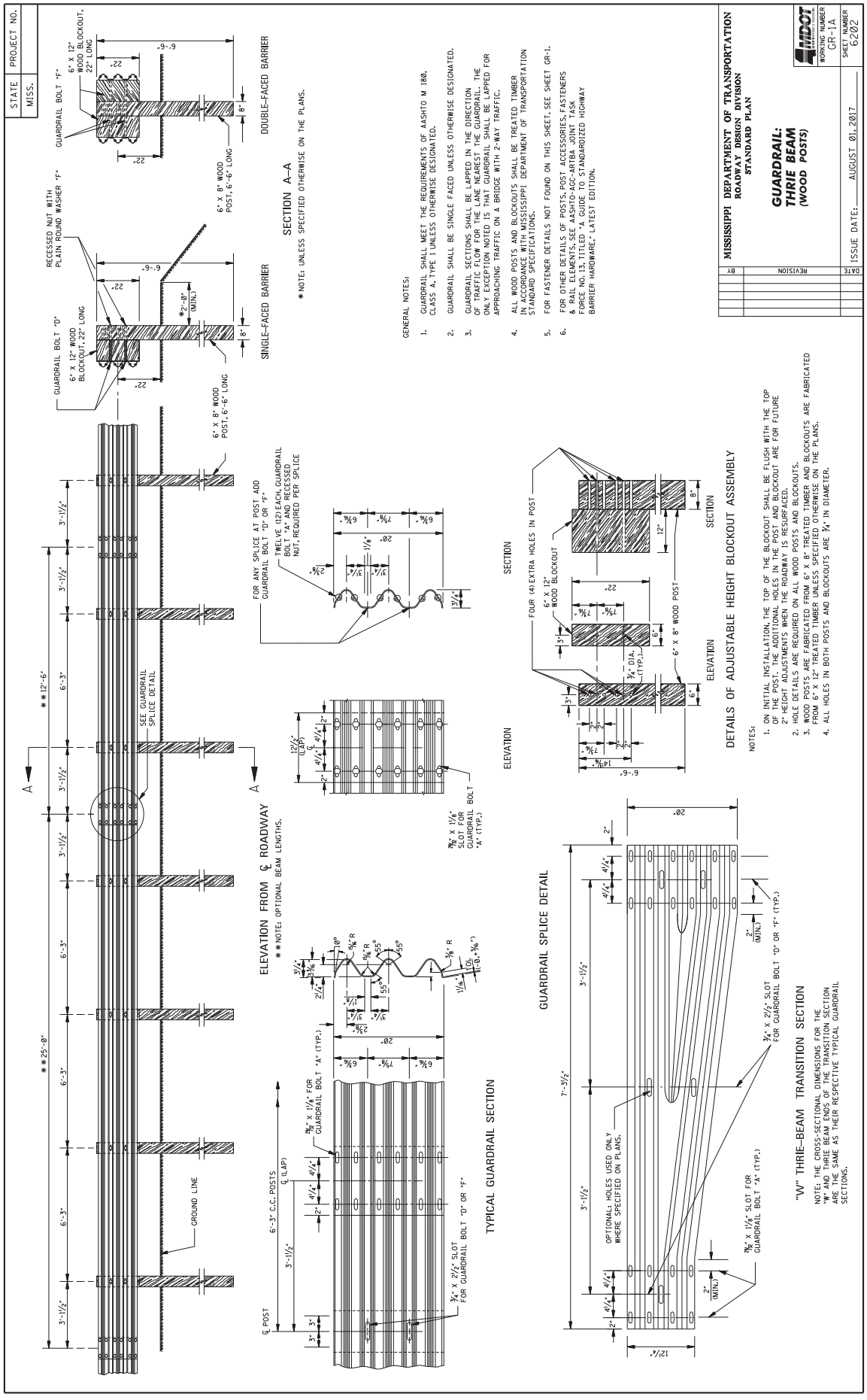
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

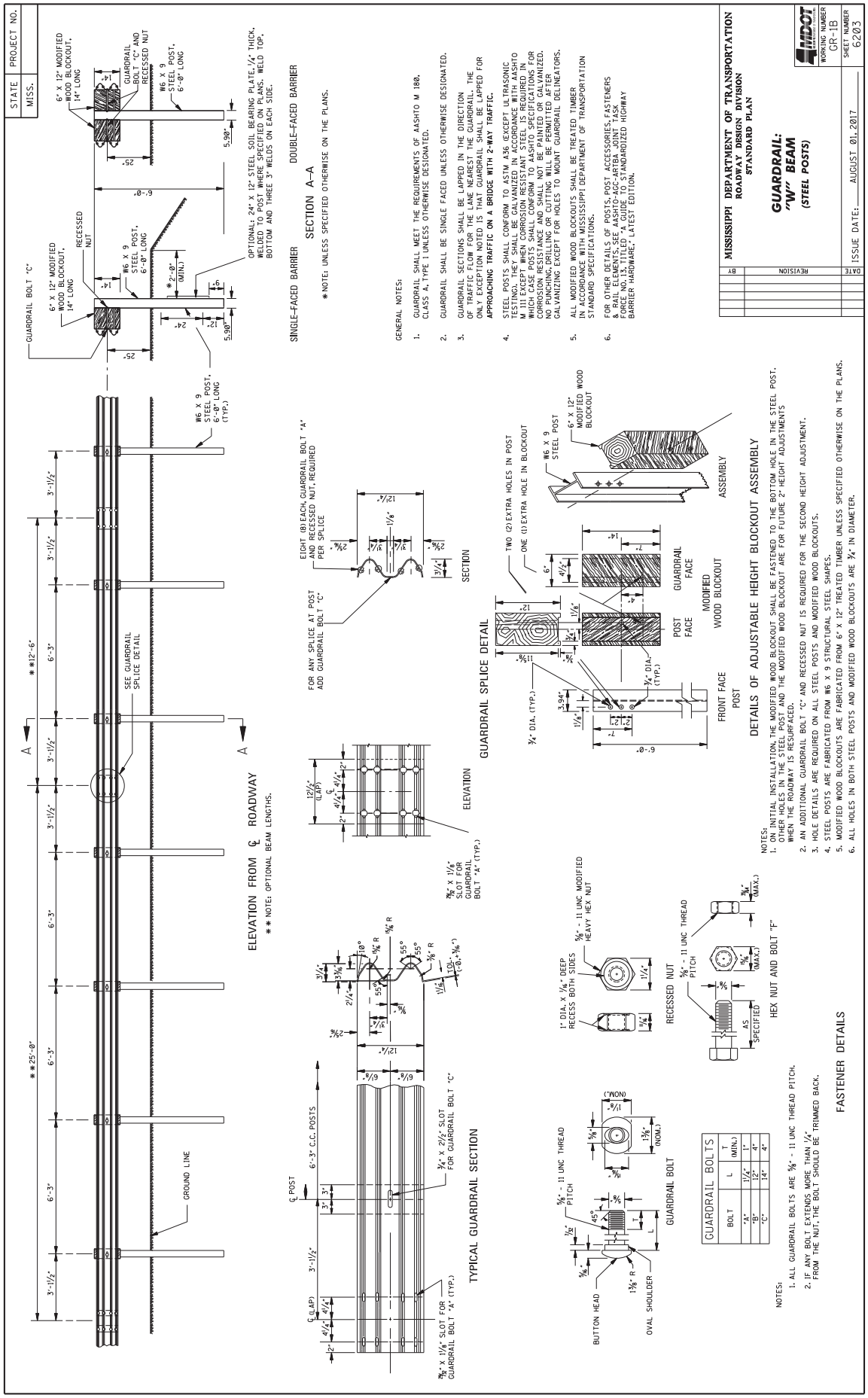
SUPPLEMENT TO NOTICE TO BIDDERS NO. 7624

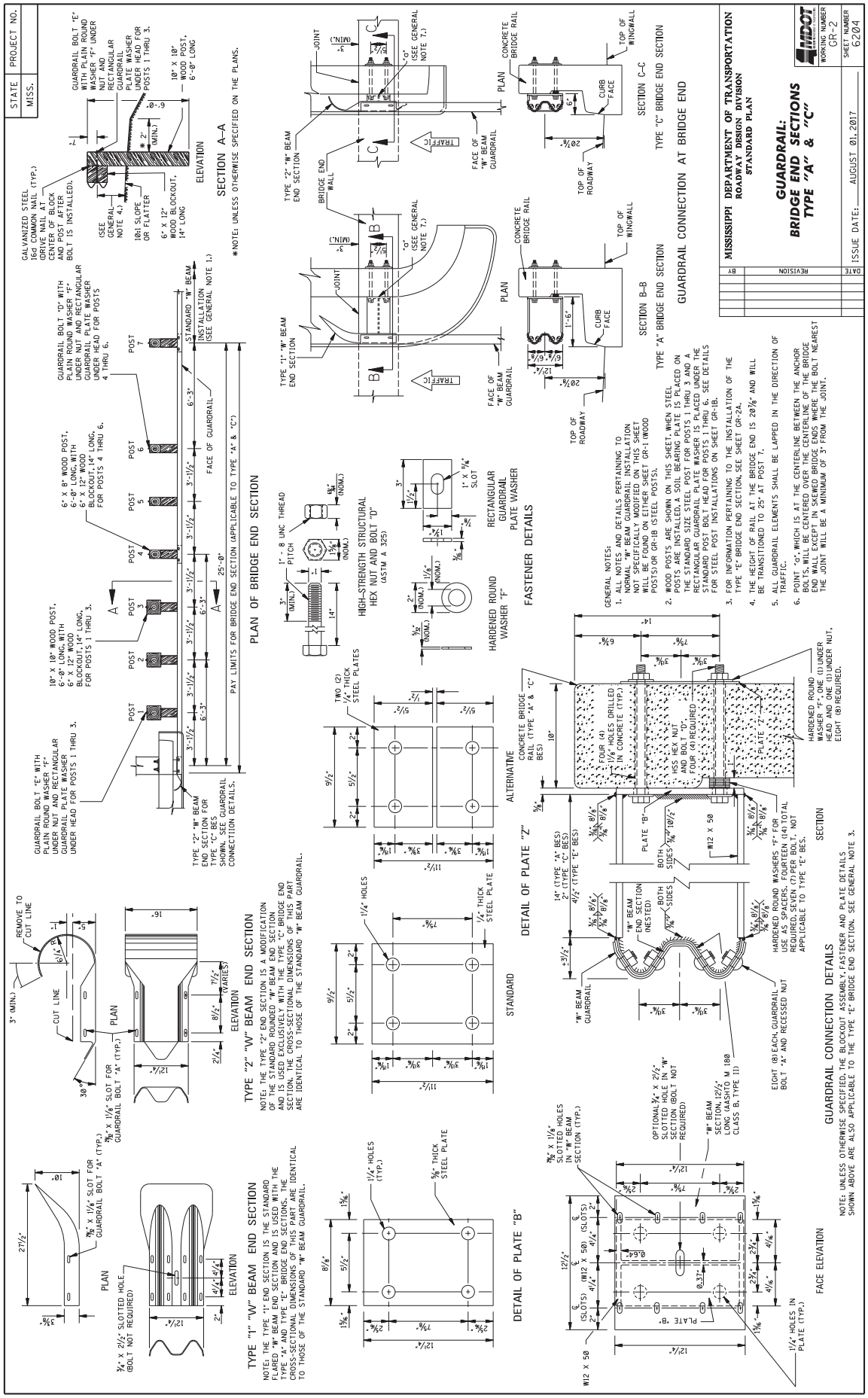
DATE: **01/26/2026**

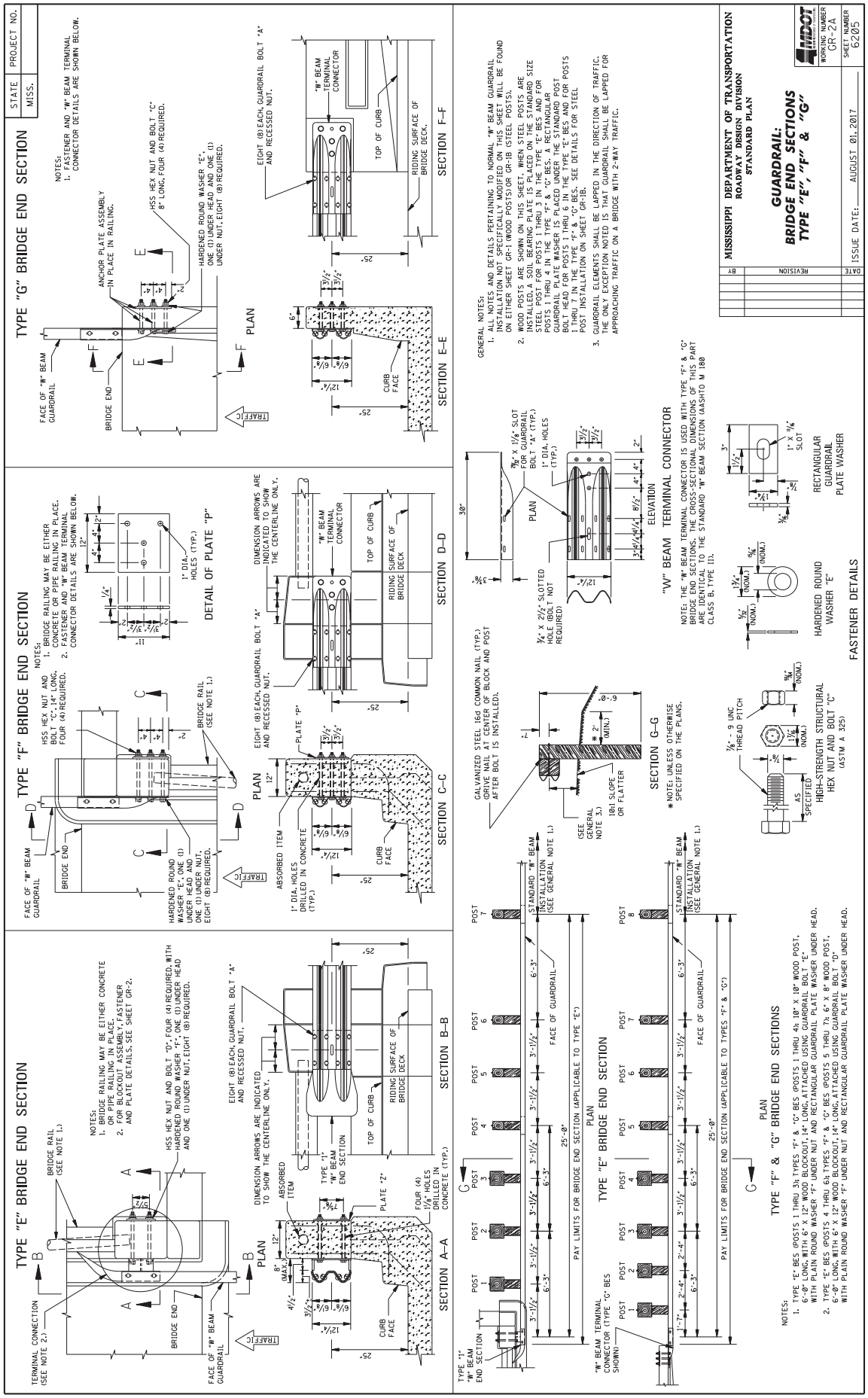
After the last drawing on page 33, add the following.

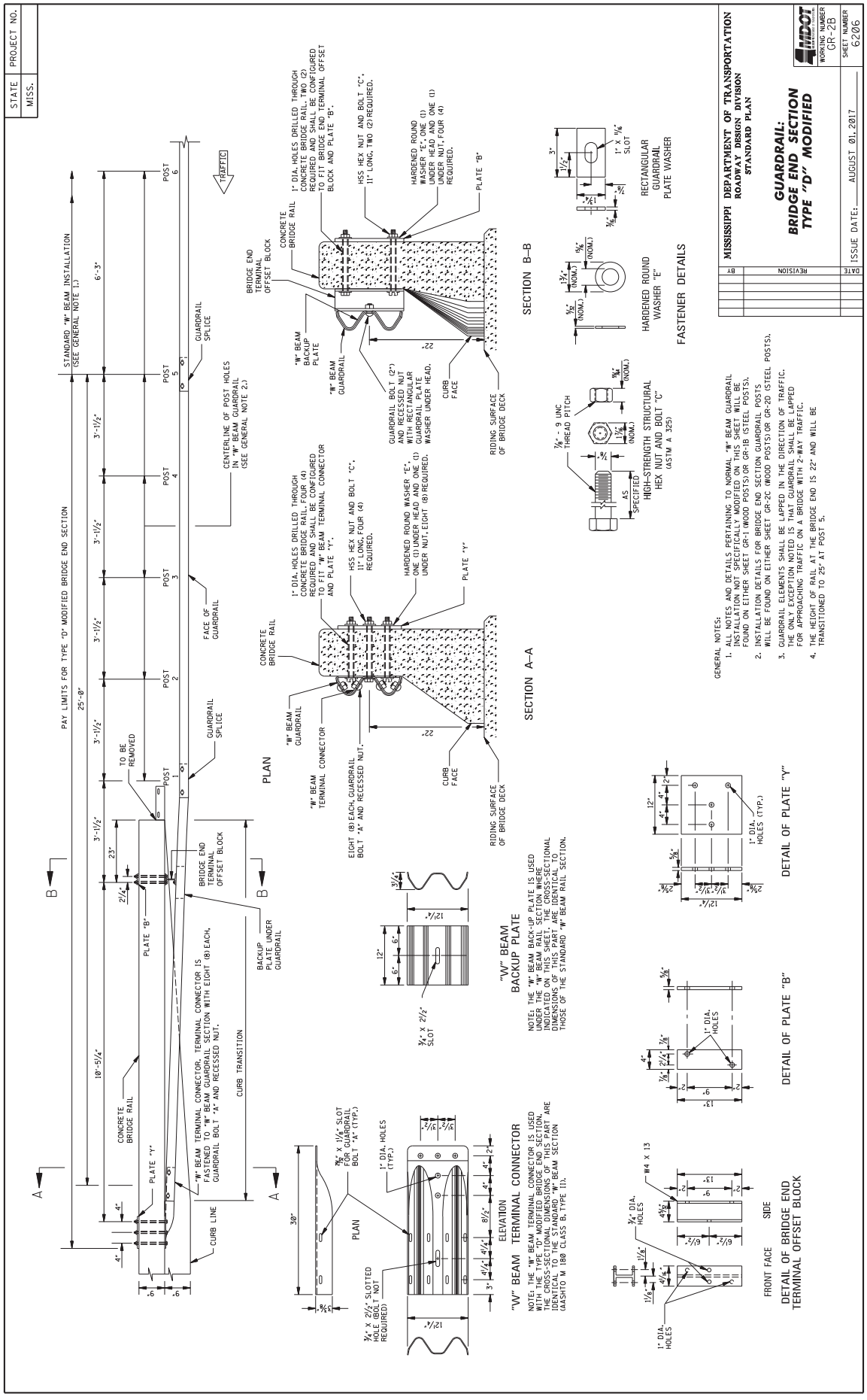

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL: "W" BEAM (WOOD POSTS)
WORKING NUMBER GR-1
SHEET NUMBER 6201
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
GENERAL NOTES:
1. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I UNLESS OTHERWISE DESIGNATED.
2. GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
3. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
4. ALL WOOD POSTS AND BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH MISSISSIPPI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
5. FOR OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE," LATEST EDITION.
SINGLE-FACED BARRIER
DOUBLE-FACED BARRIER
SECTION A-A
*NOTE: UNLESS SPECIFIED OTHERWISE ON THE PLANS.
GALVANIZED STEEL 16d COMMON NAIL (DRIVE NAIL AT CENTER OF POST AND BLOCKOUT AFTER BOLT IS INSTALLED)
RECESSED NUT WITH PLAIN ROUND WASHER "F"
GUARDRAIL BOLT "F"
6" X 12" WOOD BLOCKOUT 14" LONG
6" X 8" WOOD POST, 6'-0" LONG
GUARDRAIL BOLT "D"
6" X 12" WOOD BLOCKOUT, 14" LONG
*2'-0" (MIN.)
ELEVATION FROM ℄ ROADWAY
** NOTE: OPTIONAL BEAM LENGTHS.
SEE GUARDRAIL SPLICE DETAIL
GROUND LINE
TYPICAL GUARDRAIL SECTION
℄ POST
6'-3" C.C. POSTS
℄ (LAP)
3/4" X 2 1/2" SLOT FOR GUARDRAIL BOLT "D" OR "F"
13/16" X 1 1/16" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
FOR ANY SPLICE AT POST ADD GUARDRAIL BOLT "D" OR "F".
EIGHT (8) EACH GUARDRAIL BOLT "A" AND RECESSED NUT, REQUIRED PER SPLICE
13/16" X 1 1/16" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
ELEVATION
SECTION
GUARDRAIL SPLICE DETAIL
GALVANIZED STEEL 16d COMMON NAIL (DRIVE NAIL AT CENTER OF POST AND BLOCKOUT AFTER BOLT IS INSTALLED) NOT REQUIRED FOR SECOND HEIGHT ADJUSTMENT WHEN TWO BOLTS ARE REQUIRED.
TWO (2) EXTRA HOLES IN POST
6" X 12" WOOD BLOCKOUT
ONE (1) EXTRA HOLE IN BLOCKOUT
6" X 8" WOOD POST
ELEVATION
SECTION
DETAILS OF ADJUSTABLE HEIGHT BLOCKOUT ASSEMBLY
NOTES:
1. ON INITIAL INSTALLATION, THE BLOCKOUT SHALL BE ATTACHED TO THE BOTTOM HOLE IN THE POST. OTHER HOLES IN THE POST AND BLOCKOUT ARE FOR FUTURE 2" HEIGHT ADJUSTMENT WHEN THE ROADWAY IS RESURFACED.
2. FOR THE SECOND HEIGHT ADJUSTMENT, ONE (1) HEX NUT AND BOLT "D", 22" LONG FOR SINGLE-FACED BARRIER OR BOLT "F", 33" LONG FOR DOUBLE-FACED BARRIER, WITH TWO (2) PLAIN ROUND WASHERS "F", ONE (1) UNDER HEAD AND ONE (1) UNDER NUT, ARE REQUIRED PER POST IN ADDITION TO THE STANDARD GUARDRAIL BOLT AND RECESSED NUT.
3. HOLE DETAILS ARE REQUIRED ON ALL WOOD POSTS AND BLOCKOUTS.
4. WOOD POSTS ARE FABRICATED FROM 6" X 8" TREATED TIMBER AND BLOCKOUTS ARE FABRICATED FROM 6" X 12" TREATED TIMBER UNLESS SPECIFIED OTHERWISE ON THE PLANS.
5. ALL HOLES IN BOTH POSTS AND BLOCKOUTS ARE 3/4" IN DIAMETER.
FASTENER DETAILS
1" DIA. X 1/16" DEEP RECESS BOTH SIDES
5/8" - 11 UNC MODIFIED HEAVY HEX NUT
5/8" - 11 UNC THREAD PITCH
BUTTON HEAD
OVAL SHOULDER
GUARDRAIL BOLT
RECESSED NUT
PLAIN ROUND WASHER "F"
HEX NUT AND BOLT "F"
GUARDRAIL BOLTS
BOLT | L | T (MIN.)
"A" | 11/4" | 1"
"D" | 22" | 4"
* "E" | 24" | 4"
"F" | 33" | 4"
NOTES:
1. ALL GUARDRAIL BOLTS ARE 5/8" - 11 UNC THREAD PITCH.
2. IF ANY BOLT EXTENDS MORE THAN 1/4" FROM THE NUT, THE BOLT SHOULD BE TRIMMED BACK.
* 3. GUARDRAIL BOLT "E" IS USED FOR SINGLE-FACED BARRIER WITH 10" X 10" WOOD POST AND 6" X 12" WOOD BLOCKOUT.

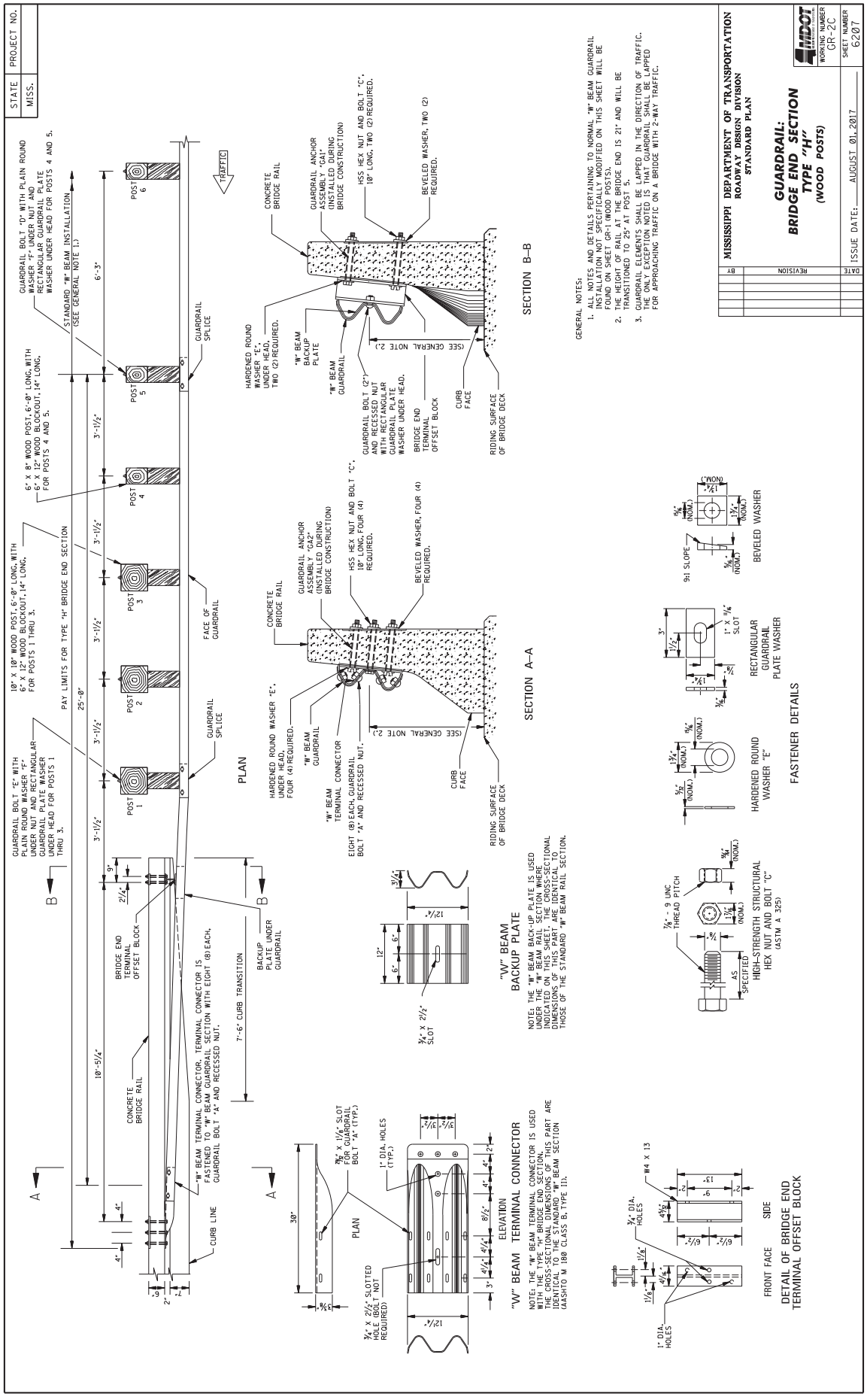

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL: THRIE BEAM (WOOD POSTS)
WORKING NUMBER GR-1A
SHEET NUMBER 6202
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
GENERAL NOTES:
1. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I UNLESS OTHERWISE DESIGNATED.
2. GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
3. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
4. ALL WOOD POSTS AND BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH MISSISSIPPI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
5. FOR FASTENER DETAILS NOT FOUND ON THIS SHEET, SEE SHEET GR-1.
6. FOR OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE," LATEST EDITION.
SECTION A–A
*NOTE: UNLESS SPECIFIED OTHERWISE ON THE PLANS.
SINGLE-FACED BARRIER
DOUBLE-FACED BARRIER
GUARDRAIL BOLT "D"
6" X 12" WOOD BLOCKOUT, 22" LONG
RECESSED NUT WITH PLAIN ROUND WASHER "F"
GUARDRAIL BOLT "F"
6" X 8" WOOD POST, 6'-6" LONG
*2'-0" (MIN.)
8"
22"
6'-6"
ELEVATION FROM ℄ ROADWAY
**NOTE: OPTIONAL BEAM LENGTHS.
**25'-0"
**12'-6"
6'-3"
3'-1½"
SEE GUARDRAIL SPLICE DETAIL
GROUND LINE
TYPICAL GUARDRAIL SECTION
℄ POST
6'-3" C.C. POSTS
℄ (LAP)
⅝" X 1¼" FOR GUARDRAIL BOLT "A" (TYP.)
¾" X 2½" SLOT FOR GUARDRAIL BOLT "D" OR "F"
⅝" X 1½" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
FOR ANY SPLICE AT POST ADD GUARDRAIL BOLT "D" OR "F"
TWELVE (12) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT, REQUIRED PER SPLICE
ELEVATION
SECTION
GUARDRAIL SPLICE DETAIL
OPTIONAL: HOLES USED ONLY WHERE SPECIFIED ON PLANS.
7'-3½"
20"
12¼"
"W" THRIE-BEAM TRANSITION SECTION
NOTE: THE CROSS-SECTIONAL DIMENSIONS FOR THE "W" AND THRIE BEAM ENDS OF THE TRANSITION SECTION ARE THE SAME AS THEIR RESPECTIVE TYPICAL GUARDRAIL SECTIONS.
FOUR (4) EXTRA HOLES IN POST
6" X 12" WOOD BLOCKOUT
6" X 8" WOOD POST
¾" DIA. (TYP.)
12"
DETAILS OF ADJUSTABLE HEIGHT BLOCKOUT ASSEMBLY
NOTES:
1. ON INITIAL INSTALLATION, THE TOP OF THE BLOCKOUT SHALL BE FLUSH WITH THE TOP OF THE POST. THE ADDITIONAL HOLES IN THE POST AND BLOCKOUT ARE FOR FUTURE 2" HEIGHT ADJUSTMENTS WHEN THE ROADWAY IS RESURFACED.
2. HOLE DETAILS ARE REQUIRED ON ALL WOOD POSTS AND BLOCKOUTS.
3. WOOD POSTS ARE FABRICATED FROM 6" X 8" TREATED TIMBER AND BLOCKOUTS ARE FABRICATED FROM 6" X 12" TREATED TIMBER UNLESS SPECIFIED OTHERWISE ON THE PLANS.
4. ALL HOLES IN BOTH POSTS AND BLOCKOUTS ARE ¾" IN DIAMETER.

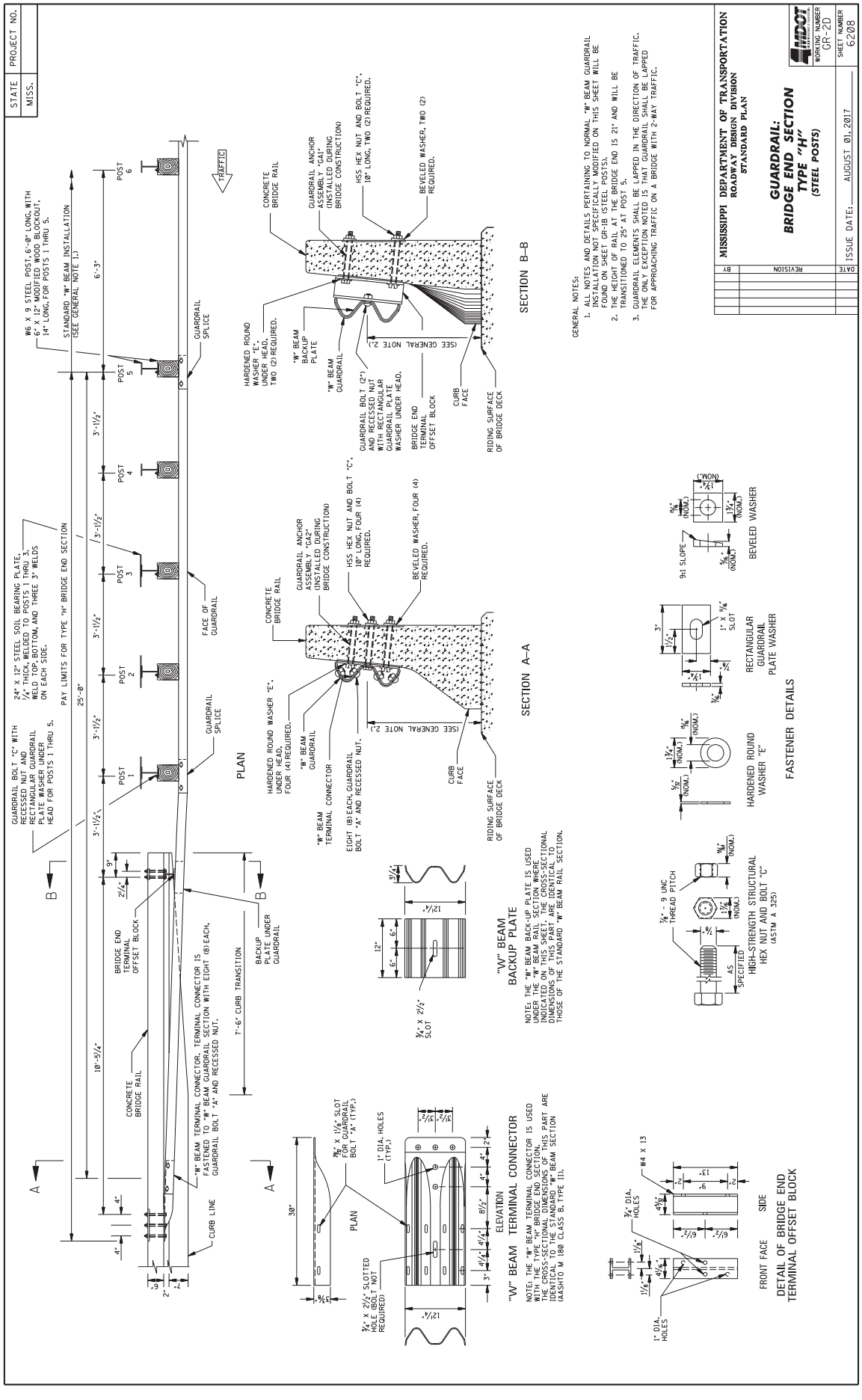

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL: "W" BEAM (STEEL POSTS)
WORKING NUMBER GR-1B
SHEET NUMBER 6203
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
ELEVATION FROM ℄ ROADWAY
** NOTE: OPTIONAL BEAM LENGTHS.
SINGLE-FACED BARRIER
DOUBLE-FACED BARRIER
SECTION A–A
* NOTE: UNLESS SPECIFIED OTHERWISE ON THE PLANS.
GENERAL NOTES:
1. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I UNLESS OTHERWISE DESIGNATED.
2. GUARDRAIL SHALL BE SINGLE FACED UNLESS OTHERWISE DESIGNATED.
3. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
4. STEEL POSTS SHALL CONFORM TO ASTM A36 (EXCEPT ULTRASONIC TESTING) AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111 EXCEPT WHEN CORROSION RESISTANT STEEL IS REQUIRED IN WHICH CASE POSTS SHALL CONFORM TO AASHTO SPECIFICATIONS FOR CORROSION RESISTANCE AND SHALL NOT BE PAINTED OR GALVANIZED. NO PUNCHING, DRILLING OR CUTTING WILL BE PERMITTED AFTER GALVANIZING EXCEPT FOR HOLES TO MOUNT GUARDRAIL DELINEATORS.
5. ALL MODIFIED WOOD BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH MISSISSIPPI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
6. FOR OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE," LATEST EDITION.
GUARDRAIL BOLTS
BOLT L T
"A" 1¼" (MIN.) 1"
"B" 12" 4"
"C" 14" 4"
NOTES:
1. ALL GUARDRAIL BOLTS ARE ⅝" - 11 UNC THREAD PITCH.
2. IF ANY BOLT EXTENDS MORE THAN ¼" FROM THE NUT, THE BOLT SHOULD BE TRIMMED BACK.
FASTENER DETAILS
TYPICAL GUARDRAIL SECTION
GUARDRAIL SPLICE DETAIL
DETAILS OF ADJUSTABLE HEIGHT BLOCKOUT ASSEMBLY
NOTES:
1. ON INITIAL INSTALLATION, THE MODIFIED WOOD BLOCKOUT SHALL BE FASTENED TO THE BOTTOM HOLE IN THE STEEL POST. OTHER HOLES IN THE STEEL POST AND THE MODIFIED WOOD BLOCKOUT ARE FOR FUTURE 2" HEIGHT ADJUSTMENTS WHEN THE ROADWAY IS RESURFACED.
2. AN ADDITIONAL GUARDRAIL BOLT "C" AND RECESSED NUT IS REQUIRED FOR THE SECOND HEIGHT ADJUSTMENT.
3. HOLE DETAILS ARE REQUIRED ON ALL STEEL POSTS AND MODIFIED WOOD BLOCKOUTS.
4. STEEL POSTS ARE FABRICATED FROM W6 X 9 STRUCTURAL STEEL SHAPES.
5. MODIFIED WOOD BLOCKOUTS ARE FABRICATED FROM 6" X 12" TREATED TIMBER UNLESS SPECIFIED OTHERWISE ON THE PLANS.
6. ALL HOLES IN BOTH STEEL POSTS AND MODIFIED WOOD BLOCKOUTS ARE ¾" IN DIAMETER.

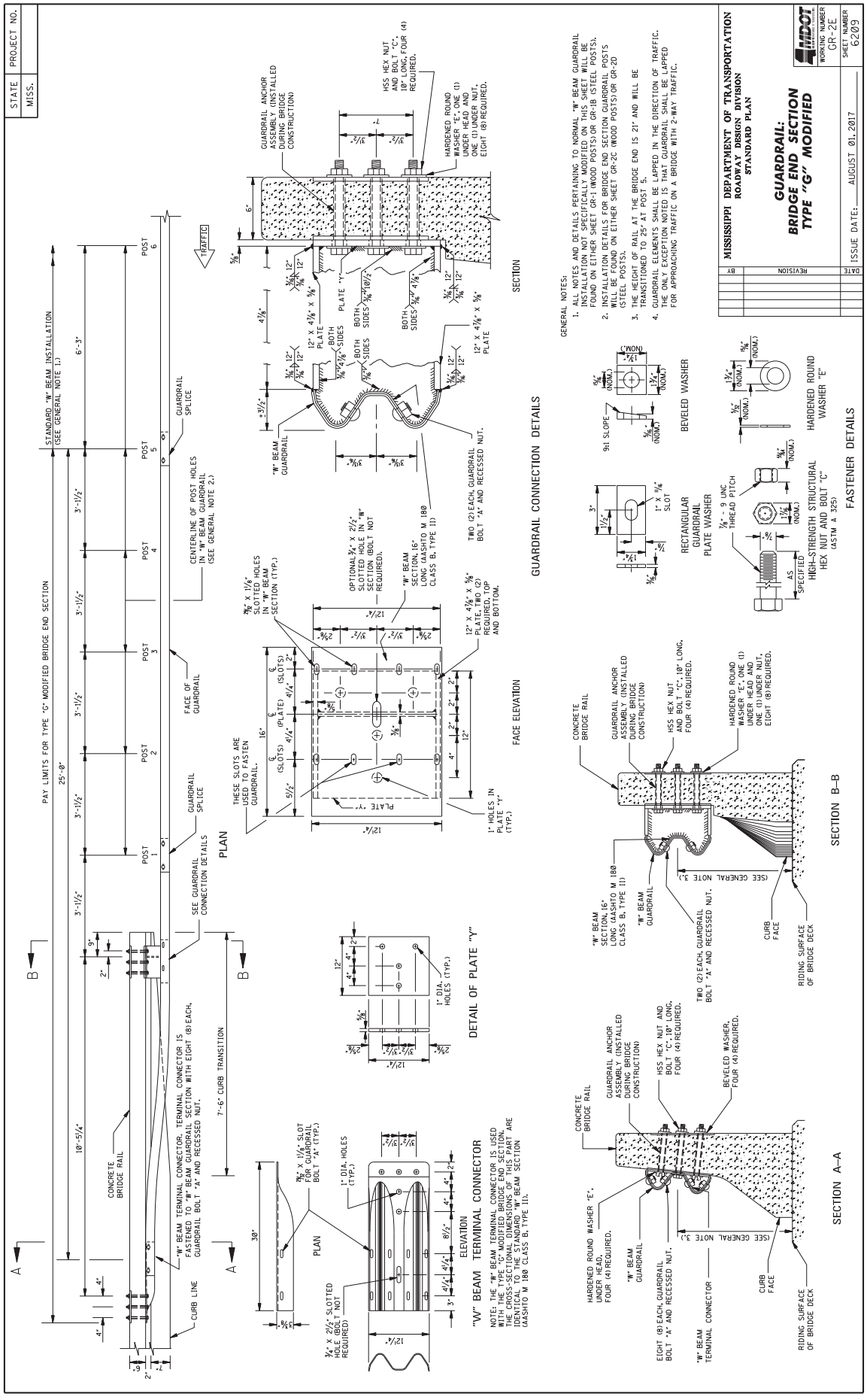

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTIONS
TYPE "A" & "C"
WORKING NUMBER GR-2
SHEET NUMBER 6204
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
PLAN OF BRIDGE END SECTION
PAY LIMITS FOR BRIDGE END SECTION APPLICABLE TO TYPE "A" & "C"
SECTION A–A
ELEVATION
*NOTE: UNLESS OTHERWISE SPECIFIED ON THE PLANS.
TYPE "2" "W" BEAM END SECTION
TYPE "1" "W" BEAM END SECTION
DETAIL OF PLATE "B"
DETAIL OF PLATE "Z"
FASTENER DETAILS
GUARDRAIL CONNECTION DETAILS
TYPE "A" BRIDGE END SECTION
GUARDRAIL CONNECTION AT BRIDGE END
TYPE "C" BRIDGE END SECTION
SECTION B–B
SECTION C–C
GENERAL NOTES:
1. ALL NOTES AND DETAILS PERTAINING TO NORMAL "W" BEAM GUARDRAIL INSTALLATION NOT SPECIFICALLY MODIFIED ON THIS SHEET WILL BE FOUND ON EITHER SHEET GR-1 (WOOD POSTS) OR GR-1B (STEEL POSTS).
2. WOOD POSTS ARE SHOWN ON THIS SHEET. WHEN STEEL POSTS ARE INSTALLED, A SOIL BEARING PLATE IS PLACED ON THE STANDARD SIZE STEEL POST FOR POSTS 1 THRU 3 AND A RECTANGULAR GUARDRAIL PLATE WASHER IS PLACED UNDER THE STANDARD POST BOLT HEAD FOR POSTS 1 THRU 6. SEE DETAILS FOR STEEL POST INSTALLATIONS ON SHEET GR-1B.
3. FOR INFORMATION PERTAINING TO THE INSTALLATION OF THE TYPE "E" BRIDGE END SECTION, SEE SHEET GR-2A.
4. THE HEIGHT OF RAIL AT THE BRIDGE END IS 20⅞" AND WILL BE TRANSITIONED TO 25" AT POST 7.
5. ALL GUARDRAIL ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC.
6. POINT "a", WHICH IS AT THE CENTERLINE BETWEEN THE ANCHOR BOLTS, WILL BE CENTERED OVER THE CENTERLINE OF THE BRIDGE END WALL EXCEPT IN SKEWED BRIDGE ENDS WHERE THE BOLT NEAREST THE JOINT WILL BE A MINIMUM OF 3" FROM THE JOINT.
NOTE: UNLESS OTHERWISE SPECIFIED, THE BLOCKOUT ASSEMBLY FASTENER AND PLATE DETAILS SHOWN ABOVE ARE ALSO APPLICABLE TO THE TYPE "E" BRIDGE END SECTION. SEE GENERAL NOTE 3.

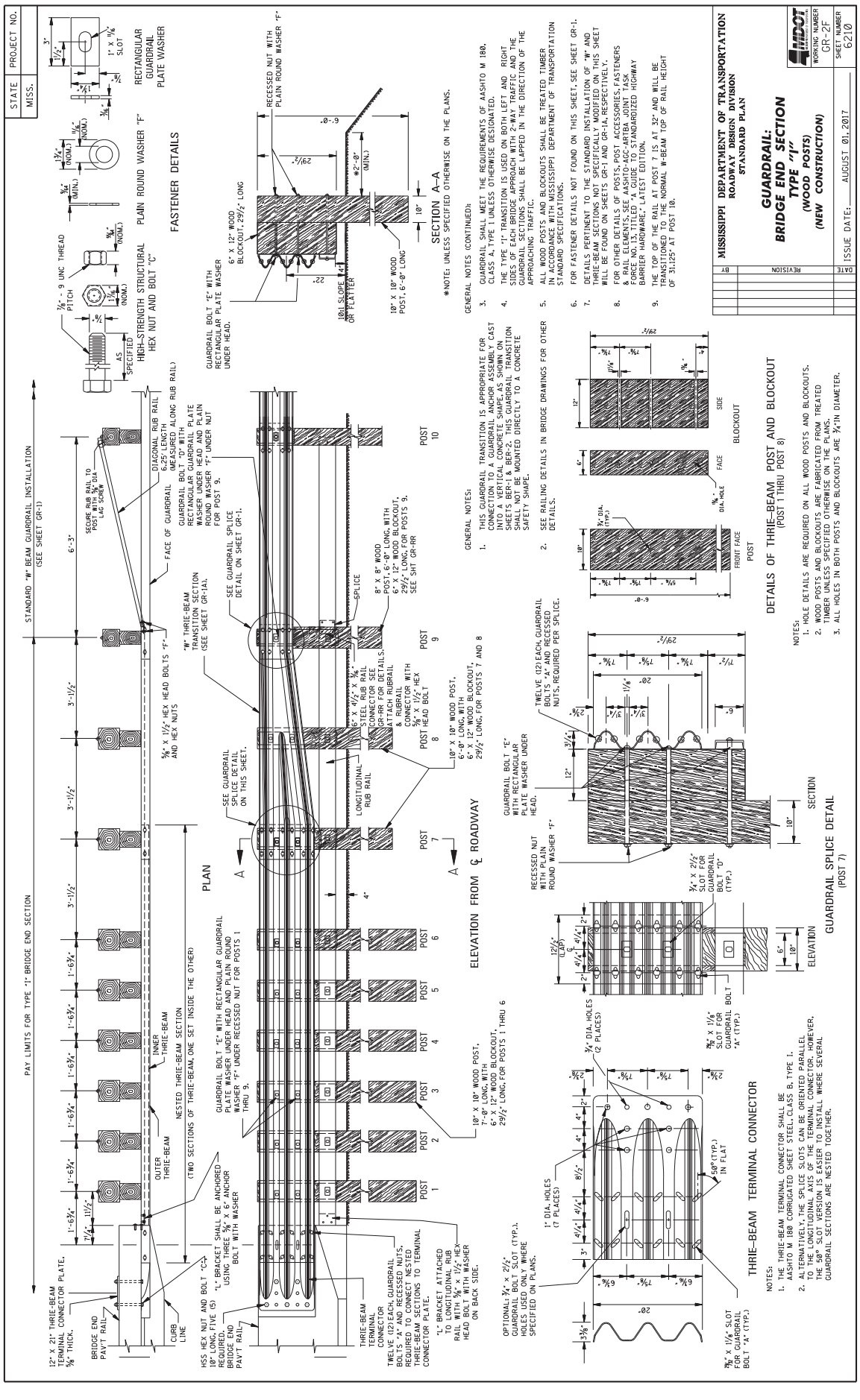

TYPE "E" BRIDGE END SECTION
TYPE "F" BRIDGE END SECTION
TYPE "G" BRIDGE END SECTION
DETAIL OF PLATE "P"
"W" BEAM TERMINAL CONNECTOR
FASTENER DETAILS
TYPE "F" & "G" BRIDGE END SECTIONS
GUARDRAIL: BRIDGE END SECTIONS TYPE "E", "F" & "G"
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
STATE MISS.
PROJECT NO.
WORKING NUMBER GR-2A
SHEET NUMBER 6205
ISSUE DATE: AUGUST 01, 2017

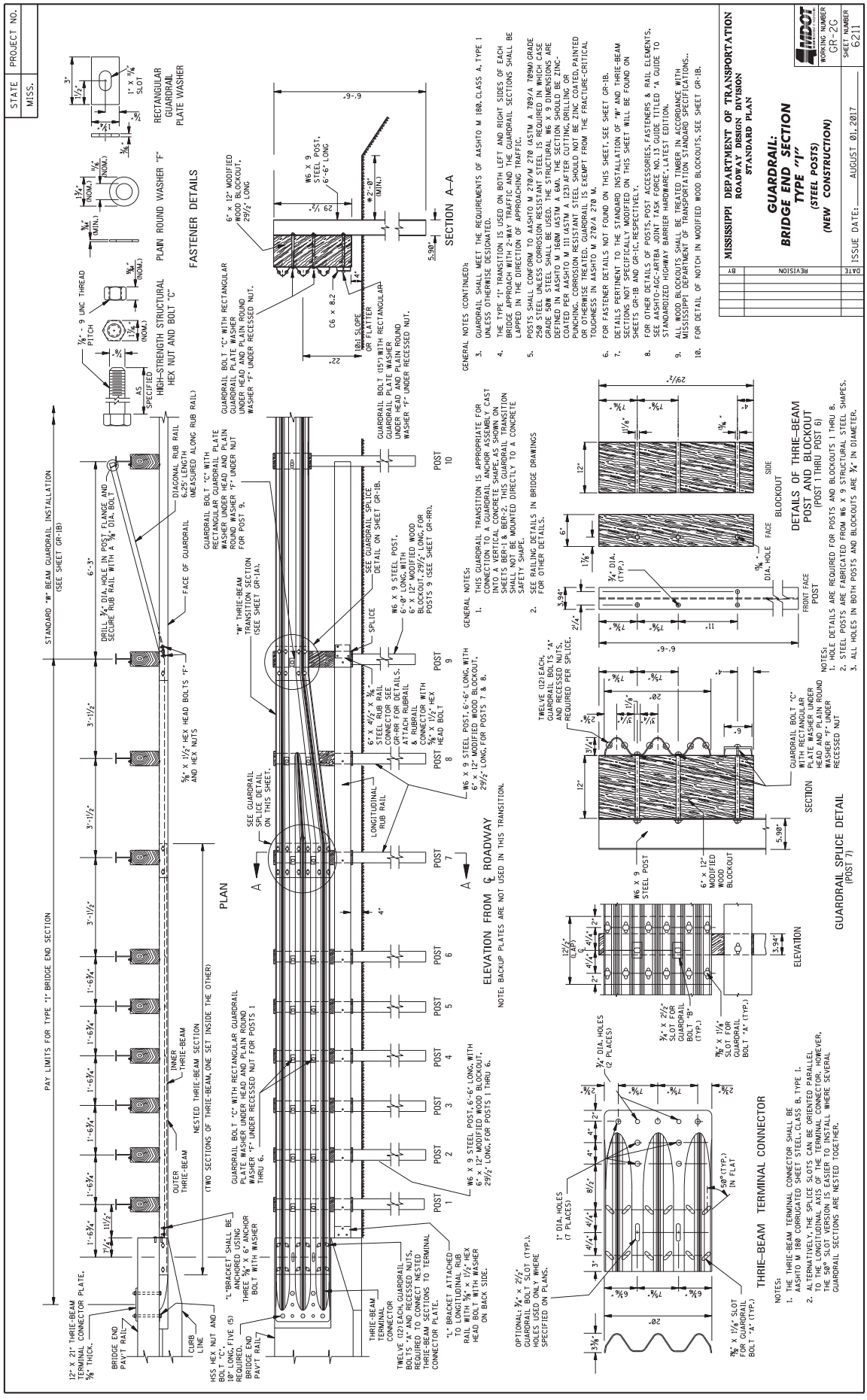

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTION
TYPE "D" MODIFIED
WORKING NUMBER GR-2B
SHEET NUMBER 6206
ISSUE DATE: AUGUST 01, 2017
REVISION
DATE
BY
PLAN
SECTION A–A
SECTION B–B
FASTENER DETAILS
HARDENED ROUND WASHER "E"
RECTANGULAR GUARDRAIL PLATE WASHER
HIGH-STRENGTH STRUCTURAL HEX NUT AND BOLT "C" (ASTM A 325)
"W" BEAM BACKUP PLATE
NOTE: THE "W" BEAM BACK-UP PLATE IS USED UNDER THE "W" BEAM RAIL SECTION WHERE INSTALLATION DETAILS SHOW CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE IDENTICAL TO THOSE OF THE STANDARD "W" BEAM RAIL SECTION.
"W" BEAM TERMINAL CONNECTOR
NOTE: THE "W" BEAM TERMINAL CONNECTOR IS USED WITH THE TYPE "D" MODIFIED BRIDGE END SECTION. THE CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE IDENTICAL TO THE STANDARD "W" BEAM SECTION (AASHTO M 180 CLASS B, TYPE II).
DETAIL OF PLATE "B"
DETAIL OF PLATE "Y"
DETAIL OF BRIDGE END TERMINAL OFFSET BLOCK
GENERAL NOTES:
1. ALL NOTES AND DETAILS PERTAINING TO NORMAL "W" BEAM GUARDRAIL INSTALLATION NOT SPECIFICALLY MODIFIED ON THIS SHEET WILL BE FOUND ON EITHER SHEET GR-1C (WOOD POSTS) OR GR-1D (STEEL POSTS).
2. INSTALLATION DETAILS FOR BRIDGE END SECTION GUARDRAIL POSTS WILL BE FOUND ON EITHER SHEET GR-2C (WOOD POSTS) OR GR-2D (STEEL POSTS).
3. GUARDRAIL ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
4. THE HEIGHT OF RAIL AT THE BRIDGE END IS 22" AND WILL BE TRANSITIONED TO 25" AT POST 5.

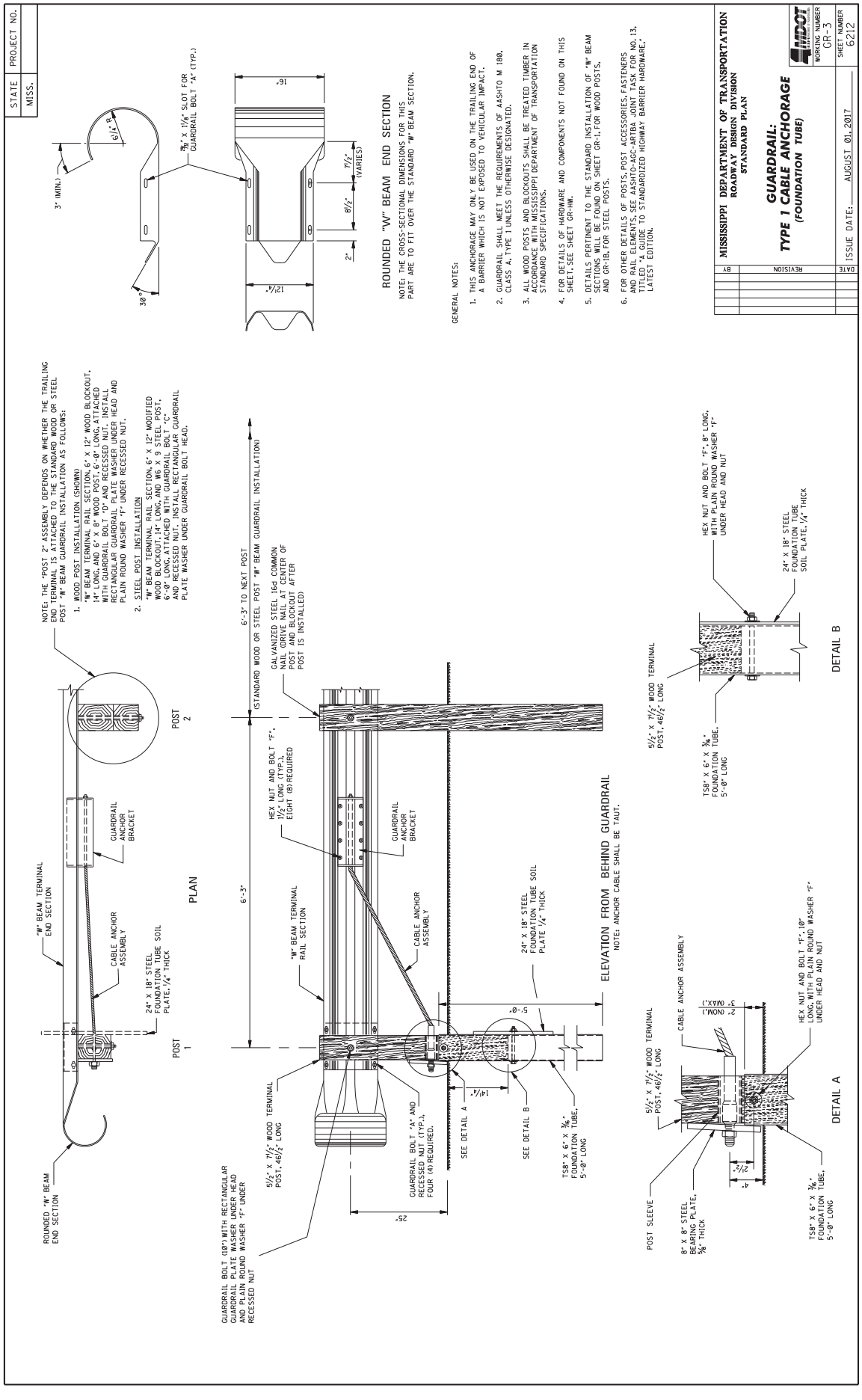

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTION
TYPE "H"
(WOOD POSTS)
WORKING NUMBER GR-2C
SHEET NUMBER 6207
ISSUE DATE: AUGUST 01, 2017
REVISION
DATE
BY
GENERAL NOTES:
1. ALL NOTES AND DETAILS PERTAINING TO NORMAL "W" BEAM GUARDRAIL INSTALLATION NOT SPECIFICALLY MODIFIED ON THIS SHEET WILL BE FOUND ON SHEET GR-1 (WOOD POSTS).
2. THE HEIGHT OF RAIL AT THE BRIDGE END IS 21" AND WILL BE TRANSITIONED TO 25" AT POST 5.
3. GUARDRAIL ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
PLAN
SECTION A–A
SECTION B–B
"W" BEAM BACKUP PLATE
"W" BEAM TERMINAL CONNECTOR
FASTENER DETAILS
DETAIL OF BRIDGE END TERMINAL OFFSET BLOCK
TRAFFIC
CONCRETE BRIDGE RAIL
GUARDRAIL SPLICE
FACE OF GUARDRAIL
BRIDGE END TERMINAL OFFSET BLOCK
BACKUP PLATE UNDER GUARDRAIL
CURB LINE
7'-6" CURB TRANSITION
PAY LIMITS FOR TYPE "H" BRIDGE END SECTION
STANDARD "W" BEAM INSTALLATION (SEE GENERAL NOTE 1.)
10" X 10" WOOD POST, 6'-0" LONG, WITH 6" X 12" WOOD BLOCKOUT, 14" LONG, FOR POSTS 1 THRU 3.
6" X 8" WOOD POST, 6'-0" LONG, WITH 6" X 12" WOOD BLOCKOUT, 14" LONG, FOR POSTS 4 AND 5.
GUARDRAIL BOLT "D" WITH PLAIN ROUND WASHER UNDER NUT AND RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD FOR POSTS 4 AND 5.
GUARDRAIL BOLT "E" WITH PLAIN ROUND WASHER "F" UNDER NUT AND RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD FOR POSTS 1 THRU 3.
"W" BEAM TERMINAL CONNECTOR, TERMINAL CONNECTOR IS FASTENED TO "W" BEAM GUARDRAIL SECTION WITH EIGHT (8) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
HARDENED ROUND WASHER "E", UNDER HEAD, FOUR (4) REQUIRED.
"W" BEAM GUARDRAIL
"W" BEAM TERMINAL CONNECTOR
EIGHT (8) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
GUARDRAIL ANCHOR ASSEMBLY "GA2" (INSTALLED DURING BRIDGE CONSTRUCTION)
HSS HEX NUT AND BOLT "C", 10" LONG, FOUR (4) REQUIRED.
BEVELED WASHER, FOUR (4) REQUIRED.
(SEE GENERAL NOTE 2.)
CURB FACE
RIDING SURFACE OF BRIDGE DECK
HARDENED ROUND WASHER "E", UNDER HEAD, TWO (2) REQUIRED.
"W" BEAM BACKUP PLATE
GUARDRAIL ANCHOR ASSEMBLY "GA1" (INSTALLED DURING BRIDGE CONSTRUCTION)
HSS HEX NUT AND BOLT "C", 10" LONG, TWO (2) REQUIRED.
BEVELED WASHER, TWO (2) REQUIRED.
GUARDRAIL BOLT (2") AND RECESSED NUT WITH RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD.
BRIDGE END TERMINAL OFFSET BLOCK
NOTE: THE "W" BEAM BACK-UP PLATE IS USED UNDER THE "W" BEAM RAIL SECTION WHERE INDICATED ON THIS SHEET. FOR CROSS-SECTIONAL DIMENSIONS OF THIS PART, REFER TO THOSE OF THE STANDARD "W" BEAM RAIL SECTION.
NOTE: THE "W" BEAM TERMINAL CONNECTOR IS USED WITH THE TYPE "H" BRIDGE END SECTION. THE CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE IDENTICAL TO THE STANDARD "W" BEAM SECTION (AASHTO M 180 CLASS B, TYPE II).
HARDENED ROUND WASHER "E"
RECTANGULAR GUARDRAIL PLATE WASHER
BEVELED WASHER
HIGH-STRENGTH STRUCTURAL HEX NUT AND BOLT "C" (ASTM A 325)
FRONT FACE
SIDE

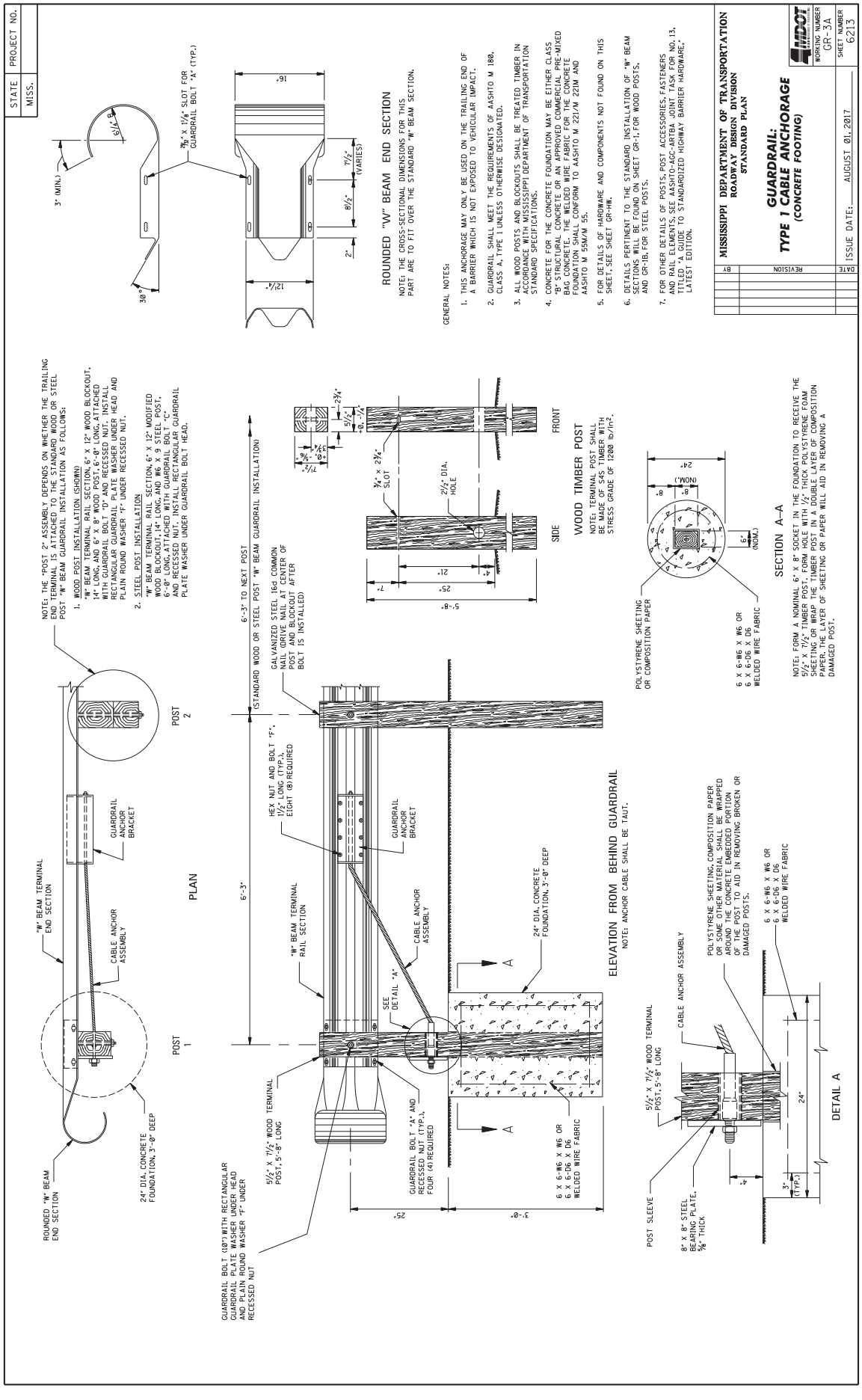

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTION
TYPE "H"
(STEEL POSTS)
WORKING NUMBER GR-2D
SHEET NUMBER 6208
ISSUE DATE: AUGUST 01, 2017
REVISION
BY
DATE
GENERAL NOTES:
1. ALL NOTES AND DETAILS PERTAINING TO NORMAL "W" BEAM GUARDRAIL INSTALLATION NOT SPECIFICALLY MODIFIED ON THIS SHEET WILL BE FOUND ON SHEET GR-1B (STEEL POSTS).
2. THE HEIGHT OF RAIL AT THE BRIDGE END IS 21" AND WILL BE TRANSITIONED TO 25" AT POST 5.
3. GUARDRAIL ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
PLAN
SECTION A–A
SECTION B–B
"W" BEAM BACKUP PLATE
"W" BEAM TERMINAL CONNECTOR
DETAIL OF BRIDGE END TERMINAL OFFSET BLOCK
FASTENER DETAILS
TRAFFIC
CONCRETE BRIDGE RAIL
GUARDRAIL SPLICE
FACE OF GUARDRAIL
BRIDGE END TERMINAL OFFSET BLOCK
BACKUP PLATE UNDER GUARDRAIL
CURB LINE
7'-6" CURB TRANSITION
"W" BEAM TERMINAL CONNECTOR, TERMINAL CONNECTOR IS FASTENED TO "W" BEAM GUARDRAIL SECTION WITH EIGHT (8) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
GUARDRAIL BOLT "C" WITH RECESSED NUT AND RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD FOR POSTS 1 THRU 5.
24" X 12" STEEL SOIL BEARING PLATE, 1/4" THICK, WELDED TO POSTS 1 THRU 3, WELD TOP, BOTTOM, AND THREE 3" WELDS ON EACH SIDE.
W6 X 9 STEEL POST, 6'-0" LONG, WITH 6" X 12" MODIFIED WOOD BLOCKOUT, 14" LONG, FOR POSTS 1 THRU 5.
STANDARD "W" BEAM INSTALLATION (SEE GENERAL NOTE 1.)
PAY LIMITS FOR TYPE "H" BRIDGE END SECTION
25'-0"
10'-5 1/4"
3'-1 1/2"
6'-3"
POST 1
POST 2
POST 3
POST 4
POST 5
POST 6
HARDENED ROUND WASHER "E", UNDER HEAD, FOUR (4) REQUIRED.
"W" BEAM GUARDRAIL
"W" BEAM TERMINAL CONNECTOR
EIGHT (8) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
GUARDRAIL ANCHOR ASSEMBLY "GA2" (INSTALLED DURING BRIDGE CONSTRUCTION)
HSS HEX NUT AND BOLT "C", 10" LONG, FOUR (4) REQUIRED.
BEVELED WASHER, FOUR (4) REQUIRED.
(SEE GENERAL NOTE 2.)
CURB FACE
RIDING SURFACE OF BRIDGE DECK
HARDENED ROUND WASHER "E", UNDER HEAD, TWO (2) REQUIRED.
"W" BEAM BACKUP PLATE
GUARDRAIL BOLT (2") AND RECESSED NUT WITH RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD.
HSS HEX NUT AND BOLT "C", 10" LONG, TWO (2) REQUIRED.
BEVELED WASHER, TWO (2) REQUIRED.
3/4" X 2 1/2" SLOT
12 1/4"
12"
6"
6"
3 1/4"
NOTE: THE "W" BEAM BACK-UP PLATE IS USED UNDER THE "W" BEAM RAIL SECTION WHERE INDICATED ON THIS SHEET. CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE IDENTICAL TO THOSE OF THE STANDARD "W" BEAM RAIL SECTION.
3/4" X 1 1/4" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
1" DIA. HOLES (TYP.)
30"
3/4" X 2 1/2" SLOTTED HOLE (BOLT NOT REQUIRED)
NOTE: THE "W" BEAM TERMINAL CONNECTOR IS USED WITH THE TYPE "H" BRIDGE END SECTION. THE CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE IDENTICAL TO THE STANDARD "W" BEAM SECTION (AASHTO M 180 CLASS B, TYPE II).
W4 X 13
3/4" DIA. HOLES
1" DIA. HOLES
FRONT FACE
SIDE
3/4" - 9 UNC THREAD PITCH
HIGH-STRENGTH STRUCTURAL HEX NUT AND BOLT "C" (ASTM A 325)
AS SPECIFIED
HARDENED ROUND WASHER "E"
RECTANGULAR GUARDRAIL PLATE WASHER
1" X 1 1/8" SLOT
9:1 SLOPE
BEVELED WASHER

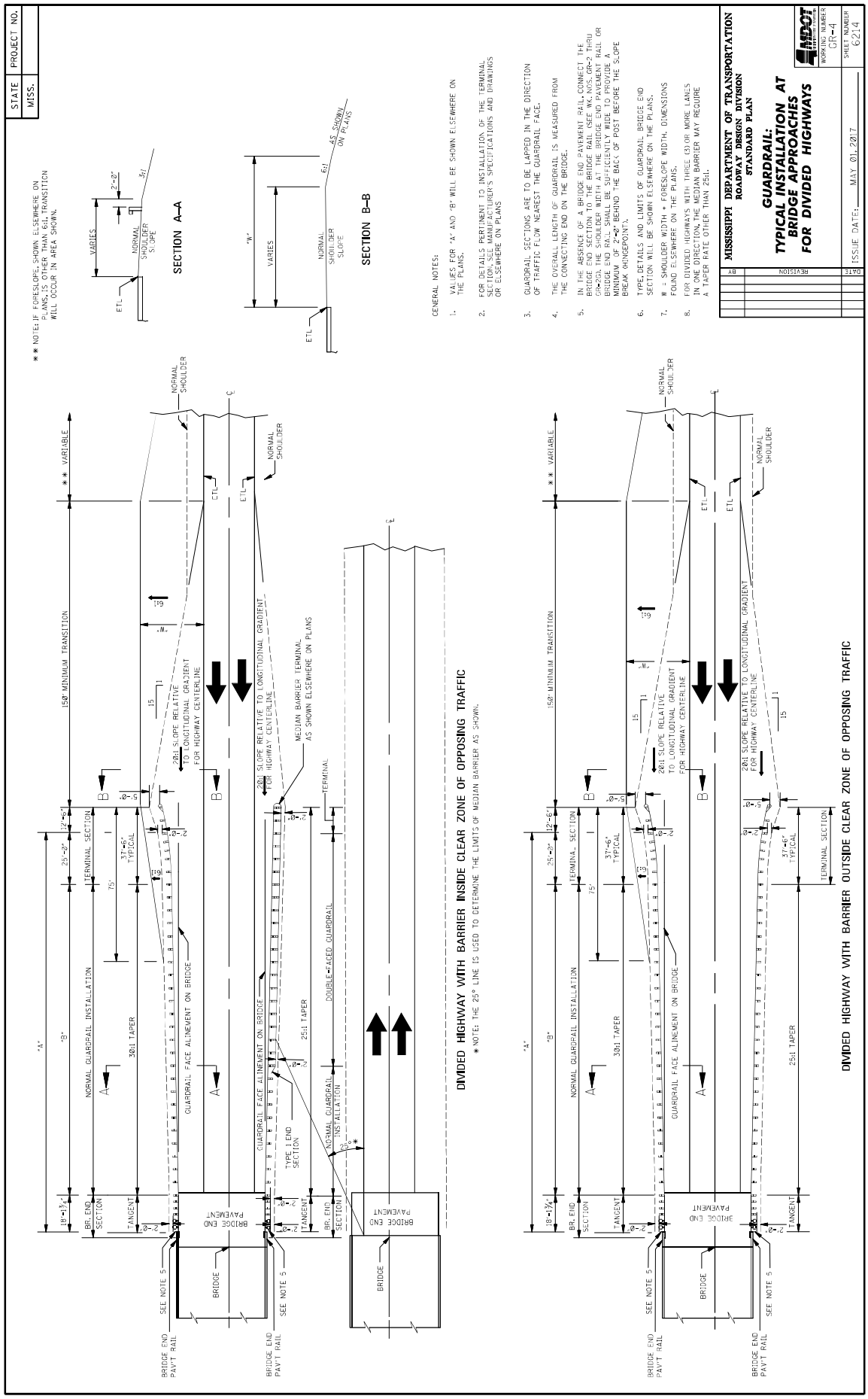

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTION
TYPE "G" MODIFIED
WORKING NUMBER GR-2E
SHEET NUMBER 6209
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
GENERAL NOTES:
1. ALL NOTES AND DETAILS PERTAINING TO NORMAL "W" BEAM GUARDRAIL INSTALLATION NOT SPECIFICALLY MODIFIED ON THIS SHEET WILL BE FOUND ON EITHER SHEET GR-1 (WOOD POSTS) OR GR-1B (STEEL POSTS).
2. INSTALLATION DETAILS FOR BRIDGE END SECTION GUARDRAIL POSTS WILL BE FOUND ON EITHER SHEET GR-2C (WOOD POSTS) OR GR-2D (STEEL POSTS).
3. THE HEIGHT OF RAIL AT THE BRIDGE END IS 21" AND WILL BE TRANSITIONED TO 25" AT POST 5.
4. GUARDRAIL ELEMENTS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC. THE ONLY EXCEPTION NOTED IS THAT GUARDRAIL SHALL BE LAPPED FOR APPROACHING TRAFFIC ON A BRIDGE WITH 2-WAY TRAFFIC.
PLAN
PAY LIMITS FOR TYPE "G" MODIFIED BRIDGE END SECTION
STANDARD "W" BEAM INSTALLATION (SEE GENERAL NOTE 1.)
POST 1
POST 2
POST 3
POST 4
POST 5
POST 6
GUARDRAIL SPLICE
CENTERLINE OF POST HOLES IN "W" BEAM GUARDRAIL (SEE GENERAL NOTE 2.)
FACE OF GUARDRAIL
SEE GUARDRAIL CONNECTION DETAILS
CONCRETE BRIDGE RAIL
CURB LINE
"W" BEAM TERMINAL CONNECTOR, TERMINAL CONNECTOR IS FASTENED TO THE GUARDRAIL SECTION WITH EIGHT (8) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
7'-6" CURB TRANSITION
TRAFFIC
GUARDRAIL CONNECTION DETAILS
SECTION
"W" BEAM GUARDRAIL
GUARDRAIL ANCHOR ASSEMBLY (INSTALLED DURING BRIDGE CONSTRUCTION)
HSS HEX NUT AND BOLT "C", 10" LONG, FOUR (4) REQUIRED.
HARDENED ROUND WASHER "E", ONE (1) UNDER HEAD AND ONE (1) UNDER NUT, EIGHT (8) REQUIRED.
PLATE "Y"
12" X 4⅛" X ⅝" PLATE
BOTH SIDES
TWO (2) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
FACE ELEVATION
⅞" X 1⅛" SLOTTED HOLES IN "W" BEAM SECTION (TYP.)
OPTIONAL ¾" X 2½" SLOTTED HOLE IN "W" SECTION (BOLT NOT REQUIRED).
"W" BEAM SECTION, 16' LONG (AASHTO M 180 CLASS B, TYPE II)
12" X 4⅛" X ⅝" PLATE, TWO (2) REQUIRED, TOP AND BOTTOM.
THESE SLOTS ARE USED TO FASTEN GUARDRAIL.
1" HOLES IN PLATE "Y" (TYP.)
DETAIL OF PLATE "Y"
"W" BEAM TERMINAL CONNECTOR
NOTE: THE "W" BEAM TERMINAL CONNECTOR IS USED WITH THE TYPE "G" MODIFIED BRIDGE END SECTION. THE CROSS-SECTIONAL DIMENSIONS OF THIS PART ARE IDENTICAL TO THE STANDARD "W" BEAM SECTION (AASHTO M 180 CLASS B, TYPE II).
ELEVATION
PLAN
¾" X 2½" SLOTTED HOLE (BOLT NOT REQUIRED)
⅞" X 1⅛" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
1" DIA. HOLES (TYP.)
SECTION A–A
SECTION B–B
HARDENED ROUND WASHER "E", UNDER HEAD, FOUR (4) REQUIRED.
EIGHT (8) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
BEVELED WASHER, FOUR (4) REQUIRED.
HSS HEX NUT AND BOLT "C", 10" LONG, FOUR (4) REQUIRED.
TWO (2) EACH, GUARDRAIL BOLT "A" AND RECESSED NUT.
(SEE GENERAL NOTE 3.)
CURB FACE
RIDING SURFACE OF BRIDGE DECK
9:1 SLOPE
BEVELED WASHER
RECTANGULAR GUARDRAIL PLATE WASHER
1" X 1⅛" SLOT
¾" - 9 UNC THREAD PITCH
HIGH-STRENGTH STRUCTURAL HEX NUT AND BOLT "C" (ASTM A 325)
HARDENED ROUND WASHER "E"
AS SPECIFIED
(NOM.)

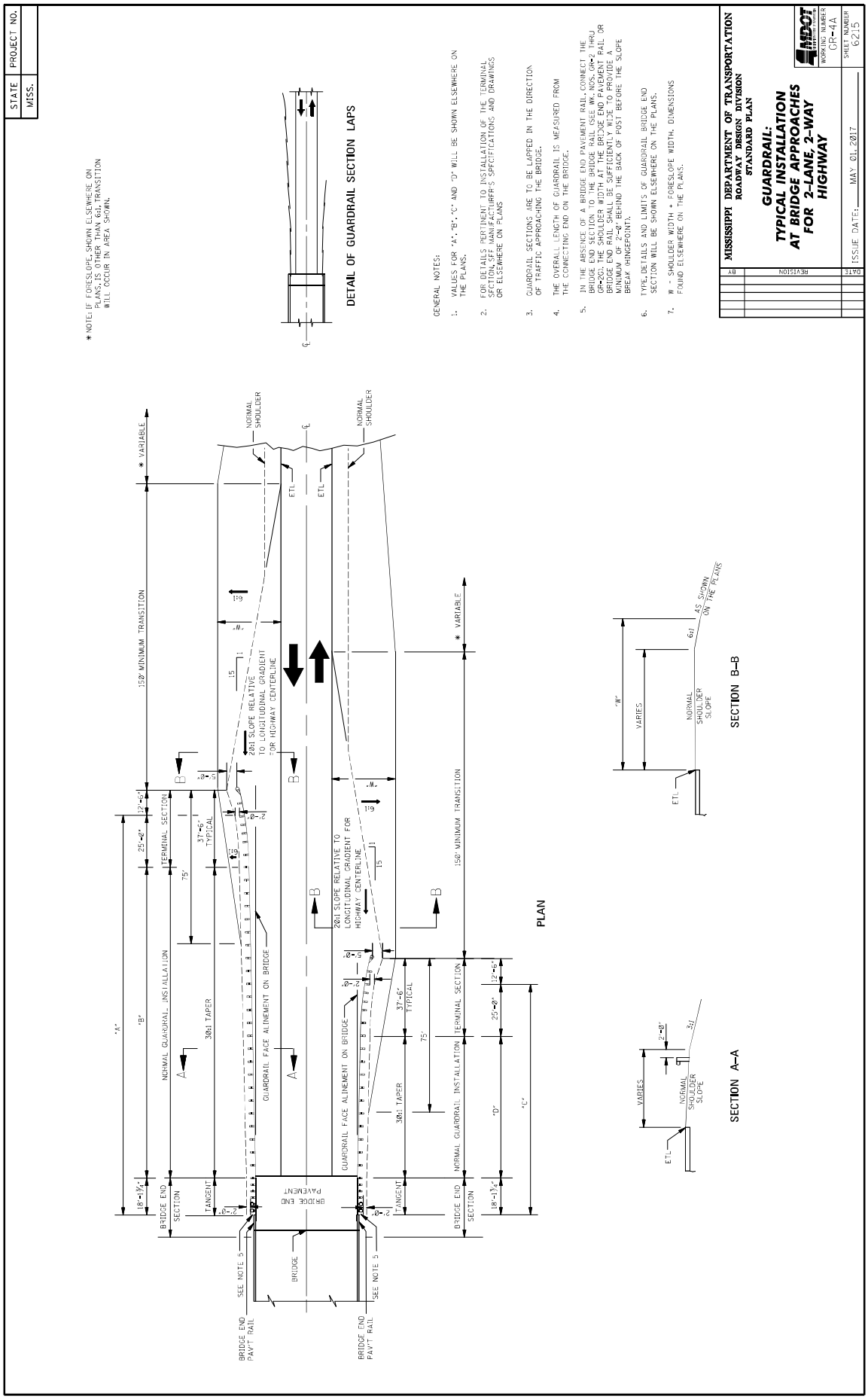

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTION
TYPE "I"
(WOOD POSTS)
(NEW CONSTRUCTION)
WORKING NUMBER GR-2F
SHEET NUMBER 6210
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
STANDARD "W" BEAM GUARDRAIL INSTALLATION (SEE SHEET GR-1)
PAY LIMITS FOR TYPE "I" BRIDGE END SECTION
PLAN
ELEVATION FROM ℄ ROADWAY
SECTION A–A
*NOTE: UNLESS SPECIFIED OTHERWISE ON THE PLANS.
FASTENER DETAILS
HIGH-STRENGTH STRUCTURAL HEX NUT AND BOLT "C"
PLAIN ROUND WASHER "F"
RECTANGULAR GUARDRAIL PLATE WASHER
GENERAL NOTES (CONTINUED):
GENERAL NOTES:
DETAILS OF THRIE-BEAM POST AND BLOCKOUT
(POST 1 THRU POST 8)
THRIE-BEAM TERMINAL CONNECTOR
GUARDRAIL SPLICE DETAIL
(POST 7)
NOTES:
NOTES:

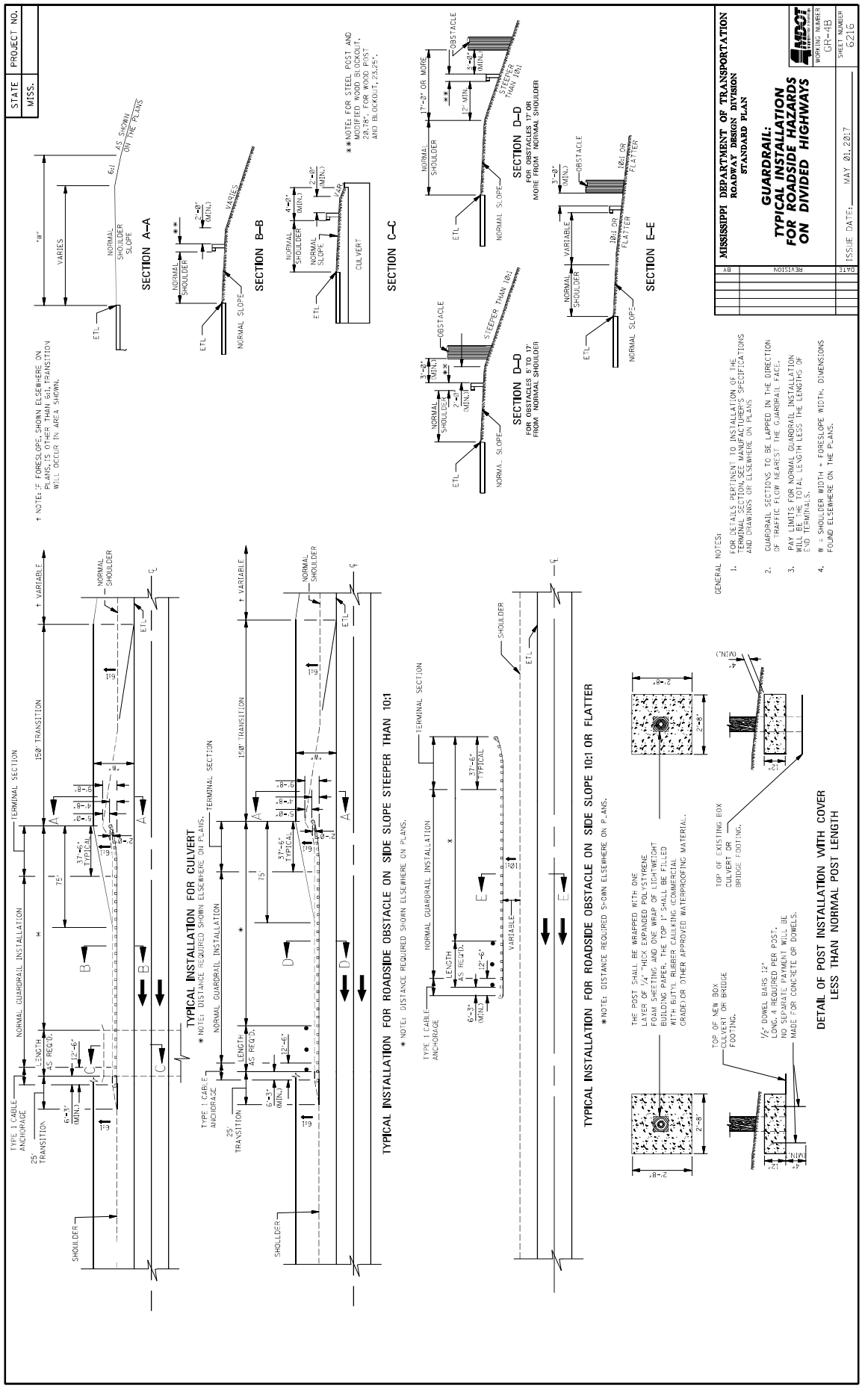

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
BRIDGE END SECTION
TYPE "1"
(STEEL POSTS)
(NEW CONSTRUCTION)
WORKING NUMBER GR-2G
SHEET NUMBER 6211
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
PLAN
ELEVATION FROM ℄ ROADWAY
NOTE: BACKUP PLATES ARE NOT USED IN THIS TRANSITION.
GENERAL NOTES:
1. THIS GUARDRAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A GUARDRAIL ANCHOR ASSEMBLY CAST INTO A VERTICAL CONCRETE SHAPE, AS SHOWN ON SHEET GR-2A. THIS GUARDRAIL TRANSITION SHALL NOT BE MOUNTED DIRECTLY TO A CONCRETE SAFETY SHAPE.
2. SEE RAILING DETAILS IN BRIDGE DRAWINGS FOR OTHER DETAILS.
3. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE 1 UNLESS OTHERWISE DESIGNATED.
4. THE TYPE "1" TRANSITION IS USED ON BOTH LEFT AND RIGHT SIDES OF EACH BRIDGE APPROACH WITH 2-WAY TRAFFIC AND THE GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF APPROACHING TRAFFIC.
5. POSTS SHALL CONFORM TO AASHTO M 270/M 270 (ASTM A 709/A 709M) GRADE 250 STEEL UNLESS CORROSION RESISTANT STEEL IS REQUIRED IN WHICH CASE GRADE 50W STEEL SHALL BE USED. THE STRUCTURAL W 6 X 9 DIMENSIONS ARE DESCRIBED IN ASTM A6/A6M. ALL STEEL SHALL BE HOT-DIP GALVANIZED COATED PER AASHTO M 111/ASTM A 123 AFTER CUTTING, DRILLING OR PUNCHING. CORROSION RESISTANT STEEL SHOULD NOT BE ZINC COATED, PAINTED OR OTHERWISE TREATED. GUARDRAIL IS EXEMPT FROM THE FRACTURE-CRITICAL TOUGHNESS IN AASHTO M 270/A 270 W.
6. FOR FASTENER DETAILS NOT FOUND ON THIS SHEET, SEE SHEET GR-1B.
7. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" AND THRIE-BEAM SECTIONS NOT SPECIFICALLY MODIFIED ON THIS SHEET WILL BE FOUND ON SHEETS GR-1B AND GR-1C, RESPECTIVELY.
8. FOR OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS & RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FORCE NO. 13 GUIDE TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE", LATEST EDITION.
9. ALL WOOD BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH MISSISSIPPI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS..
10. FOR DETAIL OF NOTCH IN MODIFIED WOOD BLOCKOUTS, SEE SHEET GR-1B.
THRIE-BEAM TERMINAL CONNECTOR
NOTES:
1. THE THRIE-BEAM TERMINAL CONNECTOR SHALL BE AASHTO M 180 CORRUGATED SHEET STEEL, CLASS B, TYPE I.
2. ALTERNATIVELY, THE SPLICE SLOTS CAN BE ORIENTED PARALLEL TO THE LONGITUDINAL AXIS OF THE TERMINAL CONNECTOR. HOWEVER, THE 50° SLOT VERSION IS EASIER TO INSTALL WHERE SEVERAL GUARDRAIL SECTIONS ARE NESTED TOGETHER.
GUARDRAIL SPLICE DETAIL (POST 7)
NOTES:
1. HOLE DETAILS ARE REQUIRED FOR POSTS AND BLOCKOUTS 1 THRU 8.
2. STEEL POSTS ARE FABRICATED FROM W6 X 9 STRUCTURAL STEEL SHAPES.
3. ALL HOLES IN BOTH POSTS AND BLOCKOUTS ARE ¾" IN DIAMETER.
DETAILS OF THRIE-BEAM POST AND BLOCKOUT (POST 1 THRU POST 6)
FASTENER DETAILS
SECTION A–A

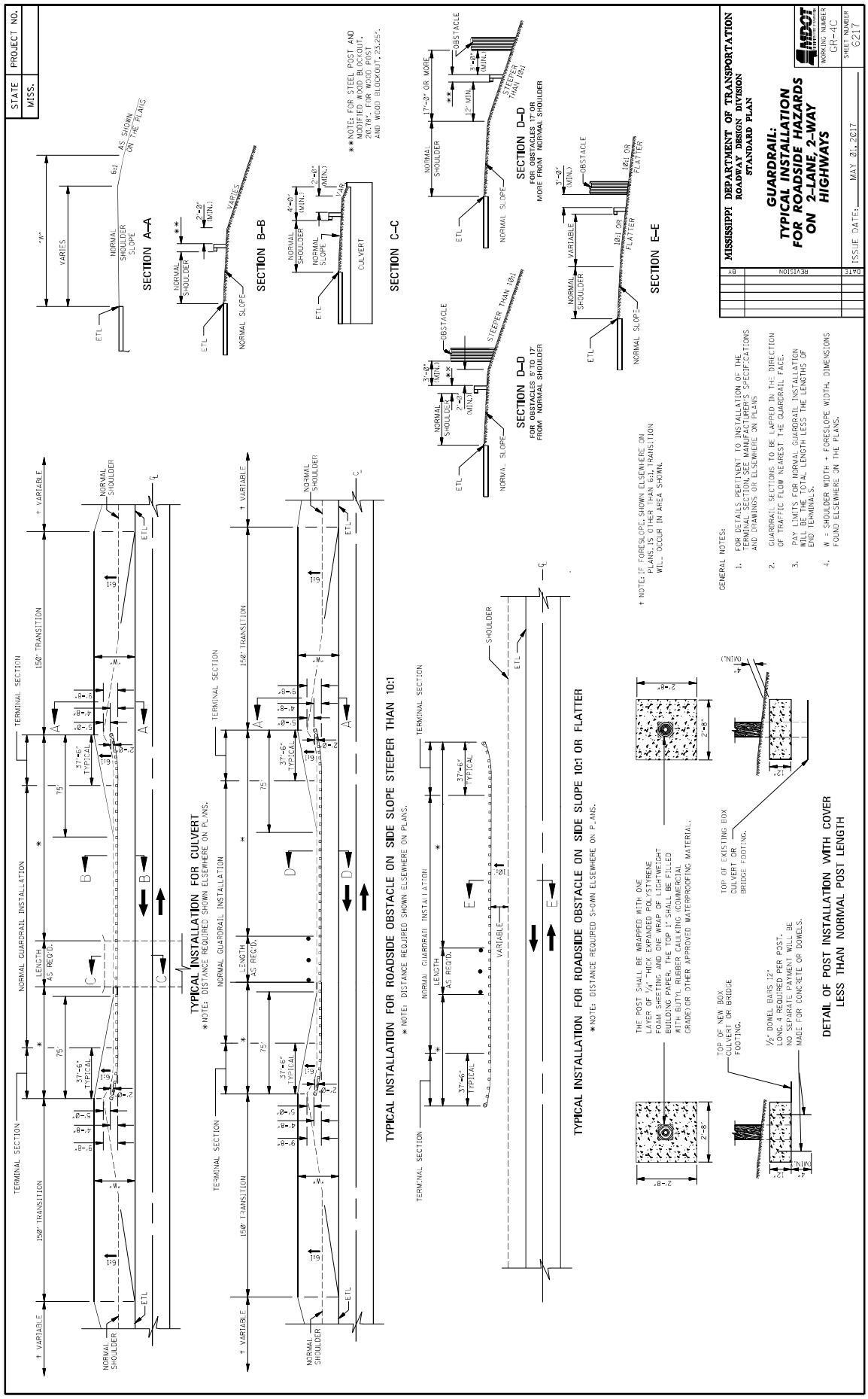

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
TYPE 1 CABLE ANCHORAGE
(FOUNDATION TUBE)
WORKING NUMBER GR-3
SHEET NUMBER 6212
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
GENERAL NOTES:
1. THIS ANCHORAGE MAY ONLY BE USED ON THE TRAILING END OF A BARRIER WHICH IS NOT EXPOSED TO VEHICULAR IMPACT.
2. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE 1 UNLESS OTHERWISE DESIGNATED.
3. ALL WOOD POSTS AND BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH MISSISSIPPI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
4. FOR DETAILS OF HARDWARE AND COMPONENTS NOT FOUND ON THIS SHEET, SEE SHEET GR-HW.
5. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" BEAM SECTIONS WILL BE FOUND ON SHEET GR-1, FOR WOOD POSTS, AND GR-1B, FOR STEEL POSTS.
6. FOR OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS AND RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FOR NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE," LATEST EDITION.
ROUNDED "W" BEAM END SECTION
NOTE: THE CROSS-SECTIONAL DIMENSIONS FOR THIS PART ARE TO FIT OVER THE STANDARD "W" BEAM SECTION.
3" (MIN.)
6 1/4" R
30°
7/8" X 1 1/4" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
16"
12 1/4"
8 1/2"
7 1/2" (VARIES)
2"
NOTE: THE "POST 2" ASSEMBLY DEPENDS ON WHETHER THE TRAILING END TERMINAL IS ATTACHED TO THE STANDARD WOOD OR STEEL POST "W" BEAM GUARDRAIL INSTALLATION AS FOLLOWS:
1. WOOD POST INSTALLATION (SHOWN)
"W" BEAM TERMINAL RAIL SECTION, 6" X 12" WOOD BLOCKOUT, 14" LONG, AND 6" X 8" WOOD POST, 6'-0" LONG, ATTACHED WITH GUARDRAIL BOLT "D" AND RECESSED NUT. INSTALL RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD AND PLAIN ROUND WASHER "F" UNDER RECESSED NUT.
2. STEEL POST INSTALLATION
"W" BEAM TERMINAL RAIL SECTION, 6" X 12" MODIFIED WOOD BLOCKOUT, 14" LONG, AND W6 X 9 STEEL POST, 6'-6" LONG, ATTACHED WITH GUARDRAIL BOLT "C" AND RECESSED NUT. INSTALL RECTANGULAR GUARDRAIL PLATE WASHER UNDER GUARDRAIL BOLT HEAD.
ROUNDED "W" BEAM END SECTION
"W" BEAM TERMINAL END SECTION
CABLE ANCHOR ASSEMBLY
GUARDRAIL ANCHOR BRACKET
24" X 18" STEEL FOUNDATION TUBE SOIL PLATE, 1/4" THICK
POST 1
POST 2
PLAN
6'-3" TO NEXT POST (STANDARD WOOD OR STEEL POST "W" BEAM GUARDRAIL INSTALLATION)
GALVANIZED STEEL 16d COMMON NAIL (DRIVE NAIL AT CENTER OF POST AND BLOCKOUT AFTER POST IS INSTALLED)
HEX NUT AND BOLT "F", 1/2" LONG (TYP.) EIGHT (8) REQUIRED
6'-3"
"W" BEAM TERMINAL RAIL SECTION
GUARDRAIL ANCHOR BRACKET
CABLE ANCHOR ASSEMBLY
24" X 18" STEEL FOUNDATION TUBE SOIL PLATE, 1/4" THICK
5'-0"
14 1/4"
SEE DETAIL A
SEE DETAIL B
5 1/2" X 7 1/2" WOOD TERMINAL POST, 46 1/2" LONG
GUARDRAIL BOLT "A" AND RECESSED NUT (TYP.), FOUR (4) REQUIRED.
25"
TS8" X 6' X 3/16" FOUNDATION TUBE, 5'-0" LONG
ELEVATION FROM BEHIND GUARDRAIL
NOTE: ANCHOR CABLE SHALL BE TAUT.
GUARDRAIL BOLT (10") WITH RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD AND PLAIN ROUND WASHER "F" UNDER RECESSED NUT
HEX NUT AND BOLT "F", 8" LONG, WITH PLAIN ROUND WASHER "F" UNDER HEAD AND NUT
24" X 18" STEEL FOUNDATION TUBE SOIL PLATE, 1/4" THICK
5 1/2" X 7 1/2" WOOD TERMINAL POST, 46 1/2" LONG
TS8" X 6' X 3/16" FOUNDATION TUBE, 5'-0" LONG
DETAIL B
CABLE ANCHOR ASSEMBLY
2" (NOM.) 3" (MAX.)
HEX NUT AND BOLT "F", 10" LONG, WITH PLAIN ROUND WASHER "F" UNDER HEAD AND NUT
5 1/2" X 7 1/2" WOOD TERMINAL POST, 46 1/2" LONG
POST SLEEVE
8" X 8" STEEL BEARING PLATE, 3/8" THICK
TS8" X 6' X 3/16" FOUNDATION TUBE, 5'-0" LONG
DETAIL A

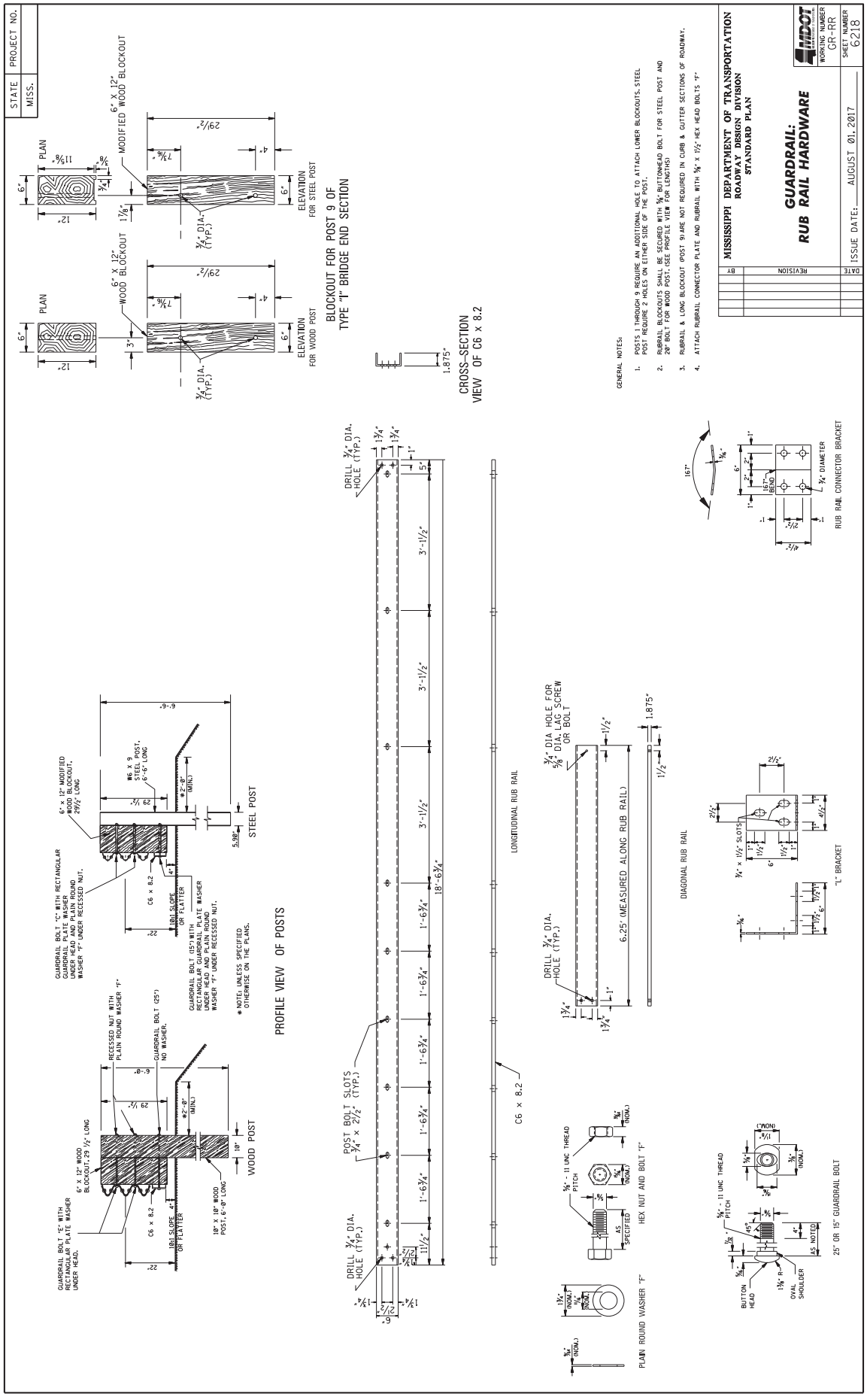

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
TYPE 1 CABLE ANCHORAGE
(CONCRETE FOOTING)
WORKING NUMBER GR-3A
SHEET NUMBER 6213
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
ROUNDED "W" BEAM END SECTION
NOTE: THE CROSS-SECTIONAL DIMENSIONS FOR THIS PART ARE TO FIT OVER THE STANDARD "W" BEAM SECTION.
GENERAL NOTES:
1. THIS ANCHORAGE MAY ONLY BE USED ON THE TRAILING END OF A BARRIER WHICH IS NOT EXPOSED TO VEHICULAR IMPACT.
2. GUARDRAIL SHALL MEET THE REQUIREMENTS OF AASHTO M 180, CLASS A, TYPE I UNLESS OTHERWISE DESIGNATED.
3. ALL WOOD POSTS AND BLOCKOUTS SHALL BE TREATED TIMBER IN ACCORDANCE WITH MISSISSIPPI DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
4. CONCRETE FOR THE CONCRETE FOUNDATION MAY BE EITHER CLASS "B" STRUCTURAL CONCRETE OR AN APPROVED COMMERCIAL PRE-MIXED BAG CONCRETE. THE WELDED WIRE FABRIC FOR THE CONCRETE FOUNDATION SHALL CONFORM TO AASHTO M 221/M 221M AND AASHTO M 55M/M 55.
5. FOR DETAILS OF HARDWARE AND COMPONENTS NOT FOUND ON THIS SHEET, SEE SHEET GR-HW.
6. DETAILS PERTINENT TO THE STANDARD INSTALLATION OF "W" BEAM SECTIONS WILL BE FOUND ON SHEET GR-1, FOR WOOD POSTS, AND GR-1B, FOR STEEL POSTS.
7. FOR OTHER DETAILS OF POSTS, POST ACCESSORIES, FASTENERS AND RAIL ELEMENTS, SEE AASHTO-AGC-ARTBA JOINT TASK FOR NO. 13, TITLED "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE," LATEST EDITION.
NOTE: THE "POST 2" ASSEMBLY DEPENDS ON WHETHER THE TRAILING END TERMINAL IS ATTACHED TO THE STANDARD WOOD OR STEEL POST "W" BEAM GUARDRAIL INSTALLATION AS FOLLOWS:
1. WOOD POST INSTALLATION (SHOWN)
"W" BEAM TERMINAL RAIL SECTION, 6' X 12" WOOD BLOCKOUT, 14" LONG, AND 6' X 8" WOOD POST, 6'-0" LONG, ATTACHED WITH GUARDRAIL BOLT "D" AND RECESSED NUT. INSTALL RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD AND PLAIN ROUND WASHER "F" UNDER RECESSED NUT.
2. STEEL POST INSTALLATION
"W" BEAM TERMINAL RAIL SECTION, 6' X 12" MODIFIED WOOD BLOCKOUT, 14" LONG, AND W6 X 9 STEEL POST, 6'-6" LONG ATTACHED WITH GUARDRAIL BOLT "C" AND RECESSED NUT. INSTALL RECTANGULAR GUARDRAIL PLATE WASHER UNDER GUARDRAIL BOLT HEAD.
"W" BEAM END SECTION
"W" BEAM TERMINAL RAIL SECTION
CABLE ANCHOR ASSEMBLY
GUARDRAIL ANCHOR BRACKET
24" DIA. CONCRETE FOUNDATION, 3'-0" DEEP
ROUNDED "W" BEAM END SECTION
PLAN
POST 1
POST 2
6'-3"
6'-3" TO NEXT POST
(STANDARD WOOD OR STEEL POST "W" BEAM GUARDRAIL INSTALLATION)
GALVANIZED STEEL 16d COMMON NAIL (DRIVE NAIL AT CENTER OF POST AND BEND AFTER BOLT IS INSTALLED)
HEX NUT AND BOLT "F", 1½" LONG (TYP.), EIGHT (8) REQUIRED
SEE DETAIL "A"
5½" X 7½" WOOD TERMINAL POST, 5'-8" LONG
GUARDRAIL BOLT (10") WITH RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD AND PLAIN ROUND WASHER "F" UNDER RECESSED NUT
GUARDRAIL BOLT "A" AND RECESSED NUT (TYP.), FOUR (4) REQUIRED
6 X 6-W6 X W6 OR 6 X 6-D6 X D6 WELDED WIRE FABRIC
25"
3'-0"
ELEVATION FROM BEHIND GUARDRAIL
NOTE: ANCHOR CABLE SHALL BE TAUT.
SIDE
FRONT
WOOD TIMBER POST
NOTE: TERMINAL POST SHALL BE MADE OF S4S TIMBER WITH STRESS GRADE OF 1200 lb/in².
¾" X 2¾" SLOT
2½" DIA. HOLE
SECTION A–A
POLYSTYRENE SHEETING OR COMPOSITION PAPER
6 X 6-W6 X W6 OR 6 X 6-D6 X D6 WELDED WIRE FABRIC
NOTE: FORM A NOMINAL 6" X 8" SOCKET IN THE FOUNDATION TO RECEIVE THE 5½" X 7½" TIMBER POST. FORM HOLE WITH TWO LAYERS OF POLYSTYRENE SHEETING OR WRAP THE TIMBER POST IN A DOUBLE LAYER OF COMPOSITION PAPER. THE LAYER OF SHEETING OR PAPER WILL AID IN REMOVING A DAMAGED POST.
POST SLEEVE
8" X 8" STEEL BEARING PLATE, ⅝" THICK
5½" X 7½" WOOD TERMINAL POST, 5'-8" LONG
CABLE ANCHOR ASSEMBLY
POLYSTYRENE SHEETING, COMPOSITION PAPER OR SOME OTHER MATERIAL SHALL BE WRAPPED AROUND THE CONCRETE EMBEDDED PORTION OF THE POST TO AID IN REMOVING BROKEN OR DAMAGED POSTS.
6 X 6-W6 X W6 OR 6 X 6-D6 X D6 WELDED WIRE FABRIC
24"
3" (TYP.)
DETAIL A
3" (MIN.)
30°
7⅞" X 1⅛" SLOT FOR GUARDRAIL BOLT "A" (TYP.)
16"
12¼"
8½"
7½" (VARIES)
2"

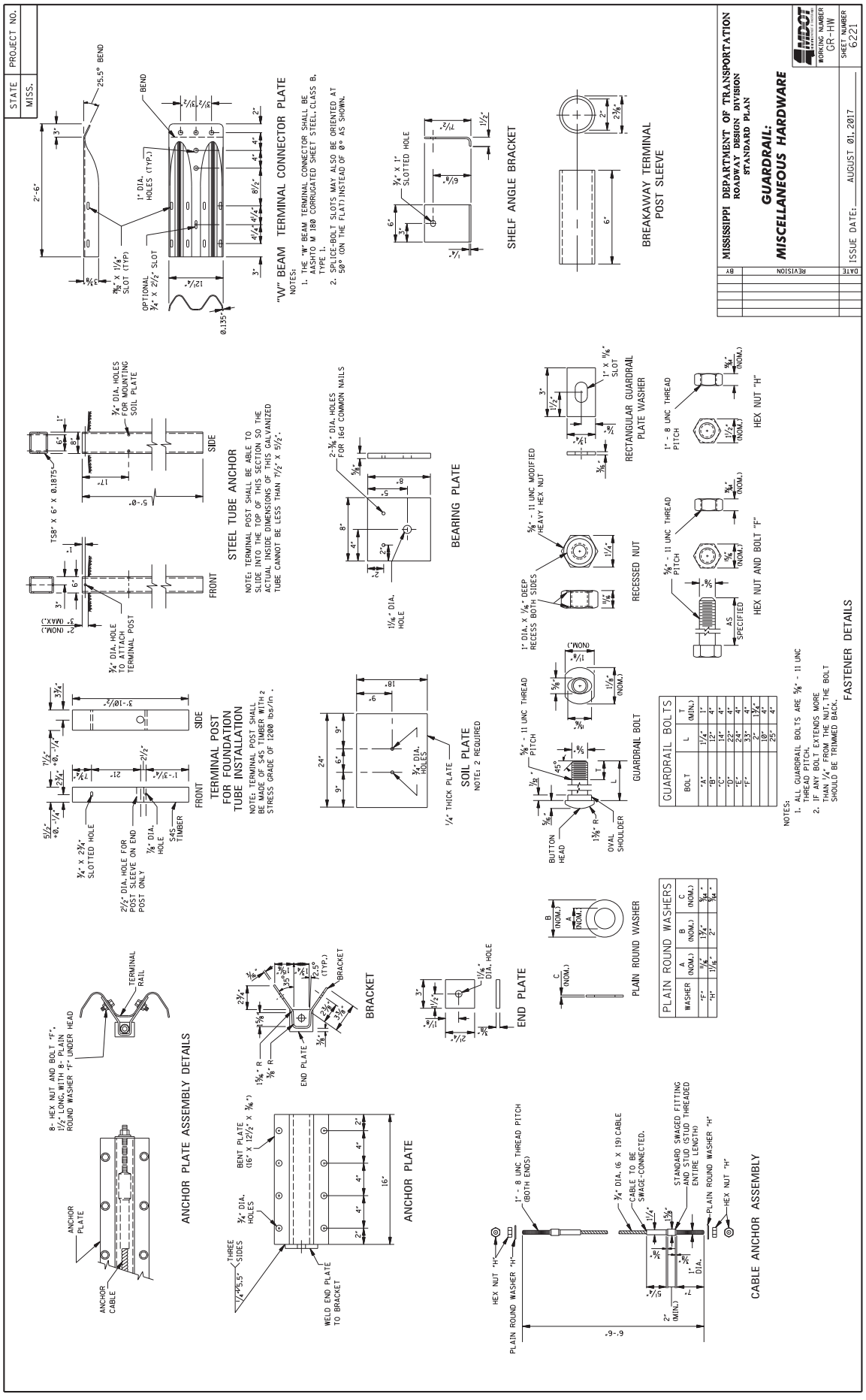

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
TYPICAL INSTALLATION AT BRIDGE APPROACHES FOR DIVIDED HIGHWAYS
WORKING NUMBER GR-4
SHEET NUMBER 6214
ISSUE DATE: MAY 01, 2017
DATE
REVISION
BY
** NOTE: IF FORESLOPE, SHOWN ELSEWHERE ON PLANS, IS OTHER THAN 6:1, TRANSITION WILL OCCUR IN AREA SHOWN.
SECTION A–A
SECTION B–B
VARIES
NORMAL SHOULDER SLOPE
ETL
"W"
AS SHOWN ON PLANS
GENERAL NOTES:
1. VALUES FOR "A" AND "B" WILL BE SHOWN ELSEWHERE ON THE PLANS.
2. FOR DETAILS PERTINENT TO INSTALLATION OF THE TERMINAL SECTION, SEE MANUFACTURER'S SPECIFICATIONS AND DRAWINGS OR ELSEWHERE ON PLANS
3. GUARDRAIL SECTIONS ARE TO BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW NEAREST THE GUARDRAIL FACE.
4. THE OVERALL LENGTH OF GUARDRAIL IS MEASURED FROM THE CONNECTING END ON THE BRIDGE.
5. IN THE ABSENCE OF A BRIDGE END PAVEMENT RAIL CONNECT THE BRIDGE END SECTION TO THE BRIDGE RAIL SECTIONS (SEE SHEETS GR-2 THRU GR-3). THE SHOULDER WIDTH AT THE BRIDGE END PAVEMENT RAIL OR BRIDGE END RAIL SHALL BE SUFFICIENTLY WIDE TO PROVIDE A MINIMUM OF 2'-6" BEHIND THE BACK OF POST BEFORE THE SLOPE BREAK (HINGEPOINT).
6. TYPE DETAILS AND LIMITS OF GUARDRAIL BRIDGE END SECTION WILL BE SHOWN ELSEWHERE ON THE PLANS.
7. "W" = SHOULDER WIDTH + FORESLOPE WIDTH. DIMENSIONS FOUND ELSEWHERE ON THE PLANS.
8. FOR DIVIDED HIGHWAYS WITH THREE (3) OR MORE LANES IN ONE DIRECTION, THE MEDIAN BARRIER MAY REQUIRE A TAPER RATE OTHER THAN 25:1.
** VARIABLE
150' MINIMUM TRANSITION
NORMAL SHOULDER
ETL
20:1 SLOPE RELATIVE TO LONGITUDINAL GRADIENT FOR HIGHWAY CENTERLINE
MEDIAN BARRIER TERMINAL AS SHOWN ELSEWHERE ON PLANS
TERMINAL SECTION
37'-6" TYPICAL
75'
NORMAL GUARDRAIL INSTALLATION
30:1 TAPER
GUARDRAIL FACE ALINEMENT ON BRIDGE
TYPE I END SECTION
25:1 TAPER
DOUBLE-FACED GUARDRAIL
NORMAL GUARDRAIL INSTALLATION
25'-0"
12'-6"
18'-3½"
BR. END SECTION
TANGENT
2'-0"
BRIDGE END PAVEMENT
BRIDGE
SEE NOTE 5
BRIDGE END PAVT RAIL
DIVIDED HIGHWAY WITH BARRIER INSIDE CLEAR ZONE OF OPPOSING TRAFFIC
* NOTE: THE 25' LINE IS USED TO DETERMINE THE LIMITS OF MEDIAN BARRIER AS SHOWN.
DIVIDED HIGHWAY WITH BARRIER OUTSIDE CLEAR ZONE OF OPPOSING TRAFFIC

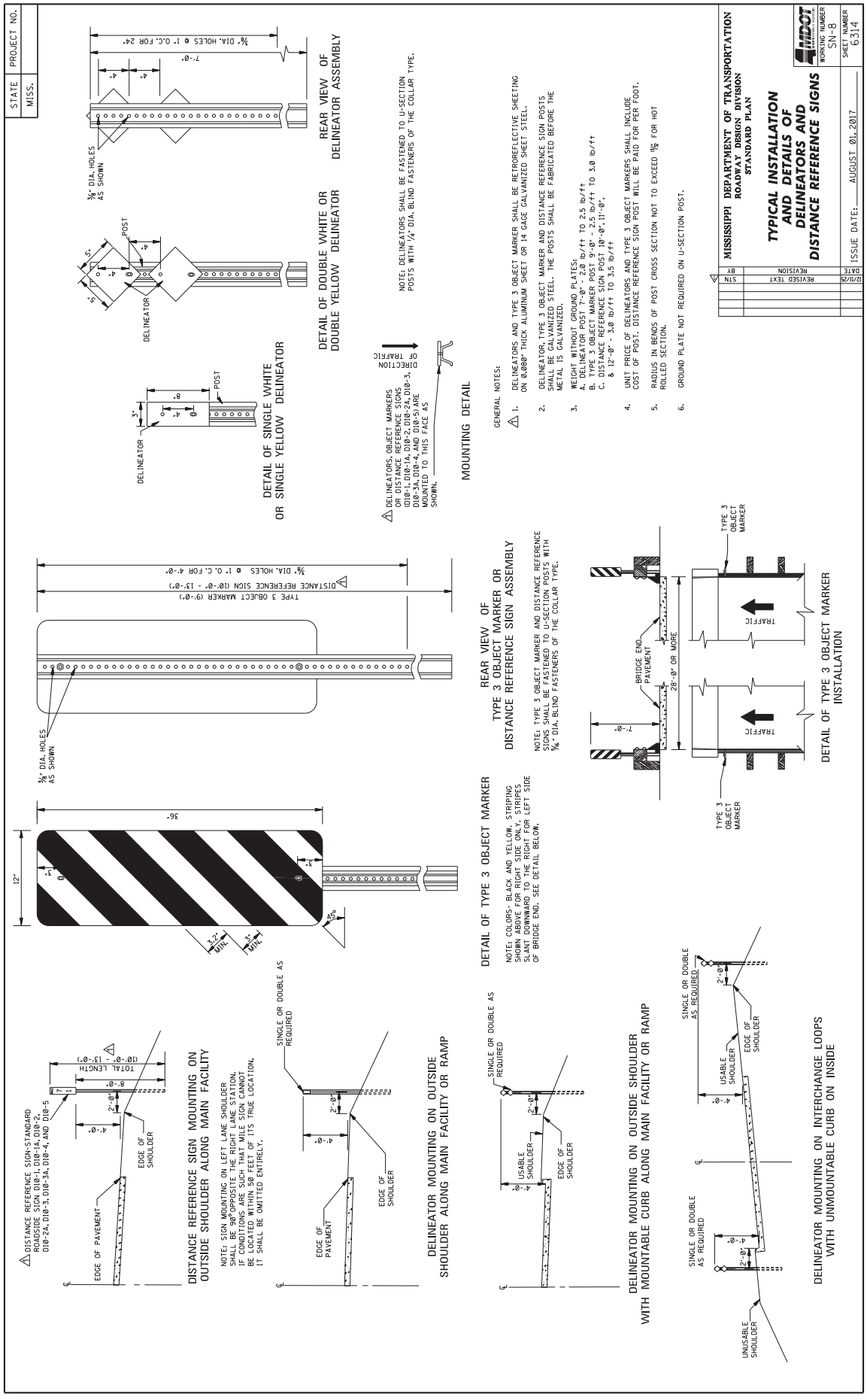

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
TYPICAL INSTALLATION
AT BRIDGE APPROACHES
FOR 2-LANE 2-WAY
HIGHWAY
WORKING NUMBER GR-4A
SHEET NUMBER 6215
ISSUE DATE: MAY 01, 2017
BY REVISION DATE
* NOTE: IF FORESLOPE SHOWN ELSEWHERE ON PLANS, IS OTHER THAN 6:1, TRANSITION WILL OCCUR IN AREA SHOWN.
DETAIL OF GUARDRAIL SECTION LAPS
GENERAL NOTES:
1. VALUES FOR "A", "B", "C" AND "D" WILL BE SHOWN ELSEWHERE ON THE PLANS.
2. FOR DETAILS PERTINENT TO INSTALLATION OF THE TERMINAL SECTION, SEE MANUFACTURER'S SPECIFICATIONS AND DRAWINGS OR ELSEWHERE ON PLANS
3. GUARDRAIL SECTIONS ARE TO BE LAPPED IN THE DIRECTION OF TRAFFIC APPROACHING THE BRIDGE.
4. THE OVERALL LENGTH OF GUARDRAIL IS MEASURED FROM THE CONNECTING END ON THE BRIDGE.
5. IN THE ABSENCE OF A BRIDGE END PAVEMENT RAIL, CONNECT THE BRIDGE END SECTION TO THE BRIDGE RAIL (SEE MS-GR-2 THRU GR-5). THE SHOULDER WIDTH AT THE BRIDGE END PAVEMENT OR BRIDGE END RAIL SHALL BE EQUAL TO OR EXCEED A MINIMUM WIDTH OF 2'-6" BEHIND THE BACK OF POST BEFORE THE SLOPE BREAK (HINGEPOINT).
6. TYPE DETAILS AND LIMITS OF GUARDRAIL BRIDGE END SECTION WILL BE SHOWN ELSEWHERE ON THE PLANS.
7. "W" = SHOULDER WIDTH + FORESLOPE WIDTH. DIMENSIONS FOUND ELSEWHERE ON THE PLANS.
PLAN
SECTION A–A
SECTION B–B
"A"
"B"
"C"
"D"
"W"
* VARIABLE
150' MINIMUM TRANSITION
NORMAL GUARDRAIL INSTALLATION
TERMINAL SECTION
BRIDGE END SECTION
TANGENT
30:1 TAPER
37'-6" TYPICAL
75'
25'-0"
12'-6"
18'-1½"
GUARDRAIL FACE ALINEMENT ON BRIDGE
BRIDGE END PAVEMENT
BRIDGE
SEE NOTE 5
BRIDGE END PAVT' RAIL
20:1 SLOPE RELATIVE TO LONGITUDINAL GRADIENT FOR HIGHWAY CENTERLINE
NORMAL SHOULDER
ETL
VARIES
NORMAL SHOULDER SLOPE
AS SHOWN ON THE PLANS
6:1
3:1
2'-0"


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
TYPICAL INSTALLATION
FOR ROADSIDE HAZARDS
ON DIVIDED HIGHWAYS
WORKING NUMBER GR-4B
SHEET NUMBER 6216
ISSUE DATE: MAY 01, 2017
DATE
REVISION
BY
SECTION A–A
SECTION B–B
SECTION C–C
SECTION D–D
FOR OBSTACLES 5' TO 17' FROM NORMAL SHOULDER
SECTION D–D
FOR OBSTACLES 17' OR MORE FROM NORMAL SHOULDER
SECTION E–E
† NOTE: IF FORESLOPE, SHOWN ELSEWHERE ON PLANS, IS OTHER THAN 6:1, TRANSITION WILL OCCUR IN AREA SHOWN.
** NOTE: FOR STEEL POST AND MODIFIED WOOD BLOCKOUT, USE 6" x 8" WOOD POST AND BLOCKOUT, 23.25".
TYPICAL INSTALLATION FOR CULVERT
* NOTE: DISTANCE REQUIRED SHOWN ELSEWHERE ON PLANS.
TYPICAL INSTALLATION FOR ROADSIDE OBSTACLE ON SIDE SLOPE STEEPER THAN 10:1
* NOTE: DISTANCE REQUIRED SHOWN ELSEWHERE ON PLANS.
TYPICAL INSTALLATION FOR ROADSIDE OBSTACLE ON SIDE SLOPE 10:1 OR FLATTER
*NOTE: DISTANCE REQUIRED SHOWN ELSEWHERE ON PLANS.
DETAIL OF POST INSTALLATION WITH COVER
LESS THAN NORMAL POST LENGTH
GENERAL NOTES:
1. FOR DETAILS PERTINENT TO INSTALLATION OF THE TERMINAL SECTION, SEE MANUFACTURER'S SPECIFICATIONS AND DRAWINGS OR ELSEWHERE ON PLANS
2. GUARDRAIL SECTIONS TO BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW NEAREST THE GUARDRAIL FACE.
3. PAY LIMITS FOR NORMAL GUARDRAIL INSTALLATION WILL BE THE TOTAL LENGTH LESS THE LENGTHS OF END TERMINALS.
4. W = SHOULDER WIDTH + FORESLOPE WIDTH. DIMENSIONS FOUND ELSEWHERE ON THE PLANS.


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL: TYPICAL INSTALLATION FOR ROADSIDE HAZARDS ON 2-LANE, 2-WAY HIGHWAYS
WORKING NUMBER GR-4C
SHEET NUMBER 6217
ISSUE DATE: MAY 01, 2017
DATE
BY
REVISION
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D FOR OBSTACLES 5' TO 17' FROM NORMAL SHOULDER
SECTION D-D FOR OBSTACLES 17' OR MORE FROM NORMAL SHOULDER
SECTION E-E
** NOTE: FOR STEEL POST AND MODIFIED WOOD BLOCKOUT, USE 12" POWDER POST BLOCKOUT AND WOOD BLOCKOUT, 23.25".
† NOTE: IF FORESLOPE SHOWN ELSEWHERE ON PLANS IS OTHER THAN 6:1, TRANSITION WIL. OCCUR IN AREA SHOWN.
TYPICAL INSTALLATION FOR CULVERT
* NOTE: DISTANCE REQUIRED SHOWN ELSEWHERE ON PLANS.
TYPICAL INSTALLATION FOR ROADSIDE OBSTACLE ON SIDE SLOPE STEEPER THAN 10:1
* NOTE: DISTANCE REQUIRED SHOWN ELSEWHERE ON PLANS.
TYPICAL INSTALLATION FOR ROADSIDE OBSTACLE ON SIDE SLOPE 10:1 OR FLATTER
* NOTE: DISTANCE REQUIRED SHOWN ELSEWHERE ON PLANS.
THE POST SHALL BE WRAPPED WITH ONE LAYER OF 1/4" THICK EXPANDED POLYSTYRENE FOAM SHEETING AND ONE WRAP OF LIGHTWEIGHT BUILDING PAPER. THE TOP 1' SHALL BE FILLED WITH BUTYL RUBBER CAULKING (COMMERCIAL GRADE) OR OTHER APPROVED WATERPROOFING MATERIAL.
TOP OF NEW BOX CULVERT OR BRIDGE FOOTING.
TOP OF EXISTING BOX CULVERT OR BRIDGE FOOTING.
1/2" DOWEL BARS 12" LONG 4 REQUIRED PER POST. NO SPECIAL EQUIPMENT WILL BE MADE FOR CONCRETE OR DOWELS.
DETAIL OF POST INSTALLATION WITH COVER LESS THAN NORMAL POST LENGTH
GENERAL NOTES:
1. FOR DETAILS PERTINENT TO INSTALLATION OF THE TERMINAL SECTION, SEE MANUFACTURER'S SPECIFICATIONS AND DRAWINGS OR ELSEWHERE ON PLANS
2. GUARDRAIL SECTIONS TO BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW NEAREST THE GUARDRAIL FACE.
3. PAY LIMITS FOR NORMAL GUARDRAIL INSTALLATION WILL BE THE TOTAL LENGTH LESS THE LENGTHS OF END TERMINALS.
4. W = SHOULDER WIDTH + FORESLOPE WIDTH, DIMENSIONS FOUND ELSEWHERE ON THE PLANS.


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
RUB RAIL HARDWARE
WORKING NUMBER GR-RR
SHEET NUMBER 6218
ISSUE DATE: AUGUST 01, 2017
BY REVISION DATE
GENERAL NOTES:
1. POSTS 1 THROUGH 9 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS. STEEL POST REQUIRE 2 HOLES ON EITHER SIDE OF THE POST.
2. RUBRAIL BLOCKOUTS SHALL BE SECURED WITH ⅝" BUTTONHEAD BOLT FOR STEEL POST AND 20" BOLT FOR WOOD POST. (SEE PROFILE VIEW FOR LENGTHS)
3. RUBRAIL & LONG BLOCKOUT (POST 9) ARE NOT REQUIRED IN CURB & GUTTER SECTIONS OF ROADWAY.
4. ATTACH RUBRAIL CONNECTOR PLATE AND RUBRAIL WITH ⅝" X 1½" HEX HEAD BOLTS "F"
BLOCKOUT FOR POST 9 OF TYPE "1" BRIDGE END SECTION
6" X 12" WOOD BLOCKOUT
6" X 12" MODIFIED WOOD BLOCKOUT
PLAN
ELEVATION FOR WOOD POST
ELEVATION FOR STEEL POST
¾" DIA. (TYP.)
CROSS-SECTION VIEW OF C6 x 8.2
1.875"
PROFILE VIEW OF POSTS
6" x 12" MODIFIED WOOD BLOCKOUT, 29½" LONG
#6 x 9 STEEL POST, 6'-6" LONG
GUARDRAIL BOLT "C" WITH RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD AND PLAIN ROUND WASHER "F" UNDER RECESSED NUT.
C6 x 8.2
10½ SLOPE OR FLATTER
GUARDRAIL BOLT (15") WITH RECTANGULAR GUARDRAIL PLATE WASHER UNDER HEAD AND PLAIN ROUND WASHER "F" UNDER RECESSED NUT.
* NOTE: UNLESS SPECIFIED OTHERWISE ON THE PLANS.
STEEL POST
RECESSED NUT WITH PLAIN ROUND WASHER "F"
GUARDRAIL BOLT (25") NO WASHER.
6" X 12" WOOD BLOCKOUT, 29½" LONG
10" X 10" WOOD POST, 6'-0" LONG
WOOD POST
DRILL ¾" DIA. HOLE (TYP.)
POST BOLT SLOTS ¾" x 2½" (TYP.)
LONGITUDINAL RUB RAIL
¾" DIA HOLE FOR ⅝" DIA. LAG SCREW OR BOLT
6.25" (MEASURED ALONG RUB RAIL)
DIAGONAL RUB RAIL
RUB RAIL CONNECTOR BRACKET
¾" DIAMETER
16° BEND
¾" x 1½" SLOTS
"L" BRACKET
PLAIN ROUND WASHER "F"
HEX NUT AND BOLT "F"
¾" - 11 UNC THREAD PITCH
AS SPECIFIED
AS NOTED
25" OR 15" GUARDRAIL BOLT
BUTTON HEAD
OVAL SHOULDER


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
GUARDRAIL:
MISCELLANEOUS HARDWARE
WORKING NUMBER GR-HW
SHEET NUMBER 6221
ISSUE DATE: AUGUST 01, 2017
REVISION
DATE
BY
"W" BEAM TERMINAL CONNECTOR PLATE
NOTES:
1. THE "W" BEAM TERMINAL CONNECTOR SHALL BE AASHTO M 180 CORRUGATED SHEET STEEL, CLASS B, TYPE 1.
2. SPLICE-BOLT SLOTS MAY ALSO BE ORIENTED AT 50° (ON THE FLAT) INSTEAD OF 0° AS SHOWN.
SHELF ANGLE BRACKET
BREAKAWAY TERMINAL POST SLEEVE
STEEL TUBE ANCHOR
NOTE: TERMINAL POST SHALL BE ABLE TO SLIDE INTO THE TOP OF THIS SECTION SO THE ACTUAL INSIDE DIMENSIONS OF THIS GALVANIZED TUBE CANNOT BE LESS THAN 7½" X 5½".
TERMINAL POST FOR FOUNDATION TUBE INSTALLATION
NOTE: TERMINAL POST SHALL BE MADE OF S4S TIMBER WITH A STRESS GRADE OF 1200 lbs/in.²
BEARING PLATE
SOIL PLATE
NOTE: 2 REQUIRED
RECESSED NUT
RECTANGULAR GUARDRAIL PLATE WASHER
HEX NUT "H"
HEX NUT AND BOLT "F"
GUARDRAIL BOLT
GUARDRAIL BOLTS
BOLT | L | T (MIN.)
"A" | 1¼" | 1"
"B" | 12" | 4"
"C" | 14" | 4"
"D" | 22" | 4"
"E" | 24" | 4"
"F" | 33" | 4"
"G" | 2' | 1¾"
"H" | 10' | 4"
"I" | 25' | 4"
NOTES:
1. ALL GUARDRAIL BOLTS ARE ⅝" - 11 UNC THREAD PITCH.
2. IF ANY BOLT EXTENDS MORE THAN ¼" FROM THE NUT, THE BOLT SHOULD BE TRIMMED BACK.
FASTENER DETAILS
PLAIN ROUND WASHER
PLAIN ROUND WASHERS
WASHER | A (NOM.) | B (NOM.) | C (NOM.)
"F" | ¾" | 1¾" | ⅝"
"H" | 1⅛" | 2" | ¾"
ANCHOR PLATE ASSEMBLY DETAILS
8- HEX NUT AND BOLT "F", 1½" LONG, WITH 8- PLAIN ROUND WASHER "F" UNDER HEAD
TERMINAL RAIL
ANCHOR PLATE
ANCHOR CABLE
BRACKET
BENT PLATE (16" X 12½" X ⅜")
WELD END PLATE TO BRACKET
ANCHOR PLATE
END PLATE
CABLE ANCHOR ASSEMBLY
HEX NUT "H"
PLAIN ROUND WASHER "H"
1" - 8 UNC THREAD PITCH (BOTH ENDS)
¾" DIA. (6 X 19) CABLE
CABLE TO BE SWAGE-CONNECTED.
STANDARD SWAGED FITTING AND STUD (STUD THREADED ENTIRE LENGTH)
6'-9"


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TYPICAL INSTALLATION AND DETAILS OF DELINEATORS AND DISTANCE REFERENCE SIGNS
WORKING NUMBER SN-8
SHEET NUMBER 6314
ISSUE DATE: AUGUST 01, 2017
REVISION DATE BY
REVISED TEXT 12/1/25 STN
GENERAL NOTES:
1. DELINEATORS AND TYPE 3 OBJECT MARKER SHALL BE RETROREFLECTIVE SHEETING ON 0.080" THICK ALUMINUM SHEET OR 14 GAGE GALVANIZED SHEET STEEL.
2. DELINEATOR, TYPE 3 OBJECT MARKER AND DISTANCE REFERENCE SIGN POSTS SHALL BE GALVANIZED STEEL. THE POSTS SHALL BE FABRICATED BEFORE THE METAL IS GALVANIZED.
3. WEIGHT WITHOUT GROUND PLATES:
A. DELINEATOR POST 7'-0" - 2.0 lb/ft TO 2.5 lb/ft
B. TYPE 3 OBJECT MARKER POST 9'-0" - 2.5 lb/ft TO 3.0 lb/ft
C. DISTANCE REFERENCE SIGN POST 10'-0",11'-0", & 12'-0" - 3.0 lb/ft TO 3.5 lb/ft
4. UNIT PRICE OF DELINEATORS AND TYPE 3 OBJECT MARKERS SHALL INCLUDE COST OF POST. DISTANCE REFERENCE SIGN POST WILL BE PAID FOR PER FOOT.
5. RADIUS IN BENDS OF POST CROSS SECTION NOT TO EXCEED 5/8 FOR HOT ROLLED SECTION.
6. GROUND PLATE NOT REQUIRED ON U-SECTION POST.
NOTE: DELINEATORS SHALL BE FASTENED TO U-SECTION POSTS WITH 1/4" DIA. BLIND FASTENERS OF THE COLLAR TYPE.
REAR VIEW OF DELINEATOR ASSEMBLY
DETAIL OF DOUBLE WHITE OR DOUBLE YELLOW DELINEATOR
DETAIL OF SINGLE WHITE OR SINGLE YELLOW DELINEATOR
MOUNTING DETAIL
DELINEATORS, OBJECT MARKERS OR DISTANCE REFERENCE SIGNS (D10-1, D10-1A, D10-2, D10-2A, D10-3, D10-3A, D10-4, AND D10-5) ARE MOUNTED TO THIS FACE AS SHOWN.
DIRECTION OF TRAFFIC
REAR VIEW OF TYPE 3 OBJECT MARKER OR DISTANCE REFERENCE SIGN ASSEMBLY
NOTE: TYPE 3 OBJECT MARKER AND DISTANCE REFERENCE SIGNS SHALL BE FASTENED TO U-SECTION POSTS WITH 5/16" DIA. BLIND FASTENERS OF THE COLLAR TYPE.
DETAIL OF TYPE 3 OBJECT MARKER
NOTE: COLORS- BLACK AND YELLOW. STRIPING SHOWN ABOVE FOR RIGHT SIDE ONLY. STRIPES SLANT DOWNWARD TO THE RIGHT FOR LEFT SIDE OF BRIDGE END. SEE DETAIL BELOW.
DETAIL OF TYPE 3 OBJECT MARKER INSTALLATION
DISTANCE REFERENCE SIGN MOUNTING ON OUTSIDE SHOULDER ALONG MAIN FACILITY
NOTE: SIGN MOUNTING ON LEFT LANE SHOULDER SHALL BE 180° OPPOSITE THE RIGHT LANE STATION. CONDITIONS ARE SUCH THAT A MILE SIGN CANNOT BE LOCATED WITHIN 500 FEET OF ITS TRUE LOCATION, IT SHALL BE OMITTED ENTIRELY.
DELINEATOR MOUNTING ON OUTSIDE SHOULDER ALONG MAIN FACILITY OR RAMP
DELINEATOR MOUNTING ON OUTSIDE SHOULDER ALONG MAIN FACILITY OR RAMP
DELINEATOR MOUNTING ON INTERCHANGE LOOPS WITH UNMOUNTABLE CURB ON INSIDE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 – NOTICE TO BIDDERS NO. 7624 **CODE: (SP)**

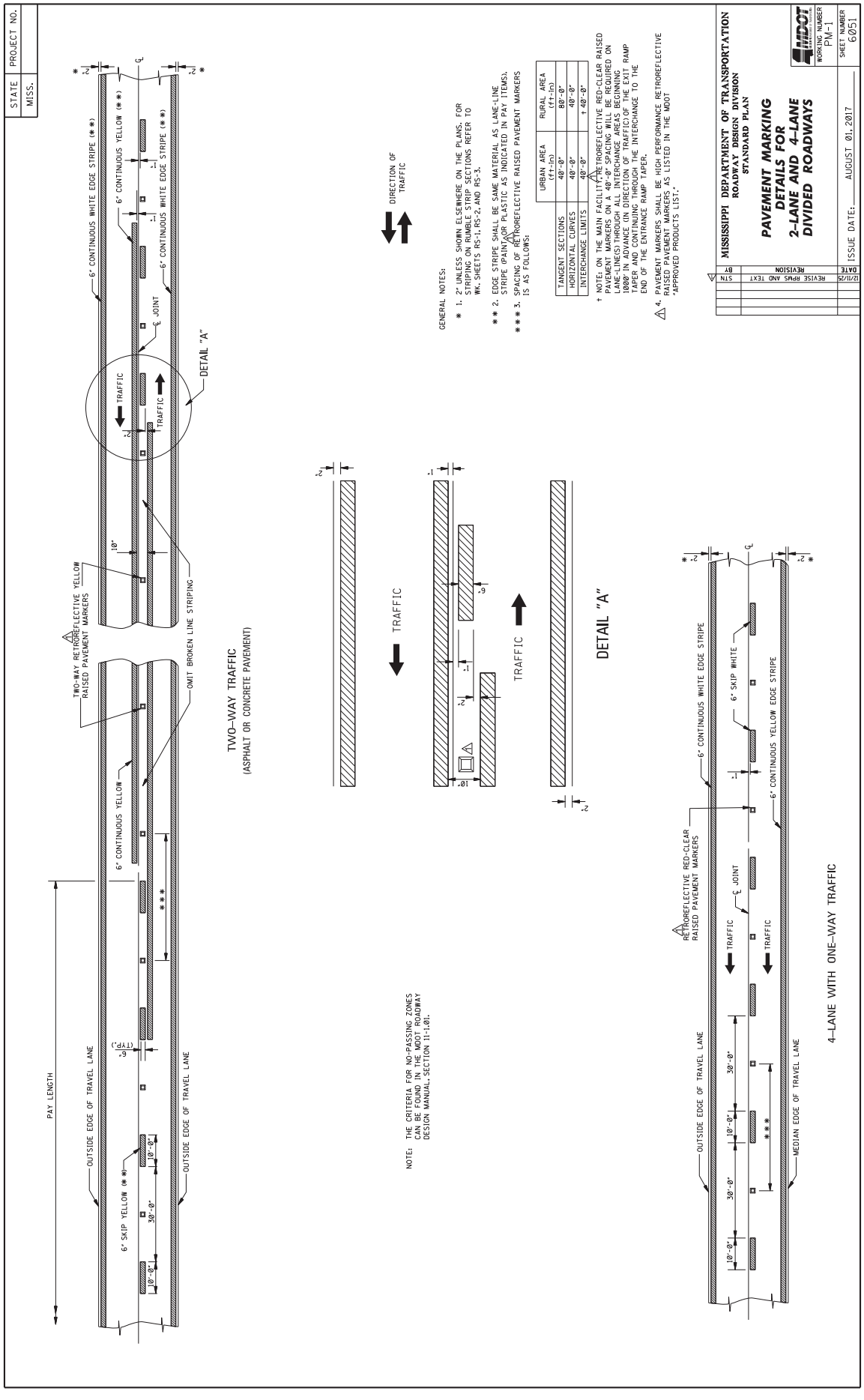
DATE: 01/20/2026

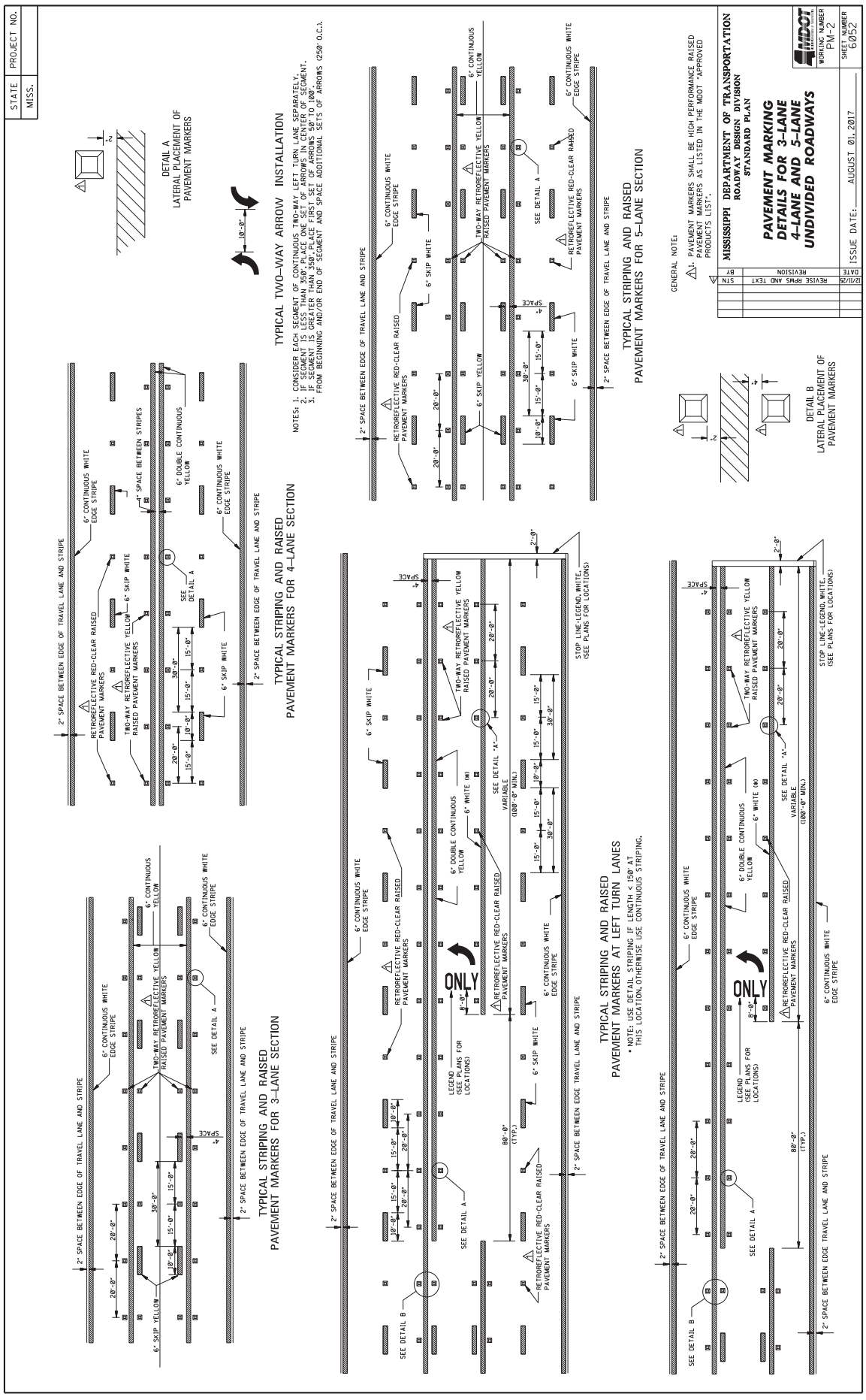
SUBJECT: Standard Drawings

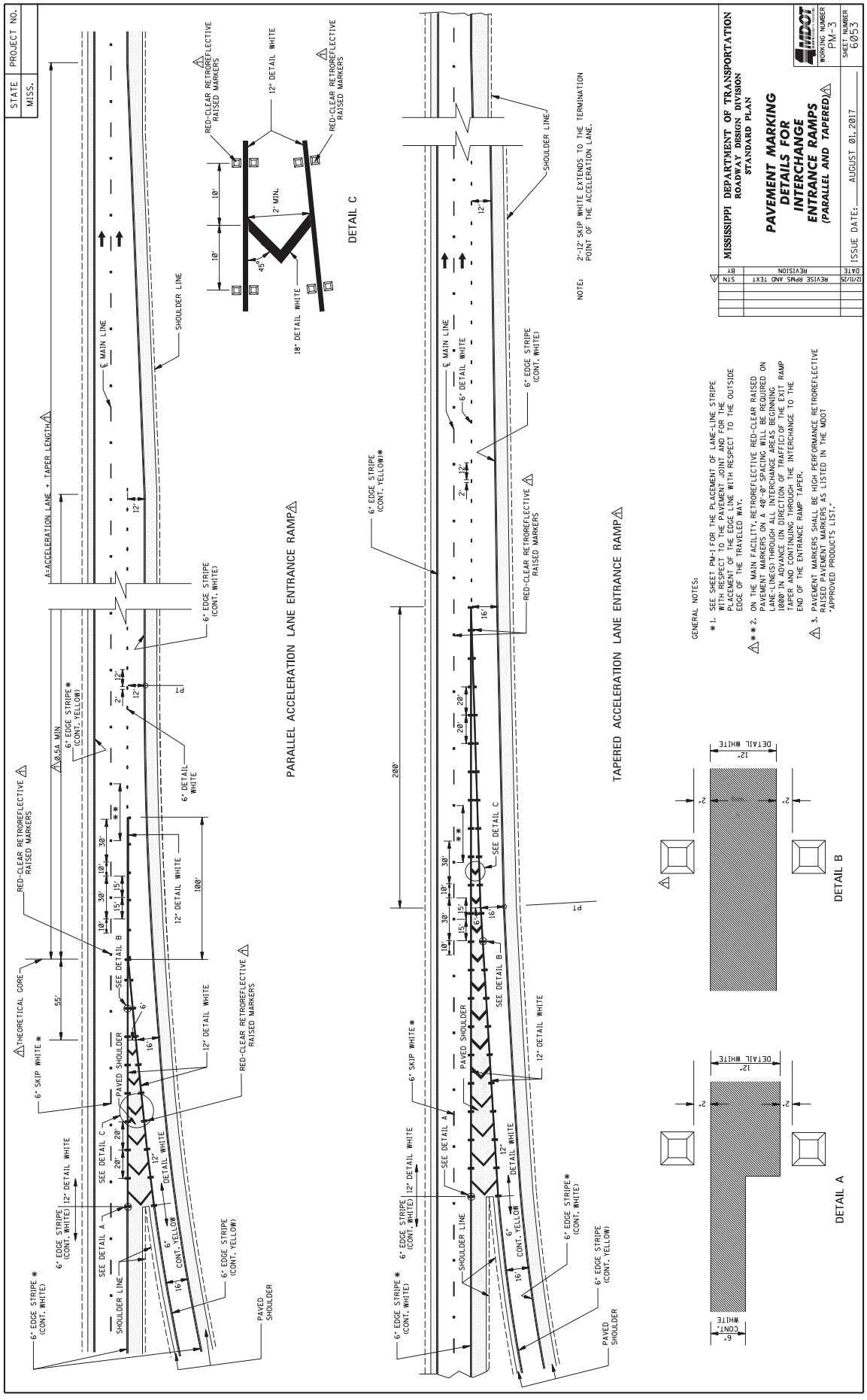
Standard Drawings attached hereto shall govern appropriate items of required work.

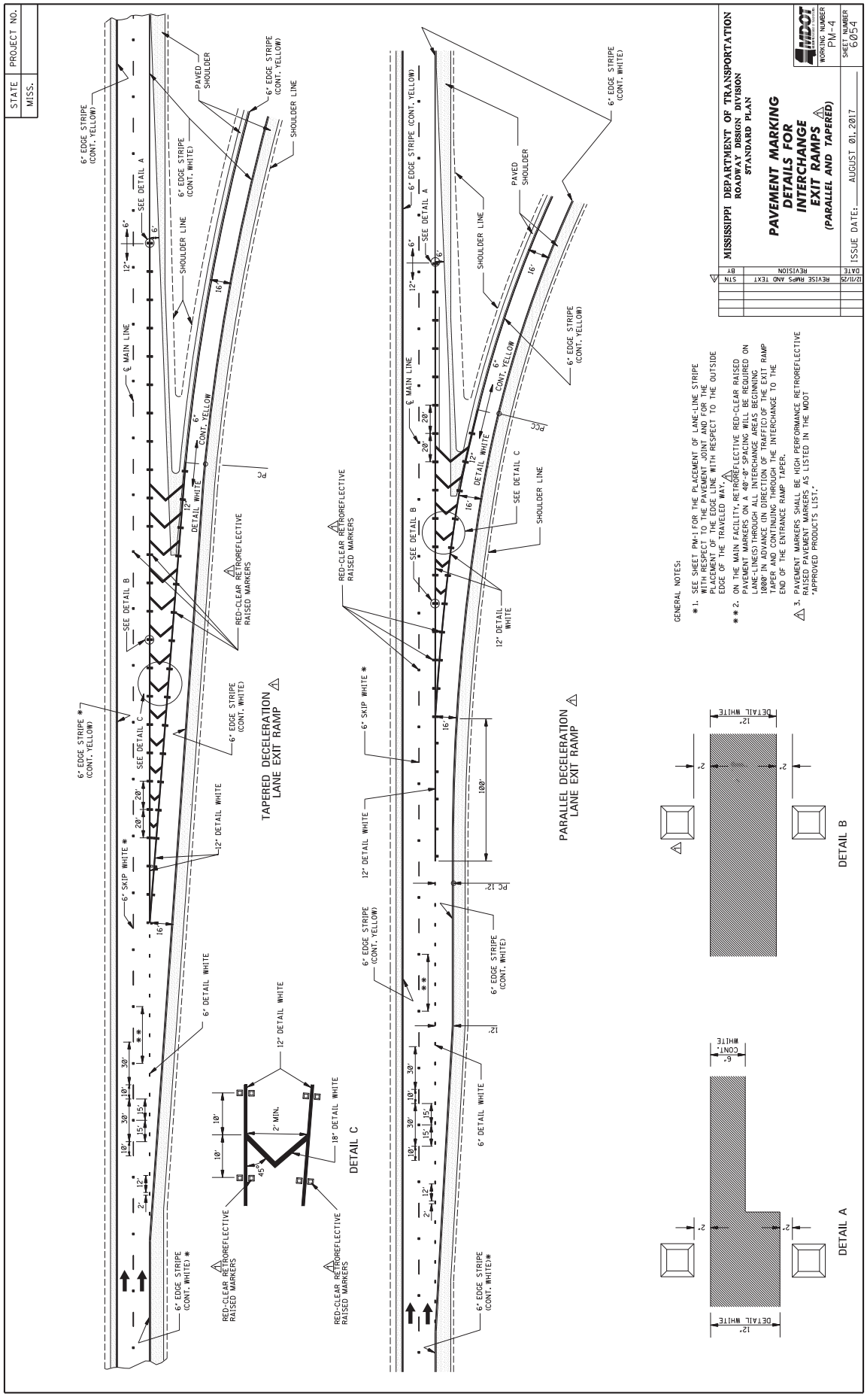
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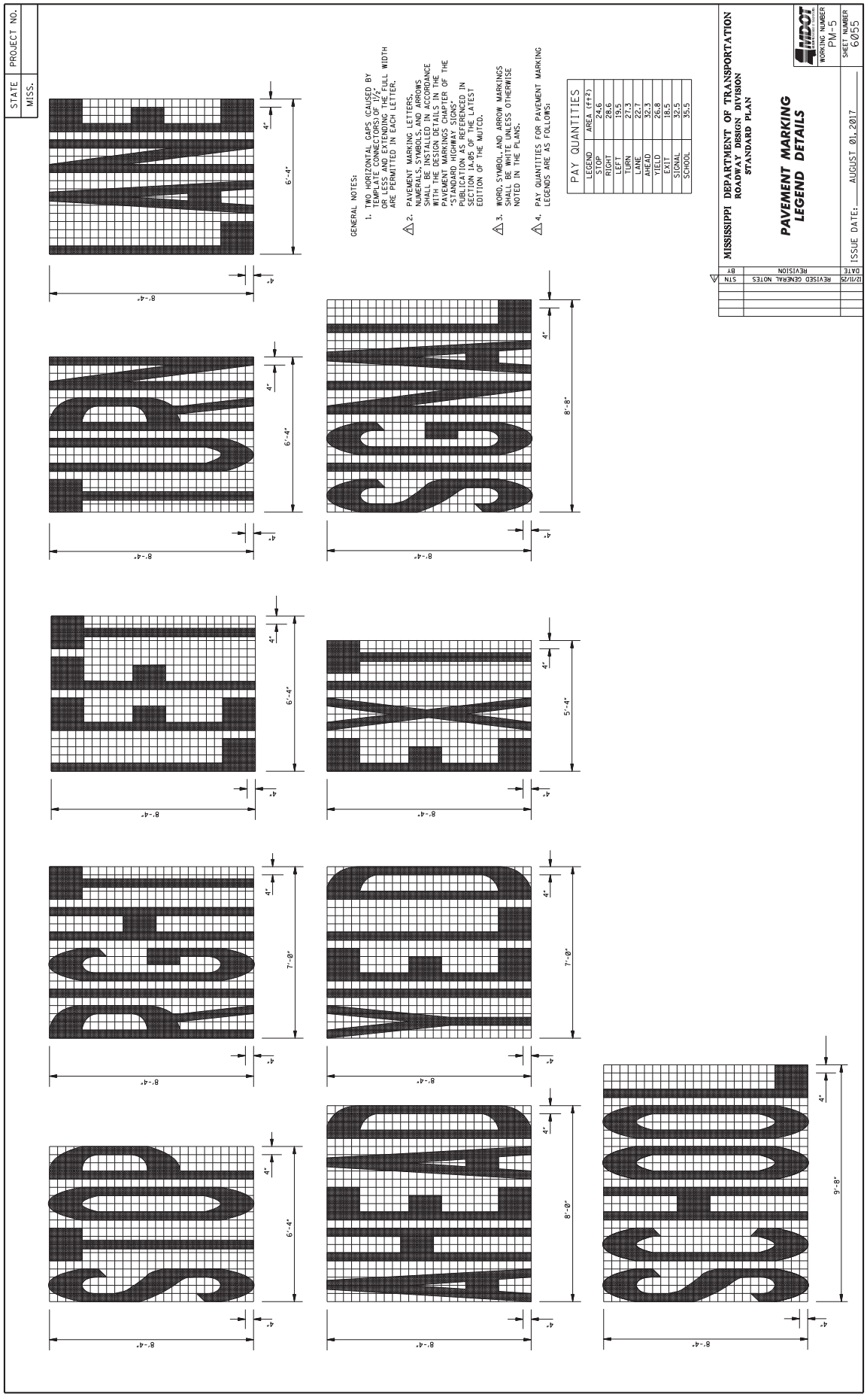
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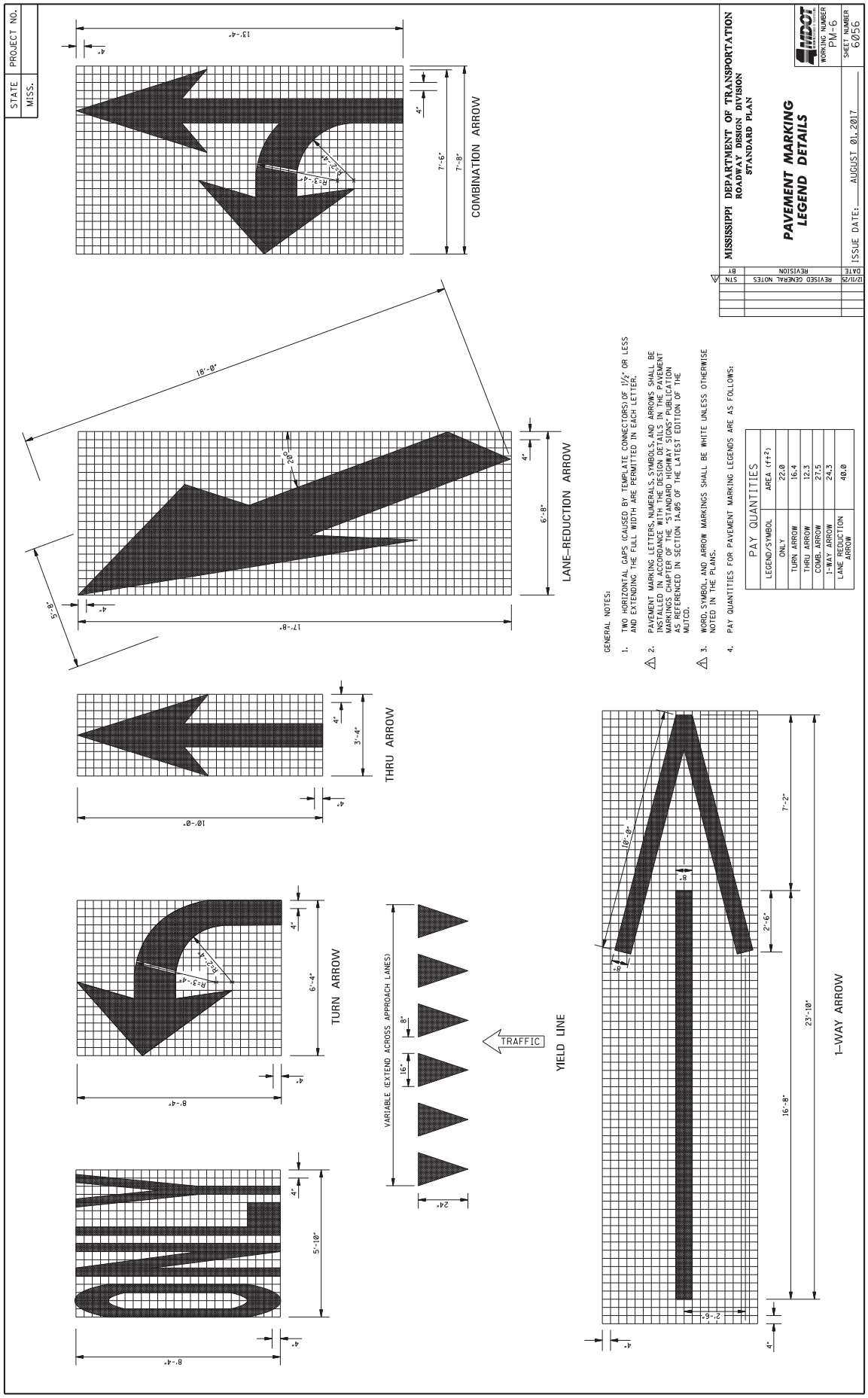

STATE MISS.
PROJECT NO.
PAY LENGTH
OUTSIDE EDGE OF TRAVEL LANE
6" SKIP YELLOW (* *)
6" CONTINUOUS YELLOW
6" CONTINUOUS WHITE EDGE STRIPE (* *)
6" CONTINUOUS YELLOW (* *)
6" CONTINUOUS WHITE EDGE STRIPE (* *)
TWO-WAY RETROREFLECTIVE YELLOW RAISED PAVEMENT MARKERS
OMIT BROKEN LINE STRIPING
DETAIL "A"
TRAFFIC
TWO-WAY TRAFFIC
(ASPHALT OR CONCRETE PAVEMENT)
DIRECTION OF TRAFFIC
GENERAL NOTES:
* 1. 2" UNLESS SHOWN ELSEWHERE ON THE PLANS. FOR STRIPING ON RUMBLE STRIP SECTIONS REFER TO WK. SHEETS RS-1, RS-2, AND RS-3.
** 2. EDGE STRIPE SHALL BE SAME MATERIAL AS LANE-LINE STRIPE (PAINT OR PLASTIC AS INDICATED IN PAY ITEMS).
*** 3. SPACING OF RETROREFLECTIVE RAISED PAVEMENT MARKERS IS AS FOLLOWS:
URBAN AREA (ft-in) / RURAL AREA (ft-in)
TANGENT SECTIONS 40'-0" / 80'-0"
HORIZONTAL CURVES 40'-0" / 40'-0"
INTERCHANGE LIMITS 40'-0" / † 40'-0"
† NOTE: ON THE MAIN FACILITY, RETROREFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS ON 40'-0" SPACING WILL BE REQUIRED ON LANE LINE(S) THROUGH ALL INTERCHANGE AREAS BEGINNING 1000' IN ADVANCE (IN DIRECTION OF TRAFFIC) OF THE EXIT RAMP TAPER AND CONTINUING THROUGH THE INTERCHANGE TO THE END OF THE ENTRANCE RAMP TAPER.
4. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RETROREFLECTIVE RAISED PAVEMENT MARKERS AS LISTED IN THE MDOT "APPROVED PRODUCTS LIST."
NOTE: THE CRITERIA FOR NO-PASSING ZONES CAN BE FOUND IN THE MDOT ROADWAY DESIGN MANUAL, SECTION 11-1.01.
DETAIL "A"
RETROREFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS
6" CONTINUOUS WHITE EDGE STRIPE
6" SKIP WHITE
6" CONTINUOUS YELLOW EDGE STRIPE
OUTSIDE EDGE OF TRAVEL LANE
MEDIAN EDGE OF TRAVEL LANE
4-LANE WITH ONE-WAY TRAFFIC
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING DETAILS FOR 2-LANE AND 4-LANE DIVIDED ROADWAYS
MDOT
WORKING NUMBER FM-1
SHEET NUMBER 605(1)
ISSUE DATE: AUGUST 01, 2017
STN BY REVISION DATE
12/11/23 REVISE RPMS AND TEXT

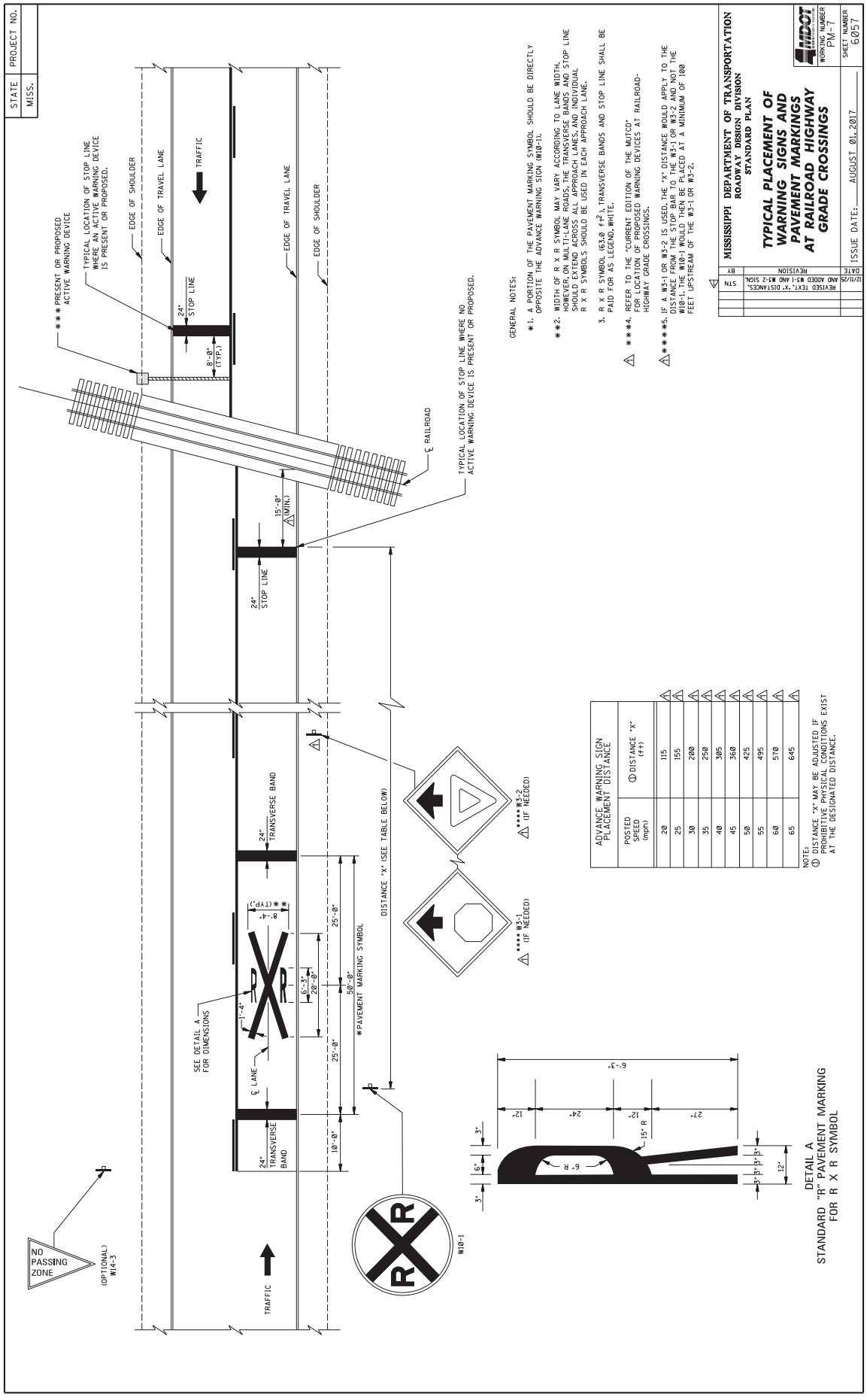

STATE
MISS.
PROJECT NO.
TYPICAL TWO-WAY ARROW INSTALLATION
NOTES: 1. CONSIDER EACH SEGMENT OF CONTINUOUS TWO-WAY LEFT TURN LANE SEPARATELY.
2. IF SEGMENT IS LESS THAN 350', PLACE ONE SET OF ARROWS IN EACH SEGMENT.
3. IF SEGMENT IS GREATER THAN 350', PLACE FIRST SET OF ARROWS 50' TO 100' FROM BEGINNING AND/OR END OF SEGMENT AND SPACE ADDITIONAL SETS OF ARROWS (250' O.C.).
DETAIL A
LATERAL PLACEMENT OF PAVEMENT MARKERS
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS FOR 4-LANE SECTION
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS FOR 3-LANE SECTION
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS AT LEFT TURN LANES
* NOTE: USE DETAIL STRIPING IF LENGTH < 150' AT THIS LOCATION, OTHERWISE USE CONTINUOUS STRIPING.
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS FOR 5-LANE SECTION
DETAIL B
LATERAL PLACEMENT OF PAVEMENT MARKERS
GENERAL NOTE:
1. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RAISED PAVEMENT MARKERS AS LISTED IN THE MDOT "APPROVED PRODUCTS LIST".
STN
DATE
REVISION
BY
12/11/20
REVISE RPMS AND TEXT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING DETAILS FOR 3-LANE 4-LANE AND 5-LANE UNDIVIDED ROADWAYS
ISSUE DATE: AUGUST 01, 2017
WORKING NUMBER PM-2
SHEET NUMBER 6052

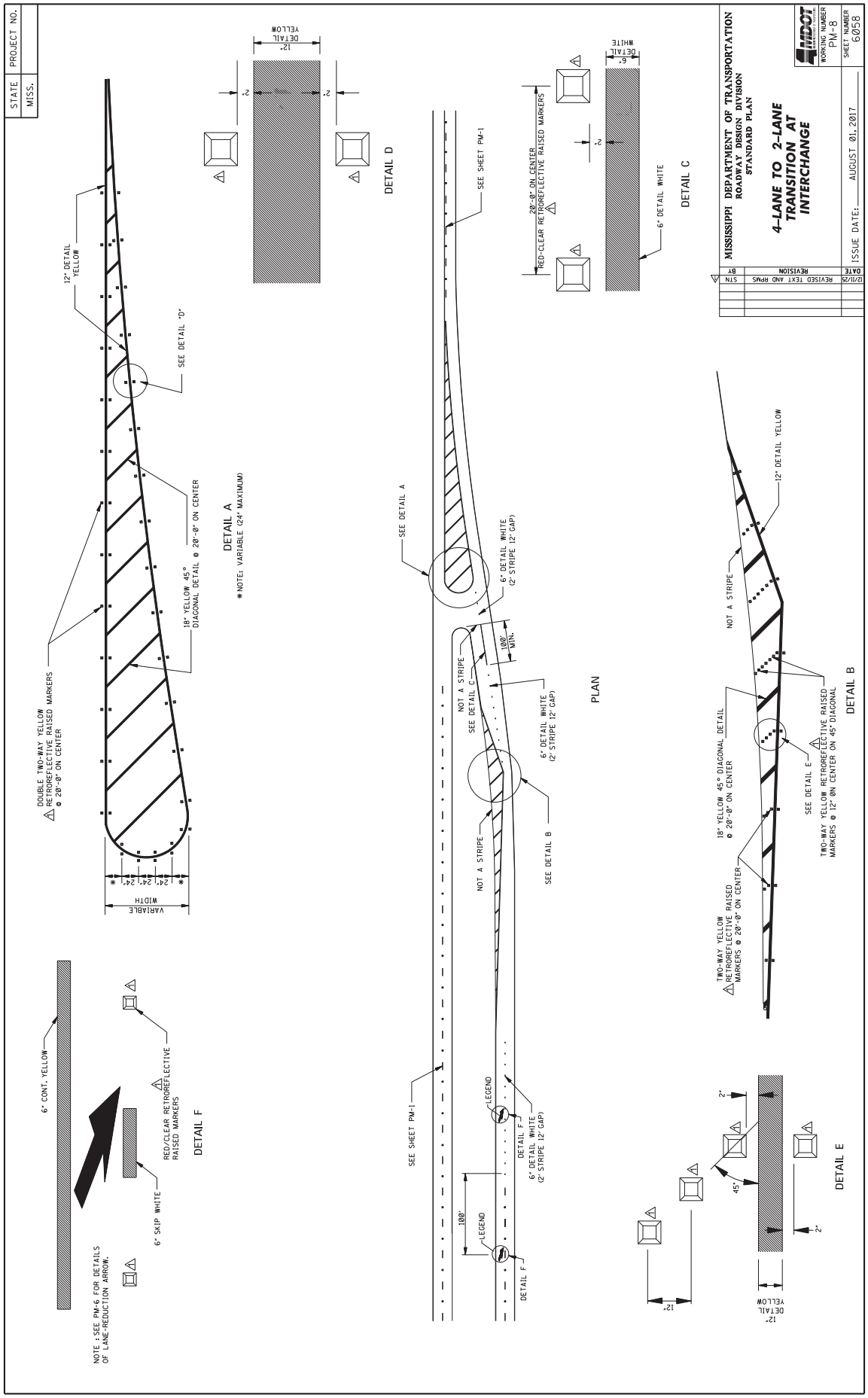

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING DETAILS FOR INTERCHANGE ENTRANCE RAMPS (PARALLEL AND TAPERED)
WORKING NUMBER PM-3
SHEET NUMBER 6053
ISSUE DATE: AUGUST 01, 2017
REVISE RPMS AND TEXT
PARALLEL ACCELERATION LANE ENTRANCE RAMP
TAPERED ACCELERATION LANE ENTRANCE RAMP
DETAIL A
DETAIL B
DETAIL C
GENERAL NOTES:
*1. SEE SHEET PM-1 FOR THE PLACEMENT OF LANE-LINE STRIPE WITH RESPECT TO THE PAVEMENT JOINT AND FOR THE PLACEMENT OF THE EDGE LINE WITH RESPECT TO THE OUTSIDE EDGE OF THE TRAVELED WAY.
**2. ON THE MAIN FACILITY, RETROREFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS ON A 40'-0" SPACING WILL BE REQUIRED ON LANE-LINE(S) THROUGH ALL INTERCHANGE AREAS BEGINNING 1000' IN ADVANCE (IN DIRECTION OF TRAFFIC) OF THE EXIT RAMP TAPER AND CONTINUING THROUGH THE INTERCHANGE TO THE END OF THE ENTRANCE RAMP TAPER.
3. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RETROREFLECTIVE RAISED PAVEMENT MARKERS AS LISTED IN THE MDOT "APPROVED PRODUCTS LIST."
NOTE: 2'-12' SKIP WHITE EXTENDS TO THE TERMINATION POINT OF THE ACCELERATION LANE.

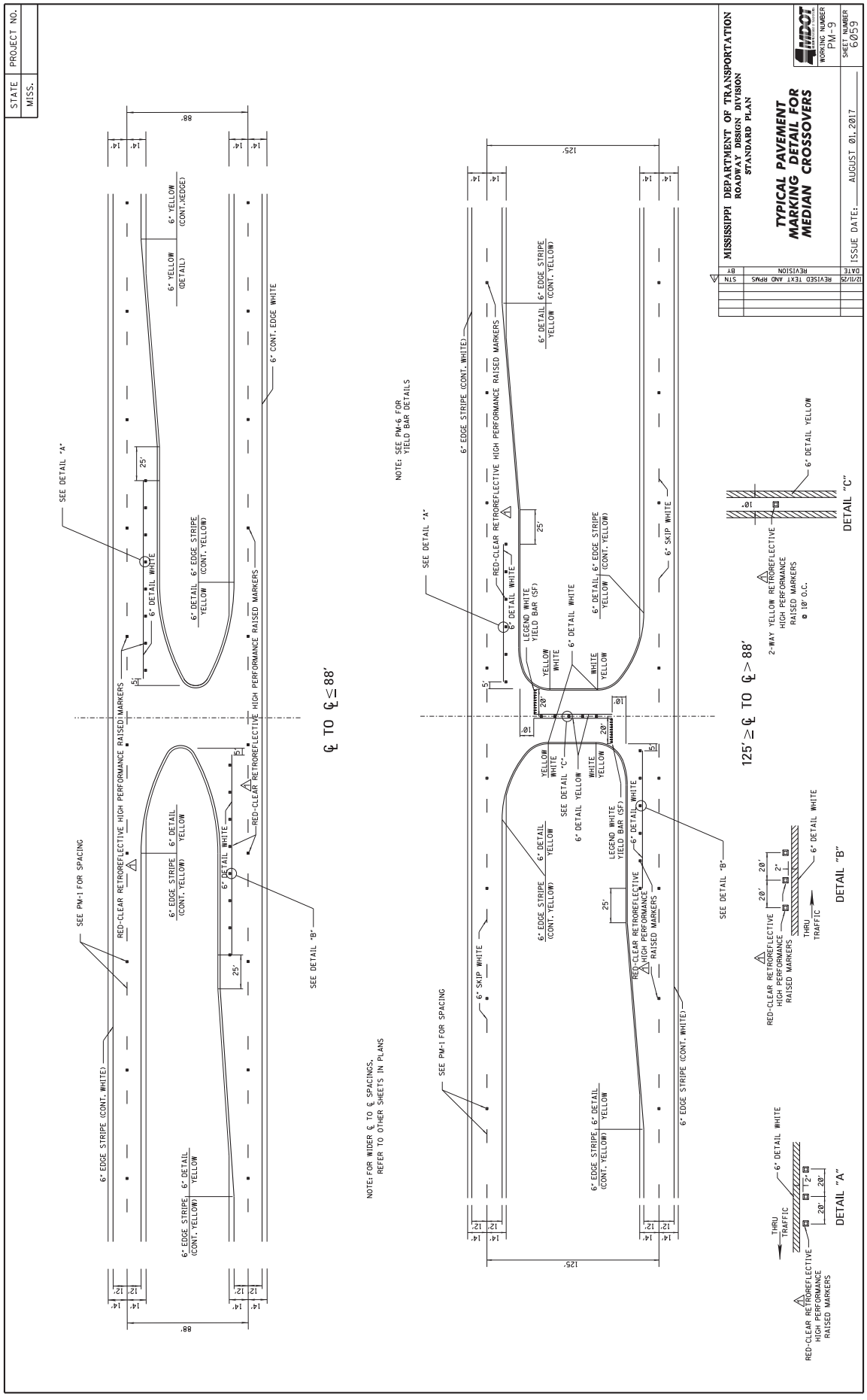

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING DETAILS FOR INTERCHANGE EXIT RAMPS
(PARALLEL AND TAPERED)
WORKING NUMBER PM-4
SHEET NUMBER 6054
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
12/1/23 REVISE RMPS AND TEXT STN
TAPERED DECELERATION LANE EXIT RAMP
PARALLEL DECELERATION LANE EXIT RAMP
DETAIL A
DETAIL B
DETAIL C
GENERAL NOTES:
* 1. SEE SHEET PM-1 FOR THE PLACEMENT OF LANE-LINE STRIPE WITH RESPECT TO THE PAVEMENT JOINT AND FOR THE PLACEMENT OF THE EDGE LINE WITH RESPECT TO THE OUTSIDE EDGE OF THE TRAVELED WAY.
* * 2. ON THE MAIN FACILITY, RETROREFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS ON A 40'-0" SPACING WILL BE REQUIRED ON LANE-LINE(S) THROUGH ALL INTERCHANGE AREAS BEGINNING 1000' IN ADVANCE (IN DIRECTION OF TRAFFIC) OF THE EXIT RAMP TAPER AND CONTINUING THROUGH THE INTERCHANGE TO THE END OF THE ENTRANCE RAMP TAPER.
3. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RETROREFLECTIVE RAISED PAVEMENT MARKERS AS LISTED IN THE MDOT "APPROVED PRODUCTS LIST."

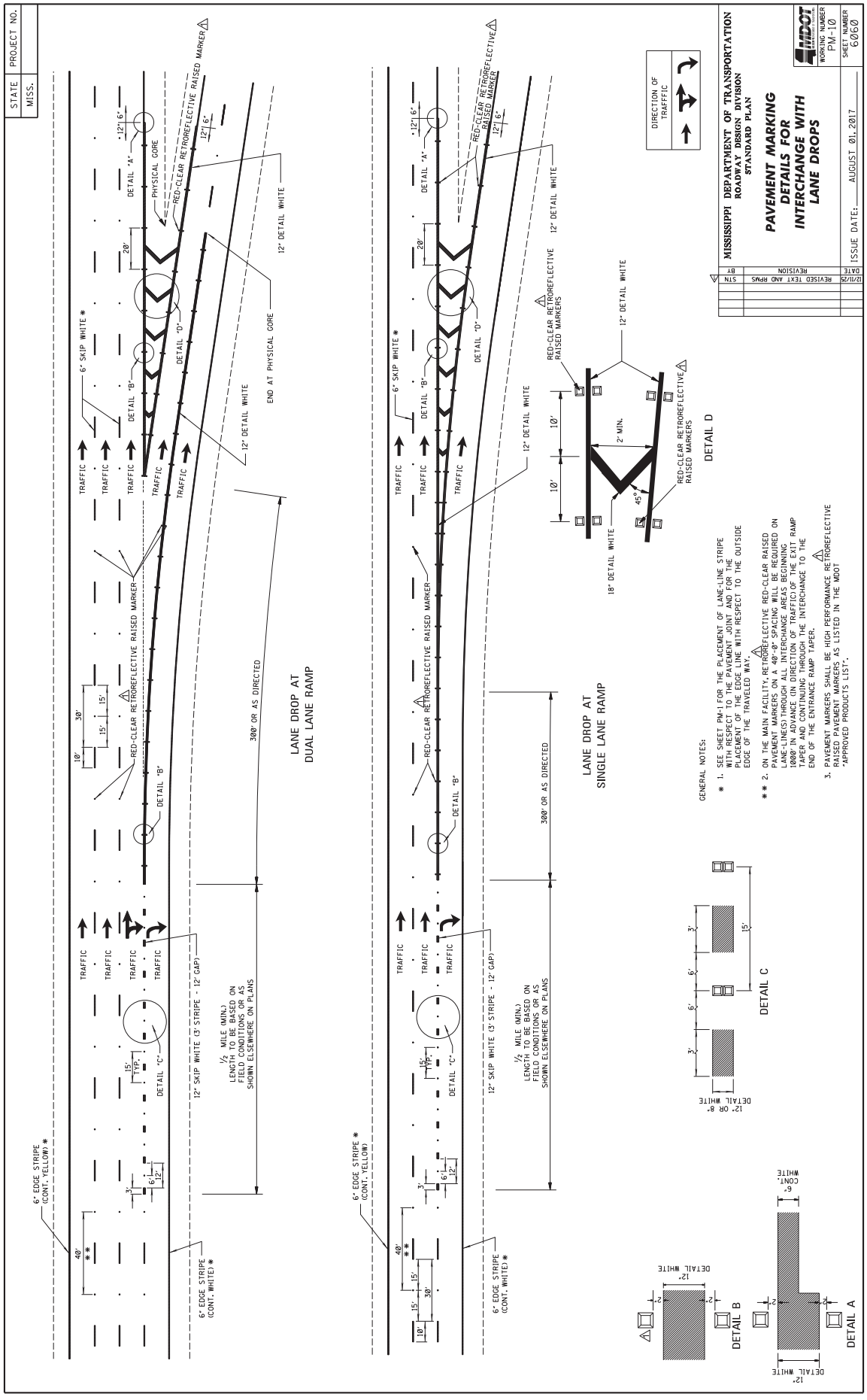

STATE MISS.
PROJECT NO.
GENERAL NOTES:
1. TWO HORIZONTAL GAPS (CAUSED BY TEMPLATE CONNECTORS) OF 1/2" OR LESS AND EXTENDING THE FULL WIDTH ARE PERMITTED IN EACH LETTER.
2. PAVEMENT MARKING LETTERS, NUMERALS, SYMBOLS, AND ARROWS SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN DETAILS IN THE PAVEMENT MARKINGS CHAPTER OF THE STANDARD HIGHWAY SIGNS PUBLICATION AS REFERENCED IN SECTION 1A.05 OF THE LATEST EDITION OF THE MUTCD.
3. WORD, SYMBOL, AND ARROW MARKINGS SHALL BE WHITE UNLESS OTHERWISE NOTED IN THE PLANS.
4. PAY QUANTITIES FOR PAVEMENT MARKING LEGENDS ARE AS FOLLOWS:
PAY QUANTITIES
LEGEND AREA (FT²)
STOP 24.6
RIGHT 28.6
LEFT 19.5
TURN 27.3
LANE 22.7
AHEAD 32.3
YIELD 26.8
EXIT 18.5
SIGNAL 32.5
SCHOOL 35.5
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING LEGEND DETAILS
WORKING NUMBER PM-5
SHEET NUMBER 6055
ISSUE DATE: AUGUST 01, 2017
DATE BY REVISION
12/1/23 STN REVISED GENERAL NOTES

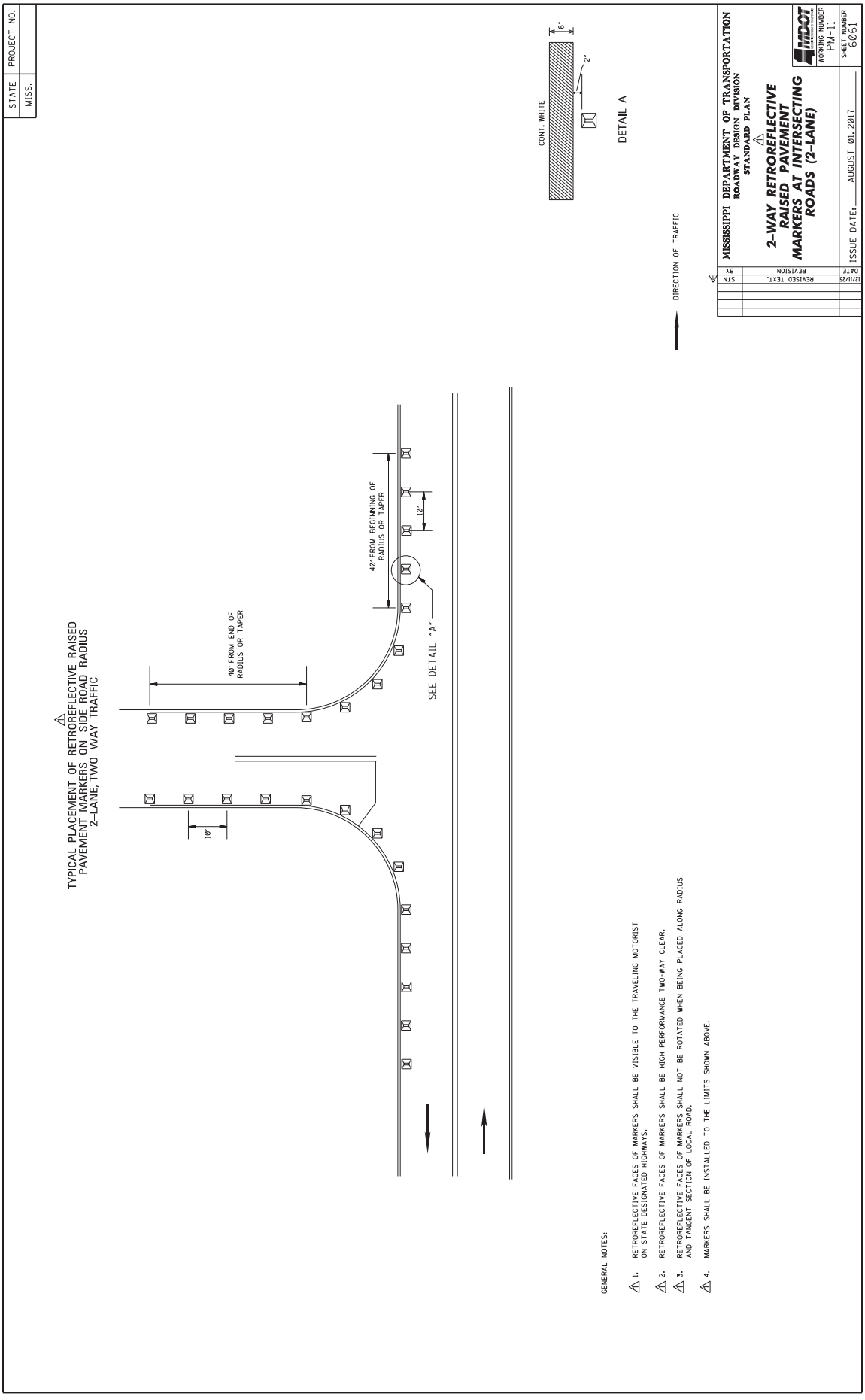

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING LEGEND DETAILS
WORKING NUMBER PM-6
SHEET NUMBER 6056
ISSUE DATE: AUGUST 01, 2017
REVISED GENERAL NOTES
12/11/20
REVISION
DATE
BY
STN
GENERAL NOTES:
1. TWO HORIZONTAL GAPS (CAUSED BY TEMPLATE CONNECTORS) OF 1½" OR LESS AND EXTENDING THE FULL WIDTH ARE PERMITTED IN EACH LETTER.
2. PAVEMENT MARKING LETTERS, NUMERALS, SYMBOLS, AND ARROWS SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN DETAILS IN THE PAVEMENT MARKINGS CHAPTER OF THE "STANDARD HIGHWAY SIGNS" PUBLICATION AS REFERENCED IN SECTION 1A.05 OF THE LATEST EDITION OF THE MUTCD.
3. WORD, SYMBOL AND ARROW MARKINGS SHALL BE WHITE UNLESS OTHERWISE NOTED IN THE PLANS.
4. PAY QUANTITIES FOR PAVEMENT MARKING LEGENDS ARE AS FOLLOWS:
PAY QUANTITIES
LEGEND/SYMBOL
AREA (ft²)
ONLY 22.0
TURN ARROW 16.4
THRU ARROW 12.3
COMB. ARROW 27.5
1-WAY ARROW 24.3
LANE REDUCTION ARROW 40.0
COMBINATION ARROW
LANE-REDUCTION ARROW
THRU ARROW
TURN ARROW
YIELD LINE
TRAFFIC
VARIABLE (EXTEND ACROSS APPROACH LANES)
1-WAY ARROW

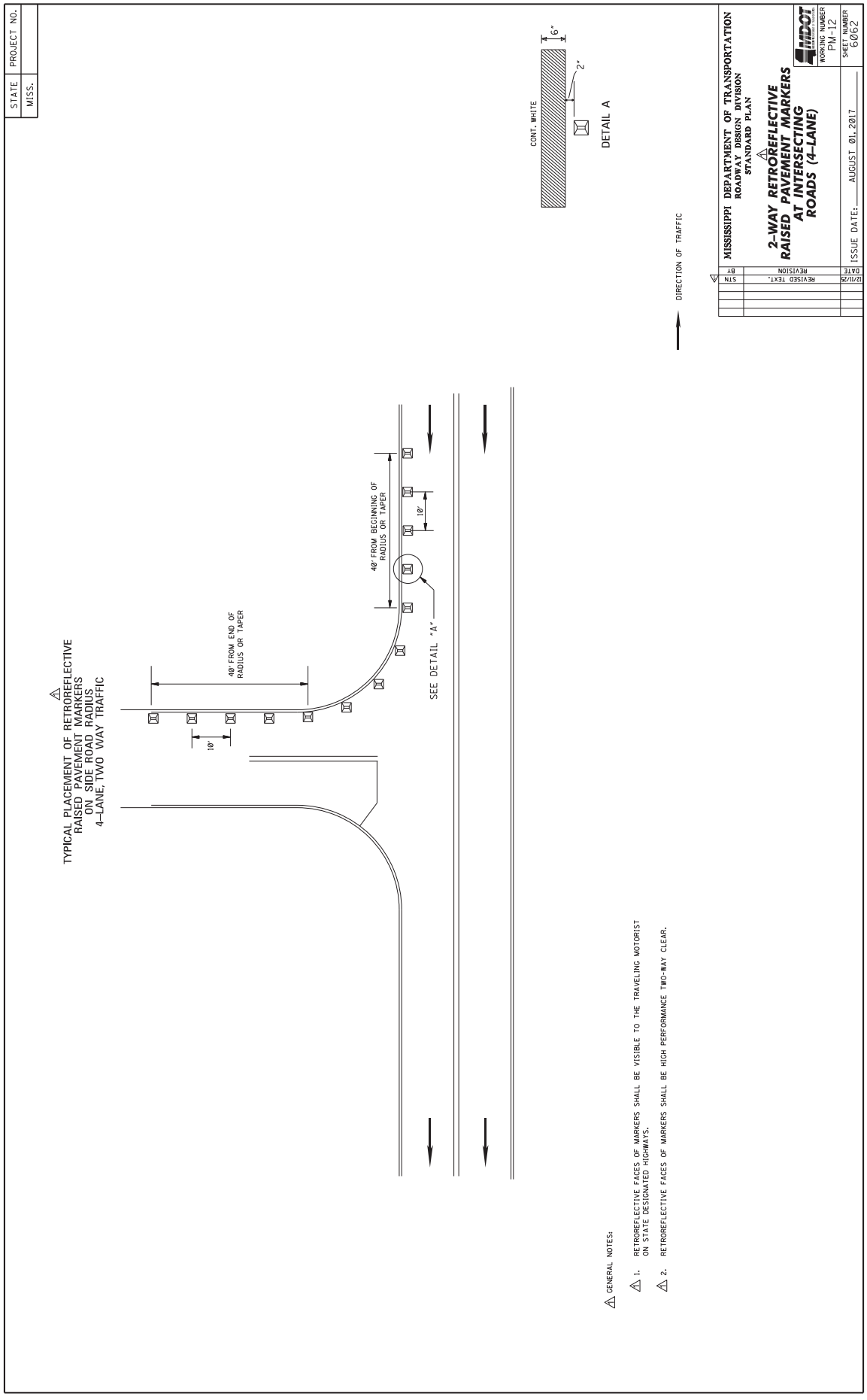

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TYPICAL PLACEMENT OF WARNING SIGNS AND PAVEMENT MARKINGS AT RAILROAD HIGHWAY GRADE CROSSINGS
WORKING NUMBER FM-7
SHEET NUMBER 6057
ISSUE DATE: AUGUST 01, 2017
REVISED TEXT, 'X' DISTANCES, AND ADDED M3-1 AND M3-2 SIGN.
12/11/20
STN
BY
DATE
REVISION
GENERAL NOTES:
*1. A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1).
**2. WIDTH OF R X R SYMBOL MAY VARY ACCORDING TO LANE WIDTH. HOWEVER, ON MULTI-LANE ROADS, THE TRANSVERSE BANDS AND STOP LINE SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
3. R X R SYMBOL (63.0 ft²), TRANSVERSE BANDS AND STOP LINE SHALL BE PAID FOR AS LEGEND, WHITE.
***4. REFER TO THE "CURRENT EDITION OF THE MUTCD" FOR LOCATION OF PROPOSED WARNING DEVICES AT RAILROAD-HIGHWAY GRADE CROSSINGS.
****5. IF A W3-1 OR W3-2 IS USED, THE "X" DISTANCE WOULD APPLY TO THE DISTANCE FROM THE STOP BAR TO THE W10-1 AND TO THE W10-1, THE W10-1 WOULD THEN BE PLACED AT A MINIMUM OF 100 FEET UPSTREAM OF THE W3-1 OR W3-2.
ADVANCE WARNING SIGN PLACEMENT DISTANCE
POSTED SPEED (mph)
① DISTANCE "X" (ft)
20 115
25 155
30 200
35 250
40 305
45 360
50 425
55 495
60 570
65 645
NOTE:
① DISTANCE "X" MAY BE ADJUSTED IF PROHIBITIVE PHYSICAL CONDITIONS EXIST AT THE DESIGNATED DISTANCE.
*** PRESENT OR PROPOSED ACTIVE WARNING DEVICE
TYPICAL LOCATION OF STOP LINE WHERE AN ACTIVE WARNING DEVICE IS PRESENT OR PROPOSED.
EDGE OF SHOULDER
EDGE OF TRAVEL LANE
TRAFFIC
24" STOP LINE
8'-0" (TYP.)
℄ RAILROAD
TYPICAL LOCATION OF STOP LINE WHERE NO ACTIVE WARNING DEVICE IS PRESENT OR PROPOSED.
15'-0" (MIN.) △
24" TRANSVERSE BAND
SEE DETAIL A FOR DIMENSIONS
℄ LANE
*PAVEMENT MARKING SYMBOL
DISTANCE "X" (SEE TABLE BELOW)
**** W3-2 (IF NEEDED)
**** W3-1 (IF NEEDED)
W10-1
NO PASSING ZONE
(OPTIONAL) W14-3
STANDARD "R" PAVEMENT MARKING FOR R X R SYMBOL
DETAIL A
6'-3"
12"
24"
27"
15° R
6" R
3"
6"
12"
5"

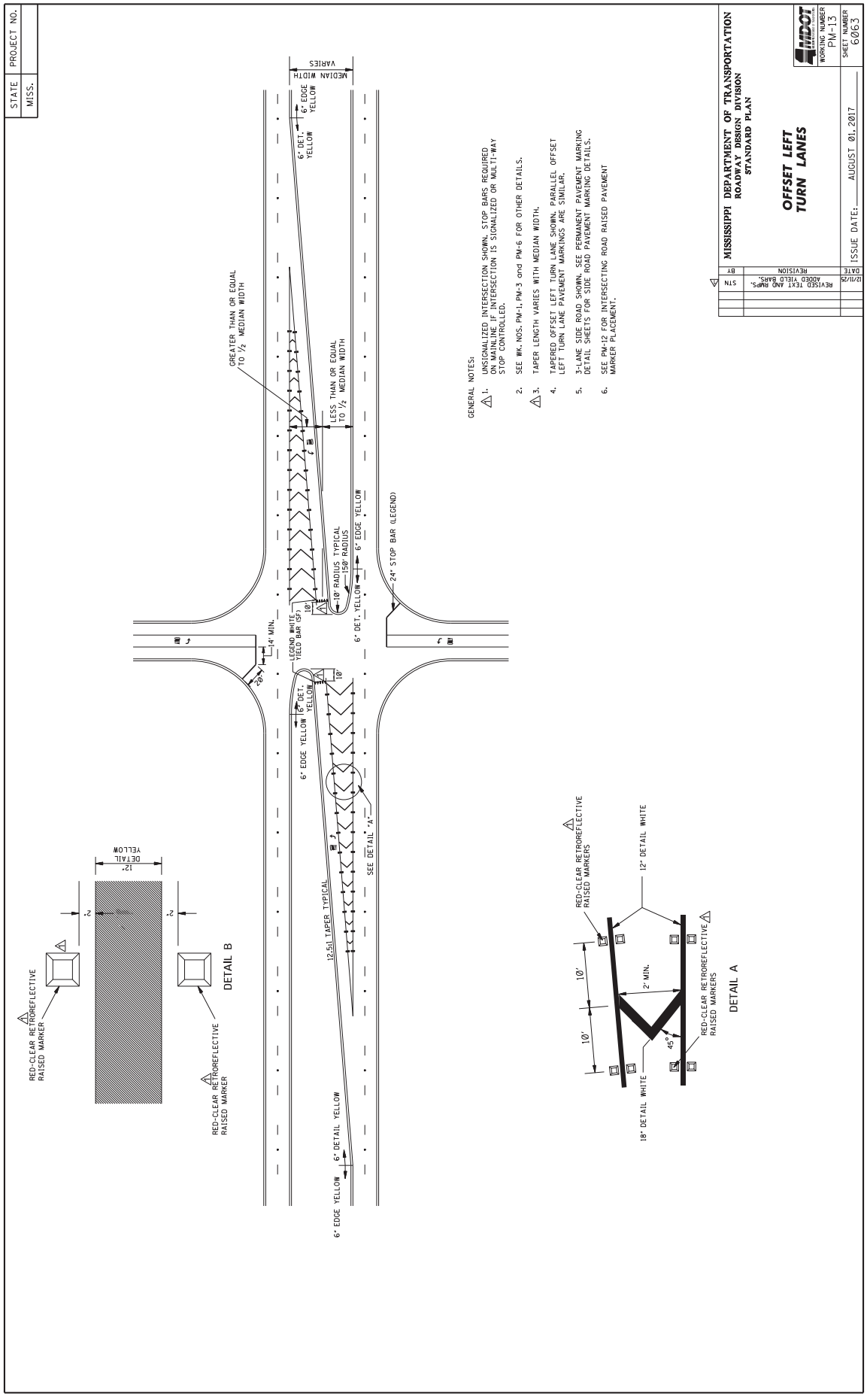

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
4-LANE TO 2-LANE TRANSITION AT INTERCHANGE
WORKING NUMBER PM-8
SHEET NUMBER 6058
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY STN
12/11/20 REVISED TEXT AND RPMS
DOUBLE TWO-WAY YELLOW RETROREFLECTIVE RAISED MARKERS @ 20'-0" ON CENTER
12" DETAIL YELLOW
SEE DETAIL "D"
18" YELLOW 45° DIAGONAL DETAIL @ 20'-0" ON CENTER
VARIABLE WIDTH
24" 24" 24" 24"
DETAIL A
*NOTE: VARIABLE (24" MAXIMUM)
12" DETAIL YELLOW
2"
DETAIL D
20'-0" ON CENTER
RED-CLEAR RETROREFLECTIVE RAISED MARKERS
6" DETAIL WHITE
DETAIL C
SEE SHEET PM-1
SEE DETAIL A
6" DETAIL WHITE (2" STRIPE 12' GAP)
100' MIN.
NOT A STRIPE
SEE DETAIL C
SEE DETAIL B
PLAN
NOT A STRIPE
12" DETAIL YELLOW
18" YELLOW 45° DIAGONAL DETAIL @ 20'-0" ON CENTER
TWO-WAY YELLOW RETROREFLECTIVE RAISED MARKERS @ 20'-0" ON CENTER
SEE DETAIL E
TWO-WAY YELLOW RETROREFLECTIVE RAISED MARKERS @ 12' ON CENTER ON 45° DIAGONAL
DETAIL B
6" CONT. YELLOW
RED/CLEAR RETROREFLECTIVE RAISED MARKERS
6" SKIP WHITE
NOTE : SEE PM-6 FOR DETAILS OF LANE-REDUCTION ARROW.
DETAIL F
SEE SHEET PM-1
LEGEND
100'
LEGEND
DETAIL F
6" DETAIL WHITE (2" STRIPE 12' GAP)
12"
45°
2"
12" DETAIL YELLOW
DETAIL E

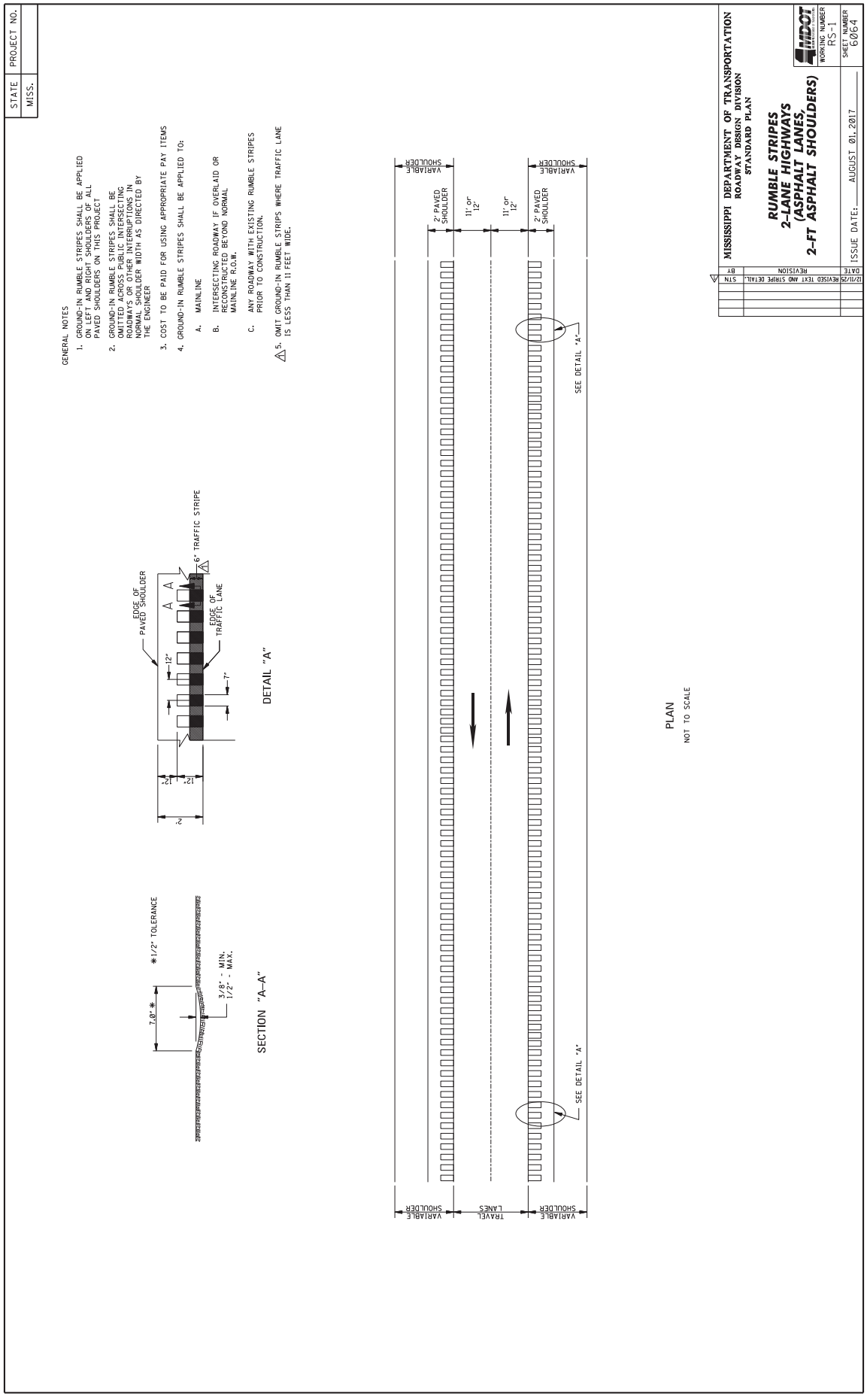

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TYPICAL PAVEMENT MARKING DETAIL FOR MEDIAN CROSSOVERS
WORKING NUMBER PM-9
SHEET NUMBER 6059
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY
12/11/25 REVISED TEXT AND RPMS STN
SEE DETAIL "A"
SEE DETAIL "B"
SEE PM-1 FOR SPACING
RED-CLEAR RETROREFLECTIVE HIGH PERFORMANCE RAISED MARKERS
6" EDGE STRIPE (CONT. WHITE)
6" DETAIL WHITE
6" DETAIL YELLOW
6" EDGE STRIPE (CONT. YELLOW)
6" YELLOW (DETAIL)
6" YELLOW (CONT.XEDGE)
6" CONT. EDGE WHITE
℄ TO ℄≤88'
NOTE: FOR WIDER ℄ TO ℄ SPACINGS, REFER TO OTHER SHEETS IN PLANS
NOTE: SEE PM-6 FOR YIELD BAR DETAILS
6" SKIP WHITE
LEGEND WHITE YIELD BAR (SF)
SEE DETAIL "C"
125'≥℄ TO ℄>88'
2-WAY YELLOW RETROREFLECTIVE HIGH PERFORMANCE RAISED MARKERS @ 10' O.C.
DETAIL "C"
DETAIL "A"
DETAIL "B"
THRU TRAFFIC

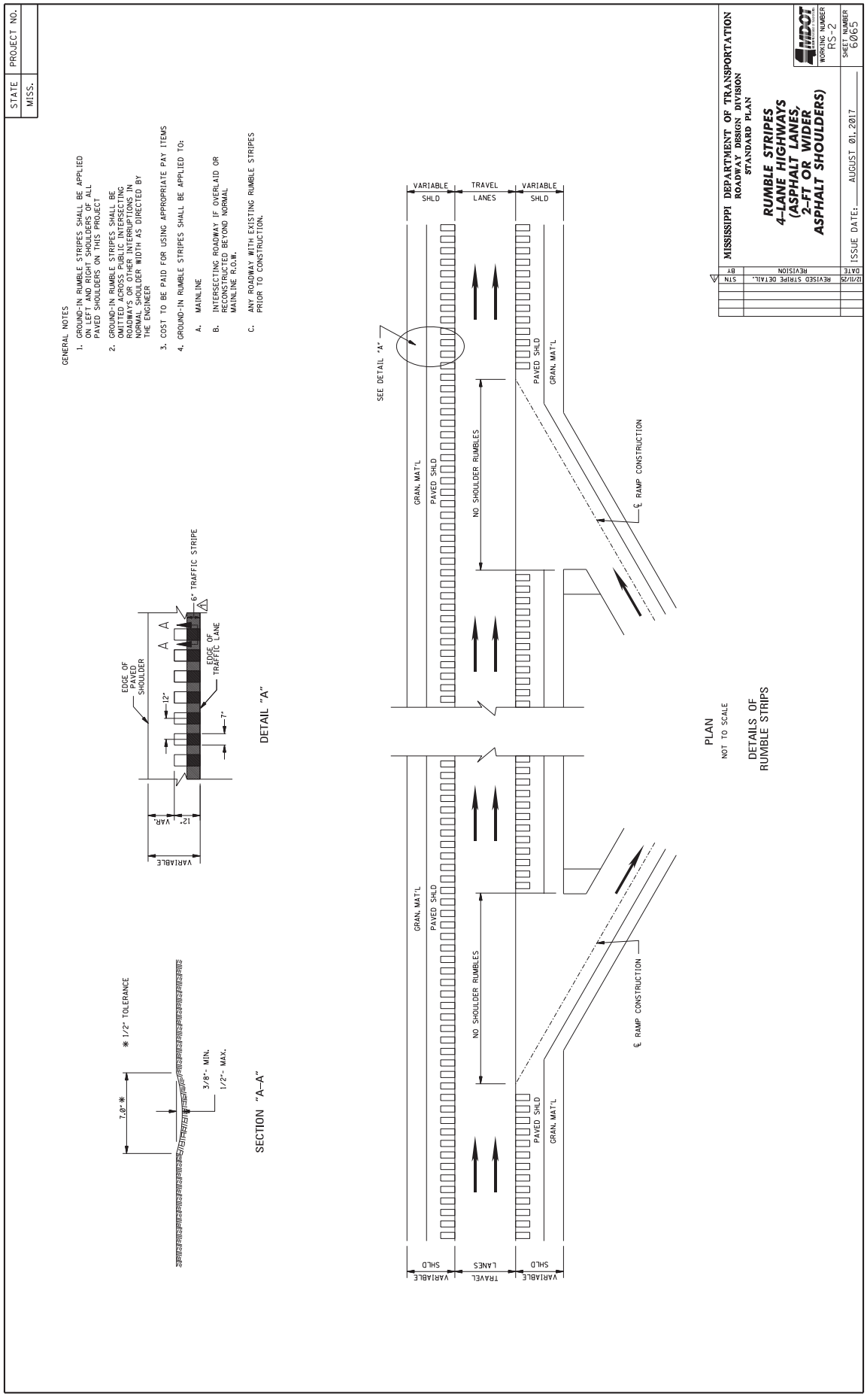

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
PAVEMENT MARKING DETAILS FOR INTERCHANGE WITH LANE DROPS
WORKING NUMBER PM-10
SHEET NUMBER 6060
ISSUE DATE: AUGUST 01, 2017
REVISED TEXT AND RPMS
LANE DROP AT DUAL LANE RAMP
LANE DROP AT SINGLE LANE RAMP
DETAIL D
DETAIL C
DETAIL B
DETAIL A
GENERAL NOTES:
* 1. SEE SHEET PM-1 FOR THE PLACEMENT OF LANE-LINE STRIPE WITH RESPECT TO THE PAVEMENT JOINT AND FOR THE PLACEMENT OF THE EDGE LINE WITH RESPECT TO THE OUTSIDE EDGE OF THE TRAVELED WAY.
** 2. ON THE MAIN FACILITY, RETRO-REFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS ON A 40'-0" SPACING WILL BE REQUIRED ON LANE-LINE(S) THROUGH ALL INTERCHANGE AREAS BEGINNING 1000' IN ADVANCE (IN DIRECTION OF TRAFFIC) OF THE EXIT RAMP TAPER AND CONTINUING THROUGH THE INTERCHANGE TO THE END OF THE ENTRANCE RAMP TAPER.
3. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RETROREFLECTIVE RAISED PAVEMENT MARKERS AS LISTED IN THE MDOT "APPROVED PRODUCTS LIST".

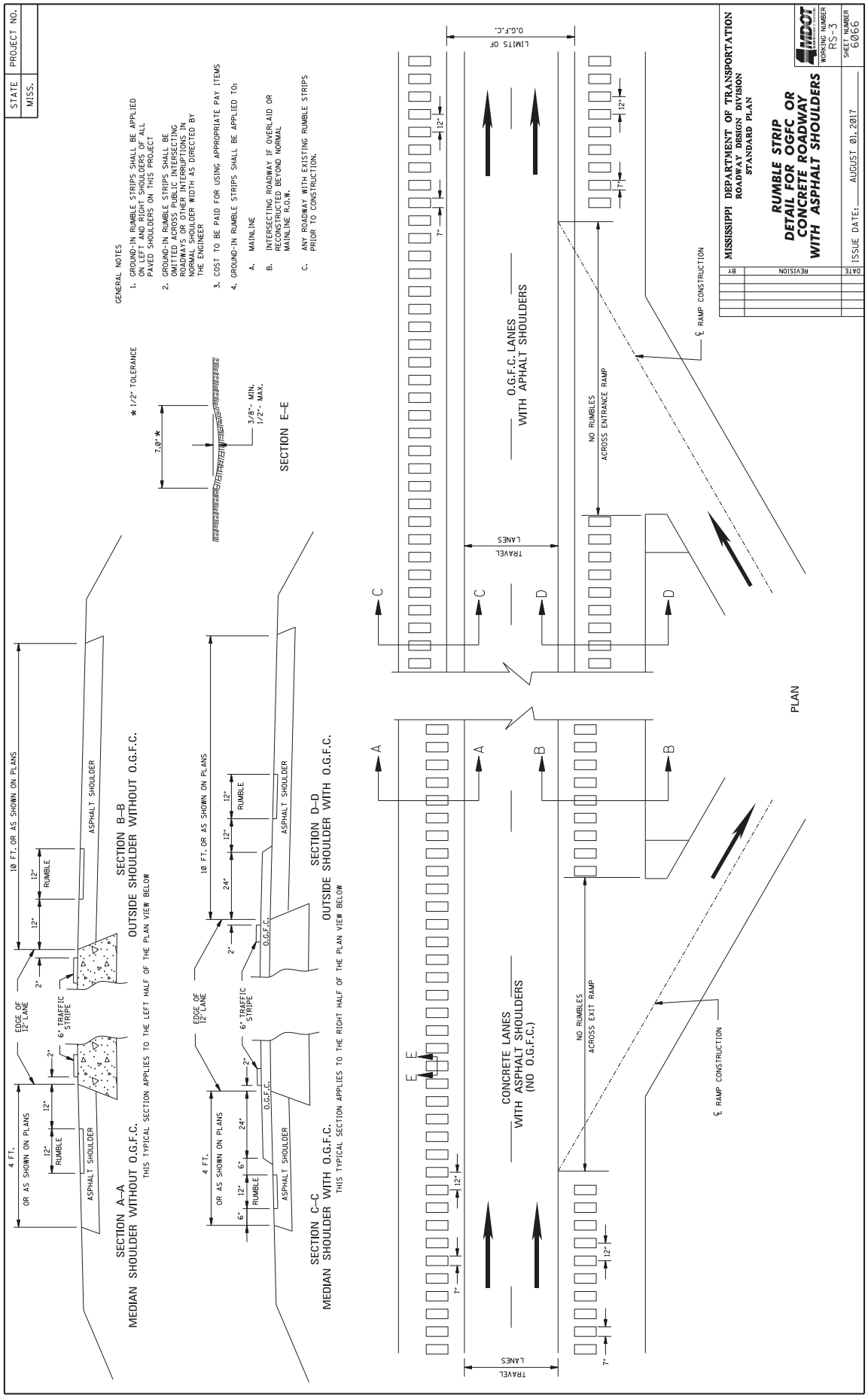

STATE
MISS.
PROJECT NO.
TYPICAL PLACEMENT OF RETROREFLECTIVE RAISED PAVEMENT MARKERS ON SIDE ROAD RADIUS 2-LANE, TWO WAY TRAFFIC
40' FROM END OF RADIUS OR TAPER
40' FROM BEGINNING OF RADIUS OR TAPER
10'
10'
SEE DETAIL "A"
DIRECTION OF TRAFFIC
CONT. WHITE
6"
2"
DETAIL A
GENERAL NOTES:
1. RETROREFLECTIVE FACES OF MARKERS SHALL BE VISIBLE TO THE TRAVELING MOTORIST ON STATE DESIGNATED HIGHWAYS.
2. RETROREFLECTIVE FACES OF MARKERS SHALL BE HIGH PERFORMANCE TWO-WAY CLEAR.
3. RETROREFLECTIVE FACES OF MARKERS SHALL NOT BE ROTATED WHEN BEING PLACED ALONG RADIUS AND TANGENT SECTION OF LOCAL ROAD.
4. MARKERS SHALL BE INSTALLED TO THE LIMITS SHOWN ABOVE.
STN
REVISED TEXT.
12/11/25
REVISION
DATE
BY
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
2-WAY RETROREFLECTIVE RAISED PAVEMENT MARKERS AT INTERSECTING ROADS (2-LANE)
MDOT
WORKING NUMBER
PM-11
ISSUE DATE: AUGUST 01, 2017
SHEET NUMBER
6061

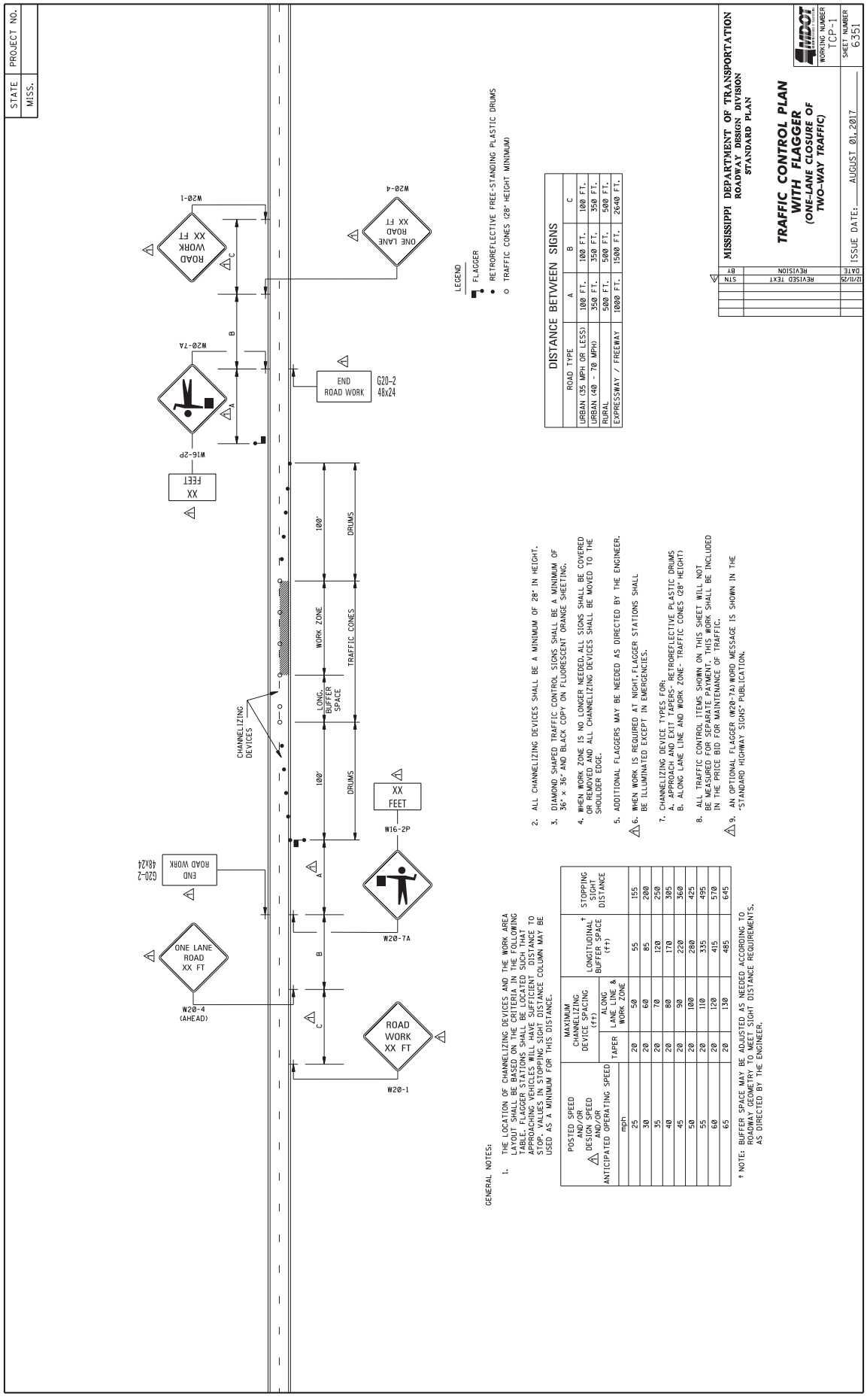

STATE
MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
2-WAY RETROREFLECTIVE RAISED PAVEMENT MARKERS AT INTERSECTING ROADS (4-LANE)
WORKING NUMBER PM-12
SHEET NUMBER 6062
ISSUE DATE: AUGUST 01, 2017
DATE
REVISION
BY
12/11/25
REVISED TEXT.
STN
TYPICAL PLACEMENT OF RETROREFLECTIVE RAISED PAVEMENT MARKERS ON SIDE ROAD RADIUS 4-LANE, TWO WAY TRAFFIC
40' FROM END OF RADIUS OR TAPER
40' FROM BEGINNING OF RADIUS OR TAPER
10'
10'
SEE DETAIL "A"
DIRECTION OF TRAFFIC
CONT. WHITE
6"
2"
DETAIL A
GENERAL NOTES:
1. RETROREFLECTIVE FACES OF MARKERS SHALL BE VISIBLE TO THE TRAVELING MOTORIST ON STATE DESIGNATED HIGHWAYS.
2. RETROREFLECTIVE FACES OF MARKERS SHALL BE HIGH PERFORMANCE TWO-WAY CLEAR.


STATE MISS.
PROJECT NO.
MEDIAN WIDTH VARIES
6" EDGE YELLOW
6" DET. YELLOW
GREATER THAN OR EQUAL TO ½ MEDIAN WIDTH
LESS THAN OR EQUAL TO ½ MEDIAN WIDTH
10' RADIUS TYPICAL
150' RADIUS
6" EDGE YELLOW
6" DET. YELLOW
24" STOP BAR (LEGEND)
LEGEND WHITE YIELD BAR (SF)
14' MIN.
20'
10'
6" EDGE YELLOW
6" DET. YELLOW
12.5% TAPER TYPICAL
SEE DETAIL "A"
6" EDGE YELLOW
6" DETAIL YELLOW
GENERAL NOTES:
1. UNSIGNALIZED INTERSECTION SHOWN. STOP BARS REQUIRED ONLY WHERE INTERSECTION IS SIGNALIZED OR MULTI-WAY STOP CONTROLLED.
2. SEE MK. NOS. PM-1, PM-3 and PM-6 FOR OTHER DETAILS.
3. TAPER LENGTH VARIES WITH MEDIAN WIDTH.
4. TAPERED OFFSET LEFT TURN LANE SHOWN. PARALLEL OFFSET LEFT TURN LANE PAVEMENT MARKINGS ARE SIMILAR.
5. 3-LANE SIDE ROAD SHOWN. SEE PERMANENT PAVEMENT MARKING DETAIL SHEETS FOR SIDE ROAD PAVEMENT MARKING DETAILS.
6. SEE PM-12 FOR INTERSECTING ROAD RAISED PAVEMENT MARKER PLACEMENT.
DETAIL B
12" DETAIL YELLOW
2"
2"
RED-CLEAR RETROREFLECTIVE RAISED MARKER
RED-CLEAR RETROREFLECTIVE RAISED MARKER
DETAIL A
RED-CLEAR RETROREFLECTIVE RAISED MARKERS
12" DETAIL WHITE
10'
10'
2' MIN.
45°
18" DETAIL WHITE
RED-CLEAR RETROREFLECTIVE RAISED MARKERS
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
OFFSET LEFT TURN LANES
WORKING NUMBER PM-13
SHEET NUMBER 6063
ISSUE DATE: AUGUST 01, 2017
BY REVISION DATE
STN REVISED TEXT AND DWGS, ADDED YIELD BARS. 12/11/29


STATE
MISS.
PROJECT NO.
GENERAL NOTES
1. GROUND-IN RUMBLE STRIPES SHALL BE APPLIED ON LEFT AND RIGHT SHOULDERS OF ALL PAVED SHOULDERS ON THIS PROJECT
2. GROUND-IN RUMBLE STRIPES SHALL BE OMITTED ACROSS PUBLIC INTERSECTING ROADWAYS OR OTHER INTERRUPTIONS IN NORMAL SHOULDER WIDTH AS DIRECTED BY THE ENGINEER
3. COST TO BE PAID FOR USING APPROPRIATE PAY ITEMS
4. GROUND-IN RUMBLE STRIPES SHALL BE APPLIED TO:
A. MAINLINE
B. INTERSECTING ROADWAY IF OVERLAID OR RECONSTRUCTED BEYOND NORMAL MAINLINE R.O.W.
C. ANY ROADWAY WITH EXISTING RUMBLE STRIPES PRIOR TO CONSTRUCTION.
5. OMIT GROUND-IN RUMBLE STRIPS WHERE TRAFFIC LANE IS LESS THAN 11 FEET WIDE.
EDGE OF PAVED SHOULDER
6" TRAFFIC STRIPE
EDGE OF TRAFFIC LANE
12"
7"
DETAIL "A"
7.0"*
*1/2" TOLERANCE
3/8" - MIN.
1/2" - MAX.
SECTION "A–A"
VARIABLE SHOULDER
2' PAVED SHOULDER
11' or 12'
11' or 12'
2' PAVED SHOULDER
VARIABLE SHOULDER
SEE DETAIL "A"
SEE DETAIL "A"
VARIABLE SHOULDER
TRAVEL LANES
VARIABLE SHOULDER
PLAN
NOT TO SCALE
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
RUMBLE STRIPES
2-LANE HIGHWAYS
(ASPHALT LANES,
2-FT ASPHALT SHOULDERS)
WORKING NUMBER
RS-1
SHEET NUMBER
6064
ISSUE DATE: AUGUST 01, 2017
STN
BY
REVISION
DATE
12/11/25 REVISED TEXT AND STRIPE DETAIL.


STATE
MISS.
PROJECT NO.
GENERAL NOTES
1. GROUND-IN RUMBLE STRIPES SHALL BE APPLIED ON LEFT AND RIGHT SHOULDERS OF ALL PAVED SHOULDERS ON THIS PROJECT
2. GROUND-IN RUMBLE STRIPES SHALL BE OMITTED ACROSS PUBLIC INTERSECTING ROADWAYS OR OTHER INTERRUPTIONS IN NORMAL SHOULDER WIDTH AS DIRECTED BY THE ENGINEER
3. COST TO BE PAID FOR USING APPROPRIATE PAY ITEMS
4. GROUND-IN RUMBLE STRIPES SHALL BE APPLIED TO:
A. MAINLINE
B. INTERSECTING ROADWAY IF OVERLAID OR RECONSTRUCTED BEYOND NORMAL MAINLINE R.O.W.
C. ANY ROADWAY WITH EXISTING RUMBLE STRIPES PRIOR TO CONSTRUCTION.
6" TRAFFIC STRIPE
EDGE OF PAVED SHOULDER
EDGE OF TRAFFIC LANE
12"
7"
12" VAR.
VARIABLE
DETAIL "A"
7.0"*
* 1/2" TOLERANCE
3/8"- MIN.
1/2"- MAX.
SECTION "A-A"
VARIABLE SHLD
TRAVEL LANES
VARIABLE SHLD
SEE DETAIL "A"
GRAN. MAT'L
PAVED SHLD
NO SHOULDER RUMBLES
PAVED SHLD
GRAN. MAT'L
℄ RAMP CONSTRUCTION
PLAN
NOT TO SCALE
DETAILS OF RUMBLE STRIPS
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
RUMBLE STRIPES
4-LANE HIGHWAYS
(ASPHALT LANES,
2-FT OR WIDER
ASPHALT SHOULDERS)
WORKING NUMBER
RS-2
SHEET NUMBER
6065
ISSUE DATE: AUGUST 01, 2017
STN
REVISED STRIPE DETAIL.
DATE
REVISION
BY


STATE MISS.
PROJECT NO.
GENERAL NOTES
1. GROUND-IN RUMBLE STRIPS SHALL BE APPLIED ON LEFT AND RIGHT SHOULDERS OF ALL PAVED SHOULDERS ON THIS PROJECT
2. GROUND-IN RUMBLE STRIPS SHALL BE OMITTED ACROSS PUBLIC INTERSECTING ROADWAYS OR OTHER INTERRUPTIONS IN NORMAL SHOULDER WIDTH AS DIRECTED BY THE ENGINEER
3. COST TO BE PAID FOR USING APPROPRIATE PAY ITEMS
4. GROUND-IN RUMBLE STRIPS SHALL BE APPLIED TO:
A. MAINLINE
B. INTERSECTING ROADWAY IF OVERLAID OR RECONSTRUCTED BEYOND NORMAL MAINLINE R.O.W.
C. ANY ROADWAY WITH EXISTING RUMBLE STRIPS PRIOR TO CONSTRUCTION.
* 1/2" TOLERANCE
7.0"*
3/8"- MIN.
1/2"- MAX.
SECTION E–E
SECTION A–A
MEDIAN SHOULDER WITHOUT O.G.F.C.
THIS TYPICAL SECTION APPLIES TO THE LEFT HALF OF THE PLAN VIEW BELOW
4 FT. OR AS SHOWN ON PLANS
EDGE OF 12' LANE
6" TRAFFIC STRIPE
2"
12" RUMBLE
12"
ASPHALT SHOULDER
SECTION B–B
OUTSIDE SHOULDER WITHOUT O.G.F.C.
10 FT. OR AS SHOWN ON PLANS
SECTION C–C
MEDIAN SHOULDER WITH O.G.F.C.
THIS TYPICAL SECTION APPLIES TO THE RIGHT HALF OF THE PLAN VIEW BELOW
6" 12" 6" 24" 6" 12"
O.G.F.C.
SECTION D–D
OUTSIDE SHOULDER WITH O.G.F.C.
PLAN
LIMITS OF O.G.F.C.
TRAVEL LANES
O.G.F.C. LANES WITH APHALT SHOULDERS
CONCRETE LANES WITH ASPHALT SHOULDERS (NO O.G.F.C.)
NO RUMBLES ACROSS ENTRANCE RAMP
NO RUMBLES ACROSS EXIT RAMP
℄ RAMP CONSTRUCTION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
RUMBLE STRIP DETAIL FOR OGFC OR CONCRETE ROADWAY WITH ASPHALT SHOULDERS
WORKING NUMBER RS-3
SHEET NUMBER 6066
ISSUE DATE: AUGUST 01, 2017
BY REVISION DATE



DISTANCE BETWEEN SIGNS

ROAD TYPE	A	B	C
URBAN (35 MPH OR LESS)	100 FT.	100 FT.	100 FT.
URBAN (40 - 70 MPH)	350 FT.	350 FT.	350 FT.
RURAL	500 FT.	500 FT.	500 FT.
EXPRESSWAY / FREEWAY	1000 FT.	1500 FT.	2640 FT.

GENERAL NOTES:

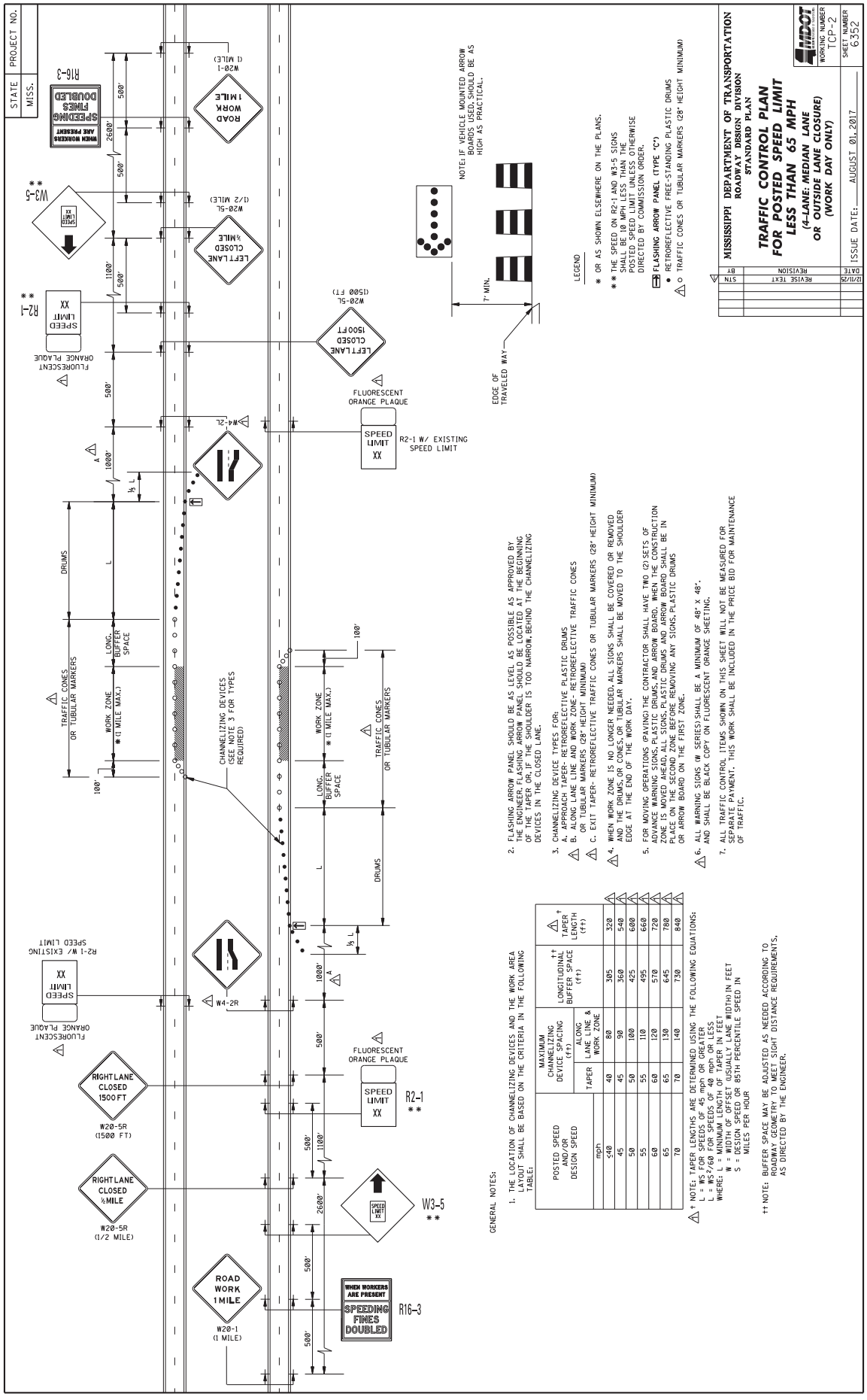
1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE. FLAGGER STATIONS SHALL BE LOCATED SUCH THAT APPROACHING VEHICLES WILL HAVE SUFFICIENT DISTANCE TO STOP. VALUES IN STOPPING SIGHT DISTANCE COLUMN MAY BE USED AS A MINIMUM FOR THIS DISTANCE.

POSTED SPEED AND/OR ⚠ DESIGN SPEED AND/OR ANTICIPATED OPERATING SPEED	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		LONGITUDINAL † BUFFER SPACE (ft)	STOPPING SIGHT DISTANCE
	TAPER	ALONG LANE LINE & WORK ZONE		
mph				
25	20	50	55	155
30	20	60	85	200
35	20	70	120	250
40	20	80	170	305
45	20	90	220	360
50	20	100	280	425
55	20	110	335	495
60	20	120	415	570
65	20	130	485	645

† NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.

2. ALL CHANNELIZING DEVICES SHALL BE A MINIMUM OF 28" IN HEIGHT.
3. DIAMOND SHAPED TRAFFIC CONTROL SIGNS SHALL BE A MINIMUM OF 36" × 36" AND BLACK COPY ON FLUORESCENT ORANGE SHEETING.
4. WHEN WORK ZONE IS NO LONGER NEEDED, ALL SIGNS SHALL BE COVERED OR REMOVED AND ALL CHANNELIZING DEVICES SHALL BE MOVED TO THE SHOULDER EDGE.
5. ADDITIONAL FLAGGERS MAY BE NEEDED AS DIRECTED BY THE ENGINEER.
⚠ 6. WHEN WORK IS REQUIRED AT NIGHT, FLAGGER STATIONS SHALL BE ILLUMINATED EXCEPT IN EMERGENCIES.
7. CHANNELIZING DEVICE TYPES FOR:
   A. APPROACH AND EXIT TAPERS- RETROREFLECTIVE PLASTIC DRUMS
   B. ALONG LANE LINE AND WORK ZONE- TRAFFIC CONES (28" HEIGHT)
8. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.
⚠ 9. AN OPTIONAL FLAGGER (W20-7A) WORD MESSAGE IS SHOWN IN THE "STANDARD HIGHWAY SIGNS" PUBLICATION.

STN	REVISION	DATE	BY
1	REVISED TEXT	12/11/25	STN



GENERAL NOTES:

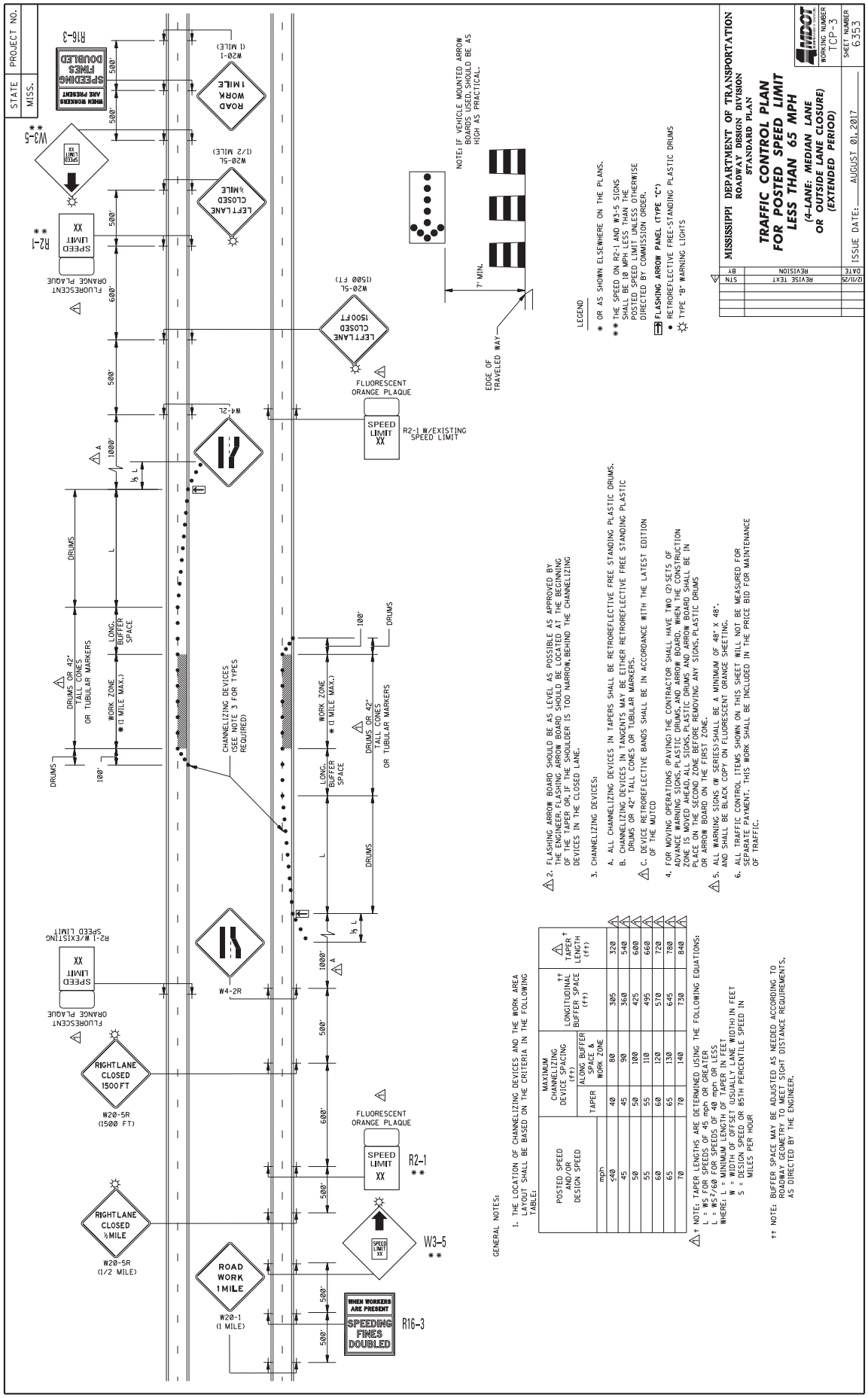
1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:

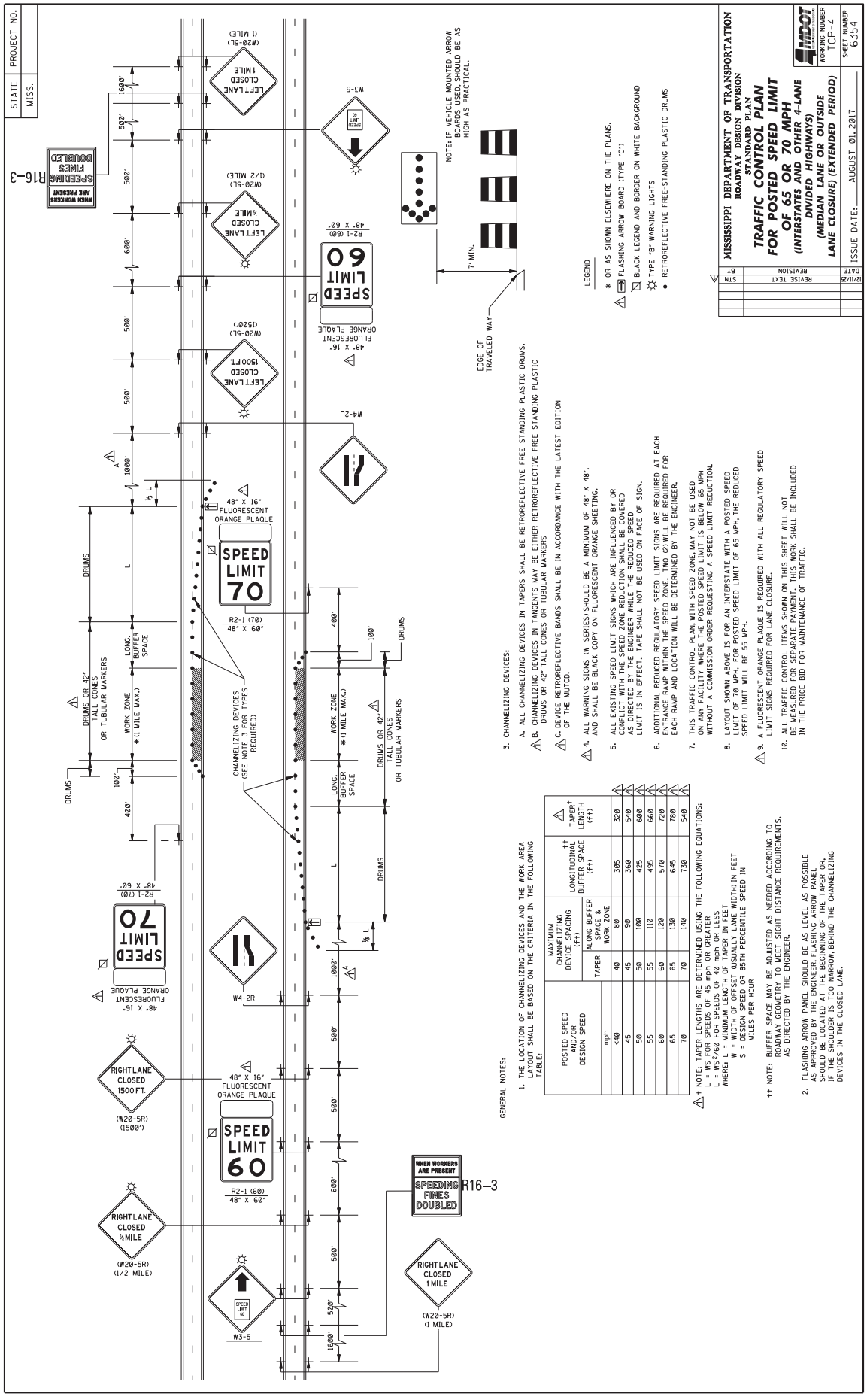
POSTED SPEED AND/OR DESIGN SPEED	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		LONGITUDINAL BUFFER SPACE (ft) ††	TAPER LENGTH (ft) †
	TAPER	ALONG LANE LINE & WORK ZONE		
mph				
≤40	40	80	305	320
45	45	90	360	540
50	50	100	425	600
55	55	110	495	660
60	60	120	570	720
65	65	130	645	780
70	70	140	730	840

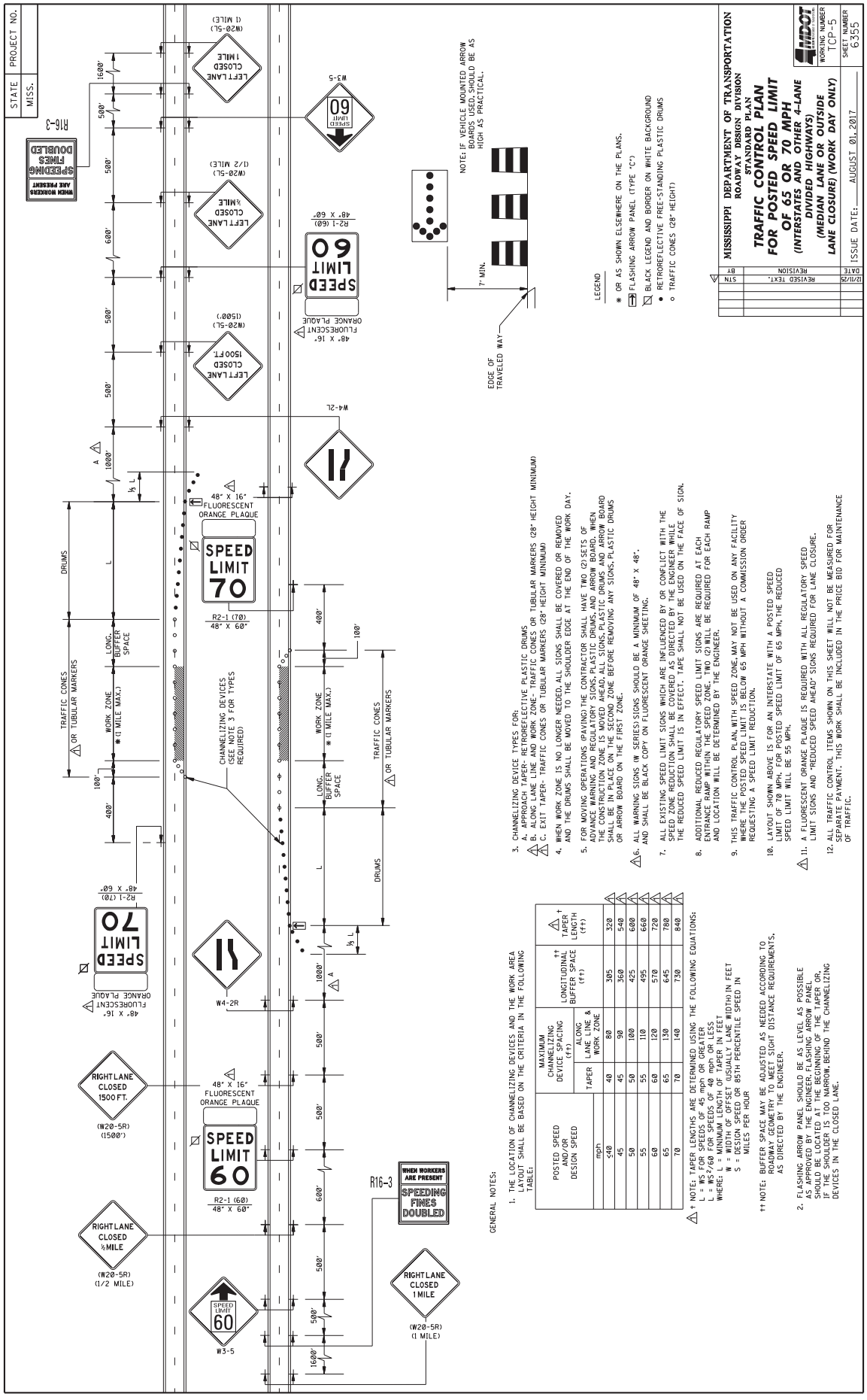
† NOTE: TAPER LENGTHS ARE DETERMINED USING THE FOLLOWING EQUATIONS:
L = WS FOR SPEEDS OF 45 mph OR GREATER
L = WS²/60 FOR SPEEDS OF 40 mph OR LESS
WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR

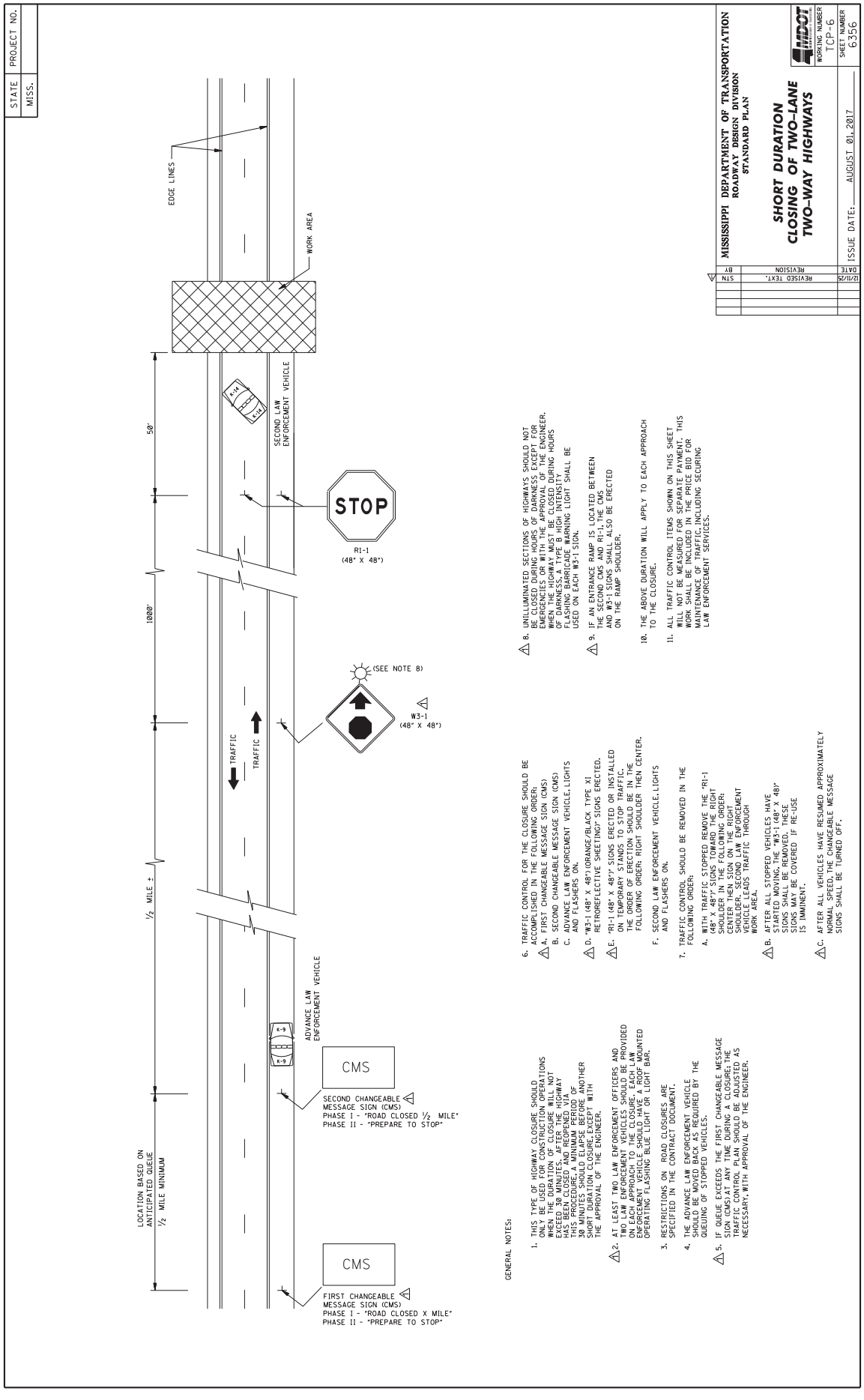
†† NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.

2. FLASHING ARROW PANEL SHOULD BE AS LEVEL AS POSSIBLE AS APPROVED BY THE ENGINEER. FLASHING ARROW PANEL SHOULD BE LOCATED AT THE BEGINNING OF THE TAPER OR, IF THE SHOULDER IS TOO NARROW, BEHIND THE CHANNELIZING DEVICES IN THE CLOSED LANE.
3. CHANNELIZING DEVICE TYPES FOR:
A. APPROACH TAPER- RETROREFLECTIVE PLASTIC DRUMS
B. ALONG LANE LINE AND WORK ZONE- RETROREFLECTIVE TRAFFIC CONES OR TUBULAR MARKERS (28" HEIGHT MINIMUM)
C. EXIT TAPER- RETROREFLECTIVE TRAFFIC CONES OR TUBULAR MARKERS (28" HEIGHT MINIMUM)
4. WHEN WORK ZONE IS NO LONGER NEEDED, ALL SIGNS SHALL BE COVERED OR REMOVED AND THE DRUMS OR CONES OR TUBULAR MARKERS SHALL BE MOVED TO THE SHOULDER EDGE AT THE END OF THE WORK DAY.
5. FOR MOVING OPERATIONS (PAVING) THE CONTRACTOR SHALL HAVE TWO (2) SETS OF ADVANCE WARNING SIGNS, PLASTIC DRUMS, AND ARROW BOARD. WHEN THE CONSTRUCTION ZONE IS MOVED AHEAD, ALL SIGNS, PLASTIC DRUMS AND ARROW BOARD SHALL BE IN PLACE FOR THE SECOND ZONE BEFORE REMOVING ANY SIGNS, PLASTIC DRUMS OR ARROW BOARD ON THE FIRST ZONE.
6. ALL WARNING SIGNS (W SERIES) SHALL BE A MINIMUM OF 48" X 48", AND SHALL BE BLACK COPY ON FLUORESCENT ORANGE SHEETING.
7. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TRAFFIC CONTROL PLAN
FOR POSTED SPEED LIMIT
LESS THAN 65 MPH
(4-LANE: MEDIAN LANE OR OUTSIDE LANE CLOSURE)
(EXTENDED PERIOD)
WORKING NUMBER TCP-3
SHEET NUMBER 6353
ISSUE DATE: AUGUST 01, 2017
DATE REVISION BY STN
12/11/20 REVISE TEXT
LEGEND
* OR AS SHOWN ELSEWHERE ON THE PLANS.
** THE SPEED ON R2-1 AND W3-5 SIGNS SHALL BE 10 MPH LESS THAN THE POSTED SPEED LIMIT UNLESS OTHERWISE DIRECTED BY COMMISSION ORDER.
FLASHING ARROW PANEL (TYPE "C")
RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS
TYPE "B" WARNING LIGHTS
NOTE: IF VEHICLE MOUNTED ARROW BOARDS USED, SHOULD BE AS HIGH AS PRACTICAL.
7' MIN.
EDGE OF TRAVELED WAY
ROAD WORK 1 MILE
W20-1 (1 MILE)
LEFT LANE CLOSED ½ MILE
W20-5L (1/2 MILE)
LEFT LANE CLOSED 1500 FT
W20-5L (1500 FT)
RIGHT LANE CLOSED ½ MILE
W20-5R (1/2 MILE)
RIGHT LANE CLOSED 1500 FT
W20-5R (1500 FT)
W3-5 **
R2-1 **
SPEED LIMIT XX
FLUORESCENT ORANGE PLAQUE
R2-1 W/EXISTING SPEED LIMIT
W4-2L
W4-2R
WHEN WORKERS ARE PRESENT
SPEEDING FINES DOUBLED
R16-3
DRUMS
DRUMS OR 42" TALL CONES OR TUBULAR MARKERS
WORK ZONE * (1 MILE MAX.)
LONG. BUFFER SPACE
CHANNELIZING DEVICES (SEE NOTE 3 FOR TYPES REQUIRED)
100'
500'
600'
1000'
A
L
½ L
GENERAL NOTES:
1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:
POSTED SPEED / DESIGN SPEED | MAXIMUM CHANNELIZING DEVICE SPACING (ft) | LONGITUDINAL BUFFER SPACE (ft) | TAPER LENGTH (ft)
mph | TAPER | ALONG BUFFER SPACE & WORK ZONE
≤40 | 40 | 80 | 305 | 320
45 | 45 | 90 | 360 | 540
50 | 50 | 100 | 425 | 600
55 | 55 | 110 | 495 | 660
60 | 60 | 120 | 570 | 720
65 | 65 | 130 | 645 | 780
70 | 70 | 140 | 730 | 840
† NOTE: TAPER LENGTHS ARE DETERMINED USING THE FOLLOWING EQUATIONS:
L = WS²/60 FOR SPEEDS OF 45 mph OR LESS
L = WS/60 FOR SPEEDS OF 40 mph OR LESS
WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR
†† NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.
2. FLASHING ARROW BOARD SHOULD BE AS LEVEL AS POSSIBLE AS APPROVED BY THE ENGINEER. FLASHING ARROW BOARD SHOULD BE LOCATED AT THE BEGINNING OF THE TAPER ON THE SHOULDER IS TOO NARROW, BEHIND THE CHANNELIZING DEVICES IN THE CLOSED LANE.
3. CHANNELIZING DEVICES:
A. ALL CHANNELIZING DEVICES IN TAPERS SHALL BE RETROREFLECTIVE FREE STANDING PLASTIC DRUMS.
B. CHANNELIZING DEVICES IN TANGENTS MAY BE EITHER RETROREFLECTIVE FREE STANDING PLASTIC DRUMS OR 42" TALL CONES OR TUBULAR MARKERS.
C. DEVICE RETROREFLECTIVE BANDS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD
4. FOR MOVING OPERATIONS (PAVING) THE CONTRACTOR SHALL HAVE TWO (2) SETS OF ADVANCE WARNING SIGNS, PLASTIC DRUMS, AND ARROW BOARD. WHEN THE CONSTRUCTION ZONE IS MOVED AHEAD, ALL SIGNS, PLASTIC DRUMS AND ARROW BOARD SHALL BE IN PLACE ON THE SECOND ZONE BEFORE REMOVING ANY SIGNS, PLASTIC DRUMS OR ARROW BOARD ON THE FIRST ZONE.
5. ALL WARNING SIGNS (W SERIES) SHALL BE A MINIMUM OF 48" X 48", AND SHALL BE BLACK COPY ON FLUORESCENT ORANGE SHEETING.
6. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TRAFFIC CONTROL PLAN
FOR POSTED SPEED LIMIT
OF 65 OR 70 MPH
(INTERSTATES AND OTHER 4-LANE DIVIDED HIGHWAYS)
(MEDIAN LANE OR OUTSIDE LANE CLOSURE) (EXTENDED PERIOD)
MDOT
WORKING NUMBER TCP-4
SHEET NUMBER 6354
ISSUE DATE: AUGUST 01, 2017
REVISE TEXT STN
DATE BY REVISION
12/11/25
GENERAL NOTES:
1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:
POSTED SPEED AND/OR DESIGN SPEED
MAXIMUM CHANNELIZING DEVICE SPACING (FEET) PLAN
TAPER
ALONG BUFFER SPACE & WORK ZONE
LONGITUDINAL BUFFER SPACE (ft)
TAPER† LENGTH (ft)
mph
<40 40 80 305 320
45 45 90 360 540
50 50 100 425 600
55 55 110 495 660
60 60 120 570 720
65 65 130 645 780
70 70 140 730 540
† NOTE: TAPER LENGTHS ARE DETERMINED USING THE FOLLOWING EQUATIONS:
L = WS FOR SPEEDS OF 45 mph OR GREATER
L = WS²/60 FOR SPEEDS OF 40 mph OR LESS
WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR
†† NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRICS TO ENSURE SIGHT DISTANCE REQUIREMENTS AS DIRECTED BY THE ENGINEER.
2. FLASHING ARROW PANEL SHOULD BE AS LEVEL AS POSSIBLE AS APPROVED BY THE ENGINEER. FLASHING ARROW PANEL SHOULD BE LOCATED AT THE BEGINNING OF THE TAPER OR, IF IT IS SHOULDER CLOSURE, TO HARROW BEHIND THE CHANNELIZING DEVICES IN THE CLOSED LANE.
3. CHANNELIZING DEVICES:
A. ALL CHANNELIZING DEVICES IN TAPERS SHALL BE RETROREFLECTIVE FREE STANDING PLASTIC DRUMS.
B. CHANNELIZING DEVICES IN TANGENTS MAY BE EITHER RETROREFLECTIVE FREE STANDING PLASTIC DRUMS OR 42" TALL CONES OR TUBULAR MARKERS
C. DEVICE RETROREFLECTIVE BANDS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD.
4. ALL WARNING SIGNS (W SERIES) SHOULD BE A MINIMUM OF 48" X 48". AND SHALL BE BLACK COPY ON FLUORESCENT ORANGE SHEETING.
5. ALL EXISTING SPEED LIMIT SIGNS WHICH ARE INFLUENCED BY OR CONFLICT WITH THE SPEED ZONE REDUCTION SHALL BE COVERED AS DIRECTED BY THE ENGINEER. THE REDUCED SPEED LIMIT IS IN EFFECT. TAPE SHALL NOT BE USED ON FACE OF SIGN.
6. ADDITIONAL REDUCED REGULATORY SPEED LIMIT SIGNS ARE REQUIRED AT EACH ENTRANCE RAMP WITHIN THE SPEED ZONE. TWO (2) WILL BE REQUIRED FOR EACH RAMP AND LOCATION WILL BE DETERMINED BY THE ENGINEER.
7. THIS TRAFFIC CONTROL PLAN, WITH SPEED ZONE, MAY NOT BE USED ON ANY FACILITY WHERE THE POSTED SPEED LIMIT IS BELOW 65 MPH WITHOUT A COMMISSION ORDER REQUESTING A SPEED LIMIT REDUCTION.
8. LAYOUT SHOWN ABOVE IS FOR AN INTERSTATE WITH A POSTED SPEED LIMIT OF 70 MPH. FOR A POSTED SPEED LIMIT OF 65 MPH, THE REDUCED SPEED LIMIT WILL BE 55 MPH.
9. A FLUORESCENT ORANGE PLAQUE IS REQUIRED WITH ALL REGULATORY SPEED LIMIT SIGNS REQUIRED FOR LANE CLOSURE.
10. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.
LEGEND
* OR AS SHOWN ELSEWHERE ON THE PLANS.
FLASHING ARROW BOARD (TYPE "C")
BLACK LEGEND AND BORDER ON WHITE BACKGROUND
TYPE "B" WARNING LIGHTS
RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS
NOTE: IF VEHICLE MOUNTED ARROW BOARDS USED, SHOULD BE AS HIGH AS PRACTICAL.
7' MIN.
EDGE OF TRAVELED WAY
W4-2L
W3-5
W4-2R
R2-1 (60) 48" X 60"
R2-1 (70) 48" X 60"
48" X 16" FLUORESCENT ORANGE PLAQUE
SPEED LIMIT 60
SPEED LIMIT 70
WHEN WORKERS ARE PRESENT SPEEDING FINES DOUBLED R16-3
RIGHT LANE CLOSED 1500 FT. (W20-5R) (1500')
RIGHT LANE CLOSED ½ MILE (W20-5R) (1/2 MILE)
RIGHT LANE CLOSED 1 MILE (W20-5R) (1 MILE)
LEFT LANE CLOSED 1500FT (W20-5L) (1500')
LEFT LANE CLOSED ½ MILE (W20-5L) (1/2 MILE)
LEFT LANE CLOSED 1 MILE (W20-5L) (1 MILE)
DRUMS OR 42" TALL CONES OR TUBULAR MARKERS
WORK ZONE * (1 MILE MAX.)
LONG. BUFFER SPACE
CHANNELIZING DEVICES (SEE NOTE 3 FOR TYPES REQUIRED)
½ L
L
A
100'
400'
500'
600'
1000'
1500'


MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TRAFFIC CONTROL PLAN
FOR POSTED SPEED LIMIT
OF 65 OR 70 MPH
(INTERSTATES AND OTHER 4-LANE DIVIDED HIGHWAYS)
(MEDIAN LANE OR OUTSIDE LANE CLOSURE) (WORK DAY ONLY)
STATE MISS.
PROJECT NO.
WORKING NUMBER TCP-5
SHEET NUMBER 6355
ISSUE DATE: AUGUST 01, 2017
REVISION DATE BY
REVISED TEXT. 12/11/25 STN
LEGEND
* OR AS SHOWN ELSEWHERE ON THE PLANS.
FLASHING ARROW PANEL (TYPE "C")
BLACK LEGEND AND BORDER ON WHITE BACKGROUND
RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS
TRAFFIC CONES (28" HEIGHT)
NOTE: IF VEHICLE MOUNTED ARROW BOARDS USED, SHOULD BE AS HIGH AS PRACTICAL.
7' MIN.
EDGE OF TRAVELED WAY
GENERAL NOTES:
1. THE LOCATION OF CHANNELIZING DEVICES AND THE WORK AREA LAYOUT SHALL BE BASED ON THE CRITERIA IN THE FOLLOWING TABLE:
POSTED SPEED AND/OR DESIGN SPEED
MAXIMUM CHANNELIZING DEVICE SPACING (††)
TAPER
ALONG LANE LINE & WORK ZONE
LONGITUDINAL BUFFER SPACE (††)
TAPER † LENGTH (††)
mph
≤40 40 80 305 320
45 45 90 360 540
50 50 100 425 600
55 55 110 495 660
60 60 120 570 720
65 65 130 645 780
70 70 140 730 840
† NOTE: TAPER LENGTHS ARE DETERMINED USING THE FOLLOWING EQUATIONS:
L = WS FOR SPEEDS OF 45 mph OR GREATER
L = WS²/60 FOR SPEEDS OF 40 mph OR LESS
WHERE: L = MINIMUM LENGTH OF TAPER IN FEET
W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MILES PER HOUR
†† NOTE: BUFFER SPACE MAY BE ADJUSTED AS NEEDED ACCORDING TO ROADWAY GEOMETRY TO MEET SIGHT DISTANCE REQUIREMENTS, AS DIRECTED BY THE ENGINEER.
2. FLASHING ARROW PANEL SHOULD BE AS LEVEL AS POSSIBLE AS APPROVED BY THE ENGINEER. FLASHING ARROW PANEL SHOULD BE LOCATED AT THE BEGINNING OF THE TAPER OR, IF THE SHOULDER IS TOO NARROW, BEHIND THE CHANNELIZING DEVICES IN THE CLOSED LANE.
3. CHANNELIZING DEVICE TYPES FOR:
A. APPROACH TAPER- RETROREFLECTIVE PLASTIC DRUMS
B. ALONG LANE LINE AND WORK ZONE- TRAFFIC CONES OR TUBULAR MARKERS (28" HEIGHT MINIMUM)
C. EXIT TAPER- TRAFFIC CONES OR TUBULAR MARKERS (28" HEIGHT MINIMUM)
4. WHEN WORK ZONE IS NO LONGER NEEDED, ALL SIGNS SHALL BE COVERED OR REMOVED AND THE DRUMS SHALL BE MOVED TO THE SHOULDER EDGE AT THE END OF THE WORK DAY.
5. FOR MOVING OPERATIONS (PAVING) THE CONTRACTOR SHALL HAVE TWO (2) SETS OF ADVANCE WARNING AND REGULATORY SIGNS, PLASTIC DRUMS, AND ARROW BOARD. WHEN THE CONSTRUCTION ZONE IS MOVED AHEAD, ALL SIGNS, PLASTIC DRUMS AND ARROW BOARD SHALL BE IN PLACE ON THE SECOND ZONE BEFORE REMOVING ANY SIGNS, PLASTIC DRUMS OR ARROW BOARD ON THE FIRST ZONE.
6. ALL WARNING SIGNS (W SERIES) SIGNS SHOULD BE A MINIMUM OF 48" X 48", AND SHALL BE BLACK COPY ON FLUORESCENT ORANGE SHEETING.
7. ALL EXISTING SPEED LIMIT SIGNS WHICH ARE INFLUENCED BY OR CONFLICT WITH THE SPEED ZONE REDUCTION SHALL BE COVERED AS DIRECTED BY THE ENGINEER WHILE THE REDUCED SPEED LIMIT IS IN EFFECT. TAPE SHALL NOT BE USED ON THE FACE OF SIGN.
8. ADDITIONAL REDUCED REGULATORY SPEED LIMIT SIGNS ARE REQUIRED AT EACH ENTRANCE RAMP WITHIN THE SPEED ZONE. TWO (2) WILL BE REQUIRED FOR EACH RAMP AND LOCATION WILL BE DETERMINED BY THE ENGINEER.
9. THIS TRAFFIC CONTROL PLAN, WITH SPEED ZONE, MAY NOT BE USED ON ANY FACILITY WHERE THE POSTED SPEED LIMIT IS BELOW 65 MPH WITHOUT A COMMISSION ORDER REQUESTING A SPEED LIMIT REDUCTION.
10. LAYOUT SHOWN ABOVE IS FOR AN INTERSTATE WITH A POSTED SPEED LIMIT OF 70 MPH. FOR POSTED SPEED LIMIT OF 65 MPH, THE REDUCED SPEED LIMIT WILL BE 55 MPH.
11. A FLUORESCENT ORANGE PLAQUE IS REQUIRED WITH ALL REGULATORY SPEED LIMIT SIGNS AND "REDUCED SPEED AHEAD" SIGNS REQUIRED FOR LANE CLOSURE.
12. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.
TRAFFIC CONES OR TUBULAR MARKERS
DRUMS
LONG. BUFFER SPACE
WORK ZONE * (1 MILE MAX.)
CHANNELIZING DEVICES (SEE NOTE 3 FOR TYPES REQUIRED)
48" X 16" FLUORESCENT ORANGE PLAQUE
SPEED LIMIT 70
R2-1 (70) 48" X 60"
SPEED LIMIT 60
R2-1 (60) 48" X 60"
FLUORESCENT ORANGE PLAQUE 48" X 16"
W4-2R
W4-2L
W3-5
R16-3
WHEN WORKERS ARE PRESENT
SPEEDING FINES DOUBLED
RIGHT LANE CLOSED 1500 FT.
(W20-5R) (1500')
RIGHT LANE CLOSED ½MILE
(W20-5R) (1/2 MILE)
RIGHT LANE CLOSED 1 MILE
(W20-5R) (1 MILE)
LEFT LANE CLOSED 1 MILE
(W20-5L) (1 MILE)
LEFT LANE CLOSED ½MILE
(W20-5L) (1/2 MILE)
LEFT LANE CLOSED 1500 FT.
(W20-5L) (1500')
SPEED LIMIT 60
W3-5
100'
400'
500'
600'
1000'
1600'
A
½ L
L



GENERAL NOTES:

1. THIS TYPE OF HIGHWAY CLOSURE SHOULD ONLY BE USED FOR CONSTRUCTION OPERATIONS WHEN THE DURATION OF CLOSURE WILL NOT EXCEED 30 MINUTES. AFTER THE HIGHWAY HAS BEEN CLOSED AND ESCORTED VIA THIS PROCEDURE, A MINIMUM PERIOD OF 30 MINUTES SHOULD ELAPSE BEFORE ANOTHER SHORT DURATION CLOSURE, EXCEPT WITH THE APPROVAL OF THE ENGINEER.

2. AT LEAST TWO LAW ENFORCEMENT OFFICERS AND TWO LAW ENFORCEMENT VEHICLES SHOULD BE PROVIDED ON EACH APPROACH TO THE CLOSURE. EACH LAW ENFORCEMENT VEHICLE SHOULD HAVE A ROOF MOUNTED OPERATING FLASHING BLUE LIGHT OR LIGHT BAR.

3. RESTRICTIONS ON ROAD CLOSURES ARE SPECIFIED IN THE CONTRACT DOCUMENT.

4. THE ADVANCE LAW ENFORCEMENT VEHICLE SHOULD BE MOVED BACK AS REQUIRED BY THE QUEUING OF STOPPED VEHICLES.

5. IF QUEUE EXCEEDS THE FIRST CHANGEABLE MESSAGE SIGN (CMS) AT ANY TIME DURING A CLOSURE, THE TRAFFIC CONTROL PLAN SHOULD BE ADJUSTED AS NECESSARY, WITH APPROVAL OF THE ENGINEER.

6. TRAFFIC CONTROL FOR THE CLOSURE SHOULD BE ACCOMPLISHED IN THE FOLLOWING ORDER:
   - A. FIRST CHANGEABLE MESSAGE SIGN (CMS)
   - B. SECOND CHANGEABLE MESSAGE SIGN (CMS)
   - C. ADVANCE LAW ENFORCEMENT VEHICLE, LIGHTS AND FLASHERS ON.
   - D. W3-1 (48" X 48") ORANGE/BLACK TYPE XI RETROREFLECTIVE SHEETING* SIGNS ERECTED.
   - E. *R1-1 (48" X 48")* SIGNS ERECTED OR INSTALLED ON TEMPORARY STANDS TO STOP TRAFFIC, THE ORDER OF ERECTION SHOULD BE IN THE FOLLOWING ORDER: RIGHT SHOULDER THEN CENTER.
   - F. SECOND LAW ENFORCEMENT VEHICLE, LIGHTS AND FLASHERS ON.

7. TRAFFIC CONTROL SHOULD BE REMOVED IN THE FOLLOWING ORDER:
   - A. WITH TRAFFIC STOPPED REMOVE THE *R1-1 SIGNS AND STORE IN THE FOLLOWING ORDER: SHOULDER IN THE FOLLOWING ORDER; CENTER THEN SIGN ON THE RIGHT SHOULDER. SECOND LAW ENFORCEMENT VEHICLE LEADS TRAFFIC THROUGH WORK AREA.
   - B. AFTER ALL STOPPED VEHICLES HAVE STARTED MOVING REMOVE W3-1 (48" X 48") SIGNS SHALL BE REMOVED. THESE SIGNS MAY BE COVERED IF RE-USE IS IMMINENT.
   - C. AFTER ALL VEHICLES HAVE RESUMED APPROXIMATELY NORMAL SPEED, THE CHANGEABLE MESSAGE SIGNS SHALL BE TURNED OFF.

8. UNILLUMINATED SECTIONS OF HIGHWAYS SHOULD NOT BE CLOSED DURING HOURS OF DARKNESS EXCEPT FOR EMERGENCIES OR WITH THE APPROVAL OF THE ENGINEER. WHEN THE HIGHWAY MUST BE CLOSED DURING HOURS OF DARKNESS, A TYPE B HIGH INTENSITY FLASHING BARRICADE WARNING LIGHT SHALL BE USED ON EACH W3-1 SIGN.

9. IF AN ENTRANCE RAMP IS LOCATED BETWEEN THE SECOND CMS AND R1-1, THE CMS AND W3-1 SIGNS SHALL ALSO BE ERECTED ON THE RAMP SHOULDER.

10. THE ABOVE DURATION WILL APPLY TO EACH APPROACH TO THE CLOSURE.

11. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT; THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC, INCLUDING SECURING LAW ENFORCEMENT SERVICES.

BY	REVISION	DATE
STN	REVISED TEXT.	12/11/25

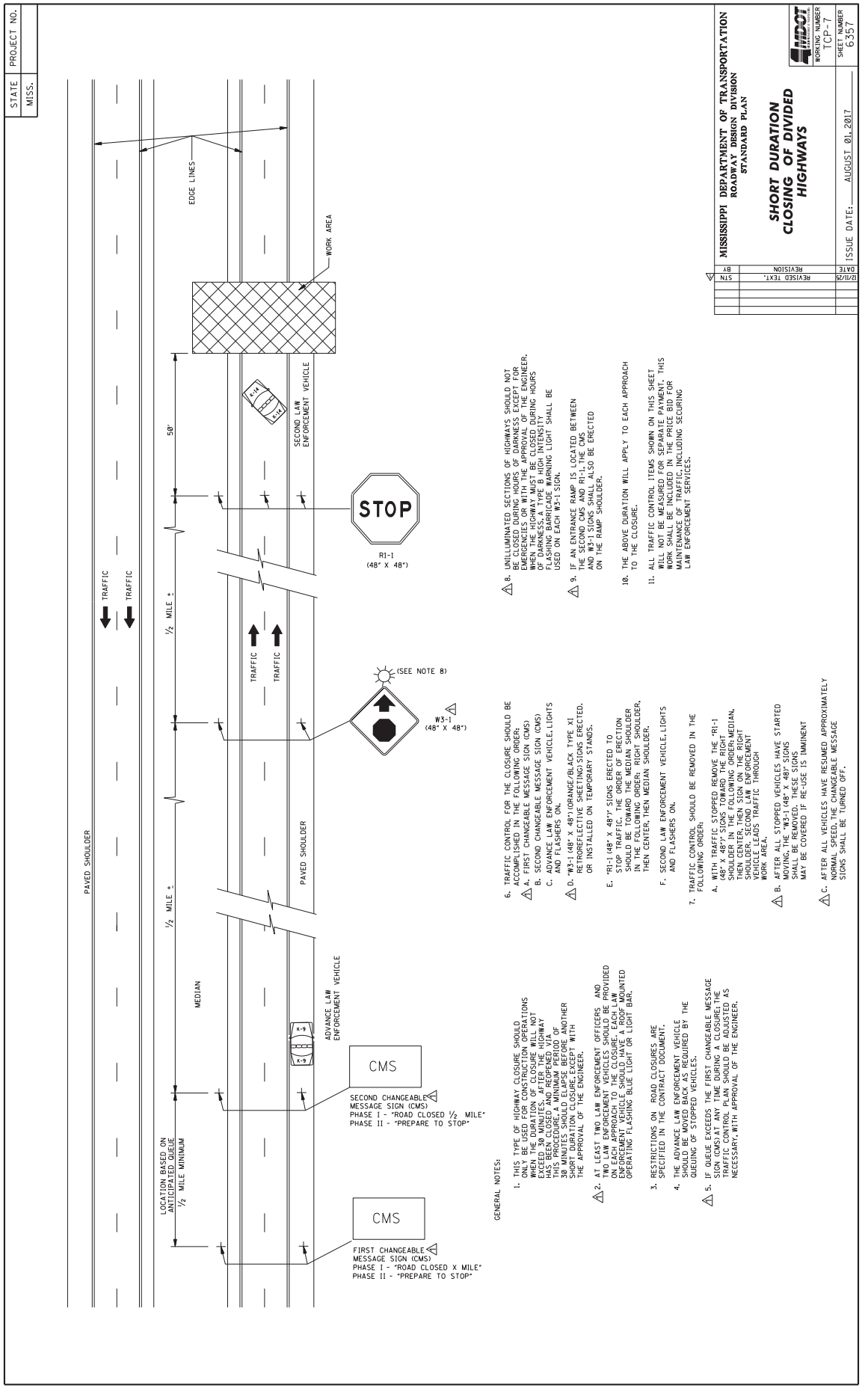
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

SHORT DURATION CLOSING OF TWO-LANE TWO-WAY HIGHWAYS

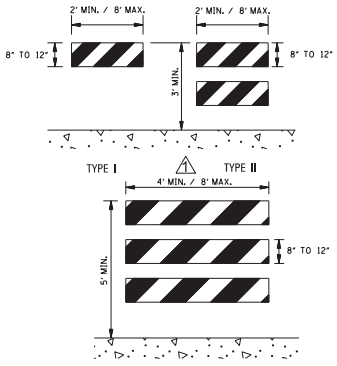
ISSUE DATE: AUGUST 01, 2017

WORKING NUMBER TCP-6

SHEET NUMBER 6356

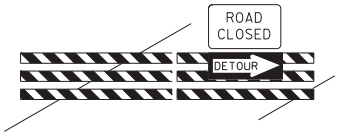

STATE
MISS.
PROJECT NO.
PAVED SHOULDER
TRAFFIC
TRAFFIC
½ MILE ±
EDGE LINES
WORK AREA
50'
SECOND LAW ENFORCEMENT VEHICLE
STOP
R1-1
(48" X 48")
TRAFFIC
TRAFFIC
½ MILE ±
PAVED SHOULDER
(SEE NOTE 8)
W3-1
(48" X 48")
MEDIAN
LOCATION BASED ON ANTICIPATED QUEUE
½ MILE MINIMUM
ADVANCE LAW ENFORCEMENT VEHICLE
CMS
SECOND CHANGEABLE MESSAGE SIGN (CMS)
PHASE I - "ROAD CLOSED ½ MILE"
PHASE II - "PREPARE TO STOP"
CMS
FIRST CHANGEABLE MESSAGE SIGN (CMS)
PHASE I - "ROAD CLOSED X MILE"
PHASE II - "PREPARE TO STOP"
GENERAL NOTES:
1. THIS TYPE OF HIGHWAY CLOSURE SHOULD ONLY BE USED FOR CONSTRUCTION OPERATIONS WHEN THE DURATION OF CLOSURE WILL NOT EXCEED 30 MINUTES, AFTER THE HIGHWAY HAS BEEN CLOSED AND REOPENED VIA THIS PROCEDURE, A MINIMUM PERIOD OF 30 MINUTES SHOULD ELAPSE BEFORE ANOTHER SHORT DURATION CLOSURE, EXCEPT WITH THE APPROVAL OF THE ENGINEER.
2. AT LEAST TWO LAW ENFORCEMENT OFFICERS AND TWO LAW ENFORCEMENT VEHICLES SHOULD BE PROVIDED ON EACH APPROACH TO THE CLOSURE. EACH LAW ENFORCEMENT VEHICLE SHOULD HAVE A ROOF MOUNTED OPERATING FLASHING BLUE LIGHT OR LIGHT BAR.
3. RESTRICTIONS ON ROAD CLOSURES ARE SPECIFIED IN THE CONTRACT DOCUMENT.
4. THE ADVANCE LAW ENFORCEMENT VEHICLE SHOULD BE MOVED BACK AS REQUIRED BY THE QUEUING OF STOPPED VEHICLES.
5. IF QUEUE EXCEEDS THE FIRST CHANGEABLE MESSAGE SIGN (CMS) AT ANY TIME DURING A CLOSURE, THE TRAFFIC CONTROL PLAN SHOULD BE ADJUSTED AS NECESSARY, WITH APPROVAL OF THE ENGINEER.
6. TRAFFIC CONTROL FOR THE CLOSURE SHOULD BE ACCOMPLISHED IN THE FOLLOWING ORDER:
A. FIRST CHANGEABLE MESSAGE SIGN (CMS)
B. SECOND CHANGEABLE MESSAGE SIGN (CMS)
C. ADVANCE LAW ENFORCEMENT VEHICLE, LIGHTS AND FLASHERS ON.
D. "W3-1 (48" X 48") ORANGE/BLACK TYPE XI RETROREFLECTIVE SHEETING) SIGNS ERECTED. OR INSTALLED ON TEMPORARY STANDS.
E. "R1-1 (48" X 48") SIGNS ERECTED TO STOP TRAFFIC, THE ORDER OF ERECTION SHOULD BE TOWARD THE MEDIAN SHOULDER ON THE FOLLOWING ORDER: RIGHT SHOULDER, THEN CENTER, THEN MEDIAN SHOULDER.
F. SECOND LAW ENFORCEMENT VEHICLE, LIGHTS AND FLASHERS ON.
7. TRAFFIC CONTROL SHOULD BE REMOVED IN THE FOLLOWING ORDER:
A. WITH TRAFFIC STOPPED REMOVE THE "R1-1 (48" X 48") SIGNS TOWARD THE RIGHT SHOULDER, THEN TOWARD THE MEDIAN, THEN CENTER, THEN SIGN ON THE RIGHT SHOULDER. SECOND LAW ENFORCEMENT VEHICLE LEADS TRAFFIC THROUGH WORK AREA.
B. AFTER ALL STOPPED VEHICLES HAVE STARTED MOVING, THE "W3-1 (48" X 48") SIGNS SHALL BE REMOVED. THESE SIGNS MAY BE COVERED IF RE-USE IS IMMINENT
C. AFTER ALL VEHICLES HAVE RESUMED APPROXIMATELY NORMAL SPEED, THE CHANGEABLE MESSAGE SIGNS SHALL BE TURNED OFF.
8. UNILLUMINATED SECTIONS OF HIGHWAYS SHOULD NOT BE CLOSED DURING HOURS OF DARKNESS EXCEPT FOR EMERGENCIES OR WITH THE APPROVAL OF THE ENGINEER. WHEN HIGHWAYS ARE CLOSED DURING HOURS OF DARKNESS, A TYPE B HIGH INTENSITY FLASHING BARRICADE WARNING LIGHT SHALL BE USED ON EACH W3-1 SIGN.
9. IF AN ENTRANCE RAMP IS LOCATED BETWEEN THE SECOND CMS AND R1-1, THE CMS AND W3-1 SIGNS SHALL ALSO BE ERECTED ON THE RAMP SHOULDER.
10. THE ABOVE DURATION WILL APPLY TO EACH APPROACH TO THE CLOSURE.
11. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC INCLUDING SECURING LAW ENFORCEMENT SERVICES.
REVISED TEXT. STN 12/11/25
DATE REVISION BY
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
SHORT DURATION CLOSING OF DIVIDED HIGHWAYS
MDOT
WORKING NUMBER TCP-7
ISSUE DATE: AUGUST 01, 2017
SHEET NUMBER 6357

STATE	PROJECT NO.
MISS.	



STANDARD BARRICADES

1. THE RETROREFLECTIVE MARKING FOR BARRICADE RAILS SHALL BE ORANGE AND WHITE (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION THAT TRAFFIC IS TO PASS).
2. RAIL STRIPE SHOULD BE 6 INCHES, EXCEPT THAT 4-INCH WIDE STRIPES MAY BE USED IF RAIL LENGTHS ARE LESS THAN 36 INCHES.
3. DO NOT PLACE SANDBAGS OR OTHER DEVICES ON BARRICADE RAILS TO PROVIDE MASS SANDBAGS, HOWEVER, MAY BE PLACES AS BALLAST TO THE LOWER PARTS OF THE FRAME OR THE STAYS TO BARRICADES.
4. FOR ADDITIONAL INFORMATION OR DETAILS, SEE MUTCD, LATEST EDITION.
5. BARRICADES ARE CLASSIFIED BY FHWA AS CATEGORY II WORK ZONE DEVICES. A LIST OF CRASHWORTHY BARRICADES AND OTHER CATEGORY II DEVICES CAN BE FOUND ON FHWA'S WEBSITE: http://highways.dot.gov/safety/RwD/reduce-crash-severity
6. WHERE ROAD USERS INCLUDE PEDESTRIANS, THE PROVISION OF SUPPLEMENTAL AUDIBLE INFORMATION OR DETECTABLE BARRIERS OR BARRICADES SHOULD BE PROVIDED FOR PEOPLE WITH VISION DISABILITIES.
7. BARRICADE RAIL SUPPORTS SHOULD NOT PROJECT INTO PEDESTRIAN CIRCULATION ROUTES MORE THAN 4 INCHES FOR THE SUPPORTS LOCATED BETWEEN 27 INCHES TO 80 INCHES ABOVE THE EXISTING SURFACE.



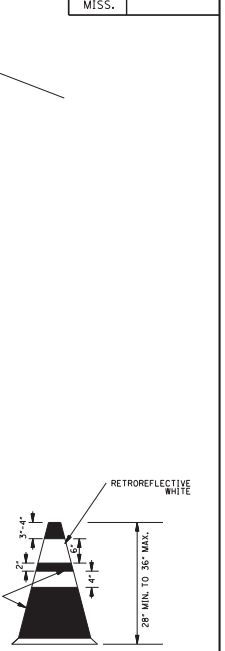
BARRICADE CLOSING A ROAD

BARRICADE CHARACTERISTICS

	I	II	III
WIDTH OF RAIL * *	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.
LENGTH OF RAIL * *	24" MIN. / 96" MAX.	24" MIN. /96" MAX.	48" MIN. / 96" MAX.
WIDTH OF STRIPE *	6"	6"	6"
HEIGHT	36" MIN.	36" MIN.	60" MIN.
NUMBER OF RETROREFLECTORIZED RAIL FACES	2 (ONE EACH DIRECTION)	4 (TWO EACH DIRECTION)	3 IF FACING TRAFFIC IN ONE DIRECTION 6 IF FACING TRAFFIC IN TWO DIRECTIONS

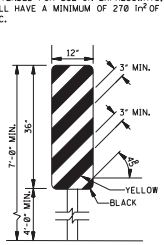
* 1. FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED.

** 2. BARRICADES INTENDED FOR USE ON EXPRESSWAYS, FREEWAYS AND OTHER HIGH SPEED ROADWAYS, SHALL HAVE A MINIMUM OF 270 in^2 OF REFLECTIVE AREA FACING TRAFFIC.



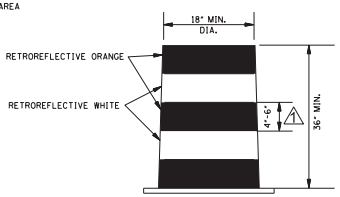
WING BARRICADES

1. WING BARRICADES ARE TYPE III BARRICADES ERECTED ON THE SHOULDER ON ONE OR BOTH SIDES OF THE PAVEMENT TO GIVE THE SENSATION OF A NARROWING OR RESTRICTED ROADWAY. WING BARRICADES MAY BE USED AS A MOUNTING FOR THE ADVANCE WARNING SIGNS OR FLASHERS.
2. WING BARRICADES SHOULD BE USED:
   A. IN ADVANCE OF A CONSTRUCTION PROJECT EVEN WHEN NO PART OF THE ROADWAY IS ACTUALLY CLOSED.
   B. IN ADVANCE OF ALL BRIDGE OR CULVERT WIDENING OPERATIONS.

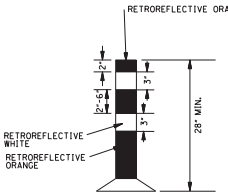


TYPE 3 OBJECT MARKER
(OM3-R)

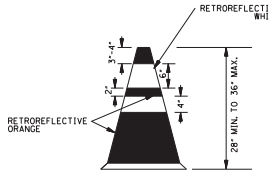
1. TYPE 3 OBJECT MARKERS SHALL BE USED AT ALL EXPOSED BRIDGE ABUTMENTS AND AT OTHER LOCATIONS AS DEEMED NECESSARY BY THE ENGINEER.
2. THE OM3-R IS SHOWN. THE OM3-L IS SIMILAR EXCEPT THE STRIPES SLOPE DOWNWARD FROM THE UPPER LEFT SIDE TO THE LOWER RIGHT SIDE AND SHALL BE PLACED ON THE LEFT SIDE OF THE OBJECT.
3. THE INSIDE EDGE OF THE MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION.
4. THE STRIPING SHALL CONSIST OF ALTERNATING BLACK AND RETOREFLECTIVE YELLOW SLOPING DOWNWARD TOWARD THE SIDE ON WHICH TRAFFIC IS THE PASS.



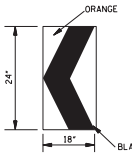
PLASTIC DRUM DETAIL



TUBULAR MARKER DETAIL

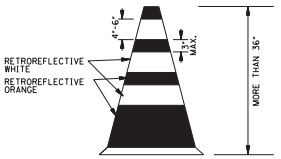


PLASTIC CONE DETAIL
(28" – 36")



RETROREFLECTIVE CHEVRON ALIGNMENT SIGN DETAIL
(W1-8)

1. A CHEVRON SIGN CONSISTS OF A BLACK CHEVRON TYPE MARKING ON AN ORANGE BACKGROUND AND SHALL POINT IN THE DIRECTION OF TRAFFIC FLOW.
2. THE CHEVRON SIGN SHALL BE MOUNTED ON CRASHWORTHY SUPPORT.
3. CHEVRON SIGNS MAY BE USED TO SUPPLEMENT OTHER STANDARD DEVICES WHERE ONE OR MORE LANES ARE CLOSED FOR CONSTRUCTION OR MAINTENANCE. THEY SHOULD BE PLACED APPROXIMATELY 2'-0" BEHIND THE LANE TRANSITION STRIPE.
4. CHEVRON SIGNS SHALL BE INSTALLED AT A MINIMUM HEIGHT OF 4 FEET MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE TRAVELWAY.



PLASTIC CONE DETAIL
(36" OR GREATER)

1. PLASTIC DRUMS, TUBULAR MARKERS, OR PLASTIC CONES SHALL BE ON END AND USED AS AN EXPEDIENT METHOD FOR TRAFFIC CHANNELIZATION. THE COLOR AND MARKING OF THE DEVICE USED SHALL BE CONSISTENT WITH MARKING STANDARDS FOR BARRICADE. THE PREDOMINANT COLOR ON THE DEVICE USED SHALL BE ORANGE WITH RETROREFLECTIVE, HORIZONTAL, CIRCUMFERENTIAL WHITE STRIPES AS SHOWN ON THE DETAILS.
2. DRUMS, TUBULAR MARKERS, OR PLASTIC CONES SHOULD NEVER BE PLACED IN THE ROADWAY WITHOUT WARNING SIGNS.
3. WHERE PRACTICAL PLASTIC DRUMS, TUBULAR MARKERS, OR PLASTIC CONES SHOULD BE PLACED NO CLOSER THAN 3'-0" FROM THE EDGE OF TRAVELED LANE.
4. BALLAST SHALL NOT BE PLACED ON THE TOP OF THE DRUM.

DATE	REVISION	BY
12/17/24	REVISED TEXT AND DETAILS.	STN

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

HIGHWAY SIGN AND BARRICADE DETAILS FOR CONSTRUCTION PROJECTS

MDOT

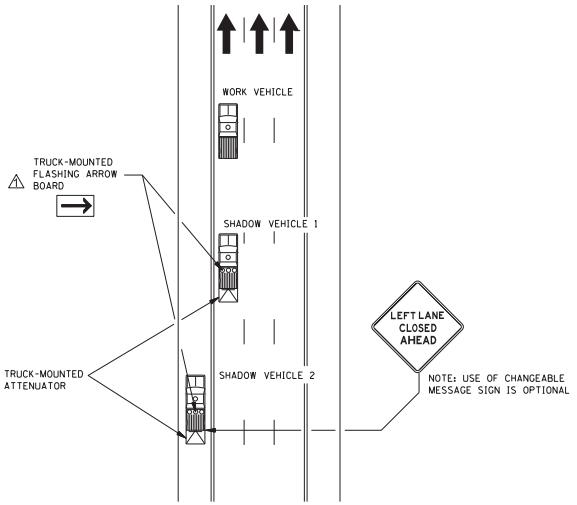
WORKING NUMBER
TCP-8

ISSUE DATE: AUGUST 01, 2017

SHEET NUMBER
6358

STATE	PROJECT NO.
MISS.	

MOBILE OPERATIONS ON MULTILANE ROAD

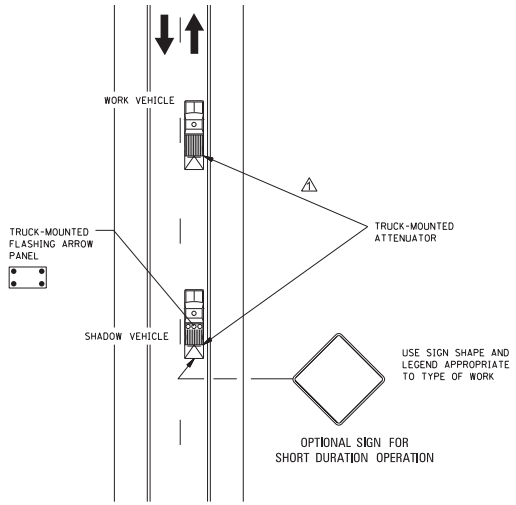


MOBILE OPERATIONS ON MULTILANE ROAD

NOTES FOR MULTILANE LANE OPERATION:

1. SHADOW AND WORK VEHICLES SHALL DISPLAY HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS. AN ARROW BOARD SHALL BE USED WHEN A FREEWAY LANE IS CLOSED. WHEN MORE THAN ONE FREEWAY LANE IS CLOSED, A SEPARATE ARROW BOARD SHALL BE USED FOR EACH CLOSED LANE.
2. SHADOW VEHICLE 2 SHOULD BE EQUIPPED WITH AN ARROW BOARD AND TRUCK MOUNTED ATTENUATOR (TMA), AN APPROPRIATE LANE CLOSURE SIGN SHOULD BE PLACED ON SHADOW VEHICLE 2 SO AS NOT TO OBSCURE THE ARROW BOARD.
3. SHADOW VEHICLE 1 SHOULD BE EQUIPPED WITH AN ARROW BOARD AND TRUCK-MOUNTED ATTENUATOR (TMA).
4. SHADOW VEHICLE 2 SHOULD TRAVEL AT A VARYING DISTANCE FROM THE WORK OPERATION SO AS TO PROVIDE ADEQUATE SIGHT DISTANCE FOR TRAFFIC APPROACHING FROM THE REAR.
5. THE SPACING BETWEEN THE WORK VEHICLES AND THE SHADOW VEHICLES, AND BETWEEN EACH SHADOW VEHICLE, SHOULD BE MINIMIZED TO DETER ROAD USERS FROM DRIVING IN BETWEEN.
6. ON HIGH-SPEED ROADWAYS, A THIRD SHADOW VEHICLE (NOT SHOWN) MAY BE USED WITH SHADOW VEHICLE 1 IN THE CLOSED LANE, SHADOW VEHICLE 2 STRADDLING THE EDGE LINE, AND SHADOW VEHICLE 3 ON THE SHOULDER.
7. ARROW BOARD SHALL BE AS A MINIMUM TYPE B, 60" X 30" IN ACCORDANCE WITH THE CRITERIA PRESENTED IN THE MUTCD.
8. WORK SHOULD NORMALLY BE DONE DURING OFF-PEAK HOURS.
9. VEHICLE-MOUNTED SIGNS SHOULD BE MOUNTED WITH THE BOTTOM OF THE SIGN LOCATED AT A MINIMUM HEIGHT OF 48" ABOVE THE PAVEMENT AND SHALL NOT BE OBSCURED BY EQUIPMENT OR SUPPLIES. SIGN LEGENDS SHALL BE COVERED OR TURNED FROM VIEW WHEN WORK IS NOT IN PROGRESS.
10. WHEN THE WORK VEHICLE OCCUPIES AN INTERIOR LANE (A LANE OTHER THAN THE FAR RIGHT OR FAR LEFT) OF A DIRECTIONAL ROADWAY HAVING A RIGHT-HAND SHOULDER 10 FEET OR MORE IN WIDTH, SHADOW VEHICLE 2 SHOULD DRIVE ON THE RIGHT-HAND SHOULDER WITH A SIGN INDICATING THAT WORK IS TAKING PLACE IN THE INTERIOR LANE.
11. ON HIGH-SPEED ROADWAYS, A THIRD SHADOW VEHICLE (NOT SHOWN) MAY BE USED WITH SHADOW VEHICLE 1 IN THE CLOSED LANE, SHADOW VEHICLE 2 STRADDLING THE EDGE LINE, AND SHADOW VEHICLE 3 ON THE SHOULDER.
12. WHERE ADEQUATE SHOULDER WIDTH IS NOT AVAILABLE, SHADOW VEHICLE 3 MAY ALSO STRADDLE THE EDGE LINE.
13. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.

MOBILE OPERATIONS ON TWO–LANE ROAD



MOBILE OPERATIONS ON TWO–LANE ROAD

NOTES FOR TWO-LANE OPERATION:

1. WHERE PRACTICAL AND WHEN NEEDED, THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS. IF THIS CAN NOT BE DONE FREQUENTLY, AS AN ALTERNATIVE, A "DO NOT PASS" SIGN MAY BE PLACED ON THE REAR OF THE VEHICLE BLOCKING THE LANE.
2. THE DISTANCE BETWEEN THE WORK AND SHADOW VEHICLES MAY VARY ACCORDING TO TERRAIN, PAINT DRYING TIME, AND OTHER FACTORS. SHADOW VEHICLES ARE USED TO WARN TRAFFIC OF THE OPERATION AHEAD. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, THE SHADOW VEHICLE SHOULD MAINTAIN THE MINIMUM DISTANCE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. THE SHADOW VEHICLE SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
3. ADDITIONAL SHADOW VEHICLES TO WARN AND REDUCE THE SPEED OF ONCOMING OR OPPOSING TRAFFIC MAY BE USED. POLICE PATROL CARS MAY BE USED FOR THIS PURPOSE.
4. A TRUCK-MOUNTED ATTENUATOR (TMA) SHOULD BE USED ON THE SHADOW VEHICLE AND MAY BE USED ON THE WORK VEHICLE.
5. THE WORK VEHICLE SHALL BE EQUIPPED WITH BEACONS, AND THE SHADOW VEHICLES SHALL BE EQUIPPED WITH TWO HIGH-INTENSITY FLASHING LIGHTS MOUNTED ON THE REAR, ADJACENT TO THE SIGN. SHADOW AND WORK VEHICLES SHALL DISPLAY FLASHING OR ROTATING BEACONS BOTH FORWARD AND TO THE REAR.
6. VEHICLE-MOUNTED SIGNS SHOULD BE MOUNTED WITH THE BOTTOM OF THE SIGN LOCATED AT A MINIMUM HEIGHT OF 48" ABOVE THE PAVEMENT AND SHALL NOT BE OBSCURED BY EQUIPMENT OR SUPPLIES. SIGN LEGENDS SHALL BE COVERED OR TURNED FROM VIEW WHEN WORK IS NOT IN PROGRESS.
7. ARROW BOARD TO BE USED IN CAUTION MODE.
8. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.

DATE	REVISION	BY
12/17/25	REVISED TEXT AND DETAILS	SYN

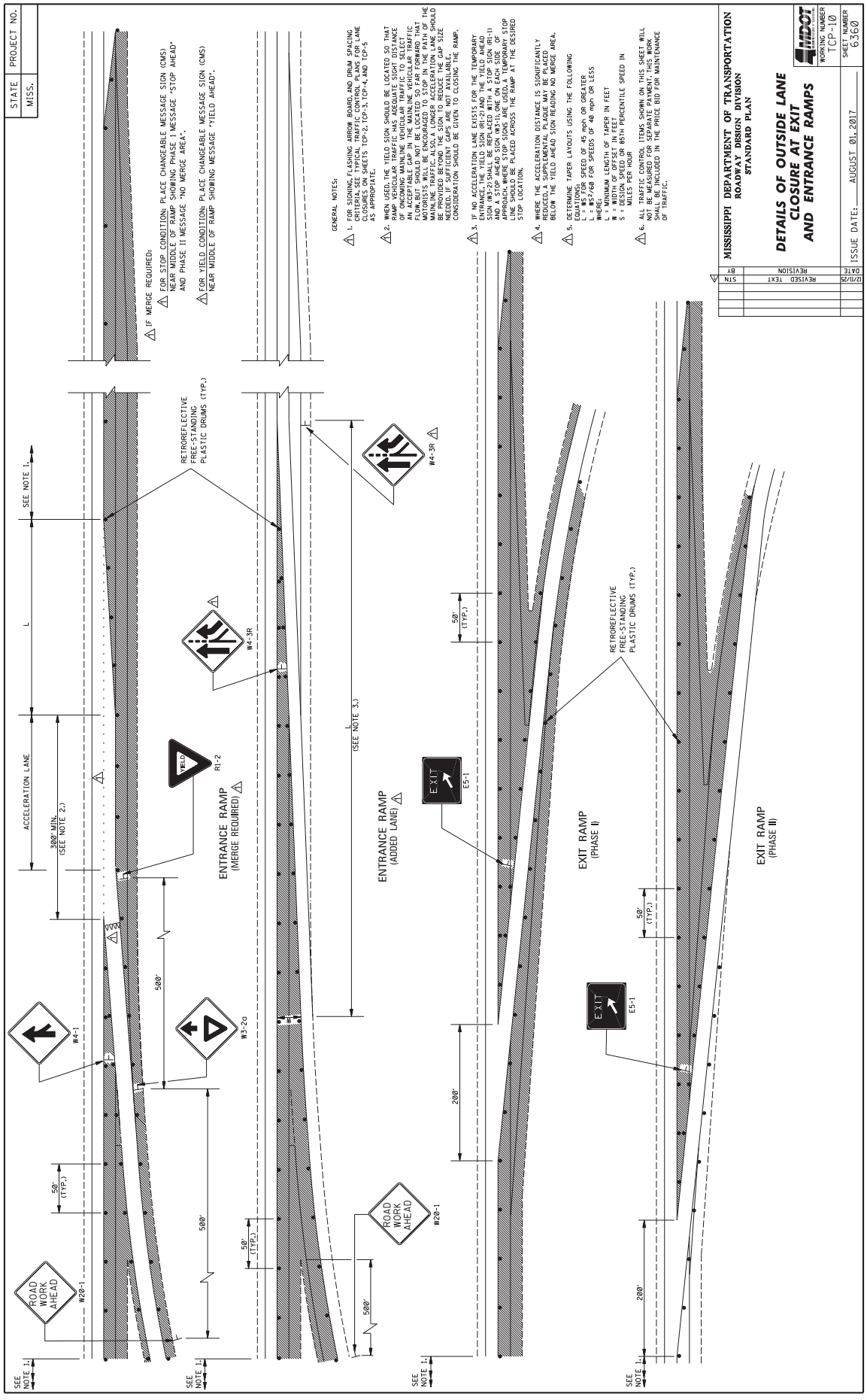
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

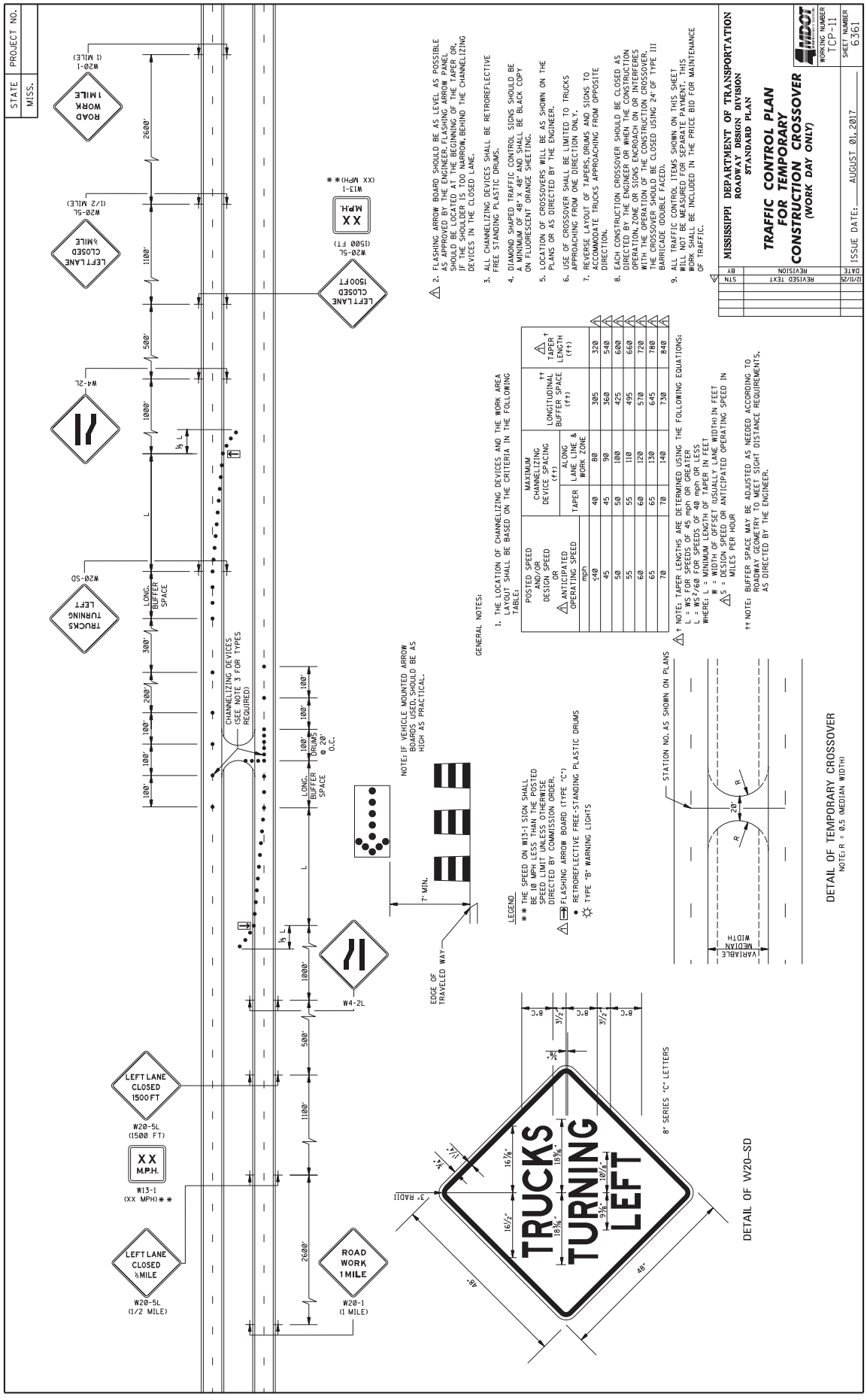
TRAFFIC CONTROL PLAN MOBILE OPERATIONS MULTILANE ROADS AND TWO–LANE ROADS

WORKING NUMBER TCP-9

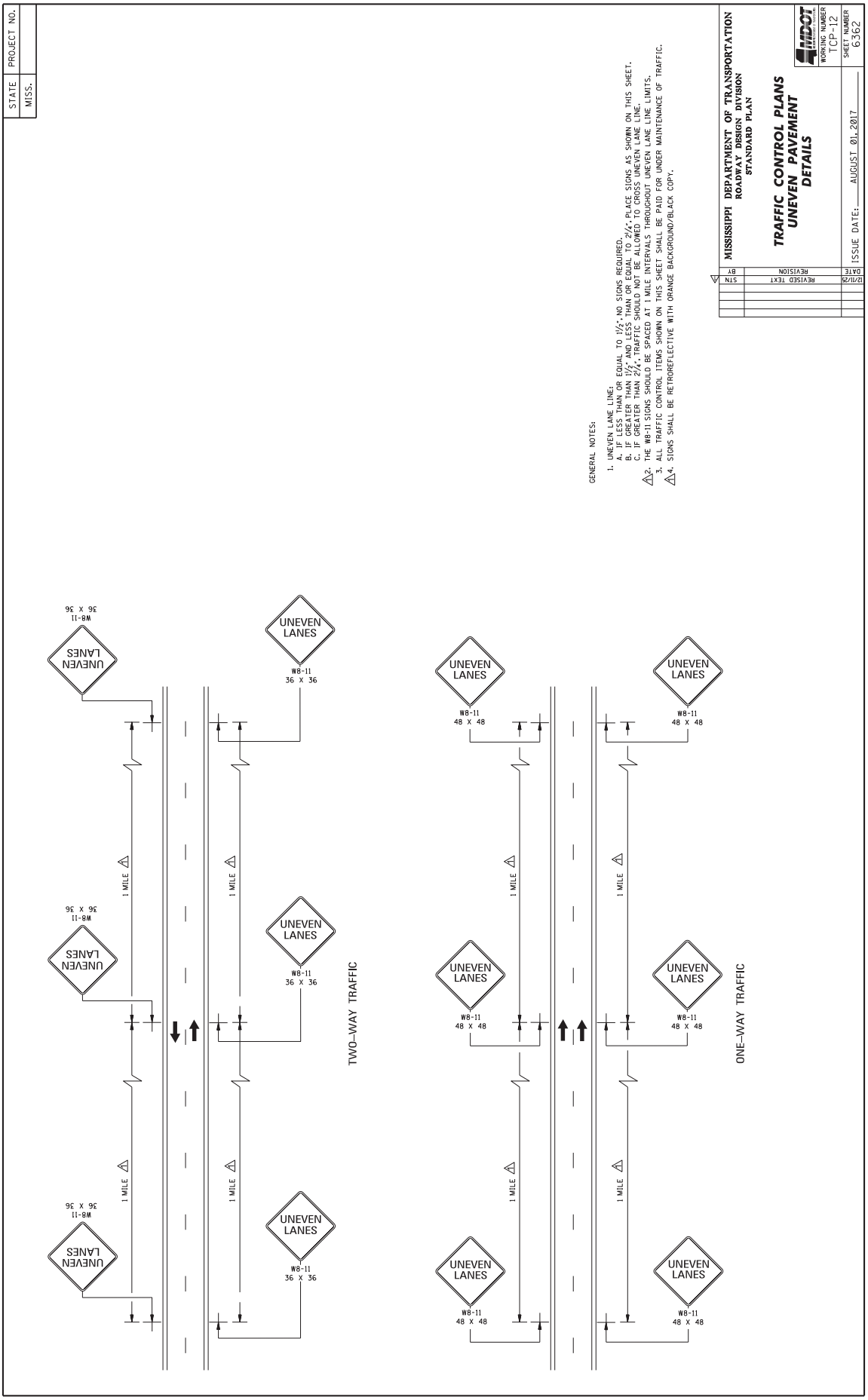
ISSUE DATE: AUGUST 01, 2017

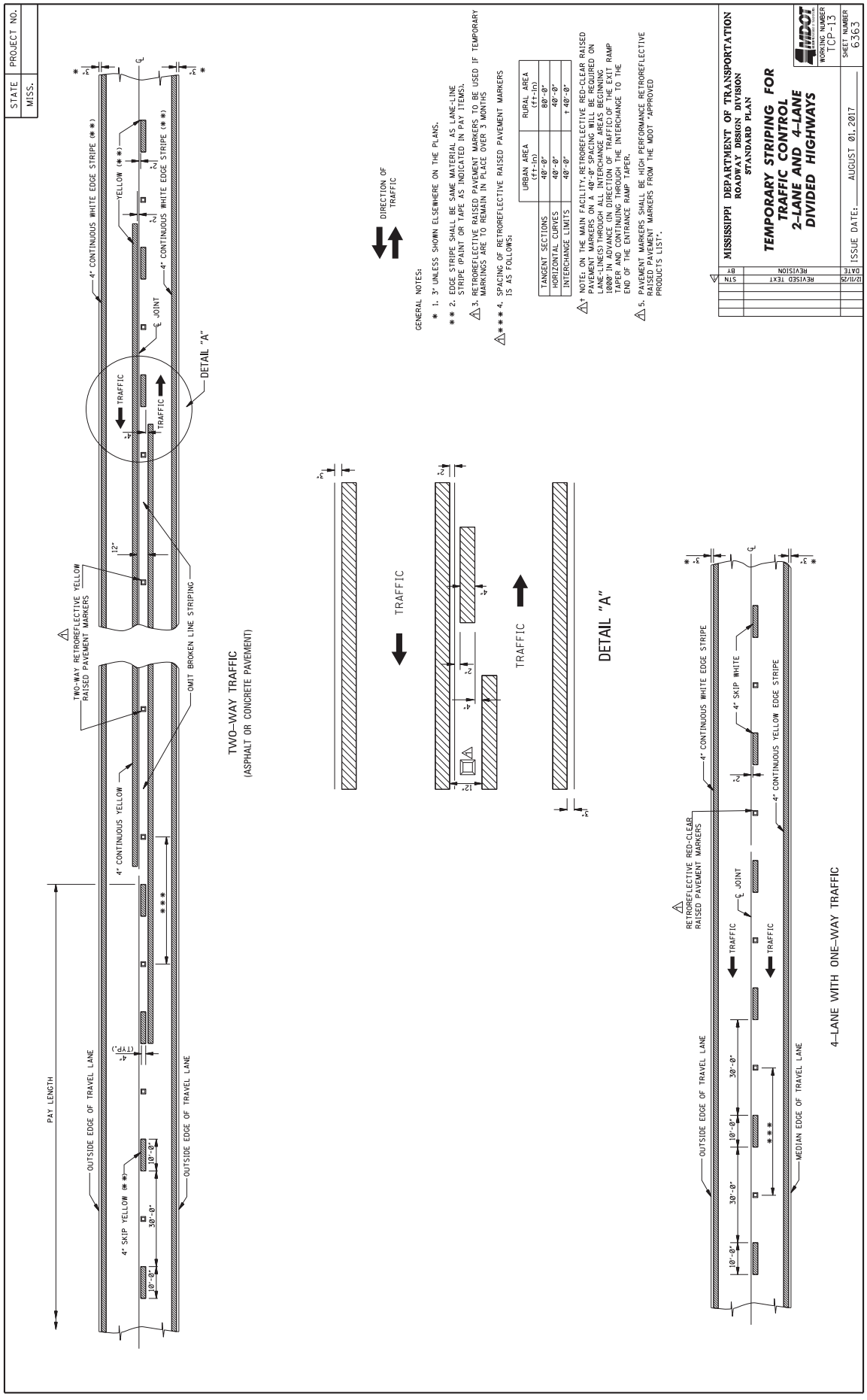
SHEET NUMBER 6359

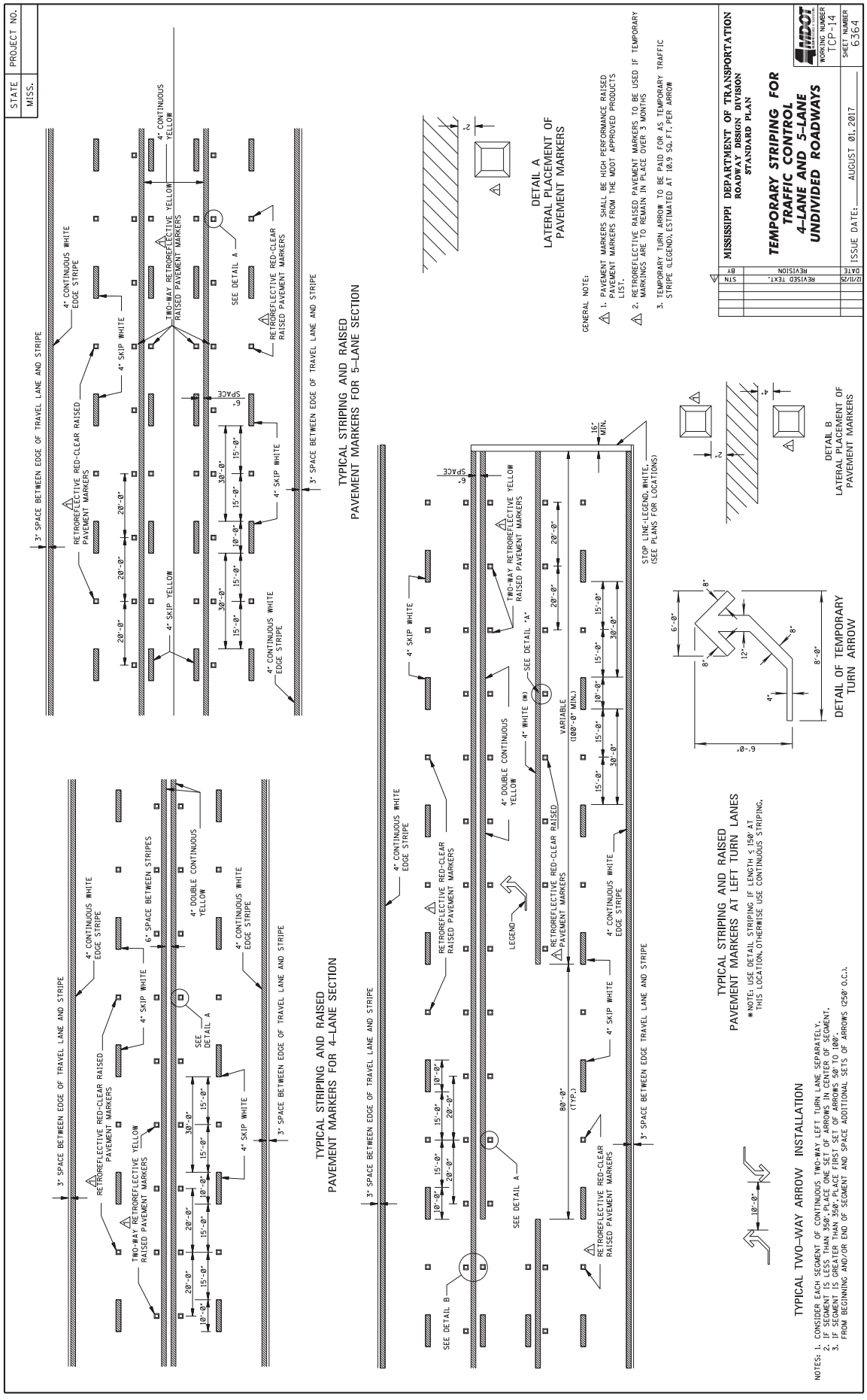

STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
DETAILS OF OUTSIDE LANE CLOSURE AT EXIT AND ENTRANCE RAMPS
WORKING NUMBER TCP-10
SHEET NUMBER 6360
ISSUE DATE: AUGUST 01, 2017
REVISED TEXT
GENERAL NOTES:
1. FOR SIGNING, FLASHING ARROW BOARD, AND DRUM SPACING CRITERIA SEE STANDARD TRAFFIC CONTROL PLANS FOR LANE CLOSURES ON SHEETS TCP-2, TCP-3, TCP-4, AND TCP-5 AS APPROPRIATE.
2. WHEN USED, THE YIELD SIGN SHOULD BE LOCATED SO THAT RAMP VEHICULAR TRAFFIC HAS ADEQUATE SIGHT DISTANCE OF ONCOMING MAINLINE VEHICULAR TRAFFIC TO SELECT AN ACCEPTABLE GAP IN THE MAINLINE VEHICULAR TRAFFIC FLOW, BUT SHOULD NOT BE LOCATED SO FAR FORWARD THAT MOTORISTS WILL BE ENCOURAGED TO STOP IN THE PATH OF THE MAINLINE TRAFFIC. ALSO, A LONGER ACCELERATION LANE SHOULD BE PROVIDED BEYOND THIS POINT IF ADDITIONAL GAP SIZE NEEDED. IF SUFFICIENT GAPS ARE NOT AVAILABLE, CONSIDERATION SHOULD BE GIVEN TO CLOSING THE RAMP.
3. IF NO ACCELERATION LANE EXISTS FOR THE TEMPORARY ENTRANCE RAMP, THE YIELD AHEAD SIGN (W3-2) AND THE YIELD AHEAD SIGN (W3-2) SHALL BE REPLACED WITH A STOP SIGN (R1-1) AND A STOP AHEAD SIGN (W3-1), ONE ON EACH SIDE OF APPROACHING TRAFFIC. ALSO, A SUPPLEMENTAL STOP LINE SHOULD BE PLACED ACROSS THE RAMP AT THE DESIRED STOP LOCATION.
4. WHERE THE ACCELERATION DISTANCE IS SIGNIFICANTLY REDUCED, A SUPPLEMENTAL PLAQUE SHALL BE PLACED BELOW THE YIELD AHEAD SIGN READING NO MERGE AREA.
5. DETERMINE TAPER LAYOUTS USING THE FOLLOWING CRITERIA:
L = WS FOR SPEED OF 45 mph OR GREATER
L = WS²/60 FOR SPEEDS OF 40 mph OR LESS
WHERE:
L = MINIMUM LENGTH OF TAPER IN FEET
W = WIDTH OF OFFSET IN FEET
S = DESIGN SPEED OR 85TH PERCENTILE SPEED IN MPH, WHICHEVER IS GREATER
6. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET WILL NOT BE MEASURED FOR SEPARATE PAYMENT; THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR MAINTENANCE OF TRAFFIC.
IF MERGE REQUIRED:
FOR STOP CONDITION: PLACE CHANGEABLE MESSAGE SIGN (CMS) NEAR MIDDLE OF RAMP SHOWING PHASE I MESSAGE "STOP AHEAD" AND PHASE II MESSAGE "NO MERGE AREA".
FOR YIELD CONDITION: PLACE CHANGEABLE MESSAGE SIGN (CMS) NEAR MIDDLE OF RAMP SHOWING MESSAGE "YIELD AHEAD".
ENTRANCE RAMP (MERGE REQUIRED)
ENTRANCE RAMP (ADDED LANE)
EXIT RAMP (PHASE I)
EXIT RAMP (PHASE II)
ACCELERATION LANE
300' MIN. (SEE NOTE 2.)
L
(SEE NOTE 3.)
SEE NOTE 1.
RETROREFLECTIVE FREE-STANDING PLASTIC DRUMS (TYP.)
50' (TYP.)
500'
200'
W4-1
W3-2o
W4-3R
R1-2
E5-1
W20-1
ROAD WORK AHEAD
YIELD
EXIT

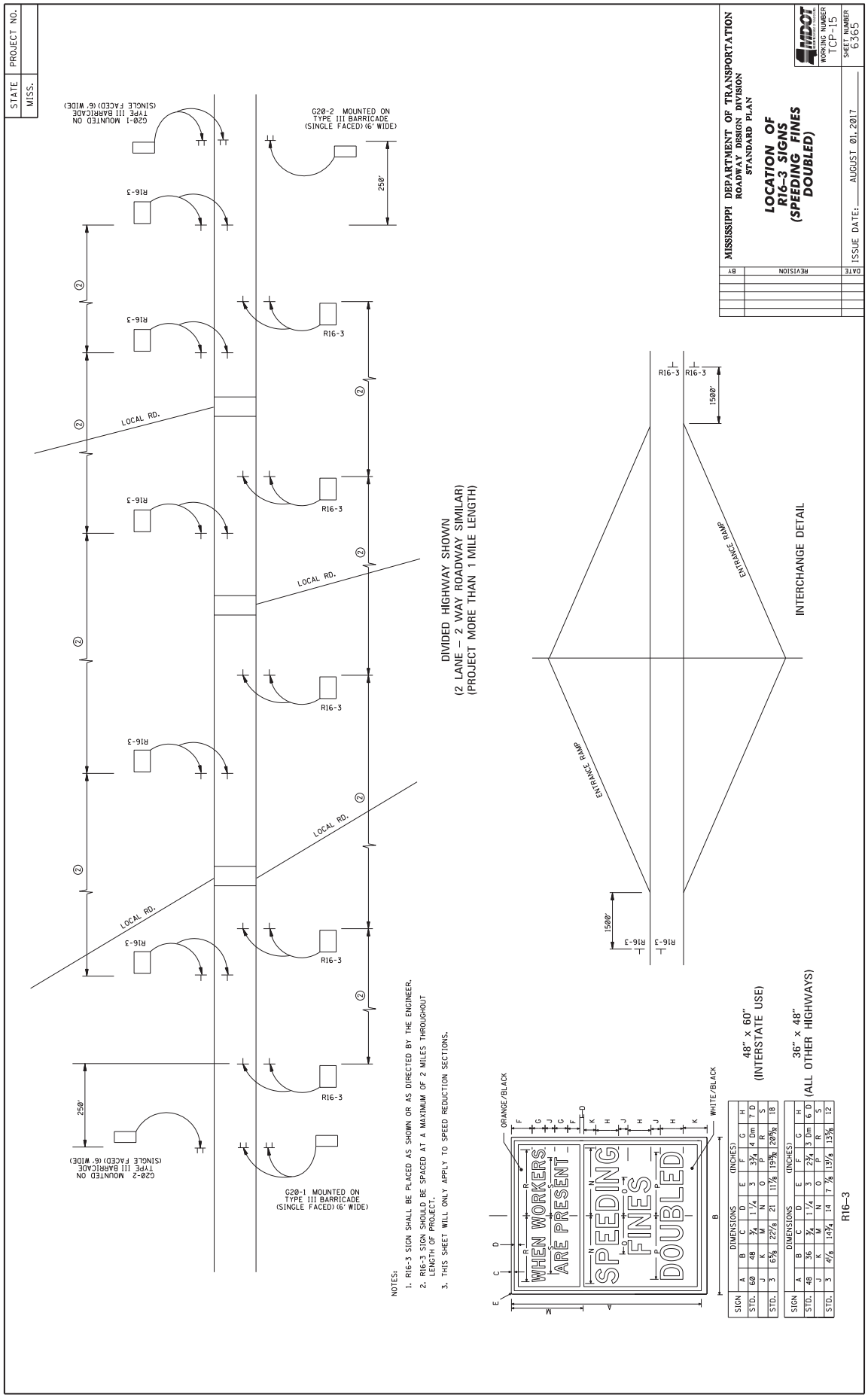


POSTED SPEED AND/OR DESIGN SPEED OR △ ANTICIPATED OPERATING SPEED mph	MAXIMUM CHANNELIZING DEVICES SPACING (ft) TAPER	MAXIMUM CHANNELIZING DEVICES SPACING (ft) ALONG LANE LINE & WORK ZONE	LONGITUDINAL †† BUFFER SPACE (ft)	△ † TAPER LENGTH (ft)
≤40	40	80	305	320
45	45	90	360	540
50	50	100	425	600
55	55	110	495	660
60	60	120	570	720
65	65	130	645	780
70	70	140	730	840


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TRAFFIC CONTROL PLANS
UNEVEN PAVEMENT
DETAILS
WORKING NUMBER TCP-12
SHEET NUMBER 6362
ISSUE DATE: AUGUST 01, 2017
DATE BY REVISION
12/1/25 STN REVISED TEXT
GENERAL NOTES:
1. UNEVEN LANE LINE:
A. IF LESS THAN OR EQUAL TO 1½", NO SIGNS REQUIRED.
B. IF GREATER THAN 1½" AND LESS THAN OR EQUAL TO 2¼", PLACE SIGNS AS SHOWN ON THIS SHEET.
C. IF GREATER THAN 2¼", TRAFFIC SHOULD NOT BE ALLOWED TO CROSS UNEVEN LANE LINE.
2. THE W8-11 SIGNS SHOULD BE SPACED AT 1 MILE INTERVALS THROUGHOUT UNEVEN LANE LINE LIMITS.
3. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET SHALL BE PAID FOR UNDER MAINTENANCE OF TRAFFIC.
4. SIGNS SHALL BE RETROREFLECTIVE WITH ORANGE BACKGROUND/BLACK COPY.
TWO-WAY TRAFFIC
ONE-WAY TRAFFIC
UNEVEN LANES
W8-11
36 X 36
48 X 48
1 MILE

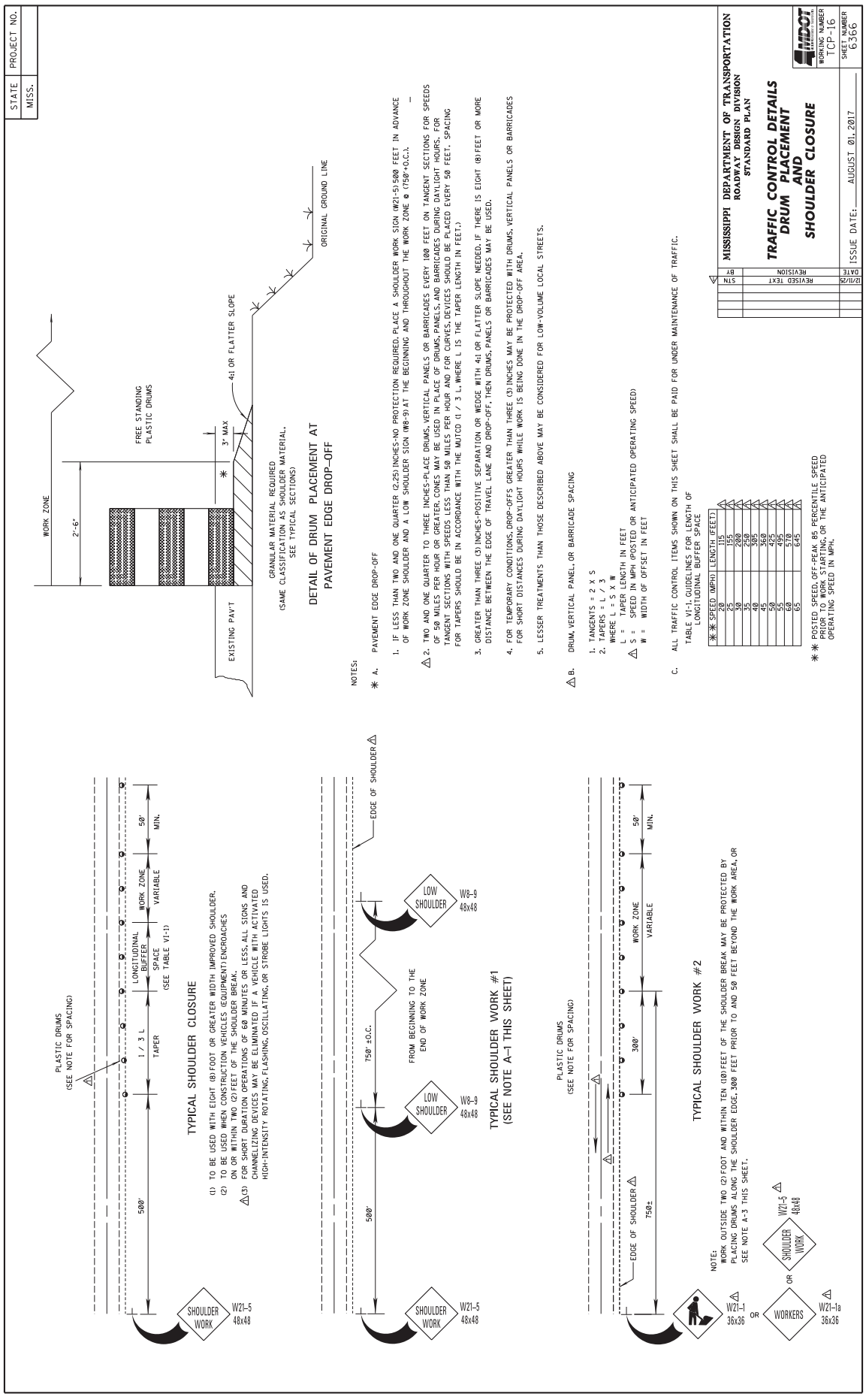

STATE MISS.
PROJECT NO.
PAY LENGTH
OUTSIDE EDGE OF TRAVEL LANE
4" SKIP YELLOW (**)
4" CONTINUOUS YELLOW
TWO-WAY RETROREFLECTIVE YELLOW RAISED PAVEMENT MARKERS
OMIT BROKEN LINE STRIPING
OUTSIDE EDGE OF TRAVEL LANE
TWO-WAY TRAFFIC
(ASPHALT OR CONCRETE PAVEMENT)
4" CONTINUOUS WHITE EDGE STRIPE (**)
YELLOW (**)
4" CONTINUOUS WHITE EDGE STRIPE (**)
℄ JOINT
TRAFFIC
TRAFFIC
DETAIL "A"
DIRECTION OF TRAFFIC
TRAFFIC
TRAFFIC
DETAIL "A"
GENERAL NOTES:
* 1. 3" UNLESS SHOWN ELSEWHERE ON THE PLANS.
** 2. EDGE STRIPE SHALL BE SAME MATERIAL AS LANE-LINE STRIPE (PAINT OR TAPE AS INDICATED IN PAY ITEMS).
3. RETROREFLECTIVE RAISED PAVEMENT MARKERS TO BE USED IF TEMPORARY MARKINGS ARE TO REMAIN IN PLACE OVER 3 MONTHS
*** 4. SPACING OF RETROREFLECTIVE RAISED PAVEMENT MARKERS IS AS FOLLOWS:
URBAN AREA (ft-in) / RURAL AREA (ft-in)
TANGENT SECTIONS 40'-0" 80'-0"
HORIZONTAL CURVES 40'-0" 40'-0"
INTERCHANGE LIMITS 40'-0" † 40'-0"
† NOTE: ON THE MAIN FACILITY, RETROREFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS ON A 40'-0" SPACING WILL BE REQUIRED ON LANE-LINES) THROUGH ALL INTERCHANGE AREAS BEGINNING (ABOVE INSIGNIFICANT) DISTANCE BEFORE THE GORE TO THE RAMP TAPER AND CONTINUING THROUGH THE INTERCHANGE TO THE END OF THE ENTRANCE RAMP TAPER.
5. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RETROREFLECTIVE RAISED PAVEMENT MARKERS FROM THE MDOT "APPROVED PRODUCTS LIST".
STN REVISED TEXT 12/11/29
BY REVISION DATE
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TEMPORARY STRIPING FOR TRAFFIC CONTROL 2-LANE AND 4-LANE DIVIDED HIGHWAYS
WORKING NUMBER TCP-13
ISSUE DATE: AUGUST 01, 2017
SHEET NUMBER 6363
RETROREFLECTIVE RED-CLEAR RAISED PAVEMENT MARKERS
4" CONTINUOUS WHITE EDGE STRIPE
4" SKIP WHITE
4" CONTINUOUS YELLOW EDGE STRIPE
OUTSIDE EDGE OF TRAVEL LANE
MEDIAN EDGE OF TRAVEL LANE
4-LANE WITH ONE-WAY TRAFFIC


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TEMPORARY STRIPING FOR TRAFFIC CONTROL 4-LANE AND 5-LANE UNDIVIDED ROADWAYS
WORKING NUMBER TCP-14
SHEET NUMBER 6364
ISSUE DATE: AUGUST 01, 2017
STN BY REVISION DATE
12/11/25 REVISED TEXT.
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS FOR 4-LANE SECTION
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS FOR 5-LANE SECTION
TYPICAL STRIPING AND RAISED PAVEMENT MARKERS AT LEFT TURN LANES
* NOTE: USE DETAIL STRIPING IF LENGTH ≤ 150' AT THIS LOCATION, OTHERWISE USE CONTINUOUS STRIPING.
TYPICAL TWO-WAY ARROW INSTALLATION
DETAIL A LATERAL PLACEMENT OF PAVEMENT MARKERS
DETAIL B LATERAL PLACEMENT OF PAVEMENT MARKERS
DETAIL OF TEMPORARY TURN ARROW
GENERAL NOTE:
1. PAVEMENT MARKERS SHALL BE HIGH PERFORMANCE RAISED PAVEMENT MARKERS FROM THE MDOT APPROVED PRODUCTS LIST.
2. RETROREFLECTIVE RAISED PAVEMENT MARKERS TO BE USED IF TEMPORARY MARKINGS ARE TO REMAIN IN PLACE OVER 3 MONTHS
3. TEMPORARY TURN ARROW TO BE PAID FOR AS TEMPORARY TRAFFIC STRIPE (LEGEND), ESTIMATED AT 10.9 SQ. FT. PER ARROW
NOTES: 1. CONSIDER EACH SEGMENT OF CONTINUOUS TWO-WAY LEFT TURN LANE SEPARATELY.
2. IF SEGMENT IS LESS THAN 350', PLACE ONE SET OF ARROWS IN CENTER OF SEGMENT.
3. IF SEGMENT IS GREATER THAN 350', PLACE FIRST SET OF ARROWS 50' TO 100' FROM BEGINNING AND/OR END OF SEGMENT AND SPACE ADDITIONAL SETS OF ARROWS @250' O.C.).



SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H
STD.	60	48	¾	1 ¼	3	3¾	4 Dm	7 D
	J	K	M	N	O	P	R	S
STD.	3	6⅝	22⅛	21	11⅞	19⅜	20⅜	18

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H
STD.	48	36	¾	1 ¼	3	2¾	3 Dm	6 D
	J	K	M	N	O	P	R	S
STD.	3	4⅛	14¾	14	7 ⅞	13⅛	13⅝	12


STATE MISS.
PROJECT NO.
WORK ZONE
2'-6"
FREE STANDING PLASTIC DRUMS
3" MAX
4:1 OR FLATTER SLOPE
EXISTING PAVT
GRANULAR MATERIAL REQUIRED (SAME CLASSIFICATION AS SHOULDER MATERIAL, SEE TYPICAL SECTIONS)
ORIGINAL GROUND LINE
DETAIL OF DRUM PLACEMENT AT PAVEMENT EDGE DROP-OFF
NOTES:
* A. PAVEMENT EDGE DROP-OFF
1. IF LESS THAN TWO AND ONE QUARTER (2.25) INCHES-NO PROTECTION REQUIRED. PLACE A SHOULDER WORK SIGN (W21-5) 500 FEET IN ADVANCE OF WORK ZONE SHOULDER AND A LOW SHOULDER SIGN (W8-9) AT THE BEGINNING AND THROUGHOUT THE WORK ZONE @ (750'+O.C.).
2. TWO AND ONE QUARTER TO THREE INCHES-PLACE DRUMS, VERTICAL PANELS OR BARRICADES EVERY 100 FEET ON TANGENT SECTIONS FOR SPEEDS OF 50 MILES PER HOUR OR GREATER. CONES MAY BE USED IN PLACE OF DRUMS, PANELS, AND BARRICADES DURING DAYLIGHT HOURS. FOR TANGENT SECTIONS WITH SPEEDS LESS THAN 50 MILES PER HOUR AND FOR CURVES, DEVICES SHOULD BE PLACED EVERY 50 FEET. SPACING FOR TAPERS SHOULD BE IN ACCORDANCE WITH THE MUTCD (1 / 3 L, WHERE L IS THE TAPER LENGTH IN FEET.)
3. GREATER THAN THREE (3) INCHES-POSITIVE SEPARATION OR WEDGE WITH 4:1 OR FLATTER SLOPE NEEDED. IF THERE IS EIGHT (8) FEET OR MORE DISTANCE BETWEEN THE EDGE OF TRAVEL LANE AND DROP-OFF, THEN DRUMS, PANELS OR BARRICADES MAY BE USED.
4. FOR TEMPORARY CONDITIONS, DROP-OFFS GREATER THAN THREE (3) INCHES MAY BE PROTECTED WITH DRUMS, VERTICAL PANELS OR BARRICADES FOR SHORT DISTANCES DURING DAYLIGHT HOURS WHILE WORK IS BEING DONE IN THE DROP-OFF AREA.
5. LESSER TREATMENTS THAN THOSE DESCRIBED ABOVE MAY BE CONSIDERED FOR LOW-VOLUME LOCAL STREETS.
B. DRUM, VERTICAL PANEL, OR BARRICADE SPACING
1. TANGENTS = 2 X S
2. TAPERS = L / 3
WHERE L = S X W
L = TAPER LENGTH IN FEET
S = SPEED IN MPH (POSTED OR ANTICIPATED OPERATING SPEED)
W = WIDTH OF OFFSET IN FEET
C. ALL TRAFFIC CONTROL ITEMS SHOWN ON THIS SHEET SHALL BE PAID FOR UNDER MAINTENANCE OF TRAFFIC.
TABLE VI-1, GUIDELINES FOR LENGTH OF LONGITUDINAL BUFFER SPACE
** SPEED (MPH) | LENGTH (FEET)
20 | 115
25 | 155
30 | 200
35 | 250
40 | 305
45 | 360
50 | 425
55 | 495
60 | 570
65 | 645
** POSTED SPEED, OFF-PEAK 85 PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH.
PLASTIC DRUMS (SEE NOTE FOR SPACING)
1 / 3 L
TAPER
LONGITUDINAL BUFFER SPACE (SEE TABLE VI-1)
WORK ZONE VARIABLE
50' MIN.
500'
SHOULDER WORK
W21-5 48x48
TYPICAL SHOULDER CLOSURE
(1) TO BE USED WITH EIGHT (8) FOOT OR GREATER WIDTH IMPROVED SHOULDER.
(2) TO BE USED WHEN CONSTRUCTION VEHICLES (EQUIPMENT) ENCROACHES ON OR WITHIN TWO (2) FEET OF THE SHOULDER BREAK.
(3) FOR SHORT DURATION OPERATIONS OF 60 MINUTES OR LESS, ALL SIGNS AND CHANNELIZING DEVICES MAY BE ELIMINATED IF A VEHICLE WITH ACTIVATED HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS IS USED.
EDGE OF SHOULDER
750' ±O.C.
FROM BEGINNING TO THE END OF WORK ZONE
LOW SHOULDER
W8-9 48x48
TYPICAL SHOULDER WORK #1 (SEE NOTE A-1 THIS SHEET)
PLASTIC DRUMS (SEE NOTE FOR SPACING)
300'
750±
TYPICAL SHOULDER WORK #2
NOTE: WORK OUTSIDE TWO (2) FOOT AND WITHIN TEN (10) FEET OF THE SHOULDER BREAK MAY BE PROTECTED BY PLACING DRUMS ALONG THE SHOULDER EDGE. 300 FEET PRIOR TO AND 50 FEET BEYOND THE WORK AREA, OR SEE NOTE A-3 THIS SHEET.
W21-1 36x36
OR
WORKERS
W21-1a 36x36
SHOULDER WORK
W21-5 48x48
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN
TRAFFIC CONTROL DETAILS DRUM PLACEMENT AND SHOULDER CLOSURE
WORKING NUMBER TCP-16
SHEET NUMBER 6366
ISSUE DATE: AUGUST 01, 2017
BY | REVISION | DATE
STN | REVISED TEXT | 12/11/25

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 7727 **CODE: (SP)**

DATE: 03/12/2026

SUBJECT: Contract Time

PROJECT: NHPP-0008-04(085) / 108150304 – Yazoo County

The calendar date for completion of work to be performed by the Contractor for this project shall be **July 15, 2027** 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 no later than **April 14, 2026** and the effective date of the Notice to Proceed / Beginning of Contract Time will be simultaneous with the execution of the contract.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 7728

DATE: 03/12/2026

SUBJECT: Specialty Items

PROJECT: NHPP-0008-04(085)/108150304 - YAZOO

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

CATEGORY: DISPOSAL OF BUILDINGS, RIGHT OF WAY CLEARING & GRUBBING

Line No	Pay Item	Description
0060	202-B240	Removal of Traffic Stripe

CATEGORY: GUARDRAIL, GUIDERAIL

Line No	Pay Item	Description
0120	606-B001	Guard Rail, Class A, Type 1
0130	606-C003	Guard Rail, Cable Anchor, Type 1
0140	606-D019	Guard Rail, Bridge End Section, Type H
0150	606-E005	Guard Rail, Terminal End Section, Flared

CATEGORY: INTELLIGENT TRANSPORTATION SYSTEMS

Line No	Pay Item	Description
0740	907-659-A001	Traffic Management Center Modifications

CATEGORY: MISCELLANEOUS/ SPECIALTY WORK ITEMS

Line No	Pay Item	Description
0100	423-A001	Rumble Strips, Ground In

CATEGORY: PAVEMENT STRIPING AND MARKING

Line No	Pay Item	Description
0510	907-626-A010	6" Thermoplastic Traffic Stripe, Skip White
0520	907-626-B006	6" Thermoplastic Traffic Stripe, Continuous White
0530	907-626-E005	6" Thermoplastic Traffic Stripe, Continuous Yellow
0540	907-626-G004	Thermoplastic Detail Stripe, White
0550	907-626-G005	Thermoplastic Detail Stripe, Yellow
0560	907-626-H009	Thermoplastic Legend, White
0570	907-626-H010	Thermoplastic Legend, White
0580	907-627-K001	Red-Clear Reflective High Performance Raised Markers

CATEGORY: TRAFFIC CONTROL - PERMANENT

Line No	Pay Item	Description
0280	630-A001	Standard Roadside Signs, Sheet Aluminum, 0.080" Thickness
0290	630-A003	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness
0300	630-A005	Standard Roadside Signs, Sheet Aluminum, 0.1" Thickness
0310	630-C001	Square Tube Posts, 4.0 lb/ft
0320	630-C005	Square Tube Posts, 2.0 lb/ft
0330	630-E002	Structural Steel Angles & Bars, 3" x 3" x 1/4" Angles

0340	630-E004	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar
0350	630-F006	Delineators, Guard Rail, White
0360	630-F007	Delineators, Guard Rail, Yellow
0370	630-G005	Type 3 Object Markers, OM-3R or OM-3L, Post Mounted
0380	660-A003	Equipment Cabinet, Type B
0390	660-A004	Equipment Cabinet, Type C
0400	660-B001	Cabinet Modifications
0590	907-630-L001	Pedestal Sign Support, Assembly No 1, Contractor Designed
0600	907-630-L002	Pedestal Sign Support, Assembly No 2, Contractor Designed
0610	907-634-E001	Camera Pole with Foundation, 50' Pole
0620	907-634-I001	Wood Pole, Class II Height 40'
0630	907-634-K001	Camera Lowering Device
0640	907-636-B042	Electric Cable, Underground in Conduit, THHN, AWG #2, 3 Conductor
0650	907-636-E001	Electric Cable, Underground in Conduit, Tracer Cable
0660	907-637-A002	Pullbox Enclosure, Type 2
0670	907-637-A004	Pullbox Enclosure, Type 4
0680	907-637-A005	Pullbox Enclosure, Type 5
0690	907-637-H001	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"
0700	907-637-H002	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2"
0710	907-650-A002	On Street Video Equipment, Fixed Type
0720	907-650-A003	On Street Video Equipment, PTZ Type
0730	907-656-A002	Dynamic Message Sign, Type 2
0750	907-661-A004	Fiber Optic Cable, 72 SM
0760	907-661-B002	Fiber Optic Drop Cable, 12 SM
0770	907-663-A001	Network Switch, Type A
0780	907-663-A005	Network Switch, Type E
0790	907-663-D001	Category 6 Cable, Installed in Conduit
0800	907-670-A001	Roadway Weather Information System
0810	907-670-B002	Warning Sign with Flashing Beacon

CATEGORY: TRAFFIC CONTROL - TEMPORARY

Line No	Pay Item	Description
0180	619-A1001	Temporary Traffic Stripe, Continuous White
0190	619-A2001	Temporary Traffic Stripe, Continuous Yellow
0200	619-A3001	Temporary Traffic Stripe, Skip White
0210	619-A5001	Temporary Traffic Stripe, Detail
0220	619-A6001	Temporary Traffic Stripe, Legend
0230	619-A6002	Temporary Traffic Stripe, Legend
0240	619-E1001	Flashing Arrow Panel, Type C
0250	619-J1004	Impact Attenuator, 60 MPH
0500	907-619-E3001	Changeable Message Sign

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 7729 **CODE: (SP)**

DATE: 3/12/2026

SUBJECT: Cooperation Between Contractors

PROJECT: NHPP-0008-04(085) / 108150304 – Yazoo County

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

The Bidder is advised that this project adjoins the following project that may be under construction before the completion of this contract:

NHPP-0008-04(066) / 108150301 – Yazoo County, Pavement Restoration on approximately 11 miles of US 49 from 0.8 miles north of Old Highway 49 to SR 16 and US 49 Frontage Road just south of Yazoo High School

NH-0008-03(050) / 105530301 – Madison County, Pavement Restoration of US 49 from Hinds County Line to the Yazoo County Line

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

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 – NOTICE TO BIDDERS NO. 7730 **CODE: (SP)**

DATE: 3/12/2026

SUBJECT: Scope of Work

PROJECT: NHPP-0008-04(085) / 108150304 – Yazoo County

The contract documents do not include an official set of construction plans, but may, by reference, include some Standard Drawings when so specified in a Notice to Bidders entitled, "Standard Drawings."

US HIGHWAY 49

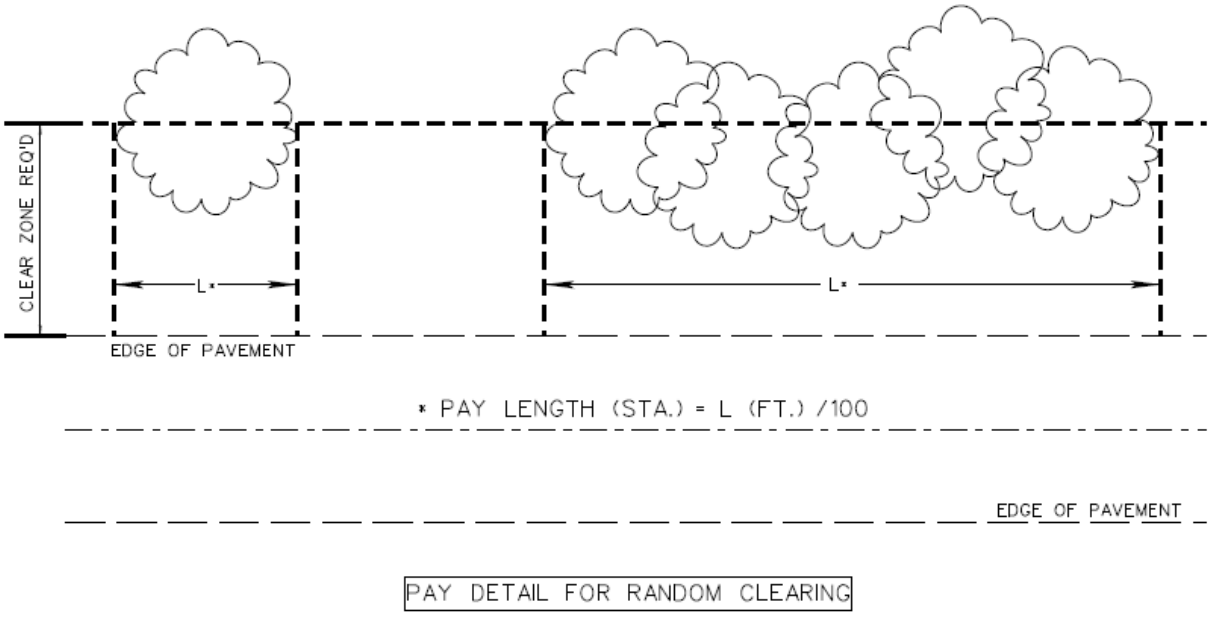
MILL, WIDEN, & ASPHALT OVERLAY US 49 FROM THE MADISON COUNTY LINE TO 0.8 MI NORTH OF OLD HWY 49

LOG MILE 0.00 – 4.929 IN YAZOO COUNTY

The work to be accomplished using the pay items and corresponding specifications set forth in the contract is to mill, widen, & overlay approximately 4.9 miles of US 49 from the Madison County Line to 0.8 miles north of Old Hwy 49 in Yazoo County.

Work on the Project shall consist of the following:

1. The Contractor shall erect and maintain construction signing, provide all signs, set up nighttime lane closures (if needed) and traffic handling devices in accordance with the Traffic Control Plan. The costs for this work shall be included in the price bid for pay item 907-618-A, Maintenance of Traffic. All traffic control devices on this project shall comply with the latest version of the MUTCD. Fluorescent orange sheeting shall be used on all construction and traffic control signs except for those designated in the standards to be black legend and border on white background. The Contractor shall be required to use 42-inch channelizer cones with 6-inch-wide reflective tape and 16-pound vertical panel bases for each.
2. The Contractor shall perform Random Clearing within the specified clearing limits, including vegetation overhanging the edge of the clearing limits. Overhanging vegetation shall be trimmed to a minimum height of seventy feet (70') above the ground elevation at the edge of the clearing limits. It is the intent of this Contract for the vegetation, except for any merchantable timber that the Contractor desires, to be mulched onsite and left in place. Mulched material shall be spread such that no more than four inches (4") in depth of material is placed in any location. This work shall be paid under pay item 201-D, Random Clearing, per Station. Each side of the roadway shall be measured separately. Clearing within two feet (2') of fences, utilities, and other obstructions as directed by the Project Engineer within the R.O.W. shall be omitted to avoid damage. The clearing limits are seventy feet (70') from the edge of pavement or to the right-of-way line, whichever distance is less.



PAY DETAIL FOR RANDOM CLEARING

3. The Contractor shall remove the designated failed pavement areas from the main facility as directed by the Project Engineer (see Pavement Repair sheet).
    a. Saw cut full depth through the failed pavement (asphalt and/or concrete).
    b. Remove the failed pavement (asphalt and/or concrete).
    c. Remove any unsuitable material in the subgrade as directed by the Project Engineer. Removal of this material shall be paid for as Excess Excavation.
    d. Backfill and stabilize the excavated subgrade and failed pavement with 19-mm, ST leveling asphalt. The final grade of this repair shall match the existing grade of the adjacent pavement. No lift of 19-mm asphalt pavement shall be greater than 3 ½" or as designated by the Project Engineer. Densities shall not be required on this asphalt. The Contractor shall compact each lift to refusal or as directed by the Project Engineer.

Full Depth Repair Locations					
Lat.	**Long.**	**Lane**	**Width**	**Length**	**SY**
32.6095722	-90.3669711	RL	12	20	26.67
32.6104819	-90.3672102	LL & RL	12	12	16.00
32.6112515	-90.3674321	RL	12	12	16.00
32.6171282	-90.3689804	RL	12	12	16.00
32.6204311	-90.3692446	RL	12	20	26.67
32.6204311	-90.3692446	LL	6	20	13.33
32.6628187	-90.3733732	LL & RL	24	20	53.33
32.6653584	-90.3735948	RL	12	15	20.00
32.6655995	-90.3736391	LL & RL	24	30	80.00
32.6662131	-90.3737122	LL & RL	24	15	40.00
32.6674614	-90.3737923	RL	12	15	20.00
32.6696838	-90.3739975	LL & RL	21	20	46.67
32.6710162	-90.3740874	RL	12	15	20.00

NOTE: All failed area repairs are to be backfilled the same day as the excavation.

4. The Contractor shall underseal the roadway and shoulders adjacent to each end of Bridges 187.3A, 187.3B, 184.2A, & 184.2B and the north end (Yazoo County side) of bridges 183.8A & 183.8B. The undersealing shall extend from the bridge end 25 feet along the center line. The underseal method for this project shall be the Deep Injection Process. This work is to be paid under the Undersealing pay item.

5. The Contractor shall fine mill US 49 from the BOP – EOP to a depth of 1.5" and variable as directed by the Project Engineer. Bridge ends, local roads, guard rail pads, aprons, crossovers, and other areas as designated by the Project Engineer shall be milled to ensure the smooth transition of the new overlay with existing grades. It is the Contractor's responsibility to ensure the drainage of surface water from the milled areas including the use of shoulder cuts.

   NOTE: Mainline milling shall be covered with a subsequent asphalt lift within 5 calendar days.

   NOTE: Temporary wedges of full lane width asphalt pavement shall be placed by the Contractor immediately after the milling process to allow the safe transition of traffic. The length of the wedges shall be 3 ft. for every ½ inch in height. These wedges shall be maintained in satisfactory condition by the Contractor until the permanent asphalt pavement is placed. All costs for placing and maintaining these wedges shall be absorbed in other pay items. Cold mix shall not be allowed.

6. The Contractor shall place asphalt pavement per the typical section and/or as follows:

   Leveling: The Contractor shall place a 1" and variable lift of 9.5-mm, HT, Asphalt Pavement, Leveling on the mainline of the roadway from the BOP - EOP having a two percent (2%) cross slope or the appropriate super-elevation rate in each direction from the centerline.

   Paved Shoulders: The Contractor shall construct paved shoulders per the typical section details. The material excavated for the paved shoulders shall be removed from the site and paid for as excess excavation. Any existing asphalt pads to be removed to construct the paved shoulder shall be paid for as Removal of Asphalt, All Depths (see attached sheet for locations and sizes).

   Mainline: The Contractor shall place a 1½" lift of Stone Matrix Asphalt, 9.5 mm Mixture on the mainline of the roadway having a two percent (2%) cross slope or the appropriate super-elevation rate in each direction from the centerline. The asphalt shall be placed as a 14-foot-wide pass on each side of the centerline such that the overall main roadway width is 28-feet.

   Local Roads: The Contractor shall place 1½" and variable lift of 9.5-mm, ST, Asphalt Pavement to the right-of-way line or as directed by the Project Engineer. The Contractor shall construct aprons at existing ramps that do not have paved aprons by placing 3" of 9.5-mm, ST, Asphalt Pavement in widths and lengths as directed by the Project Engineer. Existing paved aprons are to be paved 2' outside the newly constructed paved shoulder to match the final grade. Any site grading at local roads and aprons will not be measured for separate payment but shall be considered an absorbed item.

   Crossovers: The Contractor shall place a 1½" and variable lift of 9.5-mm, ST, Asphalt Pavement.

   NOTE: Any work to control the laydown equipment for proper placement of the asphalt in the superelevated curves shall be absorbed by the Contractor at no additional cost to the State.

   NOTE: Where concrete pavement is overlaid with asphalt, the existing transverse joints shall be sawed and sealed as stated in section 413.03.3.1 of the Standard Specifications. Intermediate

lifts shall include the 1” and variable leveling lift. Costs associated with these interim cuts shall be included in the price bid for the pay item Sawing and Sealing Transverse Joints in Asphalt Pavement.

7. Temporary striping shall conform to finished stripe specifications for alignment, reflectivity, straightness, and neatness. Temporary stripe shall be placed as needed for safe movement of traffic. All permanent pavement markings are to be hot thermoplastic. The Contractor shall mill a 12-inch rumble strip along the edge of pavement and spray 6-inch thermoplastic on the rumble strip to create a “Rumble Stripe”.

   NOTE: The removal of stripe pay item is for the stripe removal on concrete surfaces.

8. The Contractor shall raise the grade of the shoulders to match the new asphalt pavement grade. The finished slope shall be a minimum of 4%. Vegetative material shall be removed prior to placement of material along the shoulders. Shoulders shall be bladed, shaped, and compacted throughout the length of the project regardless of whether new granular material is required. This shall be paid under the Granular Material pay item.

   If a surplus of material occurs during the blading of the existing shoulder material, it shall be spread along the edge of the shoulders, fore slopes, or other adjacent areas as directed by the Project Engineer and shall be an absorbed item. Material which cannot be placed in the adjacent areas and is deemed to be excess by the Project Engineer shall be removed from the project site. Payment for the removal of excess material shall be paid under the Excess Excavation pay item.

   NOTE: Any existing low shoulders or at any time there is a differential more than two (2) inches, the Contractor shall raise the shoulder grade up to the current asphalt grade. The Contractor may pull up existing shoulder material if possible or place new granular material. Incidental work such as removing vegetation, shaping, and compacting shoulders including the base for paved aprons, and other incidental work that is necessary to complete the work shall not be measured for separate payment and the cost shall be included in other items bid.

9. The Contractor shall install guard rail on the project using the guard rail pay items provided. Guardrail pads shall be constructed according to the included guardrail post installation drawing. Pavement removal required for existing guardrail pads shall be paid under the Saw Cut and Removal of Asphalt pay items. Excess material removal shall be paid under the Excess Excavation pay item, and geotextile fabric shall be paid under the Geotextile pay item. Type 3 Post Mounted Object Markers shall be installed at these sites.

GUARD RAIL									
					Terminals	Br. End Sect.	Delineator	Delineator	
Location	Quadrant	Lane	Removal	W-beam	Flared	Type "H"	Yellow	White	
			LF	LF	EA	EA	EA	EA	
Br. 183.8A	NW	SB	215.0	150.0	1	1		7	Big Black
	NE	SB	215.0	150.0	1	1	7		
Br. 184.2A	NW	SB	215.0	150.0	1	1		7	Relief Br.
	NE	SB	215.0	150.0	1	1	7		
Br. 184.2B	SE	NB	215.0	150.0	1	1		7	Relief Br.
	SW	NB	215.0	150.0	1	1	7		
Br. 187.3A	NW	SB	215.0	150.0	1	1		7	Railroad
	NE	SB	215.0	150.0	1	1	7		
Br.187.3B	SE	NB	215.0	150.0	1	1		7	Railroad
	SW	NB	215.0	150.0	1	1	7		
Totals			**2150**	**1500**	**10**	**10**	**35**	**35**	

10. Raised pavement markers shall be placed at 80-foot intervals in tangents and 40-foot intervals in curves & urban areas along the centerline or roadway. Existing raised pavement markers shall be removed prior to placement of asphalt pavement. The removal shall be considered an absorbed item of work.

11. The Contractor shall sweep clean and remove all debris on all bridges within the project limits as part of final cleanup.

12. The Contractor shall remove and replace existing standard roadside signs throughout the project limits. New posts and hardware shall be required (see attached sheet).

13. The Contractor shall conduct the following bridge repairs in accordance with the attached drawings and Standard Specifications, Bridge Nos. 187.3A (15246), 187.3B (15247), 184.2A (15251) & 184.2B (15252) in Yazoo County.

    Minor changes in detail of design or construction procedure may be authorized by the Director of Structures, State Bridge Engineer provided such changes will not be cause for contract price adjustment. Work for which no pay item is provided will not be paid for directly and shall therefore be considered an absorbed item of work.

    It shall be the responsibility of the Contractor to protect existing structures from damage which might occur during construction. The Contractor shall replace or repair, as directed by the Engineer, any structures damaged during the life of the contract. No payment will be made for replacement or repair of damaged items.

    All details are based on the dimensions shown on the original plans for the existing structure. The Contractor shall be responsible for adjusting the elements of the new construction to ensure a proper fit with the existing structure. The Contractor shall verify all dimensions of the existing structure prior to beginning work.

    During construction, care shall be exercised to ensure that no debris falls into the hydraulic crossing/railway below the structure. All debris, including any material that has accumulated on the bridge caps, shall become the property of the Contractor and shall be removed from the construction site.

    Concrete for the slab shall be in accordance with Special Provision 907-804-14. The mixture design shall be furnished by the Contractor for approval by the Materials Division. The final texture of the new bridge deck shall be a tined finish.

    Any areas disturbed by the Contractor shall be stabilized by the end of the Project at no additional cost to the State.

    Scope of Work and Sequence of Construction Bridge 187.3B (15247)

    1. Using phased construction, remove 1.5” and variable of the existing bridge deck in accordance with the attached drawings and specifications.
    2. Using phased construction, place a 2” overlay on the prepared bridge deck in accordance with the attached drawings and specifications.
    3. Reseal joints in accordance with the notes in this document and the details shown in the attached drawings.

4. Perform Class 2 Spray Finish to Railings.
5. Clean bridge deck and all caps.

Scope of Work and Sequence of Construction Bridge 187.3A (15246)

1. Reseal joints in accordance with the notes in this document and the details shown in the attached drawings.
2. Perform Class 2 Spray Finish to Railings
3. Clean bridge deck and all caps.

Scope of Work and Sequence of Construction Bridges 184.2A & 184.2B (15251 & 15252)

1. Armor the end bents with rip rap as directed by the Project Engineer.
2. Repair spall locations with epoxy mortar in accordance with the notes in this document and the details shown in the Attached Drawings. (Located on the outside lane of the southernmost span of the bridge deck on Bridge 184.2A. Approximately 10 SF)
3. Install Hybrid Polymer Concrete (HPC) overlay on bridge deck in accordance with the notes in this document.
4. Reseal joints in accordance with the notes in this document and the details shown in the attached drawings.
5. Perform Class 2 Spray Finish to Railings
6. Clean bridge decks and all caps.

For additional information and details, see work related items below and the attached drawings.

Joint Removal and Replacement:

The joint repair shall include installation of the preformed joint seal and other necessary work per the included attached drawings or as directed by the Engineer. If the bridge has an asphalt approach, the joint between the asphalt and concrete shall not be disturbed.

The joints shall be sealed by one of the three approved Manufacturers listed in Special Provision 907-823 and installed according to the Manufacturer's specifications. Joint Repair will be paid for under Pay Item No. 907-808-A002, Joint Repair. All new preformed joints shall be paid for under Pay Item No. 907-823-A001, Preformed Joint Seal, Type I.

Cap Cleaning and Bridge Deck Cleaning:

Cap Cleaning shall be done in accordance with Special Provision Subsection 907-824.03.3. This item of work shall be paid for under Pay Item No. 907-824-C001, Cap Cleaning. The bridge deck and gutters shall be swept clean upon completion of the Project. This shall be considered an absorbed item of work.

General Epoxy Repairs:

General Epoxy Repair shall be done in accordance with Special Provision Subsection 907-824.03.1 and with the approved materials outlined in Special Provision Subsection 907-824.02.1. All work and material required to perform this item of work shall be paid for under Pay Item No. 907-824-A003, General Epoxy Repair.

This item shall be bid such that this item may be increased, decreased, or eliminated as directed by the Project Engineer.

Contact areas where new epoxy mortar or concrete is placed against old concrete shall be cleaned then coated with an approved epoxy binder designed to bond new concrete to old. The binder shall be applied in accordance with the manufacturer's recommendations.

Hybrid Polymer Concrete Overlay:

Hybrid Polymer Concrete Overlay shall be placed in accordance with Special Provision Subsection§ 907-828.03 and with the approved materials outlined in Special Provision Subsection§ 907-828.02.

Overlay limits shall be edge to edge of bridge railing/curb and extend the entire length of bridge deck.

Overlay thickness shall be placed at a minimum thickness of ½", not to exceed ¾".

Estimated quantities are based on ¾" thickness.

All materials and labor associated with this item of work shall be paid for per cubic yard of overlay installed under pay item 907-828-A001 Hybrid Polymer Concrete Overlay.

Contractor Submittals:

Prior to fabrication and construction, the following shall be submitted to the Director of Structures, State Bridge Engineer through the Project Engineer for approval. No work shall begin until all submittals have been authorized by the Director of Structures, State Bridge Engineer.

1. Field Verification Submittal:
   All dimensions of the existing structure and clearances shall be field verified by the Contractor. The Contractor shall be responsible for adjusting the elements of the new construction to ensure proper fit with the existing structure. The Contractor shall submit verification of the existing bridge elements associated with the work items described herein. This shall include, but is not limited to:
   a. Finish grades of existing bridge.
   b. Existing open joint widths.
   c. Any other element that will affect the work items described herein.
2. Hydrodemolition Plan Submittal:
   The Contractor shall submit a proposed hydrodemolition plan prior to beginning work to be approved by the Director of Structures, State Bridge Engineer.
3. Barrier Anchor Submittal:
   The Contractor shall submit barrier anchor details in accordance with the Temporary Precast Barrier Note.
4. Containment Plan Submittal:
   The Contractor shall submit a containment plan associated with the work items described in this scope and/or attached drawings.

Temporary Precast Barrier Note:

Temporary precast barrier shall be anchored to the bridge deck and approach slab. The Contractor shall submit proposed anchor details, including design calculations stamped by a Mississippi registered Professional Engineer prior to beginning work to be approved by the Director of Structures, State Bridge Engineer. After removal of the temporary barriers, all anchor holes shall be cleaned and filled with non-shrink grout:

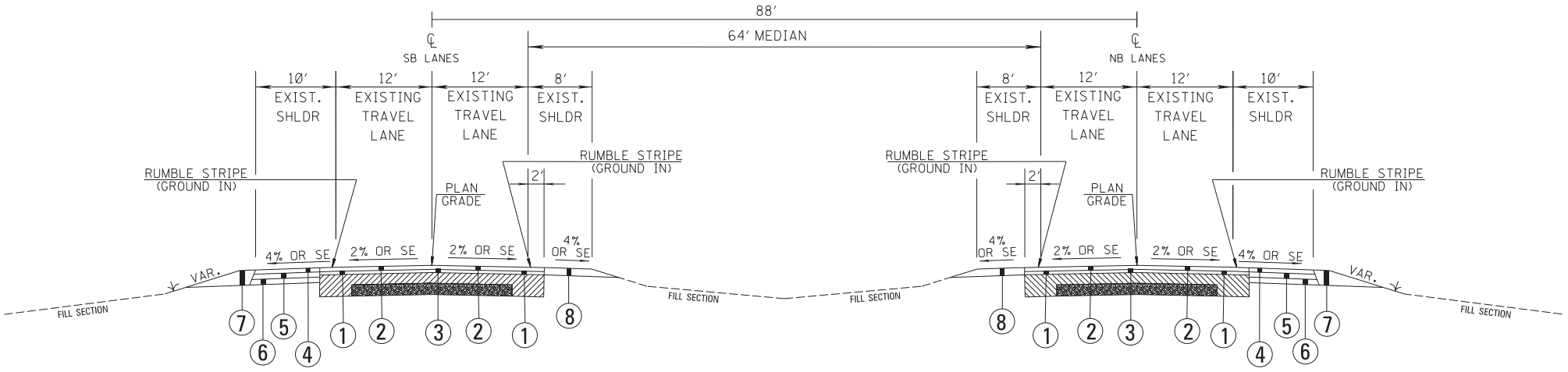
"Sure-Grip Grout" (Dayton Sure-Grip and Shore Co.)
"Supreme Grout" (Gifford-Hill & Co.)

Or approved equal, applied according to the Manufacturer's specifications.

Existing Bridge Railing Texture Finish Note:

Existing bridge railing at both bridges shall receive a Class 2 Spray Finish. Prior to spraying finish on existing railing, all loose material and grime must be removed. Spray finish shall be in accordance with 804.03.19.3.2—Spray Finish and 804.03.19.6.3—Finishing Formed Concrete Surface of Bridges. This item of work, including cleaning of existing railing shall be absorbed under Pay Item No. 907-824-PP003, Bridge Repair, Class 2 Spray Finish, Per Plans.

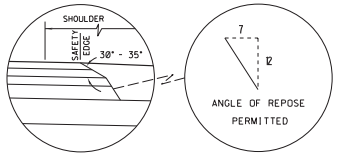
14. The Contractor shall conduct the following ITS improvements in accordance with the attached drawings and Standard Specifications.
    1. Fiber Optic Cable
        a. Install 72 Single Mode Fiber along US 49 from MS 16W to the Big Black River.
    2. Dynamic Message Signs and Supports
        a. Install Type 2 DMS on US 49 Southbound approximately 1,200 ft south of US 49 & MS 16W intersection.
        b. Install Type 2 DMS on US 49 Northbound approximately 2,200 ft south of the US 49 & MS 16E intersection.
    3. Traffic Monitoring Video Cameras
        a. Install Camera Tree at the intersection of US 49 & MS 16W.
        b. Install Camera Tree at the intersection of US 49 & MS 16E.
        c. Install Camera Tree at the intersection of US 49 & MS 433.
    4. Wireless Broadband Interconnect Radios
        a. Install interconnect communication along US 49 to crossover CN Railroad in Bentonia.
    5. Interconnection of Existing Traffic Signal via Fiber
        a. Install interconnection equipment at the intersection of US 49 & MS 16W
    6. Road Weather Information System (RWIS)
        a. Install RWIS at the Bridge over the Big Black River.
        b. Install Advance Warning Beacons for northbound and southbound approaches using wireless interconnect radios.



US 49

OVERLAY

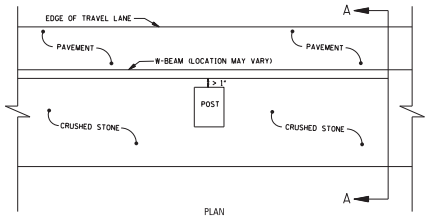
LOG MILE 0.000 TO 4.929



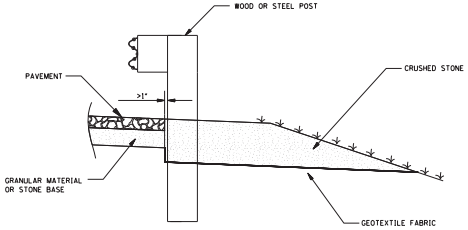
SAFETY EDGE REQ'D
TOP 2 LIFTS ONLY
(NOT A PAY ITEM)
NEW CONSTRUCTION

① 1.00" ASPH PAVE, HT (9.5 MM MIXTURE) (1 @ 1.00") - LEVELING
② 1.50" ASPH PAVE, SMA (9.5 MM MIXTURE) (1 @ 1.50")
③ 1.50" & VAR. FINE MILLING
④ 1.50" ASPH PAVE, ST (9.5 MM MIXTURE) (1 @ 1.50")
⑤ 2.00" ASPH PAVE, ST (12.5 MM MIXTURE) (1 @ 2.00")
⑥ 2.00" ASPH PAVE, ST (12.5 MM MIXTURE) (1 @ 2.00")
⑦ 5.50" & VAR. CRUSHED STONE
⑧ 2.50" & VAR. CRUSHED STONE

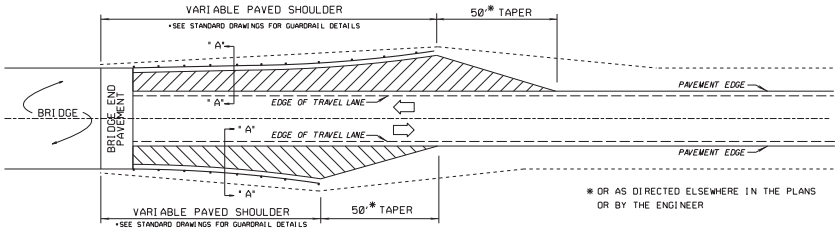
INDICATES AREA TO BE TREATED IN ACCORDANCE WITH THE VEGETATION SCHEDULE. SEE WK. SH. No. VS–1.



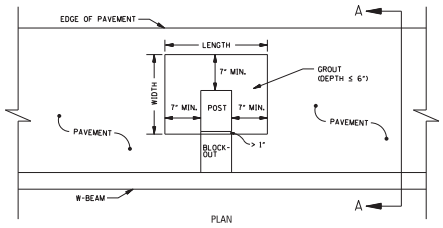
PAVEMENT LEAVE–OUT AREA FOR GUARDRAIL POSTS
SINGLE–FACED GUARDRAIL (CRUSHED STONE OPTION)



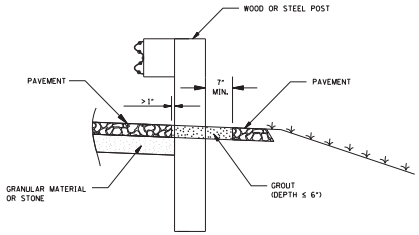
SECTION A–A



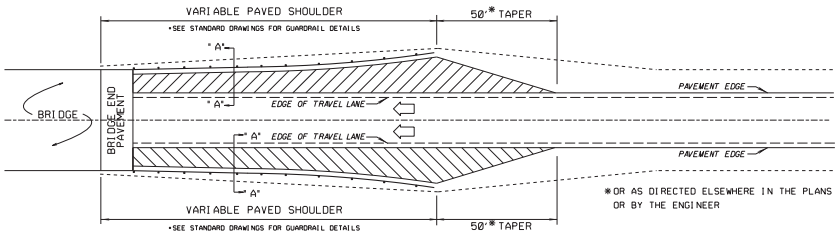
TYPICAL DETAIL OF PAVED SHOULDERS AT BRIDGE ENDS
(2-WAY TRAFFIC)
SEE SECTION "A"-"A"



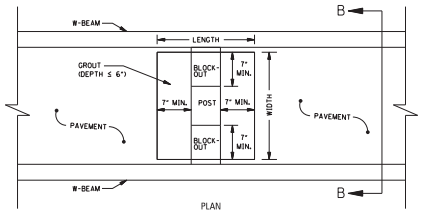
PAVEMENT LEAVE–OUT AREA FOR GUARDRAIL POSTS
SINGLE–FACED GUARDRAIL (GROUT OPTION)



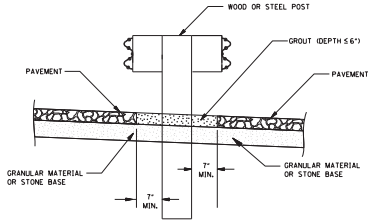
SECTION A–A



TYPICAL DETAIL OF PAVED SHOULDERS AT BRIDGE ENDS
(1-WAY TRAFFIC)
SEE SECTION "A"-"A"



PAVEMENT LEAVE–OUT AREA FOR GUARDRAIL POSTS
DOUBLE–FACED GUARDRAIL



SECTION B–B

GENERAL NOTES FOR CRUSHED STONE OPTION

1. GUARDRAIL POSTS SHALL NOT BE COMPLETELY SURROUNDED BY PAVEMENT.
2. PAVEMENT LEAVE-OUT AREAS ARE REQUIRED FOR STEEL AND WOOD POSTS.
3. STANDARD EMBEDMENT DEPTHS STILL APPLY, MEASURED FROM THE TOP OF THE PROJECTED PAVEMENT SURFACE.
4. IMMEDIATELY PRIOR TO PLACING GEOTEXTILE FABRIC AND CRUSHED STONE ON THE GUARDRAIL PAD, THE ENTIRE AREA SHALL BE TREATED UNIFORMLY WITH A SOIL STERILANT. THE SOIL STERILANT SHALL BE APPLIED AT THE MAXIMUM RATE RECOMMENDED ON THE MANUFACTURER'S LABEL FOR PERENNIAL WEED CONTROL. ANY GRANULAR OR PELLETIZED SOIL STERILANT THAT IS APPROVED BY THE ENGINEER MAY BE USED. SEPARATE PAYMENT WILL NOT BE MADE FOR TREATING THE GUARDRAIL PAD AREA WITH SOIL STERILANT.

GENERAL NOTES FOR GROUT OPTION

1. GUARDRAIL POSTS SHALL NOT BE COMPLETELY SURROUNDED BY PAVEMENT. THE AREA BEHIND AND LATERAL OF THE POST SHALL HAVE A MINIMUM 7" CLEARANCE FROM THE PAVEMENT. THIS AREA SHALL BE FILLED WITH A LOW STRENGTH GROUT WITH A MAXIMUM 28 DAY COMPRESSIVE STRENGTH OF 120 PSI.
2. GROUT SHALL BE INSTALLED AT A DEPTH EQUAL TO THE SURROUNDING PAVEMENT, UP TO A MAXIMUM OF 6". IF SURROUNDING PAVEMENT IS GREATER THAN 6", THE DIFFERNCE SHALL BE FILLED IN WITH SHOULDER GRANULAR MATERIAL.
3. COST OF GROUT SHALL BE ABSORBED IN THE COST OF OTHER ITEMS BID.
4. PAVEMENT LEAVE-OUT AREAS ARE REQUIRED FOR STEEL AND WOOD POSTS.
5. STANDARD EMBEDMENT DEPTHS STILL APPLY, MEASURED FROM THE TOP OF THE PROJECTED PAVEMENT SURFACE.

NOTE: THE ALTERNATIVES SHOWN HEREIN APPLY TO ALL GUARDRAIL CONSTRUCTION WHERE MOW STRIPS ARE ADDED.

MIN. PAV'T LEAVE-OUT AREA

POST	SINGLE-FACED		DOUBLE-FACED	
	LENGTH (IN.)	WIDTH (IN.)	LENGTH (IN.)	WIDTH (IN.)
6"x8" WOOD	20	15	20	22
8"x8" WOOD	22	15	22	22
10"x10" WOOD	24	17	24	24
W6x9 STEEL	18	13	18	20

PRELIMINARY
NOT FOR
CONSTRUCTION

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: /
PROJECT NO.: - 10 -
COUNTY:

GUARDRAIL: POST INSTALLATION, MISCELLANEOUS

SHEET ID
SDGR-PI
SHEET NO.

135

PLAN SHEET

7/15/2025 8:23:44 AM SDGR-PI-ORD.dgn

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SIGN LIST ESTIMATED QUANTITIES									
Sign No.	**Misc. Info**	**Size**	**Sq. Ft. / Sign**	**Total Number of Sign**	**Total Sq. Ft.**	**LIN. FT.**	**POUNDS**	**4 lb Post LF**	**2 lb Post LF**
M1-4	49	24" x 24"	4.00	3	12.00				27
M3-1	North	24" x 12"	2.00	4	8.00				36
M3-3	South	24" x 12"	2.00	1	2.00				9
M6-1L	LT Arrow	21" x 15"	2.19	3	6.57				27
M6-1R	RT Arrow for Boat Ramp	21" x 15"	2.19	2	4.38				18
M6-2R	RT Diag. Arrow	21" x 15"	2.19	2	4.38				18
R1-1	Stop Sign	36" Octagon	7.46	2	14.92				20
R1-1	Stop Sign	48" Octagon	13.25	7	92.75			77	
R1-2	Yield Sign	36" x 36" x 36"	3.88	23	89.24				230
R2-1	Speed Limit	36" x 30"	7.50	2	15.00				20
R2-1	Speed Limit	36" x 48"	12.00	1	12.00			11	
R2-1	Speed Limit	48" x 60"	20.00	1	20.00			12	
R5-1	DO NOT ENTER	36" x 36"	9.00	20	180.00	46	171.12		200
R-5a	WRONG WAY	42" x 30"	8.75	13	113.75				130
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	14	42.00				140
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	13	39.00				130
OM-3L	LT Object Marker	12" x 36"	3.00	10					
OM-3R	RT Object Marker	12" x 36"	3.00	12					
W2-1	Intersection	30" x 30"	6.25	4	25.00				36
	Chevron LT	30" x 24"	5.00	5	25.00				45
	Chevron RT	30" x 24"	5.00	4	20.00				36
	Bridge Ices Before Road	48" x 48"	16.00	4	64.00			44	
	Bridge Ices Before Road	65" x 65"	29.34	3	88.02			36	
	No Thru Trucks Weight Limit 10K lbs	30" x 24"	5.00	2	10.00				20
	N. Bentonia LT Lane	36" x 96"	24.00	1	24.00			10	
	S. Bentonia Next Right	36" x 96"	24.00	1	24.00			10	
	Bentonia w/ LT Arrow	36" x 60"	15.00	1	15.00			10	
	Bentonia w/ RT Arrow	36" x 60"	15.00	1	15.00			10	
	Weight Limit 57.650 lbs	30" x 24"	5.00	2	10.00				20
	JCT	15" x 24"	2.5	2	5.00				18
	MS 433	24" x 32"	5.33	2	10.67				18
	433	24" x 24"	4	3	12.00				27
	Bentonia LT Arrow, Satartia RT Arrow, Blues Trail Sites LT Arrow	60" x 120"	60	1	60.00	25	93	12	
	Bentonia RT Arrow, Satartia LT Arrow, Blues Trail Sites RT Arrow	60" x 120"	60	1	60.00	25	93	12	
	Satartia Next Left	36" x 60"	15	1	15.00	6	22.32	10	
	Adopt a Highway	36" x 42"	10.5	5	52.50	105	390.6	50	
	In Loving Memory of...	24" x 42"	7	5	35.00	60	223.2		45
	No Parking Any Time	18" x 12"	1.5	4	6.00				36
	Yazoo City 14	24" x 108"	18	1	18.00			9	
	Flora 8 Jackson 22	36" x 96"	24	1	24.00			10	
	Boat Ramp (@Big Black River)	24" x 26"	4.33	1	4.33				9

SIGN LIST ESTIMATED LOCATIONS							
Sign No.	**Misc. Info**	**Size**	**Sq. Ft. / Sign**	**Latitude**	**Longitude**	**NB / SB**	**Remarks**
	Adopt a HWY	36" x 42"	10.5	32.6046161	-90.3647945	NB	
	In loving memory...	24" x 42"	7	32.6046161	-90.3647945	NB	
	Bridge Ices Before Rd	48" x 48"	16.00	32.6062413	-90.3657795	NB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6089416	-90.3668179	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6089416	-90.3668179	NB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6125492	-90.3677154	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6125492	-90.3677154	NB	
	Structure Number	6" x 18"	0.75	32.6125492	-90.3677154	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6134642	-90.3679293	NB	
	Structure Number	6" x 18"	0.75	32.6134642	-90.3679293	NB	
	Structure Number	6" x 18"	0.75	32.6153002	-90.3684152	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6184857	-90.3694974	NB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6184857	-90.3694974	NB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6189310	-90.3692175	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6189310	-90.3692175	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6188412	-90.3694716	NB	
	S. Bentonia Next Right	36" x 96"	24.00	32.6251946	-90.3687635	NB	
	Bentonia w/ RT Arrow	36" x 60"	15.00	32.6293971	-90.3689482	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6306521	-90.3690123	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6306521	-90.3690123	NB	
	Chevron LT	30" x 24"	5.00	32.6307600	-90.3689144	NB	
	Chevron LT	30" x 24"	5.00	63.6308041	-90.3688299	NB	
	Chevron RT	30" x 24"	5.00	63.6308041	-90.3688299	NB	
	Chevron LT	30" x 24"	5.00	32.6308650	-90.3687068	NB	
	Chevron RT	30" x 24"	5.00	32.6308650	-90.3687068	NB	
	Chevron LT	30" x 24"	5.00	32.6309325	-90.3687068	NB	
	Chevron RT	30" x 24"	5.00	32.6309325	-90.3687068	NB	
	Chevron LT	30" x 24"	5.00	32.6309958	-90.3686445	NB	
	Chevron RT	30" x 24"	5.00	32.6309958	-90.3686445	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6302594	-90.3693600	NB	
R1-1	Stop Sign	48" Octagon	13.25	32.6307134	-90.3692701	NB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6307134	-90.3692701	NB	
	Pritchard Ave.	6" x 2"	0.083	32.6307134	-90.3692701	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6309543	-90.3693305	NB	
M3-1	North	24" x 12"	2.00	32.6315831	-90.3695990	NB	
M1-4	49	24" x 24"	4.00	32.6315831	-90.3695990	NB	
	Adopt a HWY	36" x 42"	10.5	32.6323132	-90.3698917	NB	
	In loving memory...	24" x 42"	7	32.6323132	-90.3698917	NB	
	Satartia Next Left	36" x 60"	15	32.6365179	-90.3716546	NB	
	No Parking Any Time	18" x 12"	1.5	32.6374369	-90.3720576	NB	
	No Parking Any Time	18" x 12"	1.5	32.6377162	-90.3721528	NB	
	No Parking Any Time	18" x 12"	1.5	32.6377290	-90.3721860	NB	
	No Parking Any Time	18" x 12"	1.5	32.6379051	-90.3722279	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6376772	-90.3723617	NB	
W2-1	+	30" x 30"	6.25	32.6385259	-90.3724780	NB	LT Shoulder
	MS 433	24" x 32"	5.33	32.6385259	-90.3724780	NB	
W2-1	+	30" x 30"	6.25	32.6384943	-90.3726541	NB	RT Shoulder
	MS 433	24" x 32"	5.33	32.6384943	-90.3726541	NB	
	JCT	15" x 24"	2.5	32.6388195	-90.3726175	NB	
	433	24" x 24"	4	32.6388195	-90.3726175	NB	

SIGN LIST ESTIMATED LOCATIONS							
Sign No.	**Misc. Info**	**Size**	**Sq. Ft. / Sign**	**Latitude**	**Longitude**	**NB / SB**	**Remarks**
	Weight Limit 57.650 lbs	30" x 24"	5.00	32.6388195	-90.3726175	NB	
	Bentonia RT Arrow, Satartia LT Arrow, Blues Trail Sites RT Arrow	60" x 120"	60	32.6395180	-90.3729226	NB	
M3-1	North	24" x 12"	2.00	32.6400725	-90.3731244	NB	
M3-3	South	24" x 12"	2.00	32.6400725	-90.3731244	NB	
	433	24" x 24"	4	32.6400725	-90.3731244	NB	
	433	24" x 24"	4	32.6400725	-90.3731244	NB	
M6-1L	←	21" x 15"	2.19	32.6400725	-90.3731244	NB	
M6-2R	↗	21" x 15"	2.19	32.6400725	-90.3731244	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6402315	-90.3731878	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6401753	-90.3733786	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6404167	-90.3735402	NB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6404167	-90.3735402	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6405734	-90.3731563	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6405734	-90.3731563	NB	
M3-1	North	24" x 12"	2.00	32.6407916	-90.3730963	NB	
M3-3	South	24" x 12"	2.00	32.6407916	-90.3730963	NB	
M1-4	49	24" x 24"	4.00	32.6407916	-90.3730963	NB	
M1-4	49	24" x 24"	4.00	32.6407916	-90.3730963	NB	
M6-1L	←	21" x 15"	2.19	32.6407916	-90.3730963	NB	
M6-1R	→	21" x 15"	2.19	32.6407916	-90.3730963	NB	
R1-1	Stop Sign	48" Octagon	13.25	32.6406905	-90.3733960	NB	Sign Flashes
	Cross Traffic Does Not Stop	36" x 18"	4.50	32.6406905	-90.3733960	NB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6406905	-90.3733960	NB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6405767	-90.3733380	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6408266	-90.3733833	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6406682	-90.3736103	NB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6406682	-90.3736103	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6408961	-90.3737715	NB	
M3-1	North	24" x 12"	2.00	32.6422470	-90.3740226	NB	
M1-4	49	24" x 24"	4.00	32.6422470	-90.3740226	NB	
R2-1	Speed Limit	36" x 30"	7.50	32.6433181	-90.3744847	NB	
	Yazoo City 14	24" x 108"	18	32.6440089	-90.3747851	NB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6467092	-90.3756481	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6467092	-90.3756481	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6487404	-90.3757567	NB	
	Structure Number	6" x 18"	0.75	32.6487404	-90.3757567	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6498826	-90.3754181	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6498826	-90.3754181	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6501578	-90.3754429	NB	
R1-1	Stop Sign	48" Octagon	13.25	32.6500889	-90.3755471	NB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6500889	-90.3755471	NB	
	Pritchard Ave.	6" x 2"	0.083	32.6500889	-90.3755471	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6503924	-90.3757822	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6501736	-90.3757473	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6497313	-90.3758231	NB	
	Bridge Ices Before Rd	48" x 48"	16.00	32.6515769	-90.3751173	NB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6536777	-90.3744867	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6536777	-90.3744867	NB	

SIGN LIST ESTIMATED LOCATIONS							
Sign No.	**Misc. Info**	**Size**	**Sq. Ft. / Sign**	**Latitude**	**Longitude**	**NB / SB**	**Remarks**
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6578534	-90.3728623	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6578534	-90.3728623	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6577467	-90.3734031	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6582492	-90.3733675	NB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6582492	-90.3733675	NB	
R1-1	Stop Sign	48" Octagon	13.25	32.6581772	-90.3731516	NB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6581772	-90.3731516	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6582842	-90.3730658	NB	
	Adopt a HWY	36" x 42"	10.5	32.6584047	-90.3731020	NB	
	In loving memory...	24" x 42"	7	32.6584047	-90.3731020	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6585368	-90.3734121	NB	
R2-1	Speed Limit	36" x 30"	7.50	32.6592837	-90.3730963	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6620417	-90.3734617	NB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.662447	-90.3735415	NB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.662447	-90.3735415	NB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6626595	-90.3735261	NB	
R1-1	Stop Sign	48" Octagon	13.25	32.6625960	-90.3732113	NB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6630129	-90.3736113	NB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6667313	-90.3737105	NB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6667313	-90.3737105	NB	
	N. Bentonia LT Lane	36" x 96"	24.00	32.6644327	-90.3739496	SB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6628156	-90.3739784	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6628156	-90.3739784	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6624713	-90.3738577	SB	
R1-1	Stop Sign	48" Octagon	13.25	32.6625675	-90.3737782	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6625675	-90.3737782	SB	
R6-1L	ONE WAY RT Arrow	36" x 12"	3.00	32.6625675	-90.3737782	SB	
	Bentonia w/ LT Arrow	36" x 60"	15.00	32.6594864	-90.3735425	SB	
	Adopt a HWY	36" x 42"	10.5	32.6585419	-90.3735932	SB	
	In loving memory...	24" x 42"	7	32.6585419	-90.3735932	SB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6582712	-90.3737655	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6582712	-90.3737655	SB	
	Chevron RT	30" x 24"	5.00	32.6580522	-90.3741829	SB	
	Chevron RT	30" x 24"	5.00	32.6580301	-90.3742486	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6580465	-90.3736555	SB	
R1-1	Stop Sign	48" Octagon	13.25	32.6580465	-90.3736555	SB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6580465	-90.3736555	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6578097	-90.3737186	SB	
	Bridge Ices Before Rd	48" x 48"	16.00	32.6569211	-90.3738433	SB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6545971	-90.3744796	SB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6545971	-90.3744796	SB	
	Structure Number	6" x 18"	0.75	32.6493869	-90.3761262	SB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6493869	-90.3761262	SB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6493869	-90.3761262	SB	
	JCT	15" x 24"	2.5	32.6461471	-90.3760105	SB	
	433	24" x 24"	4	32.6461471	-90.3760105	SB	
	Weight Limit 57.650 lbs	30" x 24"	5.00	32.6461471	-90.3760105	SB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6441391	-90.3753430	SB	
	MS 433	24" x 32"	5.33	32.6423240	-90.3743841	SB	LT Shoulder
W2-1	+	30" x 30"	6.25	32.6423240	-90.3743841	SB	

SIGN LIST ESTIMATED LOCATIONS							
Sign No.	**Misc. Info**	**Size**	**Sq. Ft. / Sign**	**Latitude**	**Longitude**	**NB / SB**	**Remarks**
	MS 433	24" x 32"	5.33	32.6422814	-90.3745574	SB	RT Shoulder
W2-1	+	30" x 30"	6.25	32.6422814	-90.3745574	SB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6417639	-90.3743438	SB	
	Bentonia LT Arrow, Satartia RT Arrow, Blues Trail Sites LT Arrow	60" x 120"	60	32.6416456	-90.3742993	SB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6408416	-90.3739606	SB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6405705	-90.3739895	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6405705	-90.3739895	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6405561	-90.3738118	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6402758	-90.3737826	SB	
R1-1	Stop Sign	48" Octagon	13.25	32.6404054	-90.3737776	SB	Sign Flashes
	Cross Traffic Does Not Stop	36" x 18"	4.50	32.6404054	-90.3737776	SB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6404054	-90.3737776	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6404054	-90.3737776	SB	
	Adopt a HWY	36" x 42"	10.5	32.6404760	-90.3740817	SB	
	In loving memory...	24" x 42"	7	32.6404760	-90.3740817	SB	
R2-1	Speed Limit	36" x 30"	7.50	32.6389545	-90.3731623	SB	
	Flora 8 Jackson 22	36" x 96"	24	32.6374008	-90.3725236	SB	
	Adopt a HWY	36" x 42"	10.5	32.6322322	-90.3703705	SB	
	In loving memory...	24" x 42"	7	32.6322322	-90.3703705	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6304491	-90.3696939	SB	
M3-3	South	24" x 12"	2.00	32.6298158	-90.3695350	SB	
M1-4	49	24" x 24"	4.00	32.6298158	-90.3695350	SB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6189059	-90.3697881	SB	
R5-1	DO NOT ENTER	36" x 36"	9.00	32.6187121	-90.3698783	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6187121	-90.3698783	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6186873	-90.3697019	SB	
R6-1L	ONE WAY LT Arrow	36" x 12"	3.00	32.6185311	-90.3697013	SB	
R1-1	Stop Sign	48" Octagon	13.25	32.6185311	-90.3697013	SB	
R6-1R	ONE WAY RT Arrow	36" x 12"	3.00	32.6185311	-90.3697013	SB	
R1-2	Yield Sign	36" x 36" x 36"	3.88	32.6184072	-90.3697613	SB	
	Structure Number	6" x 18"	0.75	32.6133688	-90.3684232	SB	
	Bridge Ices Before Rd	48" x 48"	16.00	32.6116511	-90.3679428	SB	
OM-3L	LT Object Marker	12" x 36"	3.00	32.6093971	-90.3672675	SB	
OM-3R	RT Object Marker	12" x 36"	3.00	32.6093971	-90.3672675	SB	
	Bridge Ices Before Rd	48" x 48"	16.00	32.6052612	-90.3658992	SB	RT Shldr
	Bridge Ices Before Rd	48" x 48"	16.00	32.6053140	-90.3657390	SB	LR Shldr
	Boat Ramp (@Big Black River)	24" x 26"	4.33	32.6049873	-90.3657081	SB	
M6-1R	→	21" x 15"	2.19	32.6049873	-90.3657081	SB	

STATE	PROJECT NO.
MISS.	

ITS GENERAL NOTES

1. ALL EXISTING UNDERGROUND UTILITIES ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIS OWN INDEPENDENT INVESTIGATIONS, INCLUDING SUB-SURFACE INVESTIGATIONS AS MAY BE NECESSARY TO LOCATE UTILITIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL CONTACT MS811 FOR UTILITIES TO BE LOCATED.

2. ITS EQUIPMENT SHOWN ON THESE PLANS ARE IN APPROXIMATE LOCATIONS. ALL EQUIPMENT SHALL BE FIELD LOCATED BY THE CONTRACTOR WITH PROPOSED LOCATIONS APPROVED BY MDOT TO VERIFY PROPER PLACEMENT AND BEST SIGHT DISTANCE FOR EQUIPMENT, ADEQUATE ROADSIDE PROTECTION, ETC. THE CONTRACTOR SHALL STAKE EACH PROPOSED LOCATION A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO REVIEW BY MDOT. THE COST OF FIELD STAKING ITS EQUIPMENT WILL NOT BE MEASURED FOR SEPARATE PAYMENT AND SHALL BE ABSORBED UNDER OTHER ITEMS OF WORK. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT, PULLBOXES, AND CONDUIT WITHIN PUBLIC RIGHT-OF-WAY.

3. FIELD LOCATION ADJUSTMENTS MAY BE REQUIRED AT TIME OF EQUIPMENT INSTALLATION DUE TO POTENTIAL CONFLICTS OR OTHER FACTORS THAT WERE UNIDENTIFIABLE DURING THE PROJECT DESIGN PHASE. ANY REQUIRED ADJUSTMENTS SHALL BE APPROVED BY THE PROJECT ENGINEER.

4. ROADWAY EDGE OF ABOVE GROUND ITS EQUIPMENT TO BE LOCATED OUTSIDE OF CLEAR ZONE AREA UNLESS PROTECTED BY CURB, GUARD RAIL OR BRIDGE RAIL, USING AN APPROVED BREAK-AWAY APPARATUS, OR APPROVED BY THE PROJECT ENGINEER.

5. THE COST OF DISPOSING OF ALL UNUSED OR REMOVED MATERIALS (POLES, FIXTURES, SOIL, ETC.) SHALL BE ABSORBED FOR PAYMENT IN OTHER ITEMS.

6. ANY AREAS DISTURBED DURING ITS CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR (TO INCLUDE GRASSING AND SITE GRADING) AS DIRECTED BY THE ENGINEER AND SHALL BE COST ABSORBED. ALL REMOVAL AND REPLACEMENT OF SIDEWALKS, ASPHALT, CONCRETE, SOD, GRASSING, SOIL, AND BACKFILL ARE COST ABSORBED AND CONSIDERED PART OF THE COST OF THE WORK UNLESS COVERED UNDER OTHER PAY ITEMS IN PLANS.

7. THE CONTRACTOR SHALL MAKE THE APPLICATION FOR POWER SERVICE, COORDINATING WITH MDOT AND LOCAL OFFICIALS IN ADVANCE OF REQUIRING THE ELECTRICAL SERVICES. IF ELECTRICAL SERVICE REQUIRES A SERVICE METER TO BE INSTALLED, CONTRACTOR TO CONTACT THE ELECTRIC UTILITY OWNER. ANY INSTALLATIONS OF AERIAL POWER CIRCUITS, POWER PANELS OR WOOD POLES TO PROVIDE POWER SERVICE SHALL MEET LOCAL EPA REQUIREMENTS AND BE COST ABSORBED. CONTRACTOR SHALL ESTABLISH POWER SERVICE IN HIS OR HER BILLING ADDRESS, AND SHALL PAY ALL UTILITY CONNECTION CHARGES AND CHARGES FOR SERVICE UNTIL FINAL PROJECT ACCEPTANCE. ALL TRANSFORMERS AND/OR TERMINAL BLOCKS NEEDED AT THE POWER SERVICE POINT OR AT THE DEVICE LOCATIONS SHALL BE COST ABSORBED IN THE APPROPRIATE 907-660 PAY ITEM.

8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY MAKE-READY COST INCURRED TO PROVIDE POWER AND COMMUNICATION SERVICES TO THE EQUIPMENT, NOT A SEPARATE PAY ITEM (COST ABSORBED). THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING AN INDEPENDENT INVESTIGATION INTO UTILITY MAKE-READY COST FOR BIDDING PURPOSES.

9. ALL COMMUNICATION PULLBOXES SHALL BE EITHER TYPE 4 OR TYPE 5 UNLESS OTHERWISE NOTED ON THE PLANS. EACH BELOW GROUND PULLBOX SHALL INCLUDE ADDITIONAL CABLE SLACK (SEE SPEC. PROVISION 907-661 FOR DETAILS.) THE ADDITIONAL CABLE SHALL BE COST ABSORBED UNDER THE APPROPRIATE 907-661, 907-636, OR 907-663 PAY ITEMS.

10. ALL FIBER SPLICES REQUIRED TO CONNECT TRUNK AND DROP CABLE TO NEW AND EXISTING EQUIPMENT SHALL NOT BE A SEPARATE PAY ITEM, BUT SHALL BE ABSORBED UNDER ITEM 907-661.

11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ENOUGH ANTENNAS, RADIOS, CABLES AND ACCESSORIES, BASED ON SELECTION OF EQUIPMENT, TO PRODUCE A FULLY FUNCTIONING SYSTEM AS INDICATED IN THESE PLANS.

12. MDOT INFORMATION SYSTEMS DIVISION (601.359.7470) WILL CONFIGURE ALL TYPE C AND ABOVE SWITCHES. MDOT IS WILL INSPECT SWITCHES FOR PROPER INSTALLATION DURING THE BURN IN PERIOD. CONTRACTOR SHALL COORDINATE THIS EFFORT THROUGH THE PROJECT ENGINEER ONCE THE SWITCH SUBMITTAL HAS BEEN ACCEPTED.

13. CONDUIT FOR POWER SUPPLY MAY BE RUN IN THE SAME TRENCH LINE AS COMMUNICATION LINES (SEE WKG. NO. FO-1), HOWEVER, SEPARATE ELECTRICAL PULLBOXES ARE TO BE INSTALLED. CONTRACTOR TO REVIEW PLANS BEFORE INSTALLING PULLBOXES AND FOUNDATIONS TO ASSURE ALL REQUIRED PULLBOXES AND CONDUITS ARE INSTALLED.

14. PAYMENT FOR FIBER OPTIC CABLE AND POWER CABLE SHALL BE MEASURED BASED ON HORIZONTAL MEASUREMENTS AS CALLED OUT IN THE PLANS AND INCLUDES SLACK IN PULLBOXES AS NOTED ON SHEET FO-3. PAYMENT FOR ETHERNET CABLE SHALL BE MEASURED BASED ON HORIZONTAL MEASUREMENTS AS CALLED OUT IN THE PLANS, INCLUDES VERTICAL RUNS IN POLES, AND INCLUDES SLACK IN PULLBOXES AS NOTED ON SHEET FO-3. CONDUIT SHALL BE MEASURED BASED ON HORIZONTAL MEASUREMENTS ONLY. HORIZONTAL MEASUREMENTS ARE IN THE HORIZONTAL PLANE ONLY AND DO NOT INCLUDE CHANGES IN ELEVATION OR SNAKING.

15. ALL GROUNDING CABLES AND EQUIPMENT SHALL BE COST ABSORBED. REFER TO SECTION 722.09 FOR MORE INFORMATION.

16. A TRACER WIRE SHALL BE INSTALLED IN CONDUIT THAT CARRIES FIBER OPTIC AND/OR COMMUNICATION CABLE, COST TO BE ABSORBED. CONDUIT THAT CARRIES FIBER OPTIC CABLE SHALL CONTAIN AN AWG #10 ORANGE TRACER WIRE, COST SHALL BE ABSORBED UNDER PAY ITEM 907-661. CONTRACTOR MAY OPT TO USE FIBER OPTIC CABLE WITH BUILT-IN TRACER WIRE, IF SO EXTERNAL TRACER WIRE WILL NOT BE REQUIRED.

17. CONDUIT FOR FIBER OPTIC CABLE REQUIRED TO UTILIZE MINIMUM 6" RADIUS BENDS. NO ELBOW JOINTS ALLOWED. UNDERGROUND DRILLED OR JACKED CONDUIT SHALL BE INSTALLED AT A MINIMUM DEPTH OF FIVE (5) FEET AND UNDERGROUND TRENCHED CONDUIT SHALL BE INSTALLED AT A MINIMUM DEPTH OF THREE (3) FEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

18. ALL ABOVE GROUND CONDUIT SHALL BE TYPE 1 RIGID METAL. PVC SHALL NOT BE ALLOWED ABOVE GROUND UNLESS SPECIFICALLY OTHERWISE NOTED ON PLANS.

19. ALL CONDUITS TO BE SEALED WITH DUCT PLUG TO PREVENT WATER INTRUSION ONCE CABLE IS INSTALLED. COST TO BE ABSORBED IN CONDUIT PAY ITEMS.

20. FOR CONDUIT BANKS, ONE OR MORE (AS INDICATED ON THE PLANS) OF THE CONDUITS WILL BE FOR FUTURE USE AND SHALL INCLUDE A PULL STRING.

21. REEL-END SPLICE LOCATIONS SHALL BE SUBMITTED AND SHALL NOT OCCUR MORE OFTEN THAN EVERY 10,000 FEET. REEL-END SPLICE SHALL BE MADE IN A TYPE 5 PULLBOX AND SHALL UTILIZE A TYPE 5 PULLBOX ALREADY SHOWN ON THE PLANS, UNLESS OTHER LOCATIONS ARE APPROVED BY THE ENGINEER.

22. IF CONTRACTOR OPTS TO USE A SINGLE SLEEVE FOR INSTALLATION OF MULTIPLE CONDUITS, THE CONTRACTOR SHALL SUBMIT SIZE OF SLEEVE AND MATERIALS DATA TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

23. WHERE THE CONTRACTOR ENCOUNTERS PAVED DITCHES IN ROUTING OF CONDUIT, HE MAY TRENCH AND REPLACE DITCH OR JACK UNDER DITCH. THIS IS NOT A SEPARATE PAY ITEM. DAMAGE TO PAVED DITCHES AND/OR OTHER STRUCTURES CAUSED BY CONTRACTOR DURING THIS PROJECT SHALL BE REPAIRED (AS DIRECTED BY THE ENGINEER) AT NO COST TO THE STATE.

24. UNLESS CALLED OUT AND QUANTIFIED IN PLANS, ROADWAY SIGNS THAT ARE IN CONFLICT WITH CONSTRUCTION OF THIS PROJECT SHALL BE REMOVED AND RELOCATED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER, THE COST OF WHICH SHALL BE ABSORBED IN OTHER ITEMS BID.

25. ALL ITS COMPONENTS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SUPPORTS, ATTACHMENTS AND FOUNDATIONS SHALL BE DESIGNED BY THE CONTRACTOR ACCORDING TO STANDARD SPECIFICATIONS/SPECIAL PROVISIONS/PLAN DRAWINGS AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF LAYOUT/SHOP DRAWINGS FOR ALL ITS COMPONENTS (INCLUDING THE PLAN OF ATTACHMENT) TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.

26. POLE FOUNDATIONS SHALL NOT EXCEED FOUR (4) INCHES ABOVE FINISHED GRADE.

27. SOME CENTERLINES SHOWN ON THESE PLANS MAY BE FOR GRAPHICAL REFERENCE PURPOSES ONLY AND ARE NOT STAKED IN THE FIELD.

28. PLAN SCALE INDICATIONS ARE FOR FULL SIZE (22" x 34") DRAWINGS. IF REDUCED SCALE PRINTS ARE USED, SCALE SHOULD BE VERIFIED.

29. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE LOCAL POWER COMPANY TO DETERMINE IF ADEQUATE POWER IS AVAILABLE AT THE EXISTING POWER SERVICE DEMARCATION POINT. IF ADDITIONAL SERVICE IS REQUIRED, THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL POWER COMPANY TO SUPPLY THE POWER REQUIRED. COST OF COORDINATING WITH POWER COMPANY AND MAKING ANY NECESSARY POWER UPGRADES SHALL BE INCLUDED IN BID PRICE FOR THE POWER CABLE PAY ITEM.

REVISION	BY	DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ITS GENERAL NOTES

PROJ. NO.:
COUNTY: YAZOO

FILE NAME: ITS-GN.dgn
DESIGN TEAM _____ CHECKED _____ DATE _____

WORKING NUMBER: ITS-GN-1
SHEET NUMBER: 3001

8/28/2024 5:21 PM ITS-GN.DGN

STATE	PROJECT NO.
MISS.	

ITS LEGEND

	EXISTING	PROPOSED
CABLE - COMM.	C C C C	C C C C
CABLE - ELEC. (U/G IN COND.)		
LABEL FOR CONDUIT AND CONDUIT TYPES	[CONDUIT DESCRIPTION(S)] / [CABLE DESCRIPTION(S)]	[CONDUIT DESCRIPTION(S)] / [CABLE DESCRIPTION(S)]
LABEL FOR DEVICE DESCRIPTIONS AND LOCATIONS	[DEVICE #(S) & DESCRIPTION(S)] / [LOCATION DESCRIPTION(S)]	[DEVICE #(S) & DESCRIPTION(S)] / [LOCATION DESCRIPTION(S)]
PULLBOX - COMM.		
PULLBOX - ELEC.	PB	PB
PULLBOX - SURFACE MOUNTED	SP	SP
LABEL FOR PULL BOX TYPE	X	X
DEMARC. PT. (POWER)		
TRANSFORMER	TR	TR
TRAFFIC SIGNAL CABINET	TSC	TSC or
CABINET (TYPE AS NOTED)	B	B
CLOSED-CIRCUIT TELEVISION (CCTV) (ALL TYPES)	CCTV	CCTV
DYNAMIC MESSAGE SIGN (DMS) (OVERHEAD) (TYPE 1)	DMS	DMS
DYNAMIC MESSAGE SIGN (DMS) (ROADSIDE) (TYPE 2 OR 3 AS INDICATED)	DMS TYPE 2 / DMS TYPE 3	DMS TYPE 2 / DMS TYPE 3
DMS (PORTABLE)	DMS	DMS
RADAR DETECTION SYSTEM (RDS)	RDS	RDS
BLUETOOTH DETECTION SYSTEM (BDS)	BDS	BDS
COMMUNICATIONS HUT	CH	CH
COMMUNICATIONS VAULT	V	V
WIRELESS RADIO		

	EXISTING	PROPOSED
GUARD RAIL		
SIGN STRUCTURE (OVERHEAD)		
RWIS STATION	RWIS	RWIS
HIGHWAY ADVISORY RADIO (HAR) TRANSMITTER	HAR	HAR
HAR SIGN W/FLASHERS	HAR	HAR
WIRELESS TRANSMISSION TOWER / ANTENNA		
TRAVEL TIME SIGN (ROADSIDE)	TTS	TTS
ADVANCED WARNING SIGN WITH FLASHING BEACON		

ABBREVIATIONS

E.O.T.L. - EDGE OF TRAVEL LANE
F.O. - FIBER OPTIC
COMM. - COMMUNICATION
ELEC. - ELECTRICAL
DEMARC. PT. - DEMARCATION POINT
CCTV - CLOSED CIRCUIT TELEVISION
DMS - DYNAMIC MESSAGE SIGN
RDS - RADAR DETECTION SYSTEM
BDS - BLUETOOTH DETECTION SYSTEM
RWIS - ROADWAY WEATHER INFO SYSTEM
HAR - HIGHWAY ADVISORY RADIO
TTS - TRAVEL TIME SIGN

Notice to Bidders No. 7730 -- Contract ID: 108150-304000

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PLAN REVIEW DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/28/2024 5:21:27 PM ITS-LGN.DGN

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ITS LEGEND

REVISION | BY | DATE

PROJ. NO.:
COUNTY:
FILE NAME: ITS-LGN.dgn
DESIGN TEAM _____ CHECKED _____ DATE _____

WORKING NUMBER: ITS-LGN
SHEET NUMBER: 3002

Pay Item	Description	UNIT	NOTES
203-EX041	Borrow Excavation, AH, LVM, Class B9-6	CY	***1***
237-A002	Wattles, 20"	LF	***1***
304-H001	3/4" and Down Crushed Stone Base, LVM	CY	***1***
	OR		
304-H002	Size 610 Crushed Stone Base, LVM	CY	***1***
	OR		
304-H003	Size 825B Crushed Stone Base, LVM	CY	***1***
907-403-A003	12.5-mm, ST, Asphalt Pavement	TON	***1***
907-403-A015	9.5-mm, ST, Asphalt Pavement	TON	***1***
907-407-A001	Asphalt for Tack Coat	GAL	***1***
606-B001	Guard Rail, Class A, Type 1	LF	
606-C003	Guard Rail, Cable Anchor, Type 1	EA	
606-E005	Guard Rail, Terminal End Section, Flared	EA	
907-618-A001	Maintenance of Traffic	LS	
620-A001	Mobilization	LS	
907-630-L001	Pedestal Sign Support, Assembly No 1, Contractor Designed	LS	
907-630-L002	Pedestal Sign Support, Assembly No 2, Contractor Designed	LS	
907-632-C001	Modify Existing Traffic Signal Cabinet Assembly	EA	***2***
907-634-E001	Camera Pole with Foundation, 50' Pole	EA	
907-634-F002	Detector Pole with Foundation, 35' Pole	EA	
907-634-I001	Wood Pole, Class II Height 40'	EA	
907-636-B053	Electric Cable, Underground in Conduit, THHN, AWG #6, 3 Conductor	LF	***1, 11***
907-636-E001	Electric Cable, Underground in Conduit, Tracer Cable	LF	***1***
907-637-A002	Pullbox Enclosure, Type 2	EA	***1, 12***
907-637-A004	Pullbox Enclosure, Type 4	EA	***1,3, 7***
907-637-A005	Pullbox Enclosure, Type 5	EA	***1,3, 7***
907-637-H001	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"	LF	***1, 4***
907-637-H002	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2"	LF	***1, 4***
907-637-K001	Traffic Signal Conduit Bank, Aerial Supported, Type 1, 2 @ 2"	LF	
907-650-A002	On Street Video Equipment, Fixed Type	EA	
907-650-A003	On Street Video Equipment, PTZ Type	EA	
907-656-A002	Dynamic Message Sign, Type 2	EA	***7***
907-659-A001	Traffic Management Center Modifications	LS	
907-660-A002	Equipment Cabinet, Type B	EA	***7***
907-660-A003	Equipment Cabinet, Type C	EA	***6, 7***
907-661-A004	Fiber Optic Cable, 72 SM	LF	***1, 5, 7***
907-661-A006	Fiber Optic Cable, Aerial, 72 SM	LF	***5, 7***
907-661-B002	Fiber Optic Drop Cable, 12 SM	LF	***1, 5, 7***
907-662-A002	Radio Interconnect, Signal Control, Installed in New Controller Cabinet	EA	
907-662-D002	Radio Interconnect, Broadband, Short Range	EA	
907-663-A001	Network Switch, Type A	EA	
907-663-A005	Network Switch, Type E	EA	
907-663-D001	Category 6 Cable, Installed in Conduit	LF	***1***
907-670-A001	Roadway Weather Information System	EA	***8, 10***
907-670-B002	Warning Sign with Flashing Beacon	EA	***9***

NOTES

1 Quantities may be adjusted based on field conditions

2 Add a Fiber Drop inside the traffic signal cabinet at US 49 and MS 16W intersection and add connection to existing Network Switch.

3 Type 4 or 5 Pullbox shall be installed at least every 1000 feet for the fiber trunk line. Pullboxes shown on these plans are in approximate locations. Locations and quantities may be adjusted for adequate distance and roadside conditions. Splice closures shall be installed inside Type 5 Pullboxes (cost absorbed).

4 Installation may be trenching, plowing, or boring at Contractor's discretion. Bid prices shall be the same regardless of which installation method is used. Trenched or plowed rolled pipe shall be Schedule 40 Pipe or Larger. Bored, Drilled, or Jacked rolled pipe shall be Schedule 80 Pipe or larger.

5 Contractor shall coordinate with MDOT IS Division for all Fiber termination and splicing details.

6 Contractor shall install connection from circuit cabinet to the termination cabinet, inlcuding communication cable, conduit, and pullbox. All labor and any items necessary for this work but not called out in plans shall be cost absorbed in this item.

7 Contractor shall be responsible for submitting as-builts for the newly installed fiber optic cables (including Fiber Trunk and Fiber Drops), ITS Pullboxes with Type, and ITS/Signal Cabinets with an accuracy within 3 feet. All survey data must be provided to MDOT IS Division in both KMZ file and a Shapefile formats. This work shall be cost absorbed under Pay-Item 907-661-A004 & A006 and 907-661-B002.

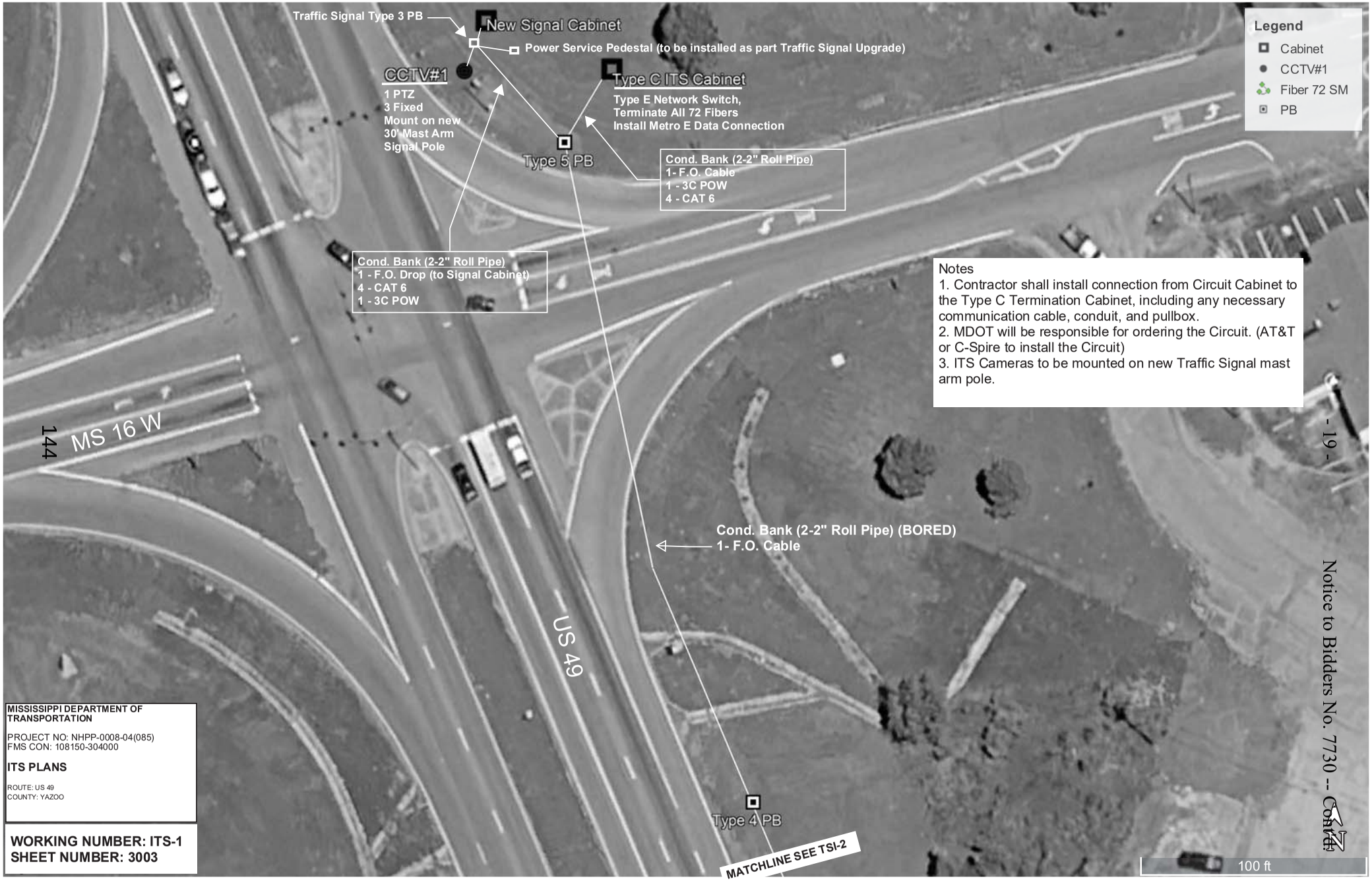
8 All signs for roadway weather information system to be cost absobred with this pay-item. Equipment to be integrated into the MDOT Traffic System, cost to be absorbed in this pay-item.

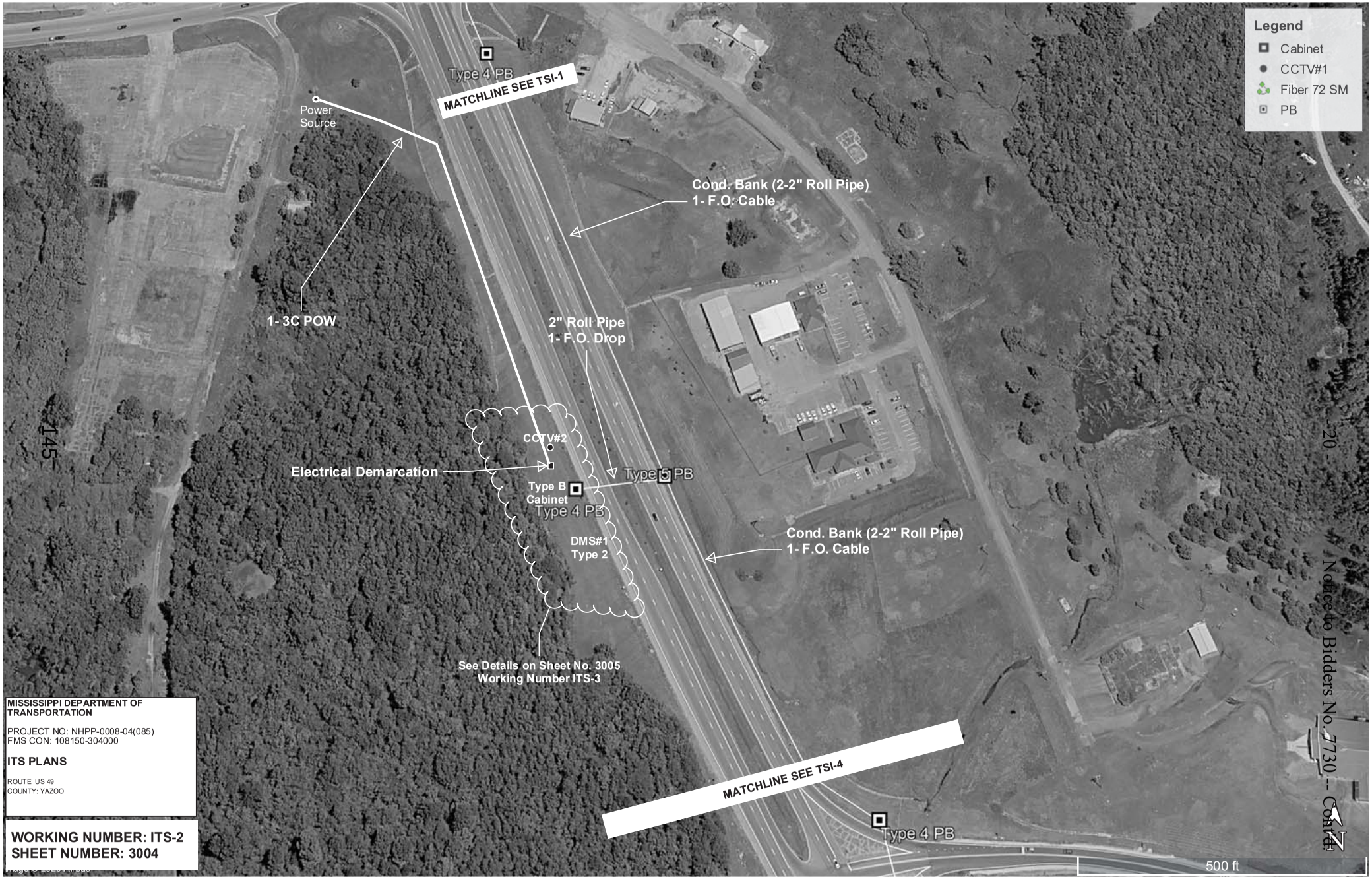
9 "ICE ON BRIDGE WHEN FLASHING" Sign with Flashing Beacon. If hardwired power not feasible, Contractor shall use solar panel system for the Advance Flashing Beacon sites.

10 RWIS may be relocated/installed per manufacturer's recommendation.

11 Cost of Electrical Service Point (Power Feed, Meter Base Breaker, Pole, Transformers, ETC) to be Cost Absorbed in these pay-items. See ITS General Note #7 for more cost information.

12 To be used in conjunction with Power Cable


Traffic Signal Type 3 PB
New Signal Cabinet
Power Service Pedestal (to be installed as part Traffic Signal Upgrade)
CCTV#1
1 PTZ
3 Fixed
Mount on new
30' Mast Arm
Signal Pole
Type C ITS Cabinet
Type E Network Switch,
Terminate All 72 Fibers
Install Metro E Data Connection
Type 5 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
1 - 3C POW
4 - CAT 6
Cond. Bank (2-2" Roll Pipe)
1 - F.O. Drop (to Signal Cabinet)
4 - CAT 6
1 - 3C POW
Legend
Cabinet
CCTV#1
Fiber 72 SM
PB
Notes
1. Contractor shall install connection from Circuit Cabinet to the Type C Termination Cabinet, including any necessary communication cable, conduit, and pullbox.
2. MDOT will be responsible for ordering the Circuit. (AT&T or C-Spire to install the Circuit)
3. ITS Cameras to be mounted on new Traffic Signal mast arm pole.
144
MS 16 W
US 49
Cond. Bank (2-2" Roll Pipe) (BORED)
1- F.O. Cable
Type 4 PB
MATCHLINE SEE TSI-2
100 ft
N
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-1
SHEET NUMBER: 3003



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-2
SHEET NUMBER: 3004



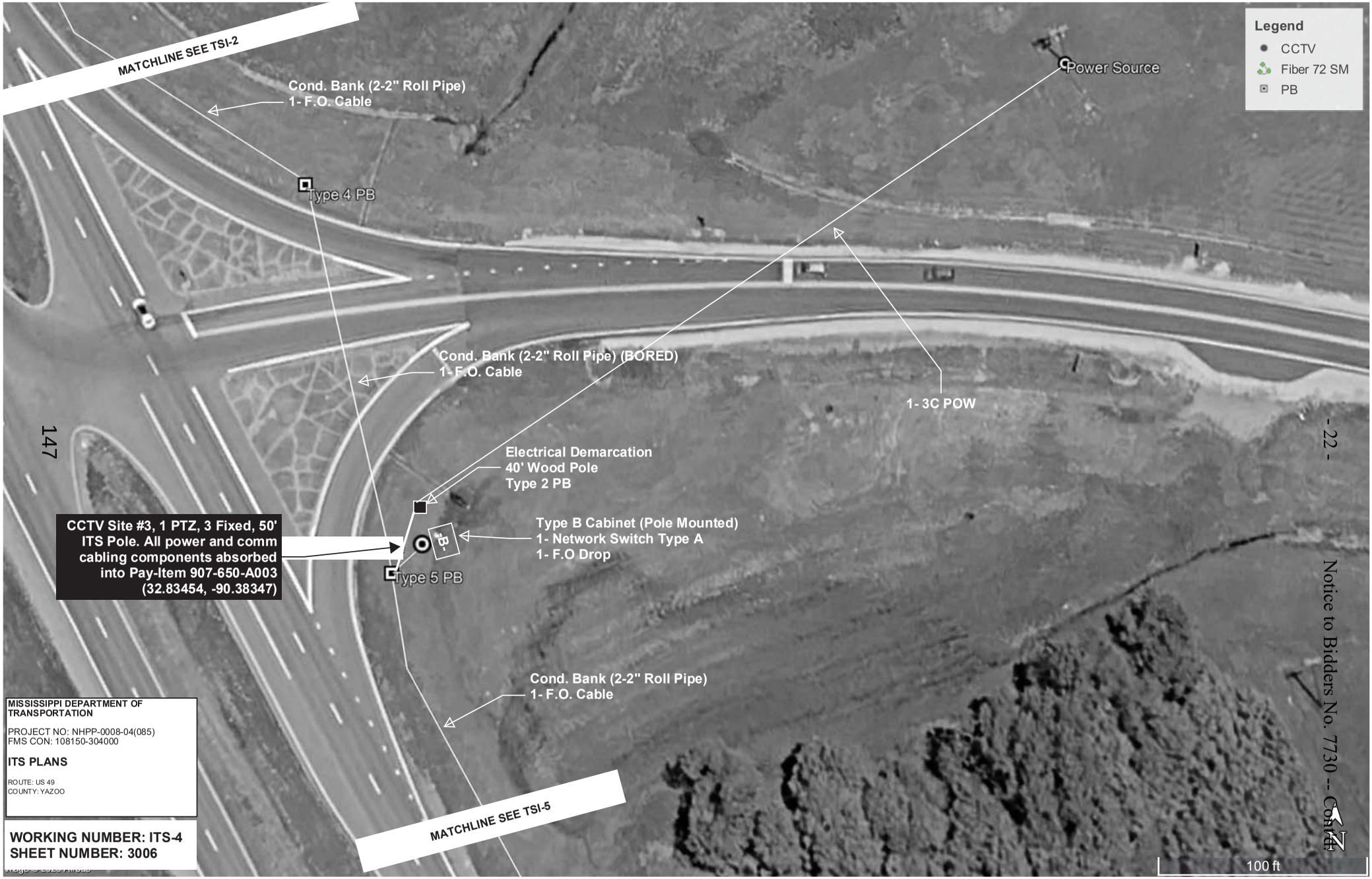
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-3
SHEET NUMBER: 3005


MATCHLINE SEE TSI-2
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
Power Source
Legend
CCTV
Fiber 72 SM
PB
Cond. Bank (2-2" Roll Pipe) (BORED)
1- F.O. Cable
1- 3C POW
147
Electrical Demarcation
40' Wood Pole
Type 2 PB
CCTV Site #3, 1 PTZ, 3 Fixed, 50' ITS Pole. All power and comm cabling components absorbed into Pay-Item 907-650-A003 (32.83454, -90.38347)
Type B Cabinet (Pole Mounted)
1- Network Switch Type A
1- F.O Drop
Type 5 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
MATCHLINE SEE TSI-5
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-4
SHEET NUMBER: 3006
100 ft
N



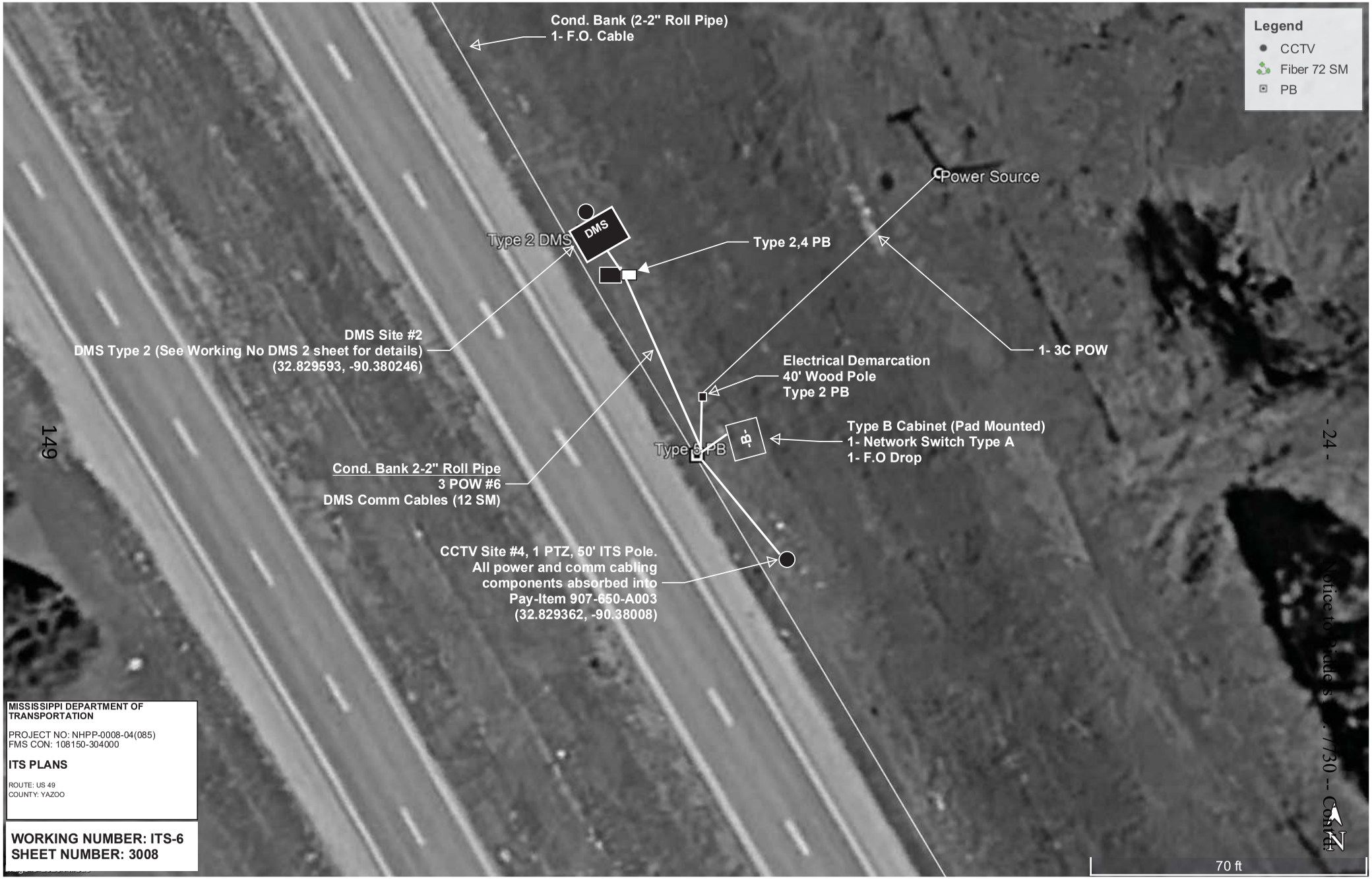
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-5
SHEET NUMBER: 3007



Notice to Bidders - 7/30 -- Conv.



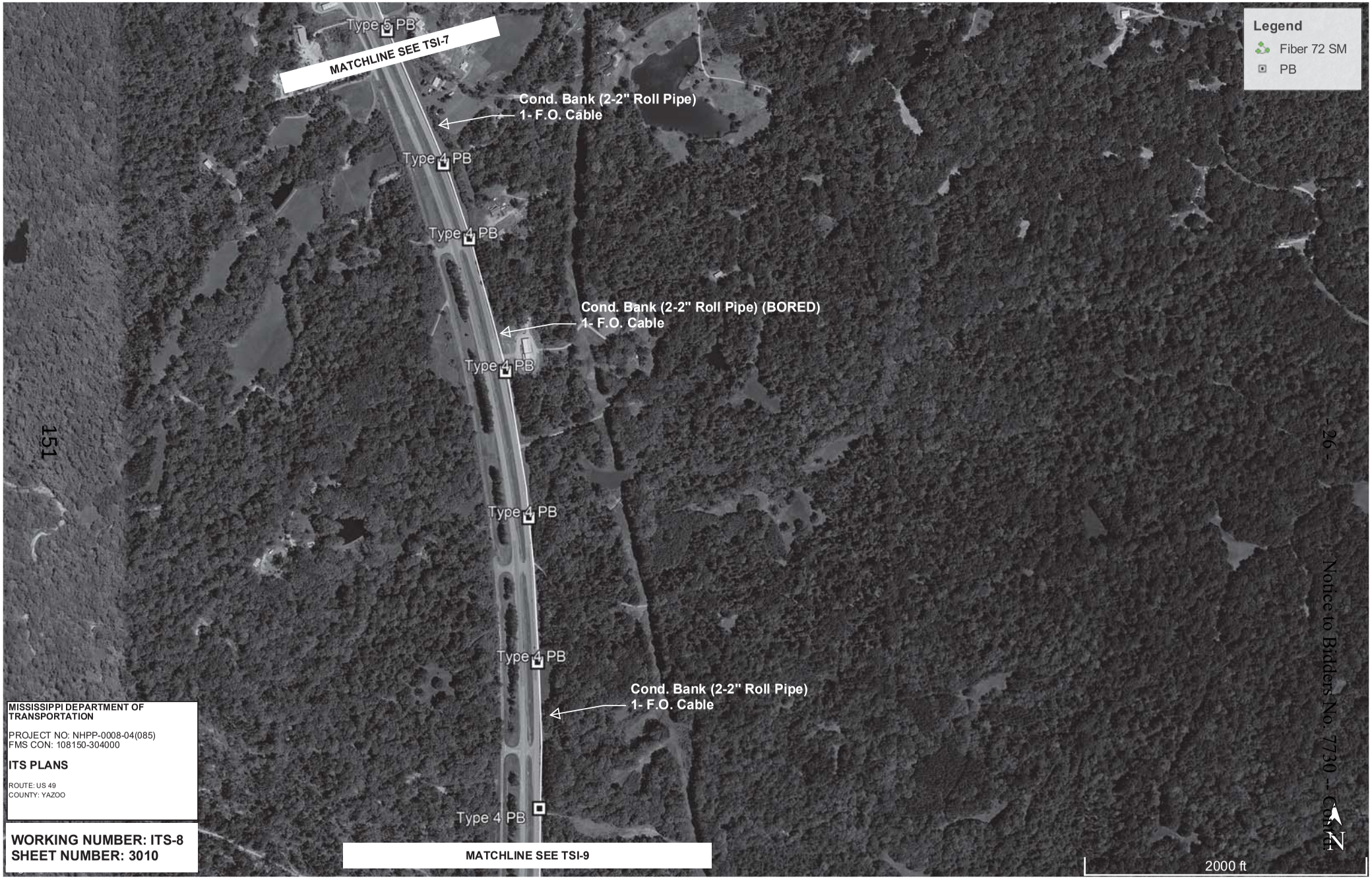
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-7
SHEET NUMBER: 3009



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-8
SHEET NUMBER: 3010


Legend
Fiber 72 SM
PB
Type 4 PB
MATCHLINE SEE TSI-8
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
Type 5 PB
Cond. Bank (2-2" Roll Pipe) (BORED)
1- F.O. Cable
152
Type 4 PB
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
MATCHLINE SEE TSI-10
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-9
SHEET NUMBER: 3011
2000 ft
N
- 27 -
Notice to Bidders No. 7730 - Cont'd.



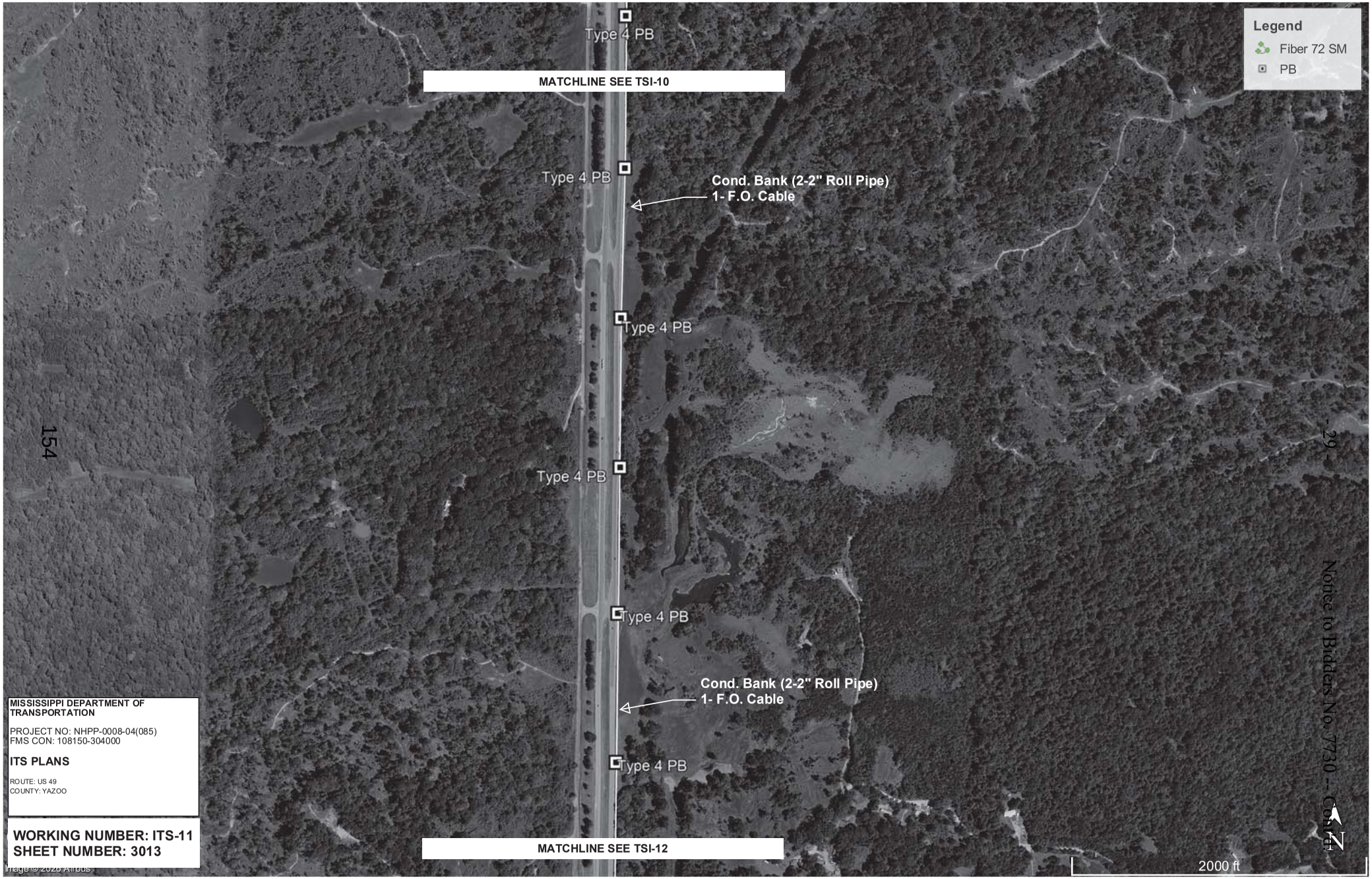
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-10
SHEET NUMBER: 3012



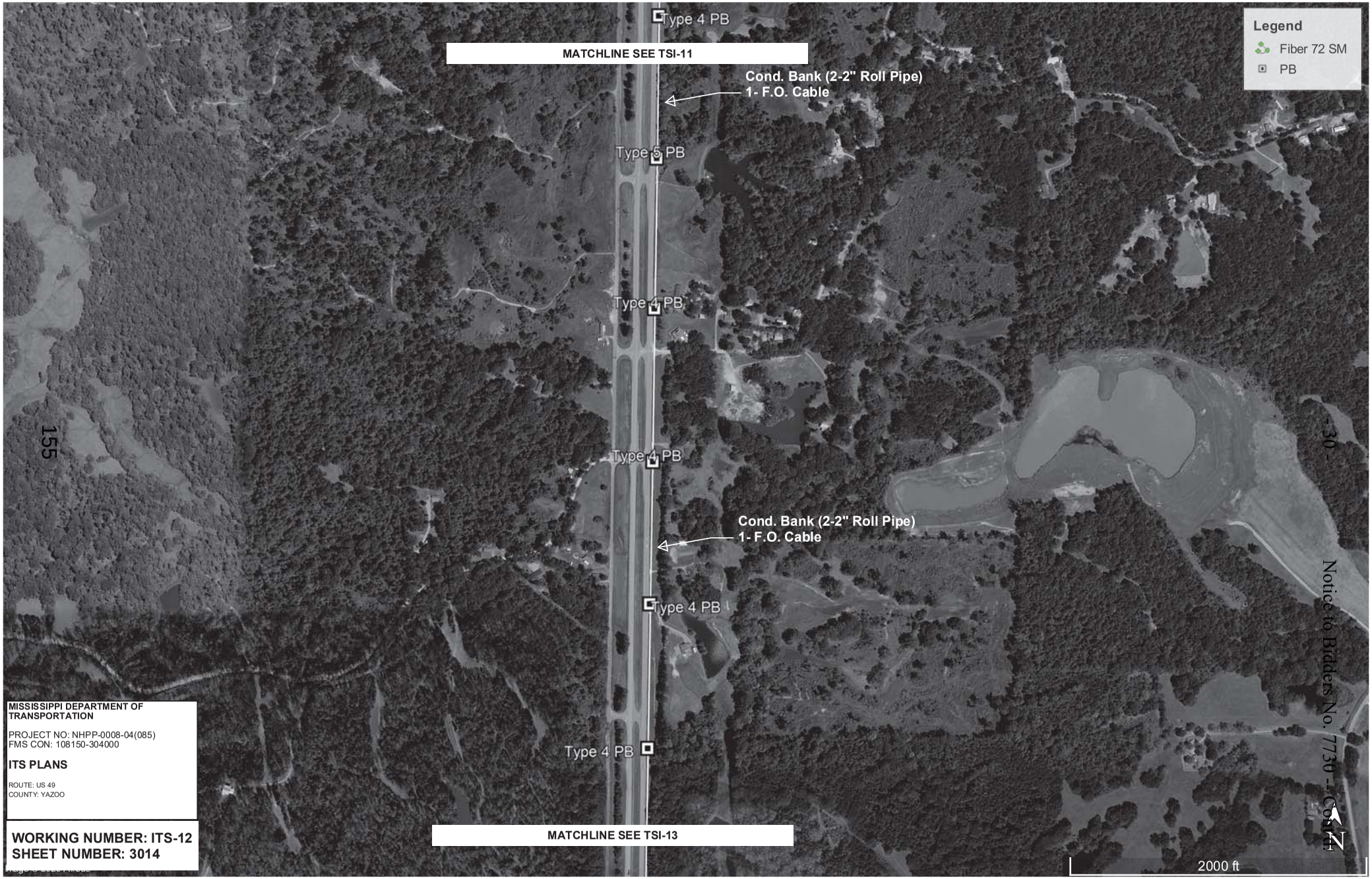
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-11
SHEET NUMBER: 3013



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

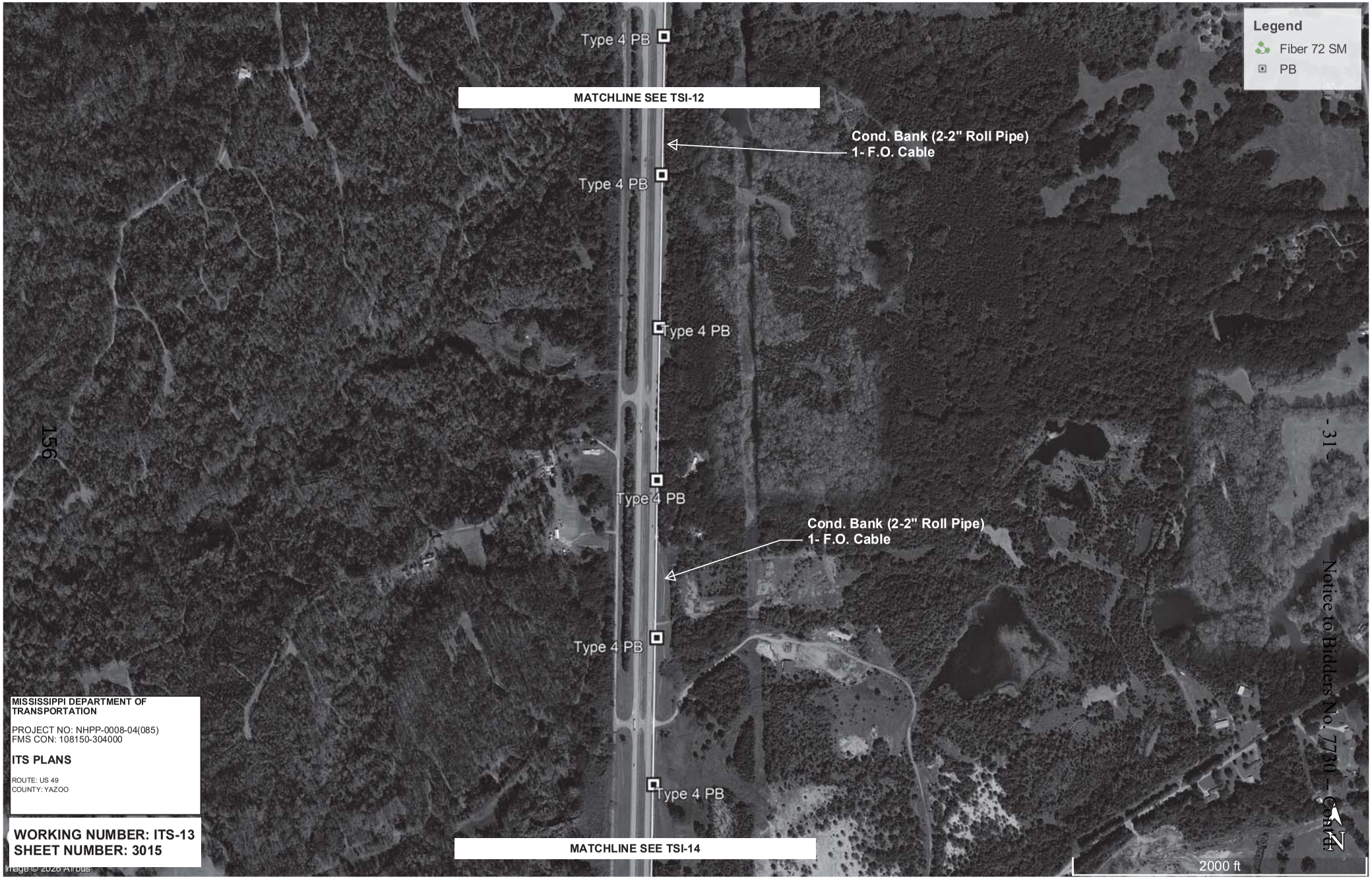
ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-12
SHEET NUMBER: 3014

- 30 -

Notice to Bidders No. 7730 - Cont'd



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

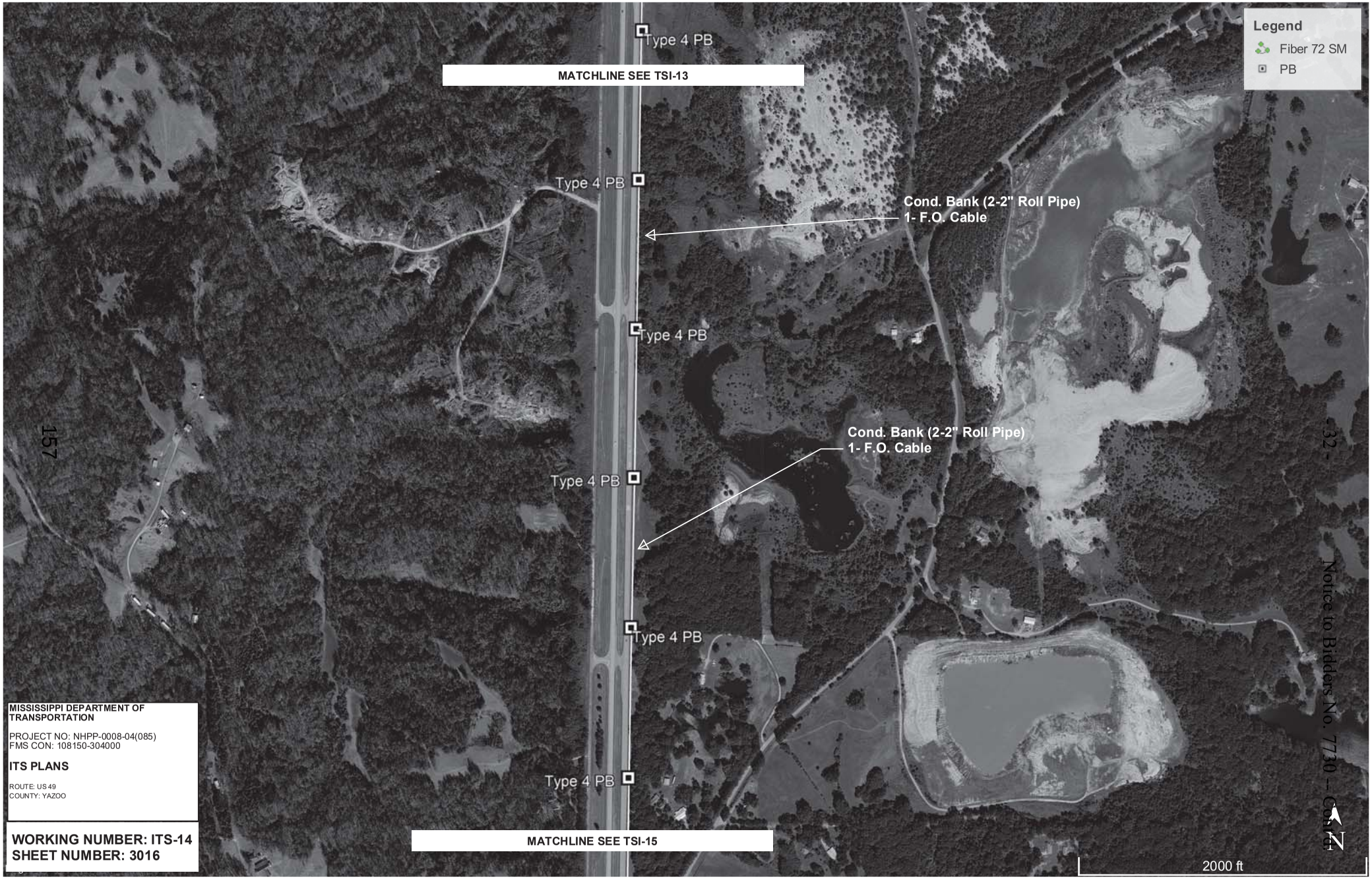
ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-13
SHEET NUMBER: 3015

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Notice to Bidders No. 7730 -- Cont'd.



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

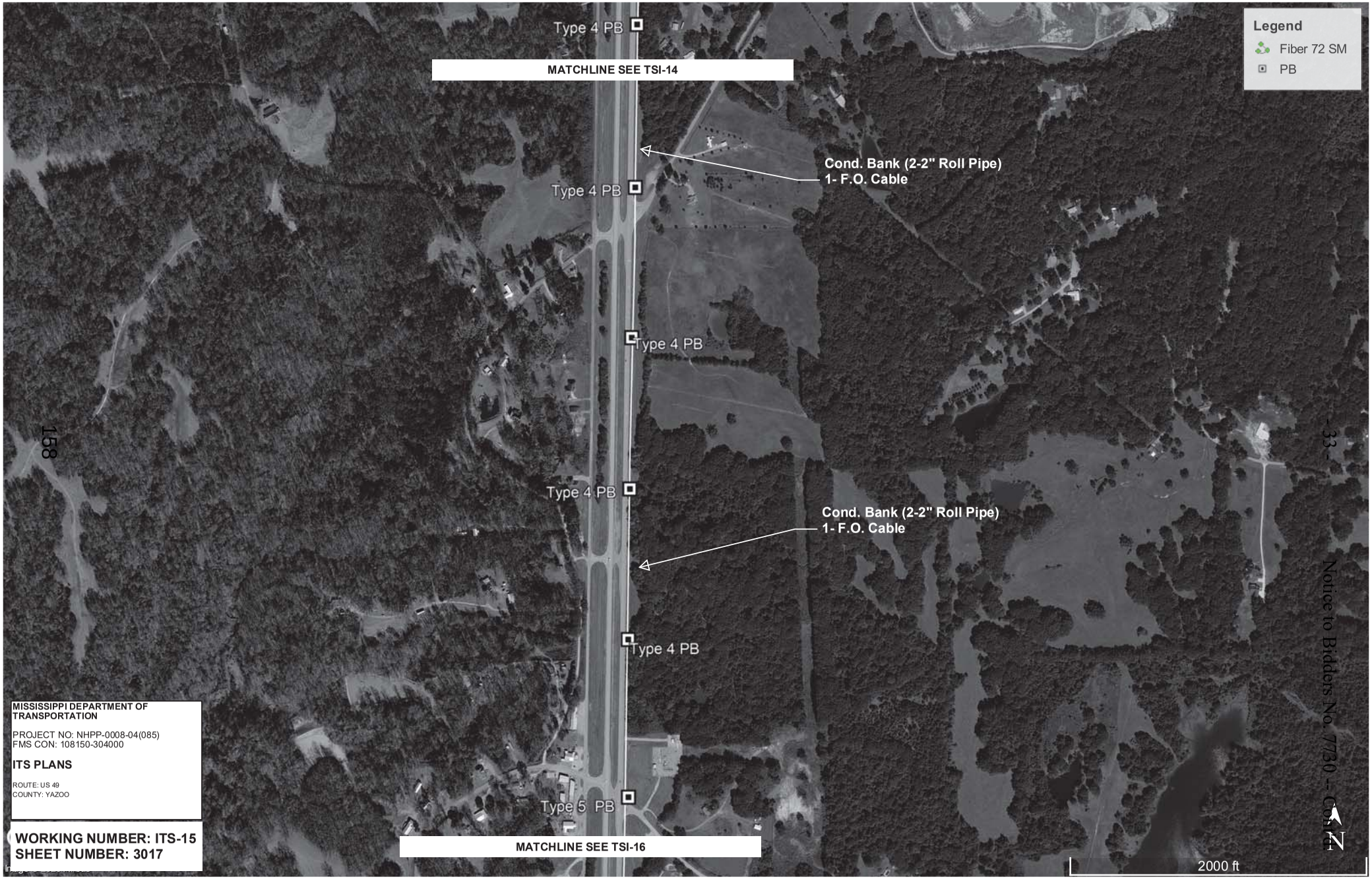
ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-14
SHEET NUMBER: 3016

157

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Notice to Bidders No. 7730 – Cont'd.



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Notice to Bidders No. 7730 - Con't

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-15
SHEET NUMBER: 3017



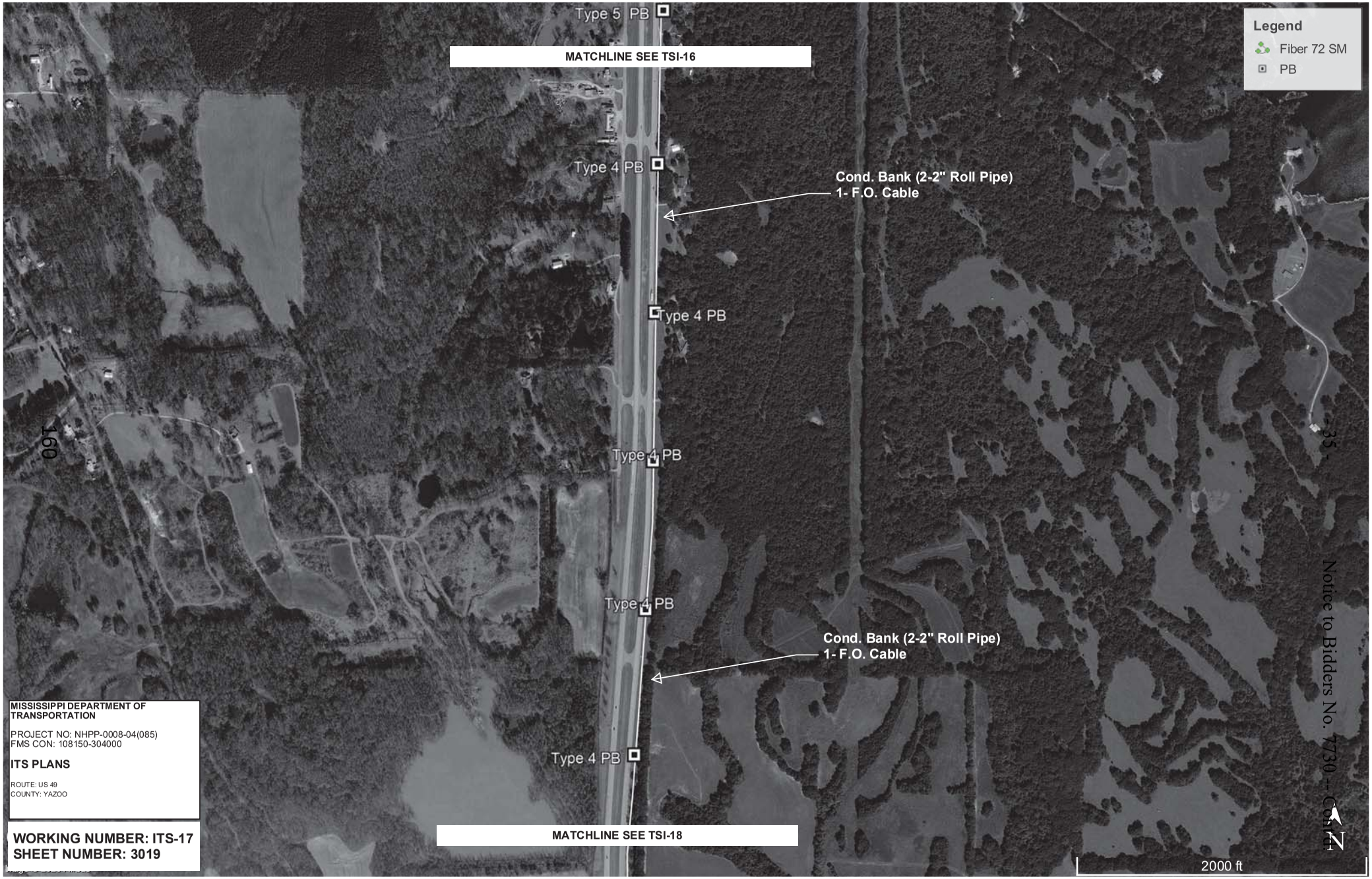
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

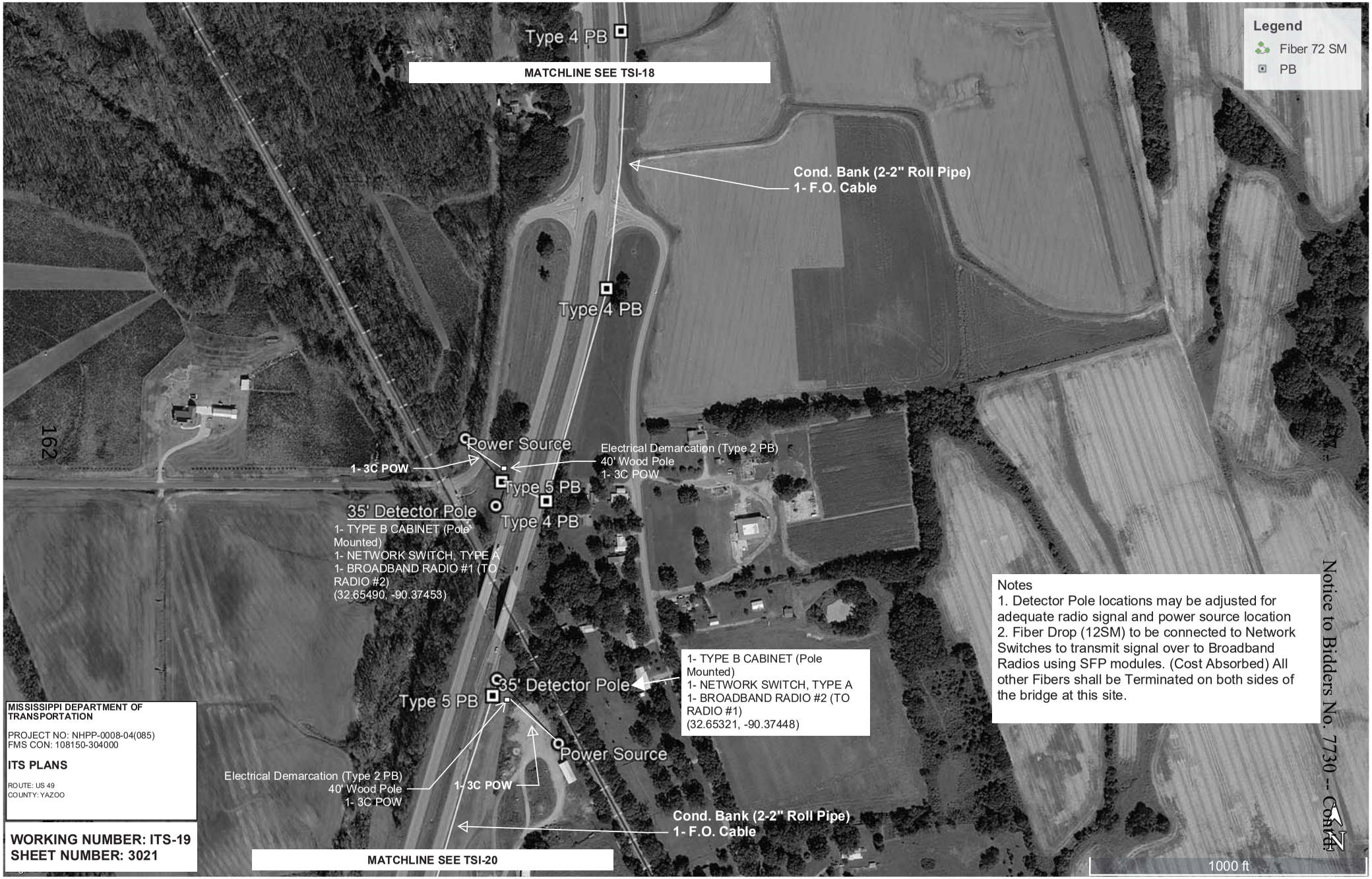
ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-16
SHEET NUMBER: 3018


Type 5 PB
MATCHLINE SEE TSI-16
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
Type 4 PB
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
MATCHLINE SEE TSI-18
Legend
Fiber 72 SM
PB
2000 ft
N
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-17
SHEET NUMBER: 3019


Legend
Fiber 72 SM
PB
Type 4 PB
MATCHLINE SEE TSI-17
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
Type 4 PB
Type 4 PB
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
Type 5 PB
Type 4 PB
MATCHLINE SEE TSI-19
161
16
2000 ft
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-18
SHEET NUMBER: 3020


Legend
Fiber 72 SM
PB
Type 4 PB
MATCHLINE SEE TSI-18
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
162
87
Power Source
1- 3C POW
Electrical Demarcation (Type 2 PB)
40' Wood Pole
1- 3C POW
Type 5 PB
35' Detector Pole
Type 4 PB
1- TYPE B CABINET (Pole Mounted)
1- NETWORK SWITCH, TYPE A
1- BROADBAND RADIO #1 (TO RADIO #2)
(32.65490, -90.37453)
1- TYPE B CABINET (Pole Mounted)
1- NETWORK SWITCH, TYPE A
1- BROADBAND RADIO #2 (TO RADIO #1)
(32.65321, -90.37448)
35' Detector Pole
Type 5 PB
Power Source
Electrical Demarcation (Type 2 PB)
40' Wood Pole
1- 3C POW
1- 3C POW
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
MATCHLINE SEE TSI-20
Notes
1. Detector Pole locations may be adjusted for adequate radio signal and power source location
2. Fiber Drop (12SM) to be connected to Network Switches to transmit signal over to Broadband Radios using SFP modules. (Cost Absorbed) All other Fibers shall be Terminated on both sides of the bridge at this site.
Notice to Bidders No. 7730 -- Cont'd
N
1000 ft
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-19
SHEET NUMBER: 3021



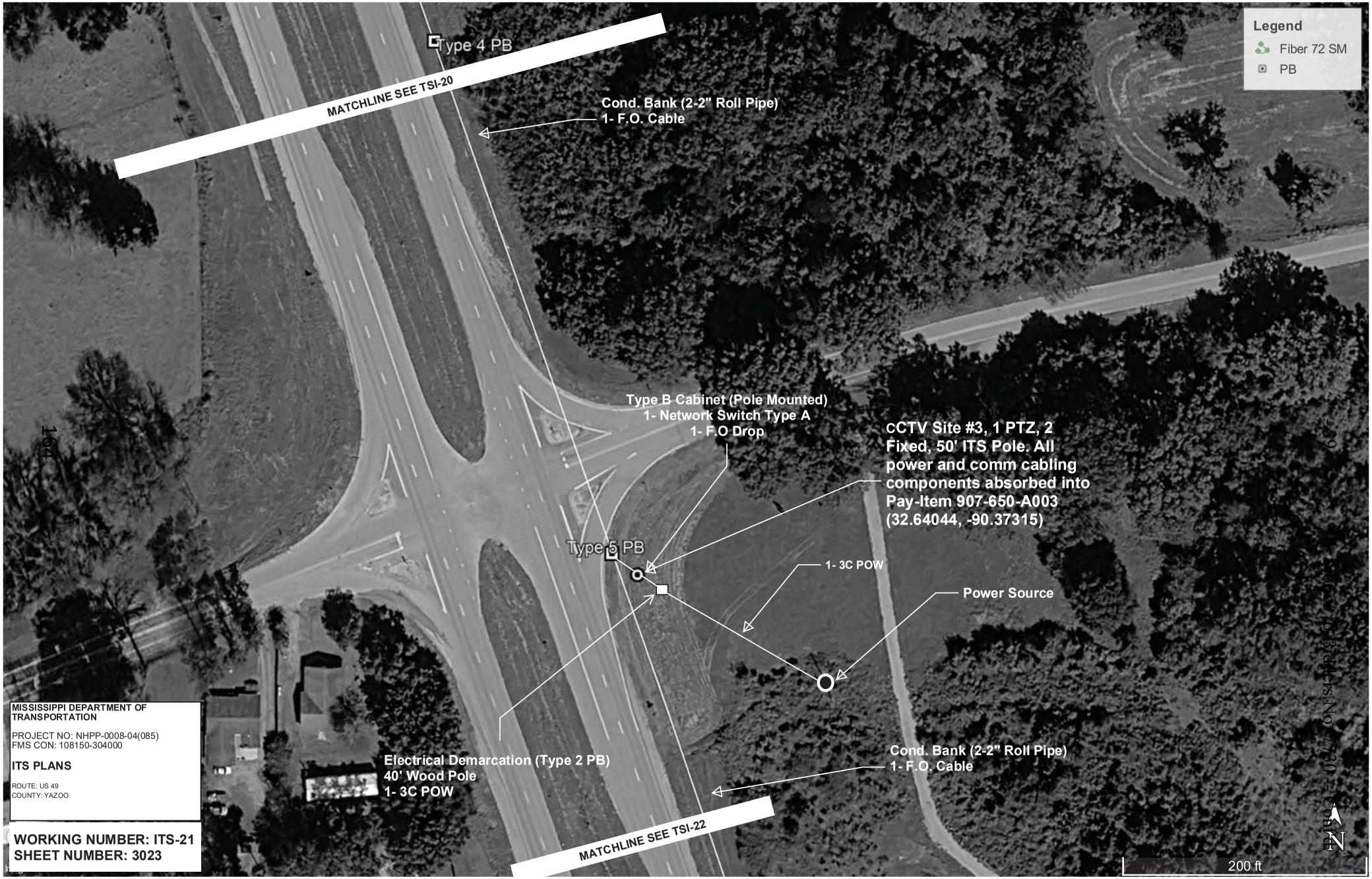
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-20
SHEET NUMBER: 3022


Legend
Fiber 72 SM
PB
Type 4 PB
MATCHLINE SEE TSI-20
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type B Cabinet (Pole Mounted)
1- Network Switch Type A
1- F.O Drop
cCTV Site #3, 1 PTZ, 2 Fixed, 50' ITS Pole. All power and comm cabling components absorbed into Pay-Item 907-650-A003
(32.64044, -90.37315)
Type 5 PB
1- 3C POW
Power Source
Electrical Demarcation (Type 2 PB)
40' Wood Pole
1- 3C POW
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
MATCHLINE SEE TSI-22
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-21
SHEET NUMBER: 3023
200 ft
N



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-22
SHEET NUMBER: 3024



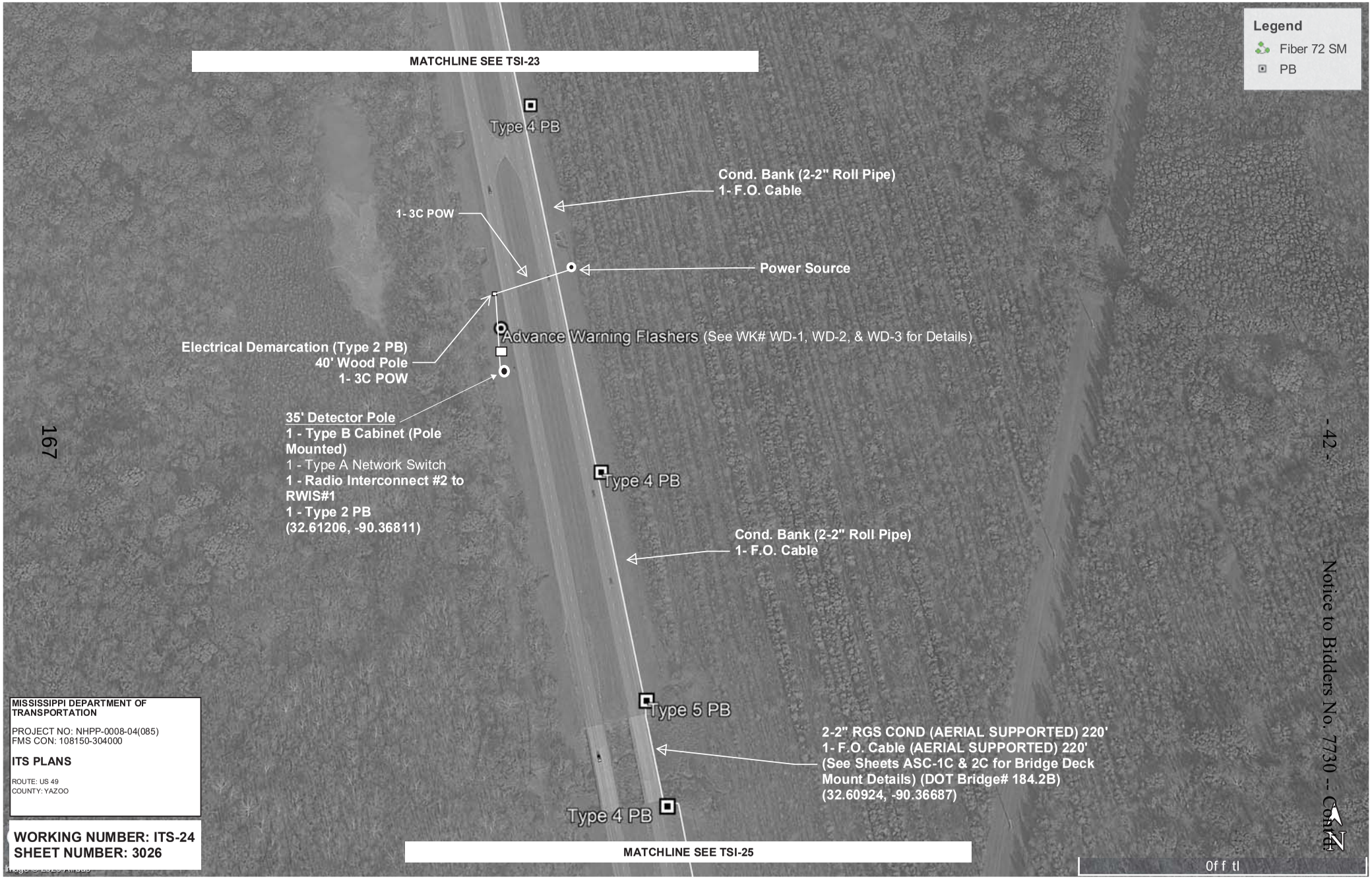
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

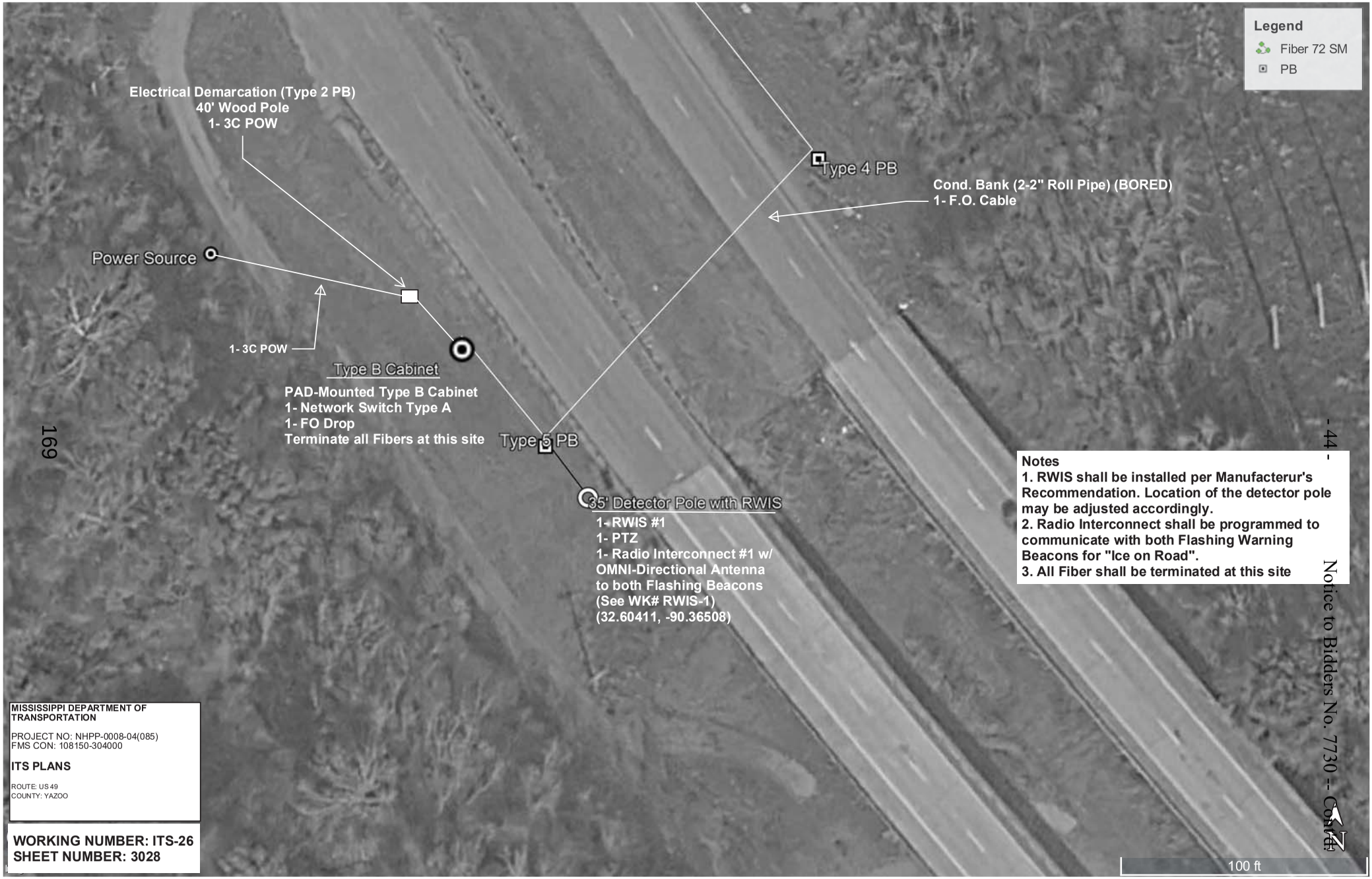
ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-23
SHEET NUMBER: 3025


Legend
Fiber 72 SM
PB
MATCHLINE SEE TSI-23
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
1- 3C POW
Power Source
Advance Warning Flashers (See WK# WD-1, WD-2, & WD-3 for Details)
Electrical Demarcation (Type 2 PB)
40' Wood Pole
1- 3C POW
35' Detector Pole
1 - Type B Cabinet (Pole Mounted)
1 - Type A Network Switch
1 - Radio Interconnect #2 to RWIS#1
1 - Type 2 PB
(32.61206, -90.36811)
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 5 PB
2-2" RGS COND (AERIAL SUPPORTED) 220'
1- F.O. Cable (AERIAL SUPPORTED) 220'
(See Sheets ASC-1C & 2C for Bridge Deck Mount Details) (DOT Bridge# 184.2B)
(32.60924, -90.36687)
Type 4 PB
MATCHLINE SEE TSI-25
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-24
SHEET NUMBER: 3026
N


Type 4 PB
MATCHLINE SEE TSI-24
Legend
Fiber 72 SM
PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
Type 4 PB
Cond. Bank (2-2" Roll Pipe)
1- F.O. Cable
168
Old River Lake
Details on WKG. NO: ITS-26
Power Source
CCTV#4 - Type B Cabinet
Type 5 PB
35' Detector Pole with RWIS
Type 4 PB
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000
ITS PLANS
ROUTE: US 49
COUNTY: YAZOO
WORKING NUMBER: ITS-25
SHEET NUMBER: 3027
700 ft
N



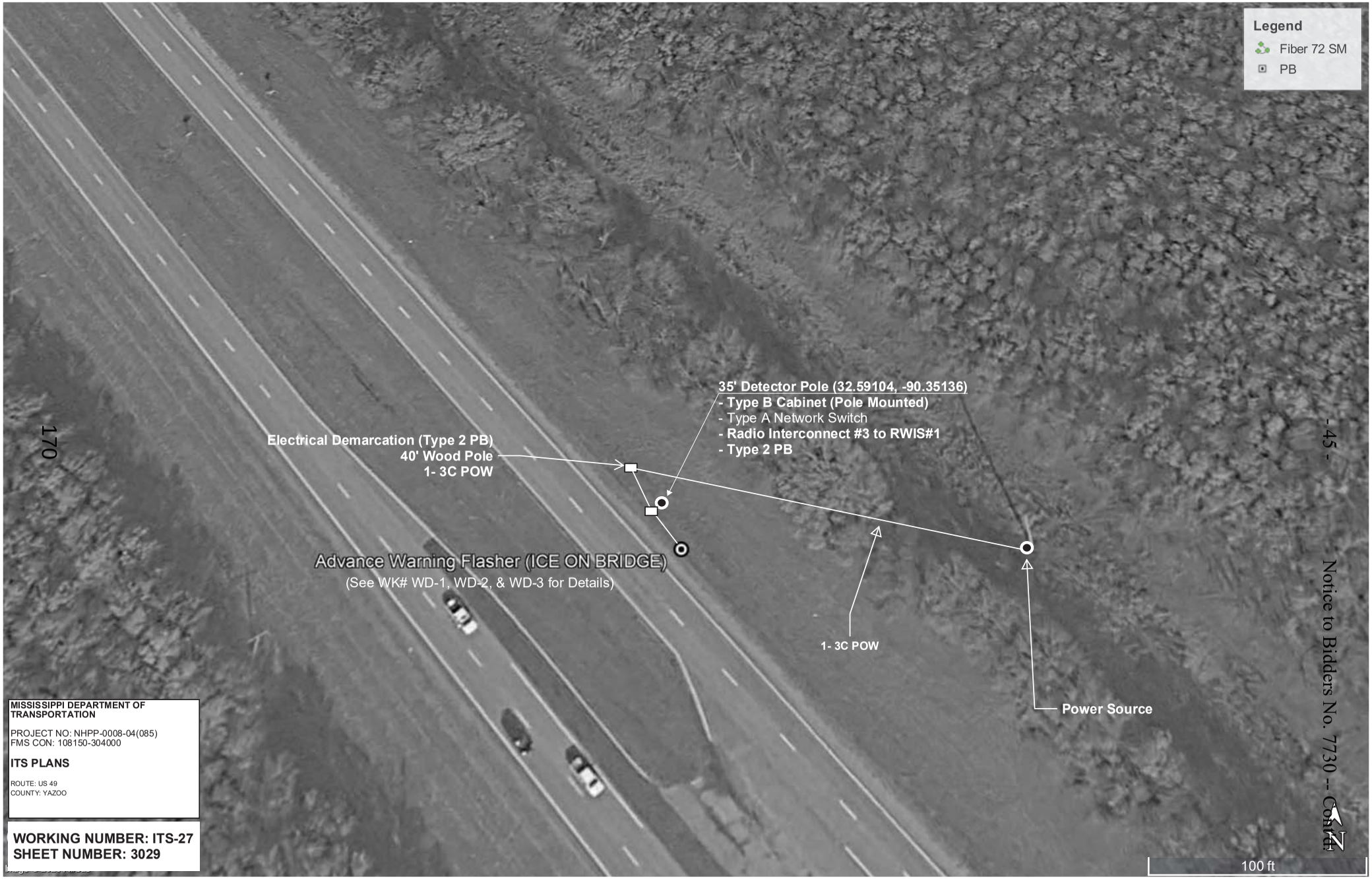
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-26
SHEET NUMBER: 3028



MISSISSIPPI DEPARTMENT OF TRANSPORTATION

PROJECT NO: NHPP-0008-04(085)
FMS CON: 108150-304000

ITS PLANS

ROUTE: US 49
COUNTY: YAZOO

WORKING NUMBER: ITS-27
SHEET NUMBER: 3029

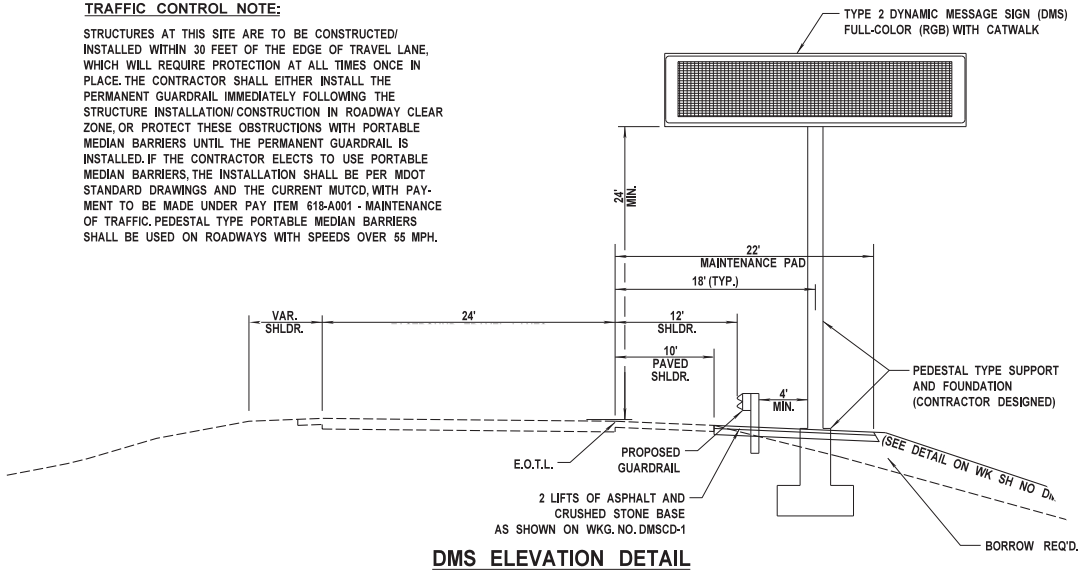
STATE	PROJECT NO.
MISS.	

TYPE 2 DMS STRUCTURE NOTES:

1. SIGN STRUCTURE, SUPPORT AND FOOTING ARE ALL SCHEMATIC AND FOR ILLUSTRATIVE PURPOSES ONLY. ALL ROADWAY DIMENSIONS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL DESIGN THE PEDESTAL SIGN STRUCTURE, INCLUDING CONNECTIONS AND FOUNDATION.
3. MATERIAL USED SHALL BE STEEL, AND MUST BE FULLY COMPATIBLE WITH DMS BODY.
4. THE DESIGN SHALL BE IN ACCORDANCE WITH THE LATEST "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", INCLUDING THE MAXIMUM DEAD LOAD DEFLECTION CRITERIA. DESIGN WIND SPEED SHALL BE 120 MPH.
5. THE STRUCTURE SHALL BE DESIGNED, FABRICATED AND CONSTRUCTED EXPRESSLY TO SUPPORT AND BE COMPATIBLE WITH THE TYPE 2 DYNAMIC MESSAGE SIGN DESCRIBED IN THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL SUBMIT TWO (2) SETS OF CALCULATIONS AND FOUR (4) SETS OF SHOP DRAWINGS FOR ALL ITEMS ASSOCIATED WITH THE DESIGN, MANUFACTURING, CONSTRUCTION AND INSTALLATION OF THE STRUCTURE, INCLUDING. ITS ATTACHMENTS AND FOUNDATIONS, TO THE ITS PROJECT ENGINEER. THE FIRST PAGE OF EACH SET OF DESIGN CALCULATIONS AND EACH PAGE OF THE SHOP DRAWINGS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
7. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LENGTH OF THE PEDESTAL SUPPORT COLUMN ON THE BASIS OF THE EXISTING FIELD CONDITIONS. ALL DETAILS AND DIMENSIONS SHOWN ON THIS DRAWING ARE APPROXIMATE AND FOR BIDDING PURPOSES ONLY.
8. MATERIAL CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR HIS APPROVAL 30 DAYS PRIOR TO THE STRUCTURE ERECTION.
9. SEE SECTION 630 FOR ADDITIONAL STRUCTURAL REQUIREMENTS.
10. DISTANCE MAY BE INCREASED WITH PERMISSION OF ENGINEER IF OTHER FIELD RESTRICTIONS PROHIBIT PLACEMENT AS SHOWN IN THE PLANS.
11. SEE DMSCD-1 FOR ADDITIONAL DETAILS.

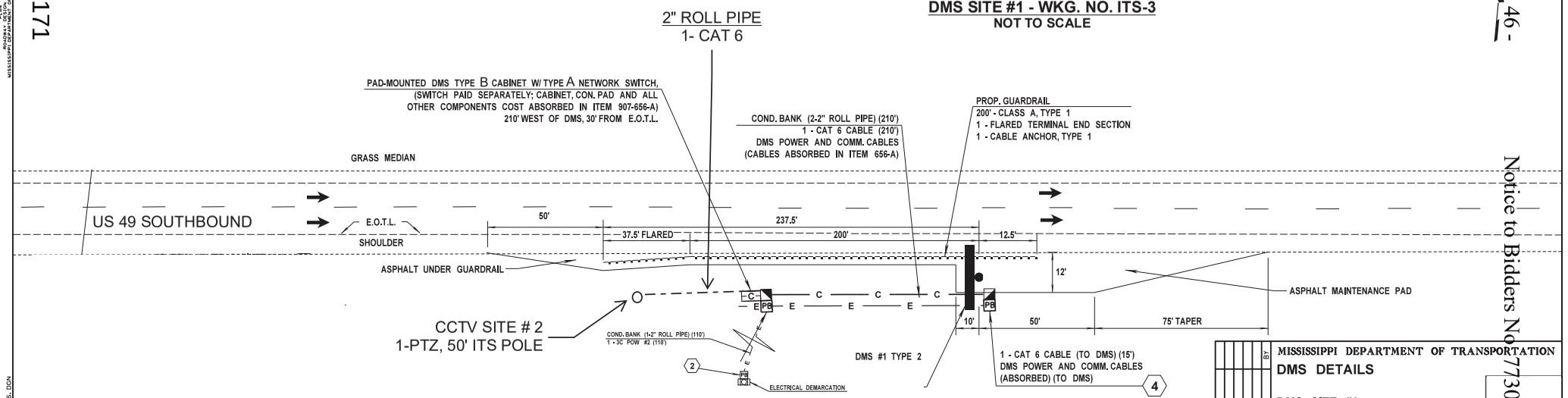
TRAFFIC CONTROL NOTE:

STRUCTURES AT THIS SITE ARE TO BE CONSTRUCTED/ INSTALLED WITHIN 30 FEET OF THE EDGE OF TRAVEL LANE, WHICH WILL REQUIRE PROTECTION AT ALL TIMES ONCE IN PLACE. THE CONTRACTOR SHALL EITHER INSTALL THE PERMANENT GUARDRAIL IMMEDIATELY FOLLOWING THE STRUCTURE INSTALLATION/ CONSTRUCTION IN ROADWAY CLEAR ZONE, OR PROTECT THESE OBSTRUCTIONS WITH PORTABLE MEDIAN BARRIERS UNTIL THE PERMANENT GUARDRAIL IS INSTALLED. IF THE CONTRACTOR ELECTS TO USE PORTABLE MEDIAN BARRIERS, THE INSTALLATION SHALL BE PER MDOT STANDARD DRAWINGS AND THE CURRENT MUTCD, WITH PAYMENT TO BE MADE UNDER PAY ITEM 618-A001 - MAINTENANCE OF TRAFFIC. PEDESTAL TYPE PORTABLE MEDIAN BARRIERS SHALL BE USED ON ROADWAYS WITH SPEEDS OVER 55 MPH.



DMS ELEVATION DETAIL

DMS SITE #1 - WKG. NO. ITS-3
NOT TO SCALE



PLAN VIEW DETAIL US 49 SOUTHBOUND DMS SITE #1
NOT TO SCALE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
DMS DETAILS

DMS SITE #1
TYPE 2 DMS

PROJ. NO.:
COUNTY: YAZOO

FILENAME: DMS.DGN
DESIGN TEAM ____ CHECKED ____ DATE ____

WORKING NUMBER DMS-1
SHEET NUMBER 3030

REVISION BY DATE

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Notice to Bidders No. 7730 -- Contract

PLAN PREPARED BY DIVISION MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/28/2024 8:26:16 PM DMS_DGN

FMS CON:108150-304000

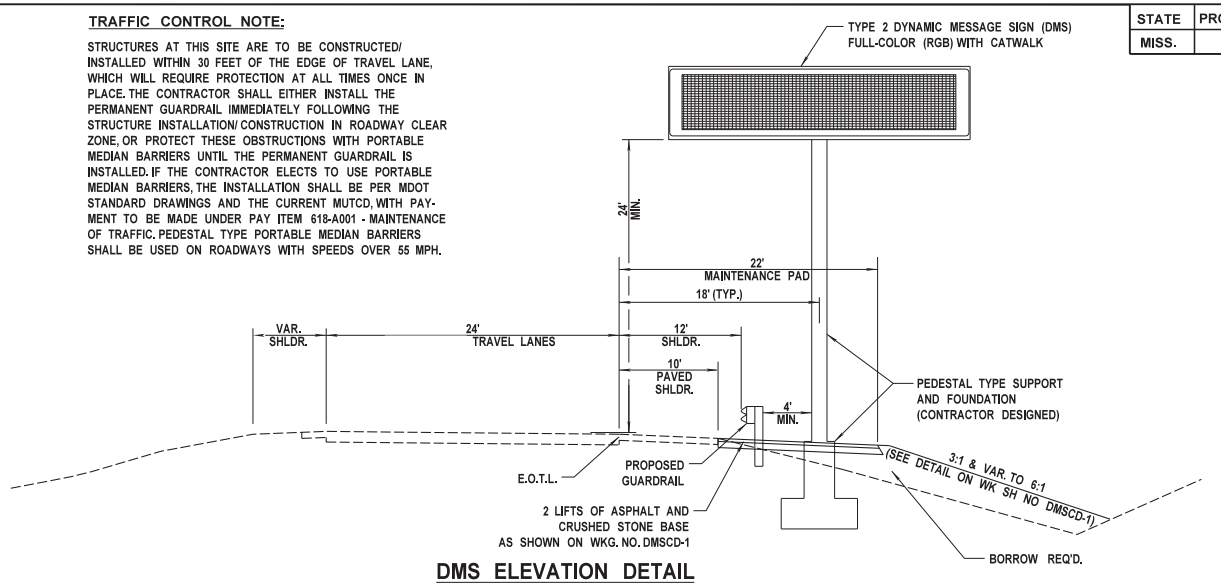
STATE	PROJECT NO.
MISS.	

TYPE 2 DMS STRUCTURE NOTES:

1. SIGN STRUCTURE, SUPPORT AND FOOTING ARE ALL SCHEMATIC AND FOR ILLUSTRATIVE PURPOSES ONLY. ALL ROADWAY DIMENSIONS ARE APPROXIMATE AND SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL DESIGN THE PEDESTAL SIGN STRUCTURE, INCLUDING CONNECTIONS AND FOUNDATION.
3. MATERIAL USED SHALL BE STEEL, AND MUST BE FULLY COMPATIBLE WITH DMS BODY.
4. THE DESIGN SHALL BE IN ACCORDANCE WITH THE LATEST "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", INCLUDING THE MAXIMUM DEAD LOAD DEFLECTION CRITERIA. DESIGN WIND SPEED SHALL BE 120 MPH.
5. THE STRUCTURE SHALL BE DESIGNED, FABRICATED AND CONSTRUCTED EXPRESSLY TO SUPPORT AND BE COMPATIBLE WITH THE TYPE 2 DYNAMIC MESSAGE SIGN DESCRIBED IN THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL SUBMIT TWO (2) SETS OF CALCULATIONS AND FOUR (4) SETS OF SHOP DRAWINGS FOR ALL ITEMS ASSOCIATED WITH THE DESIGN, MANUFACTURING, CONSTRUCTION AND INSTALLATION OF THE STRUCTURE, INCLUDING. ITS ATTACHMENTS AND FOUNDATIONS, TO THE ITS PROJECT ENGINEER. THE FIRST PAGE OF EACH SET OF DESIGN CALCULATIONS AND EACH PAGE OF THE SHOP DRAWINGS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
7. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LENGTH OF THE PEDESTAL SUPPORT COLUMN ON THE BASIS OF THE EXISTING FIELD CONDITIONS. ALL DETAILS AND DIMENSIONS SHOWN ON THIS DRAWING ARE APPROXIMATE AND FOR BIDDING PURPOSES ONLY.
8. MATERIAL CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR HIS APPROVAL 30 DAYS PRIOR TO THE STRUCTURE ERECTION.
9. SEE SECTION 630 FOR ADDITIONAL STRUCTURAL REQUIREMENTS.
10. DISTANCE MAY BE INCREASED WITH PERMISSION OF ENGINEER IF OTHER FIELD RESTRICTIONS PROHIBIT PLACEMENT AS SHOWN IN THE PLANS.
11. SEE DMSCD-1 FOR ADDITIONAL DETAILS.

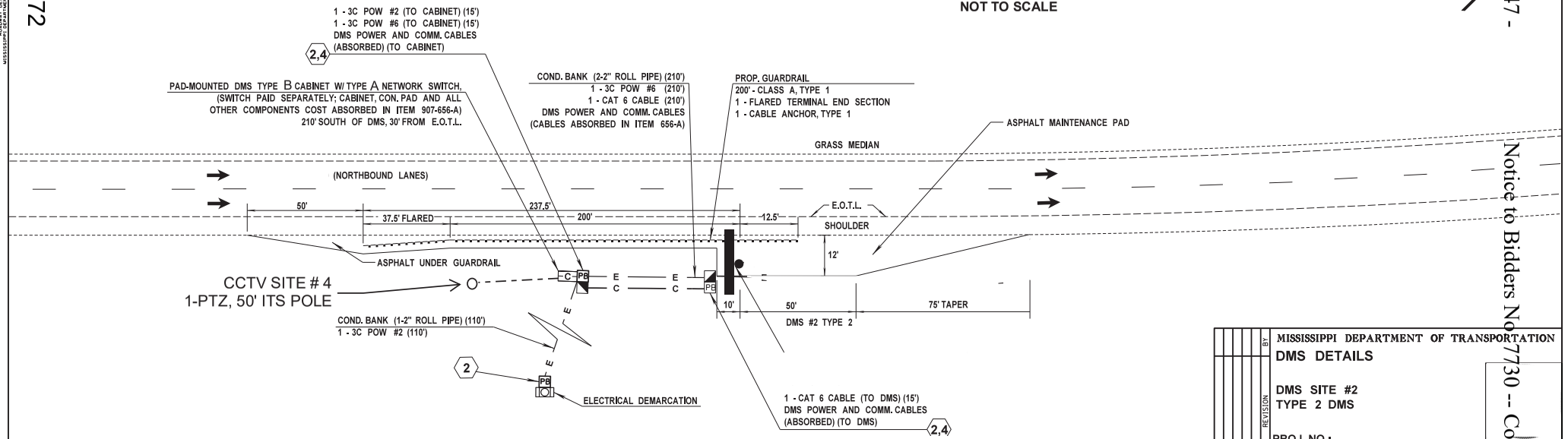
TRAFFIC CONTROL NOTE:

STRUCTURES AT THIS SITE ARE TO BE CONSTRUCTED/ INSTALLED WITHIN 30 FEET OF THE EDGE OF TRAVEL LANE, WHICH WILL REQUIRE PROTECTION AT ALL TIMES ONCE IN PLACE. THE CONTRACTOR SHALL EITHER INSTALL THE PERMANENT GUARDRAIL IMMEDIATELY FOLLOWING THE STRUCTURE INSTALLATION/ CONSTRUCTION IN ROADWAY CLEAR ZONE, OR PROTECT THESE OBSTRUCTIONS WITH PORTABLE MEDIAN BARRIERS UNTIL THE PERMANENT GUARDRAIL IS INSTALLED. IF THE CONTRACTOR ELECTS TO USE PORTABLE MEDIAN BARRIERS, THE INSTALLATION SHALL BE PER MDOT STANDARD DRAWINGS AND THE CURRENT MUTCD, WITH PAYMENT TO BE MADE UNDER PAY ITEM 618-A001 - MAINTENANCE OF TRAFFIC. PEDESTAL TYPE PORTABLE MEDIAN BARRIERS SHALL BE USED ON ROADWAYS WITH SPEEDS OVER 55 MPH.



DMS ELEVATION DETAIL

DMS SITE #2 - WKG. NO. ITS-6
NOT TO SCALE



PLAN VIEW DETAIL US 49 NORTHBOUND DMS SITE #2
NOT TO SCALE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
DMS DETAILS

DMS SITE #2
TYPE 2 DMS

PROJ. NO.:
COUNTY: YAZOO

FILENAME: DMS.DGN
DESIGN TEAM _____ CHECKED _____ DATE _____

WORKING NUMBER: DMS-2
SHEET NUMBER: 3031

DATE | REVISION | BY

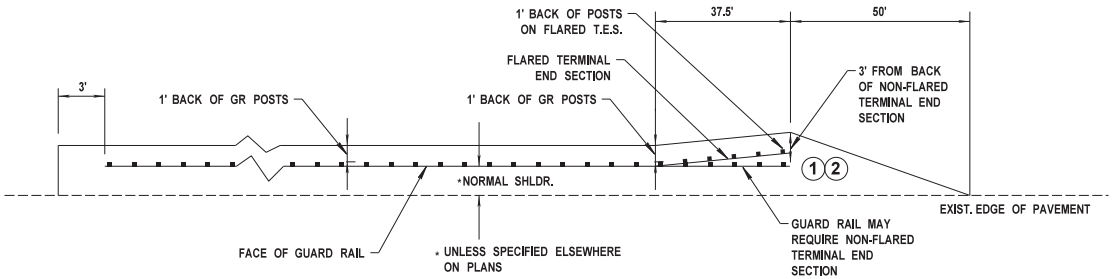
PLAN PREPARED BY DIVISION MISSISSIPPI DEPARTMENT OF TRANSPORTATION

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- 47 -

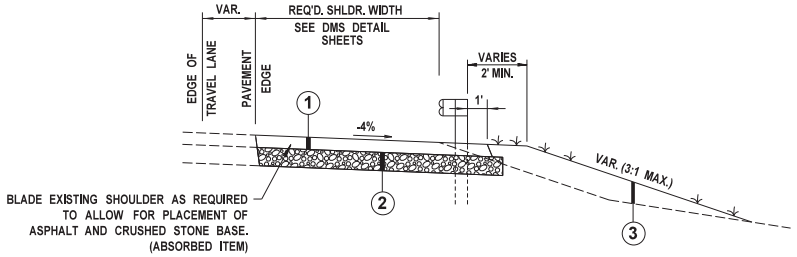
Notice to Bidders No. 7730 -- Contract

STATE	PROJECT NO.
MISS.	



TYPICAL PLACEMENT OF ASPHALT UNDER GUARDRAIL

NOT TO SCALE

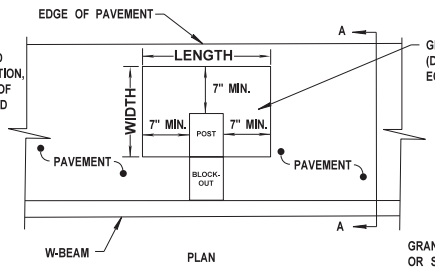


PAVEMENT UNDER GUARDRAIL & MAINTENANCE PAD

NOT TO SCALE

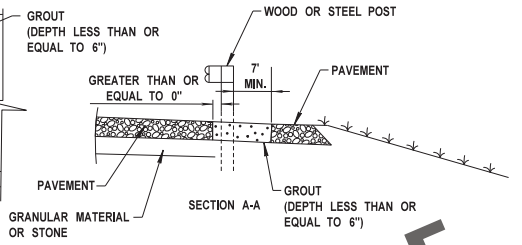
NOTES:

1. PRIOR TO EXCAVATION AND EMBANKMENT CONSTRUCTION, ALL TOPSOIL SHALL BE STRIPPED AND STOCKPILED IN ACCORDANCE WITH SECTION 211 OF THE STANDARD SPECIFICATIONS. AFTER COMPLETION OF EXCAVATION AND EMBANKMENT CONSTRUCTION, ALL SLOPES SHALL BE UNIFORMLY PLATED WITH STOCKPILED TOPSOIL. THE COST OF STRIPPING, STOCKPILING, PLACING AND SPREADING OF TOPSOIL IS TO BE ABSORBED (NOT A SEPARATE PAY ITEM). TOPSOIL STRIPPED FROM CONSTRUCTION LIMITS WILL NOT BE INCLUDED IN THE MEASUREMENT OF OTHER EXCAVATION ITEMS.
2. THE EROSION CONTROL DEVICES REFERENCED IN THESE PLANS ARE A MINIMUM REQUIREMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT SILT DOES NOT LEAVE THE RIGHT OF WAY OR CONTAMINATE WATERS OF THE UNITED STATES DURING CONSTRUCTION.



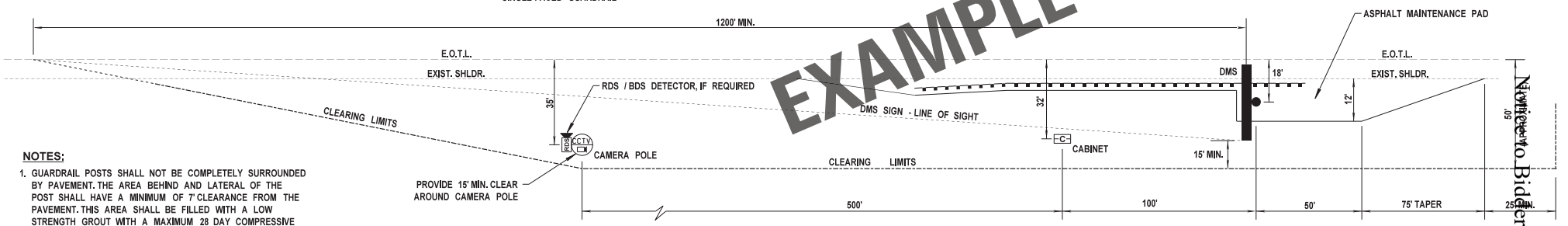
PLAN

PAVEMENT LEAVE-OUT AREA FOR GUARDRAIL POSTS
SINGLE-FACED GUARDRAIL



1. 4.0" DEPTH ASPHALT REQUIRED
   (1 @ 1.5" – 9.5-mm, HT, ASPHALT PAVEMENT)
   (1 @ 2.5" – 12.5-mm, HT, ASPHALT PAVEMENT)
2. 8.0" DEPTH CRUSHED STONE BASE REQ'D.
   3/4" AND DOWN CRUSHED STONE BASE
3. VARIABLE DEPTH BORROW MATERIAL REQ'D.
   BORROW EXCAVATION, AH, FME, CLASS B7-6

VEGETATIVE MATERIAL AS PER THE VEGETATION SCHEDULE
(COST ABSORBED)



EXAMPLE

NOTES:

1. GUARDRAIL POSTS SHALL NOT BE COMPLETELY SURROUNDED BY PAVEMENT. THE AREA BEHIND AND LATERAL OF THE POST SHALL HAVE A MINIMUM OF 7' CLEARANCE FROM THE PAVEMENT. THIS AREA SHALL BE FILLED WITH A LOW STRENGTH GROUT WITH A MAXIMUM 28 DAY COMPRESSIVE STRENGTH OF 120 PSI.
2. GROUT SHALL BE INSTALLED AT DEPTH EQUAL TO THE SURROUNDING PAVEMENT, UP TO A MAXIMUM OF 6". IF SURROUNDING PAVEMENT IS GREATER THAN 6", THE DIFFERENCE SHALL BE FILLED IN WITH SHOULDER GRANULAR MATERIAL.
3. COST OF GROUT SHALL BE ABSORBED IN THE COST OF OTHER ITEMS BID.
4. PAVEMENT LEAVE-OUT AREAS ARE REQUIRED FOR STEEL AND WOOD POSTS.
5. STANDARD EMBEDMENT DEPTHS STILL APPLY, MEASURED FROM THE TOP OF THE PROJECTED PAVEMENT SURFACE.

MIN. PAV'T LEAVE-OUT AREA		
POST	SINGLE-FACED	
	LENGTH (IN.)	WIDTH (IN.)
6"x8" WOOD	20	15
8"x8" WOOD	22	15
10"x10" WOOD	24	17
W6x9 STEEL	18	13

MINIMUM CLEARING REQUIREMENTS AT DMS SITES

NOT TO SCALE

NOTE:

SEE ITS PLANS FOR TYPE OF DMS, OTHER ITS EQUIPMENT TO BE INSTALLED, AND EXACT PLACEMENT.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DMS DETAILS

DMS CONSTRUCTION DETAILS

PROJ. NO.:

COUNTY: YAZOO

FILENAME: DMS.DGN

DESIGN TEAM _____ CHECKED _____ DATE _____

REVISION | BY | DATE

WORKING NUMBER: DMSCD-1

SHEET NUMBER: 3032

Notice to Bidders No. 7730 -- Contract No. 3032

PLAN
PROJECT DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

8/28/2024 6:26:17 PM DMS.DGN

STATE	PROJECT NO.
MISS.	

EROSION CONTROL GENERAL NOTES

1. A SPECIFIC EROSION CONTROL PLAN IS NOT PROVIDED. SEE WK. NO. EC-2 FOR TYPICAL EROSION CONTROL DETAILS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE EFFECTIVE AND CONTINUOUS EROSION AND SILTATION CONTROL IN ALL PHASES OF CONSTRUCTION.

2. NO SEPARATE PAYMENT WILL BE MADE FOR THE EROSION CONTROL ITEMS WITH THE EXCEPTION OF MDOT TOWER SITE. ALL EROSION AND SILTATION CONTROL ITEMS NEEDED TO PROVIDE EFFECTIVE EROSION CONTROL SHALL BE CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.

3. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR DISTURB OR CROSS ANY STREAM OR WETLAND WITHOUT APPROPRIATE PERMITS. ALL STREAMS TO BE BORED UNDER.

4. ALL DISTURBED AREAS SHALL BE PROPERLY STABILIZED AND GRASSED AS SOON AS PRACTICABLE.

5. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN A PROACTIVE METHOD TO PREVENT THE OFF-SITE MIGRATION OR DEPOSIT OF SEDIMENT ON ROADWAYS USED BY THE GENERAL PUBLIC.

6. SOIL MATERIALS MUST BE PREVENTED FROM ENTERING WATERS OF THE STATE/U.S. EROSION AND SEDIMENTATION CONTROL MEASURES TO PROTECT WATER QUALITY MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. HAY BALES AND/OR SILT FENCE MUST BE INSTALLED ALONG THE BASE OF ALL FILLS AND CUTS, ON THE DOWNHILL SIDE OF STOCKPILED SOIL, AND ALONG STREAM BANKS IN CLEARED AREAS TO PREVENT SEDIMENT MIGRATION INTO STREAMS. THEY MUST BE INSTALLED ON THE CONTOUR, ENTRENCHED AND STAKED, AND EXTEND THE WIDTH OF THE AREA TO BE CLEARED.

7. ANY DISAGREEMENT BETWEEN THE PROJECT PLANS, THE PROJECT AS CONSTRUCTED AND THE PERMIT OR PERMITS ISSUED FOR THE PROJECT, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, THE ENVIRONMENTAL PLANNING AND PERMITS DIVISION SHALL DECIDE WHICH HAS PRECEDENCE AND WHETHER PERMIT OR PLANS REVISIONS ARE NEEDED. IN GENERAL, PERMIT CONDITIONS WILL PREVAIL.

8. CLEARING, GRUBBING, AND OTHER DISTURBANCE TO RIPARIAN VEGETATION SHALL BE LIMITED TO THE MINIMUM NECESSARY FOR CONSTRUCTION AND EQUIPMENT OPERATIONS. UNNECESSARY VEGETATION REMOVAL IS PROHIBITED.

9. UPON CONCLUSION OF THE INSPECTIONS, EROSION AND SEDIMENT CONTROL MEASURES FOUND TO BE INEFFECTIVE SHALL BE REPAIRED, REPLACED, OR MODIFIED BEFORE THE NEXT RAIN EVENT, IF POSSIBLE, BUT IN NO CASE MORE THAN TWENTY-FOUR HOURS AFTER THE CONDITION IS IDENTIFIED

10. TEMPORARY OR PERMANENT SOIL STABILIZATION SHALL BE ACCOMPLISHED WITHIN 14 DAYS AFTER FINAL GRADING OR OTHER EARTHWORK. PERMANENT SOIL STABILIZATION SHALL REPLACE TEMPORARY STABILIZATION AS SOON AS PRACTICABLE.

11. EXCEPT AS OTHERWISE SPECIFIED, THERE ARE NO KNOWN SPECIAL ENVIRONMENTAL FACTORS PRESENT ON THIS PROJECT THAT INDICATES A NEED FOR SEASONAL LIMITATIONS ON THE CLEARING, GRUBBING, EXCAVATION, GRADING, CUTTING OR FILLING OPERATIONS OR ON THE AMOUNT OF TOTAL AREA OF EXPOSED SOIL.

12. SILT FENCE TO BE INSTALLED ON THE DOWNSTREAM SIDE OF STOCKPILED SOIL. TRENCHING ACROSS WET WEATHER CONVEYANCES TO BE DONE DURING NO FLOW CONDITIONS AND STABILIZED BY THE END OF THE WORK DAY.

13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT FROM EROSION EXPOSED EARTH RESULTING FROM HIS WORK. PRIOR TO BEGINNING WORK, ADEQUATE MEASURES MUST BE IN PLACE TO TRAP ANY SEDIMENT THAT MAY TRAVEL OFF-SITE IN THE EVENT OF RAIN. DURING THE PROGRESSION OF HIS WORK, EXPOSED EARTH AREAS SHALL BE STABILIZED AS SOON AS POSSIBLE TO PREVENT EROSION. AT NO TIME SHALL EXPOSED EARTH RESULTING FROM HIS OPERATIONS HAVE UNPROTECTED ACCESS TO FLOWING OFF-SITE AND BECOMING WATERS OF THE STATE.

14. IN GENERAL, ALL DISTURBED AREAS INCLUDING POLE AND STRUCTURE FOUNDATION LOCATIONS SHALL BE DRESSED AND GRASSED. SODDING SHALL ONLY BE USED AT LOCATIONS APPROVED BY THE ENGINEER.

15. ANY AREA THAT IS DISTURBED OUTSIDE LIMITS OF CONSTRUCTION DURING THE LIFE OF THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE.

16. THE CONTRACTOR SHALL NOT HAVE ANY TRENCH OPEN FOR A PERIOD EXCEEDING 24 HOURS.

Notice to Bidders No. 7730 -- Cover

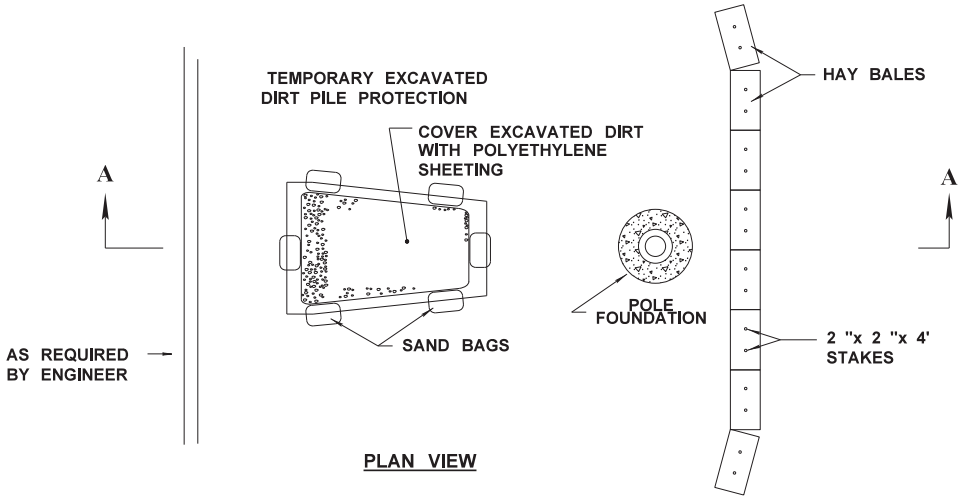
BY	REVISION	MISSISSIPPI DEPARTMENT OF TRANSPORTATION EROSION CONTROL PLAN NOTES PROJ. NO.: COUNTY: YAZOO	WORKING NUMBER EC-1
DATE		FILE NAME: EC-01.dgn DESIGN TEAM_____ CHECKED_____ DATE_____	SHEET NUMBER 3033

PLAN
PROJECT DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

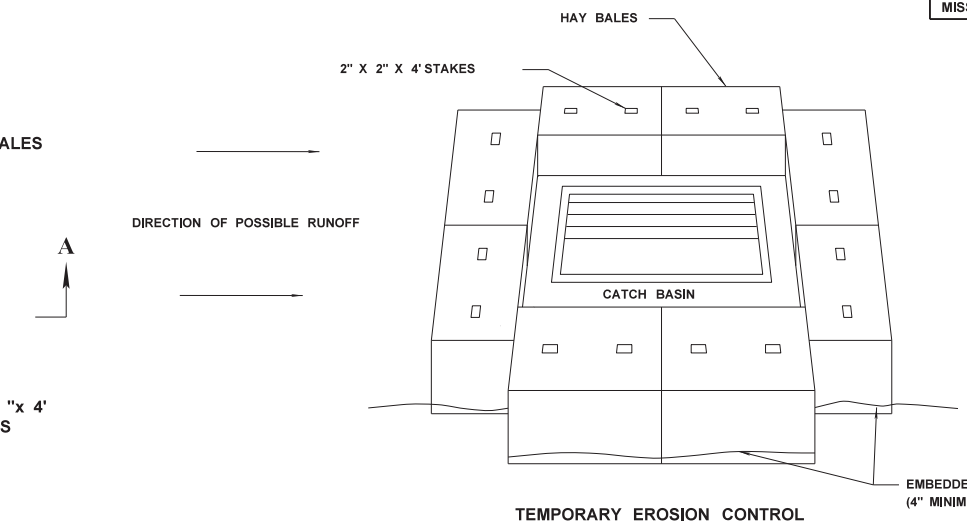
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STATE	PROJECT NO.
MISS.	

POLE OR SIGN FOUNDATION EROSION CONTROL



PLAN VIEW

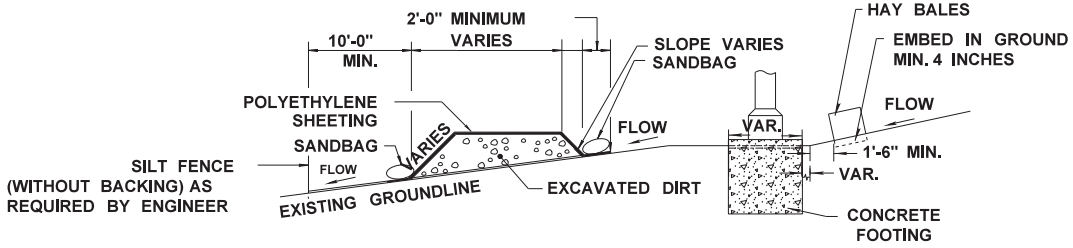


TEMPORARY EROSION CONTROL
AT EXISTING CATCH BASIN
(TYPICAL)

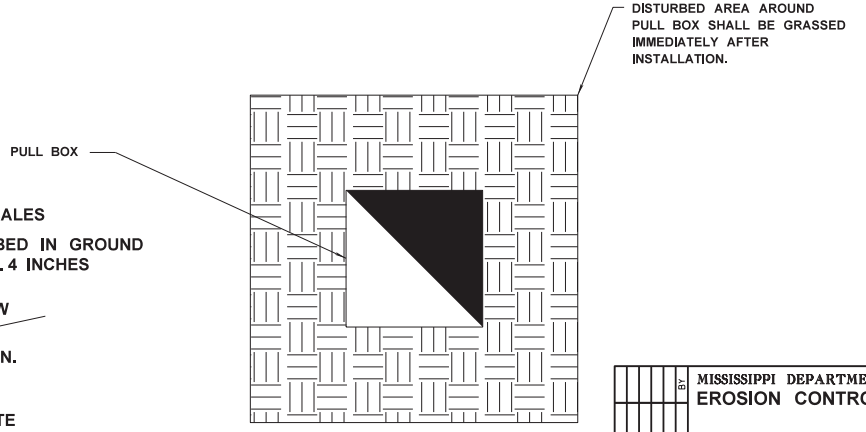
(USED WHERE RUNOFF FROM A FOUNDATION OR TRENCH LOCATION MAY BE NEAR AN EXISTING CATCH BASIN)

NOTES:

1. EROSION CONTROL DEVICES SHALL BE PLACED IMMEDIATELY AFTER AREA IS DISTURBED AND SHALL REMAIN IN PLACE UNTIL LOCATION IS GRASSED.
2. THESE TYPICAL DETAILS WILL BE USED BASED ON THE LOCATION AND DURATION OF THE DISTURBED AREAS. IF THE FOUNDATION IS IN A LOCATION WHERE RUNOFF IS NOT AN ISSUE, THE LOCATION MAY NOT REQUIRE THE USE OF THESE TEMPORARY EROSION CONTROL MEASURES, BUT WILL STILL REQUIRE GRASSING.
3. EXCAVATED DIRT THAT IS NOT NEEDED FOR BACKFILL SHALL BE REMOVED IMMEDIATELY AFTER EXCAVATION.



SECTION A-A



EROSION CONTROL
AT PULL BOX
(TYPICAL)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
EROSION CONTROL PLAN

ITS DETAILS

PROJ. NO.:
COUNTY: YAZOO

FILE NAME: EC-02.dgn
DESIGN TEAM _____ CHECKED _____ DATE _____

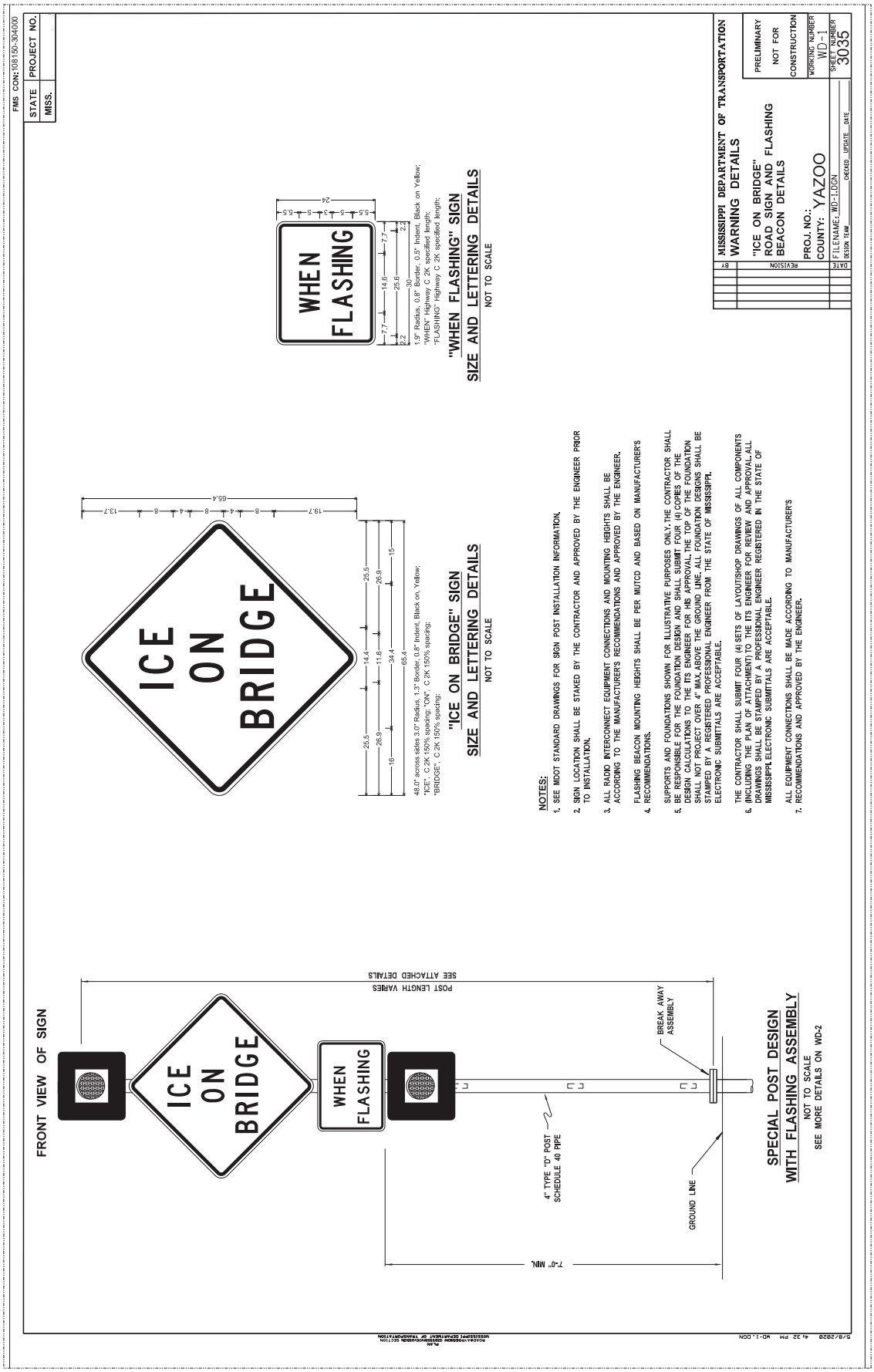
WORKING NUMBER
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SHEET NUMBER
30.34

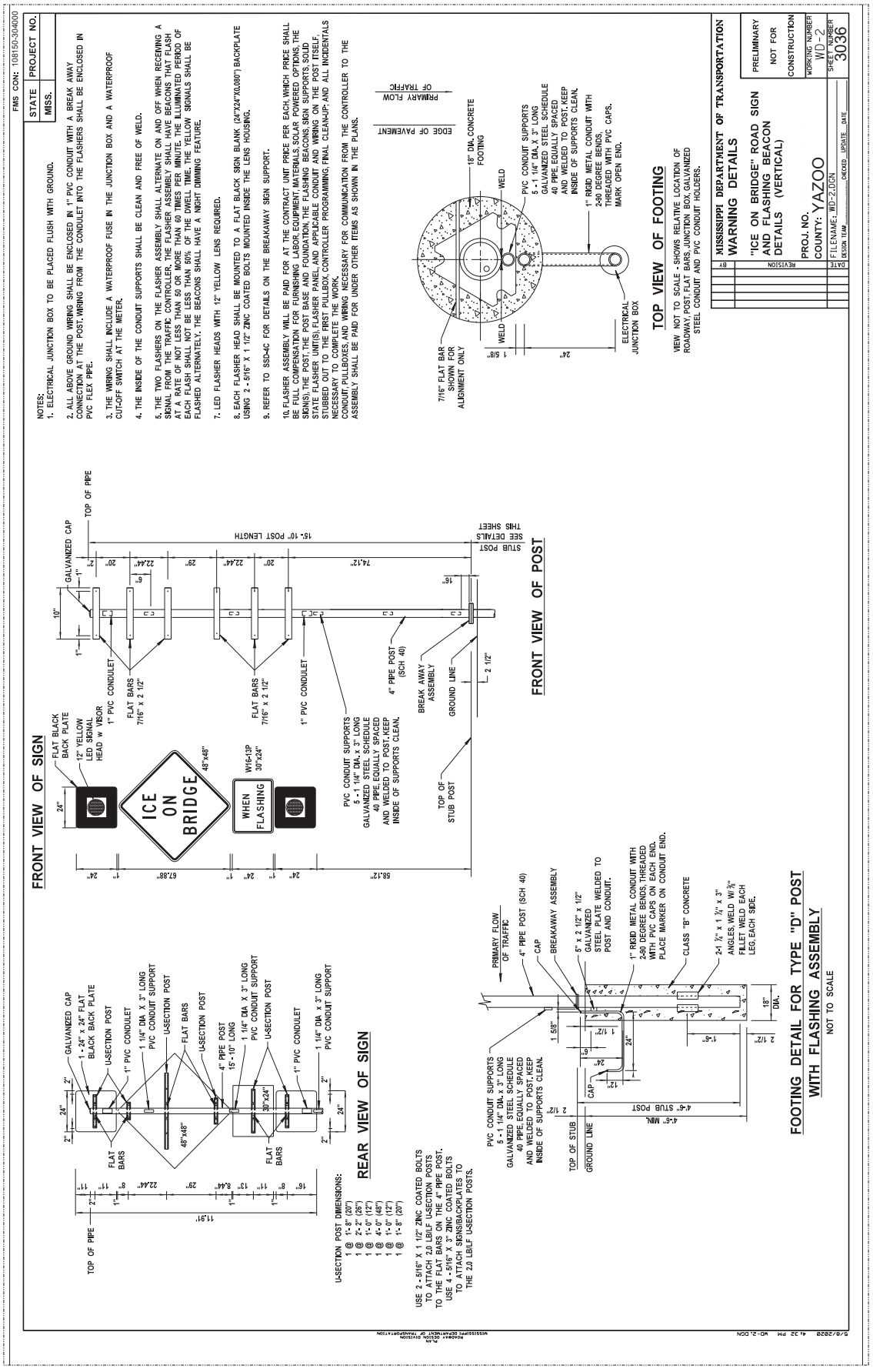
REVISION | BY | DATE

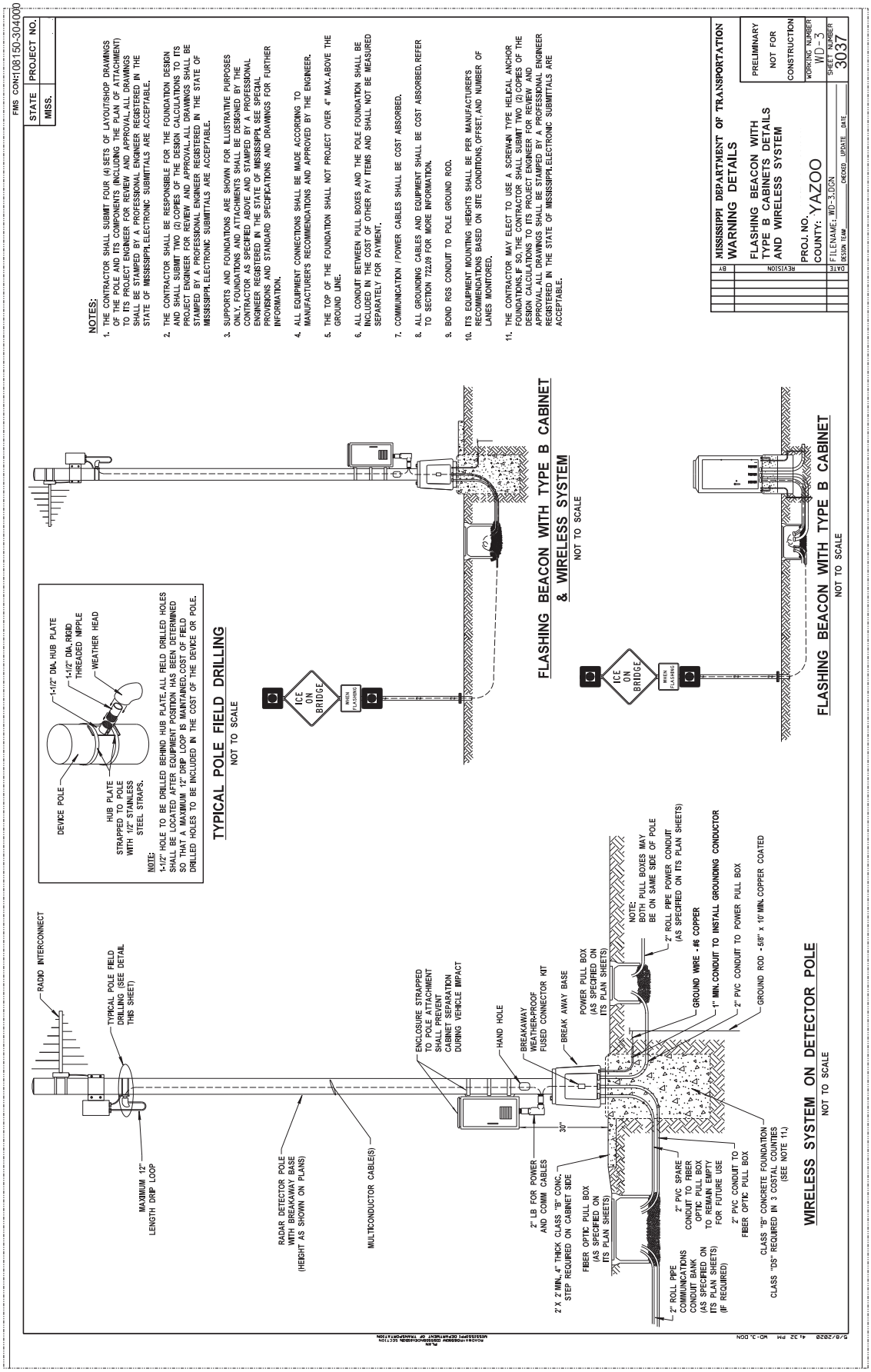
PLAN
PROJECT DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

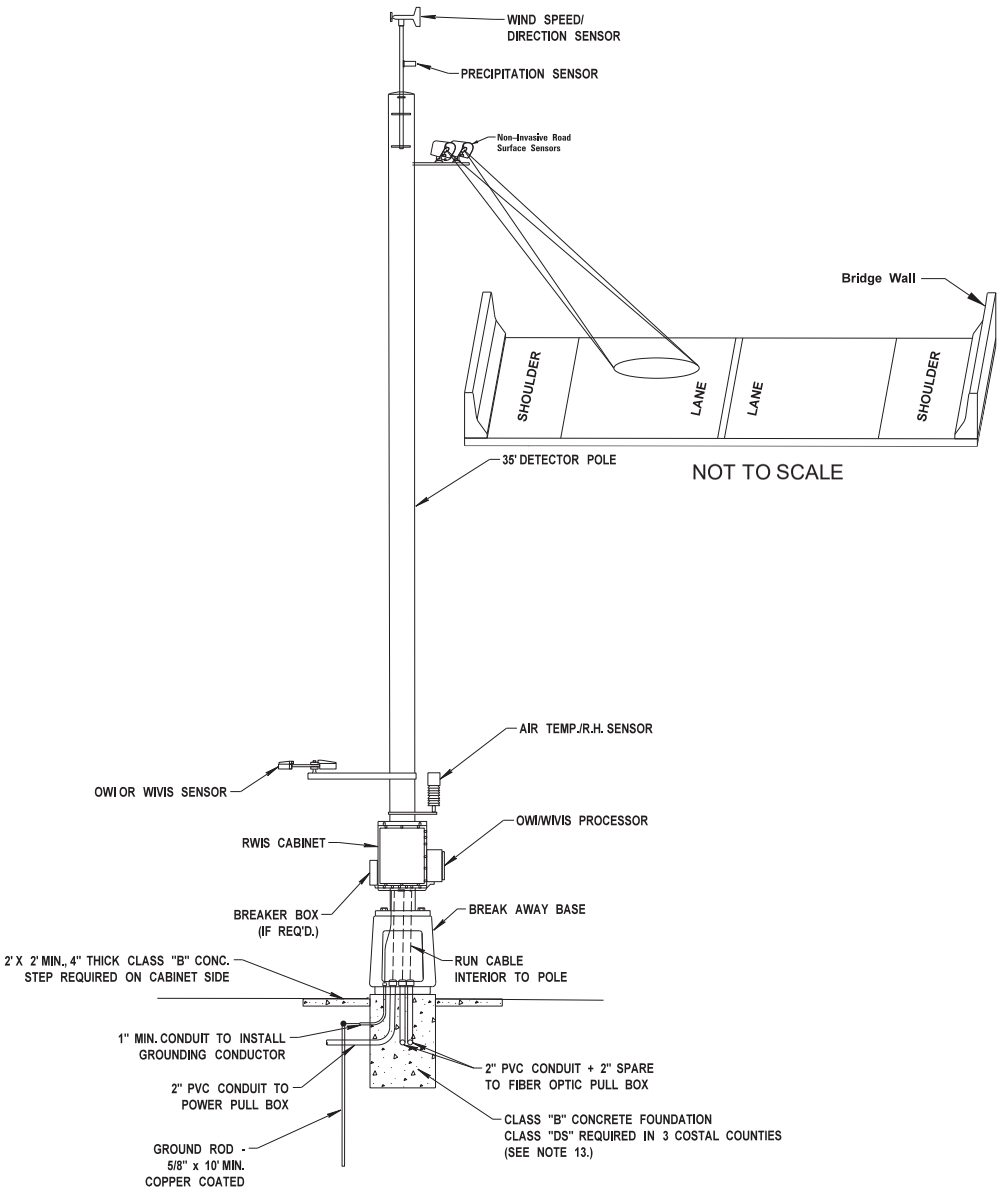
8/28/2024 6i.26i.18 PKEC-02.DGN

Notice to Bidders No. 7730 -- Contract ID: 108150-304000


FMS CON: 108150-304000
STATE MISS.
PROJECT NO.
FRONT VIEW OF SIGN
ICE ON BRIDGE
WHEN FLASHING
POST LENGTH VARIES
SEE ATTACHED DETAILS
BREAK AWAY ASSEMBLY
4" TYPE "D" POST SCHEDULE 40 PIPE
GROUND LINE
7'-0" MIN.
SPECIAL POST DESIGN
WITH FLASHING ASSEMBLY
NOT TO SCALE
SEE MORE DETAILS ON WD-2
"ICE ON BRIDGE" SIGN
SIZE AND LETTERING DETAILS
NOT TO SCALE
48.0" across sides 3.0" Radius, 1.3" Border, 0.8" Indent, Black on Yellow:
"ICE", C 2K 150% spacing; "ON", C 2K 150% spacing;
"BRIDGE", C 2K 150% spacing;
"WHEN FLASHING" SIGN
SIZE AND LETTERING DETAILS
NOT TO SCALE
1.9" Radius, 0.8" Border, 0.5" Indent, Black on Yellow:
"WHEN" Highway C 2K specified length;
"FLASHING" Highway C 2K specified length;
NOTES:
1. SEE MDOT STANDARD DRAWINGS FOR SIGN POST INSTALLATION INFORMATION.
2. SIGN LOCATION SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
3. ALL RADIO INTERCONNECT EQUIPMENT CONNECTIONS AND MOUNTING HEIGHTS SHALL BE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
4. FLASHING BEACON MOUNTING HEIGHTS SHALL BE PER MUTCD AND BASED ON MANUFACTURER'S RECOMMENDATIONS.
5. SUPPORTS AND FOUNDATIONS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOUNDATION DESIGN AND SHALL SUBMIT FOUR (4) COPIES OF THE DESIGN CALCULATIONS TO THE ITS ENGINEER FOR HIS APPROVAL. THE TOP OF THE FOUNDATION SHALL NOT PROJECT OVER 4" MAX. ABOVE THE GROUND LINE. ALL FOUNDATION DESIGNS SHALL BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER FROM THE STATE OF MISSISSIPPI.
6. THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF LAYOUT/SHOP DRAWINGS OF ALL COMPONENTS (INCLUDING THE PLAN OF ATTACHMENT) TO THE ITS ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
7. ALL EQUIPMENT CONNECTIONS SHALL BE MADE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
WARNING DETAILS
"ICE ON BRIDGE"
ROAD SIGN AND FLASHING
BEACON DETAILS
PROJ. NO.:
COUNTY: YAZOO
FILENAME: WD-1.DGN
DESIGN TEAM
CHECKED
UPDATE
DATE
REVISION
BY
DATE
PRELIMINARY
NOT FOR
CONSTRUCTION
WORKING NUMBER
WD-1
SHEET NUMBER
3035
5/8/2020 4:32 PM WD-1.DGN


FHWA CON: 108150-3040(00)
STATE PROJECT NO.
MISS.
NOTES:
1. ELECTRICAL JUNCTION BOX TO BE PLACED FLUSH WITH GROUND.
2. ALL ABOVE GROUND WIRING SHALL BE ENCLOSED IN 1" PVC CONDUIT WITH A BREAK AWAY CONNECTION AT THE POST. WIRING FROM THE CONDULET INTO THE FLASHERS SHALL BE ENCLOSED IN PVC FLEX PIPE.
3. THE WIRING SHALL INCLUDE A WATERPROOF FUSE IN THE JUNCTION BOX AND A WATERPROOF CUT-OFF SWITCH AT THE METER.
4. THE INSIDE OF THE CONDUIT SUPPORTS SHALL BE CLEAN AND FREE OF WELD.
5. THE TWO FLASHERS ON THE FLASHER ASSEMBLY SHALL ALTERNATE ON AND OFF WHEN RECEIVING A SIGNAL FROM THE TRAFFIC CONTROLLER. THE FLASHER ASSEMBLY SHALL HAVE BEACONS THAT FLASH AT A RATE OF NOT LESS THAN 50 OR MORE THAN 60 TIMES PER MINUTE. THE ILLUMINATED PERIOD OF EACH FLASH SHALL NOT BE LESS THAN 50% OF THE DWELL TIME. THE YELLOW SIGNALS SHALL BE FLASHED ALTERNATELY. THE BEACONS SHALL HAVE A NIGHT DIMMING FEATURE.
7. LED FLASHER HEADS WITH 12" YELLOW LENS REQUIRED.
8. EACH FLASHER HEAD SHALL BE MOUNTED TO A FLAT BLACK SIGN BLANK (24"X24"X0.080") BACKPLATE USING 2 - 5/16" X 1 1/2" ZINC COATED BOLTS MOUNTED INSIDE THE LENS HOUSING.
9. REFER TO SSD-4C FOR DETAILS ON THE BREAKAWAY SIGN SUPPORT.
10. FLASHER ASSEMBLY WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING LABOR, EQUIPMENT, MATERIALS, SOLAR POWERED OPTIONS, THE SIGN(S), THE POST, THE POST BASE AND FOUNDATION, THE FLASHING BEACONS, SIGN SUPPORTS, SOLID STATE FLASHER UNIT(S), FLASHER PANEL, AND APPLICABLE CONDUIT AND WIRING ON THE POST ITSELF, SOLID STATE FLASHER UNIT(S), TEST PLUG, CONTROLLER PROGRAMMING, FINAL CLEAN-UP, AND ALL INCIDENTALS NECESSARY TO COMPLETE THE WORK.
CONDUIT, PULLBOXES, AND WIRING NECESSARY FOR COMMUNICATION FROM THE CONTROLLER TO THE ASSEMBLY SHALL BE PAID FOR UNDER OTHER ITEMS AS SHOWN IN THE PLANS.
FRONT VIEW OF SIGN
FLAT BLACK BACK PLATE
12" YELLOW LED SIGNAL HEAD w/ VISOR
1" PVC CONDUIT
FLAT BARS 7/16" x 2 1/2"
GALVANIZED CAP
TOP OF PIPE
15'- 10" POST LENGTH
STUB POST
SEE DETAILS THIS SHEET
ICE ON BRIDGE
48"x48"
W16-13P
30"x24"
WHEN FLASHING
PVC CONDUIT SUPPORTS 5 - 1 1/4" DIA. x 3" LONG GALVANIZED STEEL SCHEDULE 40 PIPE, EQUALLY SPACED AND WELDED TO POST. KEEP INSIDE OF SUPPORTS CLEAN.
BREAK AWAY ASSEMBLY
4" PIPE POST (SCH 40)
GROUND LINE
TOP OF STUB POST
2 1/2"
FRONT VIEW OF POST
REAR VIEW OF SIGN
GALVANIZED CAP
1 - 24" x 24" FLAT BLACK BACK PLATE
U-SECTION POST
1" PVC CONDULET
1 1/4" DIA. X 3" LONG PVC CONDUIT SUPPORT
FLAT BARS
4" PIPE POST 15' - 10" LONG
1 1/4" DIA. x 3" LONG PVC CONDUIT SUPPORT
TOP OF PIPE
U-SECTION POST DIMENSIONS:
1 @ 1'- 8" (20")
2 @ 2'- 2" (26")
1 @ 1'- 0" (12")
1 @ 4'- 0" (48")
1 @ 1'- 0" (12")
1 @ 1'- 8" (20")
USE 2 - 5/16" X 1 1/2" ZINC COATED BOLTS TO ATTACH 2.0 LB/LF U-SECTION POSTS TO THE FLAT BARS ON THE 4" PIPE POST. USE 4 - 5/16" X 3" ZINC COATED BOLTS TO ATTACH SIGNS/BACKPLATES TO THE 2.0 LB/LF U-SECTION POSTS.
FOOTING DETAIL FOR TYPE "D" POST WITH FLASHING ASSEMBLY
NOT TO SCALE
PRIMARY FLOW OF TRAFFIC
EDGE OF PAVEMENT
7/16" FLAT BAR SHOWN FOR ALIGNMENT ONLY
18" DIA. CONCRETE FOOTING
WELD
1 5/8"
PVC CONDUIT SUPPORTS 5 - 1 1/4" DIA. X 3" LONG GALVANIZED STEEL SCHEDULE 40 PIPE, EQUALLY SPACED AND WELDED TO POST. KEEP INSIDE OF SUPPORTS CLEAN.
1" RIGID METAL CONDUIT WITH 2-90 DEGREE BENDS, THREADED WITH PVC CAPS. MARK OPEN END.
ELECTRICAL JUNCTION BOX
24"
TOP VIEW OF FOOTING
VIEW NOT TO SCALE - SHOWS RELATIVE LOCATION OF ROADWAY, POST, FLAT BARS, JUNCTION BOX, GALVANIZED STEEL CONDUIT AND PVC CONDUIT HOLDERS.
PRIMARY FLOW OF TRAFFIC
4" PIPE POST (SCH 40)
CAP
BREAKAWAY ASSEMBLY
5" x 2 1/2" x 1/2" GALVANIZED STEEL PLATE WELDED TO POST AND CONDUIT.
1" RIGID METAL CONDUIT WITH 2-90 DEGREE BENDS, THREADED WITH PVC CAPS ON EACH END. PLACE MARKER ON CONDUIT END.
CLASS "B" CONCRETE
2-1 1/2" x 1 1/2" x 3" ANGLES WELD W/ 3/16" FILLET WELD EACH LEG, EACH SIDE.
18" DIA.
PVC CONDUIT SUPPORTS 5 - 1 1/4" DIA. x 3" LONG GALVANIZED STEEL SCHEDULE 40 PIPE EQUALLY SPACED AND WELDED TO POST. KEEP INSIDE OF SUPPORTS CLEAN.
TOP OF STUB
GROUND LINE
CAP
4'-6" STUB POST
4'-6" MIN.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
WARNING DETAILS
"ICE ON BRIDGE" ROAD SIGN AND FLASHING BEACON DETAILS (VERTICAL)
PROJ. NO.
COUNTY: YAZOO
REVISION
BY
DATE
DESIGN TEAM
CHECKED
UPDATE
DATE
FILENAME: WD-2.DGN
PRELIMINARY NOT FOR CONSTRUCTION
WORKING NUMBER WD - 2
SHEET NUMBER 3036
5/8/2020 4:32 PM WD-2.DGN
ROADWAY DESIGN DIVISION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION


FMS CON:108150-3040000
STATE PROJECT NO.
MISS.
NOTES:
1. THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF LAYOUT/SHOP DRAWINGS OF THE POLE AND ITS COMPONENTS (INCLUDING THE PLAN OF ATTACHMENT) TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOUNDATION DESIGN AND SHALL SUBMIT TWO (2) COPIES OF THE DESIGN CALCULATIONS TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
3. SUPPORTS AND FOUNDATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATIONS AND ATTACHMENTS SHALL BE DESIGNED BY THE CONTRACTOR AS SPECIFIED ABOVE AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS AND DRAWINGS FOR FURTHER INFORMATION.
4. ALL EQUIPMENT CONNECTIONS SHALL BE MADE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
5. THE TOP OF THE FOUNDATION SHALL NOT PROJECT OVER 4" MAX. ABOVE THE GROUND LINE.
6. ALL CONDUIT BETWEEN PULL BOXES AND THE POLE FOUNDATION SHALL BE INCLUDED IN THE COST OF OTHER PAY ITEMS AND SHALL NOT BE MEASURED SEPARATELY FOR PAYMENT.
7. COMMUNICATION / POWER CABLES SHALL BE COST ABSORBED.
8. ALL GROUNDING CABLES AND EQUIPMENT SHALL BE COST ABSORBED. REFER TO SECTION 722.09 FOR MORE INFORMATION.
9. BOND RGS CONDUIT TO POLE GROUND ROD.
10. ITS EQUIPMENT MOUNTING HEIGHTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS BASED ON SITE CONDITIONS, OFFSET, AND NUMBER OF LANES MONITORED.
11. THE CONTRACTOR MAY ELECT TO USE A SCREW-IN TYPE HELICAL ANCHOR FOUNDATIONS. IF SO, THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE DESIGN CALCULATIONS TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
TYPICAL POLE FIELD DRILLING
NOT TO SCALE
DEVICE POLE
1-1/2" DIA. HUB PLATE
1-1/2" DIA. RIGID THREADED NIPPLE
WEATHER HEAD
HUB PLATE STRAPPED TO POLE WITH 1/2" STAINLESS STEEL STRAPS.
NOTE: 1-1/2" HOLE TO BE DRILLED BEHIND HUB PLATE. ALL FIELD DRILLED HOLES SHALL BE LOCATED, AFTER EQUIPMENT POSITION HAS BEEN DETERMINED SO THAT A MAXIMUM 12" DRIP LOOP IS MAINTAINED. COST OF FIELD DRILLED HOLES TO BE INCLUDED IN THE COST OF THE DEVICE OR POLE.
ICE ON BRIDGE
MIN. FLASHING
FLASHING BEACON WITH TYPE B CABINET & WIRELESS SYSTEM
NOT TO SCALE
ICE ON BRIDGE
MIN. FLASHING
FLASHING BEACON WITH TYPE B CABINET
NOT TO SCALE
RADIO INTERCONNECT
TYPICAL POLE FIELD DRILLING (SEE DETAIL THIS SHEET)
MAXIMUM 12" LENGTH DRIP LOOP
RADAR DETECTOR POLE WITH BREAKAWAY BASE (HEIGHT AS SHOWN ON PLANS)
MULTICONDUCTOR CABLE(S)
2'-0" MIN.
4" THICK CLASS "B" CONC. STEP REQUIRED ON CABINET SIDE
FIBER OPTIC PULL BOX (AS SPECIFIED ON ITS PLAN SHEETS)
2" ROLL PIPE COMMUNICATIONS CONDUIT BANK (AS SPECIFIED ON ITS PLAN SHEETS) (IF REQUIRED)
2" LB FOR POWER AND COMM CABLES
ENCLOSURE STRAPPED TO POLE ATTACHMENT SHALL PREVENT CABINET SEPARATION DURING VEHICLE IMPACT
HAND HOLE
BREAKAWAY WEATHER-PROOF FUSED CONNECTOR KIT
BREAK AWAY BASE
POWER PULL BOX (AS SPECIFIED ON ITS PLAN SHEETS)
2" PVC SPARE CONDUIT TO FIBER OPTIC PULL BOX TO REMAIN EMPTY FOR FUTURE USE
2" PVC CONDUIT TO FIBER OPTIC PULL BOX
CLASS "B" CONCRETE FOUNDATION
CLASS "DS" REQUIRED IN 3 COSTAL COUNTIES (SEE NOTE 11.)
NOTE: BOTH PULL BOXES MAY BE ON SAME SIDE OF POLE
2" ROLL PIPE POWER CONDUIT (AS SPECIFIED ON ITS PLAN SHEETS)
GROUND WIRE - #6 COPPER
1" MIN. CONDUIT TO INSTALL GROUNDING CONDUCTOR
2" PVC CONDUIT TO POWER PULL BOX
GROUND ROD - 5/8" x 10' MIN. COPPER COATED
WIRELESS SYSTEM ON DETECTOR POLE
NOT TO SCALE
BY
REVISION
DATE
DESIGN TEAM
CHECKED UPDATE DATE
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
WARNING DETAILS
FLASHING BEACON WITH TYPE B CABINETS DETAILS AND WIRELESS SYSTEM
PROJ. NO.
COUNTY: YAZOO
FILENAME: WD-3.DGN
PRELIMINARY NOT FOR CONSTRUCTION
WORKING NUMBER WD-3
SHEET NUMBER 3037
5/8/2020 4:32 PM WD-3.DGN



POLE-MOUNTED RWIS DETAIL

NOT TO SCALE

NOTES:

1. ROADWAY WEATHER INFORMATION SYSTEM SHALL BE PAID FOR PER EACH. PAY ITEM SHALL INCLUDE FURNISHING, INSTALLING, LICENSING APPLICATION, COORDINATION AND ACQUISITION, COMMUNICATIONS ACTIVATION AND MONTHLY BILLING COSTS, RWIS GROUNDING DESIGN SUBMITTAL, SYSTEM INTEGRATION, AND TESTING OF A COMPLETE RWIS AND SOFTWARE INCLUDING THE RWIS EQUIPMENT/COMPONENTS INCLUDING GROUNDING, POWER DISTRIBUTION/SUPPLY, SURGE PROTECTION, THE CABINET, ALL CABLING, CONNECTIONS TO SUPPORT STRUCTURES (INCLUDES ALL INCIDENTAL COMPONENTS, ATTACHMENT HARDWARE, MOUNTING BRACKETS, BOLTS, STRAPS, OR ANY OTHER ITEMS TO MOUNT THE RWIS EQUIPMENT / COMPONENTS AS INTENDED), ALL REQUIRED SOFTWARE, SATISFACTORY COMPLETION OF TESTING AND TRAINING REQUIREMENTS AND ALL WORK, EQUIPMENT AND APPURTENANCES AS REQUIRED TO EFFECT THE FULL OPERATION INCLUDING REMOTE AND LOCAL CONTROL OF RWIS SITES COMPLETE IN PLACE AND READY TO USE, SYSTEM DOCUMENTATION (INCLUDING SHOP DRAWINGS, OPERATIONS AND MAINTENANCE MANUALS, WIRING DIAGRAMS, BLOCK DIAGRAMS AND OTHER MATERIALS NECESSARY TO DOCUMENT THE OPERATION OF THE RWIS, ALL LABOR, TOOLS, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL ITEMS SHOWN MAY NOT BE INCLUDED IN EVERY INSTALLATION.
3. OWI - OPTICAL WEATHER IDENTIFIER
4. WIVIS - WEATHER IDENTIFIERS AND VISIBILITY SENSOR
5. THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF LAYOUT/SHOP DRAWINGS OF THE POLE AND ITS COMPONENTS (INCLUDING THE PLAN OF ATTACHMENT) TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOUNDATION DESIGN AND SHALL SUBMIT TWO (2) COPIES OF THE DESIGN CALCULATIONS TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
7. SUPPORTS AND FOUNDATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATIONS AND ATTACHMENTS SHALL BE DESIGNED BY THE CONTRACTOR AS SPECIFIED ABOVE AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS AND DRAWINGS FOR FURTHER INFORMATION.
8. ALL EQUIPMENT CONNECTIONS SHALL BE MADE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
9. THE TOP OF THE FOUNDATION SHALL NOT PROJECT OVER 4" MAX. ABOVE THE GROUND LINE.
10. ALL GROUNDING CABLES AND EQUIPMENT SHALL BE COST ABSORBED. REFER TO SECTION 722.09 FOR MORE INFORMATION.
11. BOND RGS CONDUIT TO POLE GROUND ROD.
12. RWIS EQUIPMENT MOUNTING HEIGHTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS BASED ON SITE CONDITIONS, OFFSET, AND NUMBER OF LANES MONITORED.
13. THE CONTRACTOR MAY ELECT TO USE A SCREW-IN TYPE HELICAL ANCHOR FOUNDATIONS. IF SO, THE CONTRACTOR SHALL SUBMIT TWO (2) COPIES OF THE DESIGN CALCULATIONS TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.

DEPARTMENT OF TRANSPORTATION MISSISSIPPI

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 54 -
COUNTY: YAZOO

Notice to Bidders Nov. 7730 -- Contract

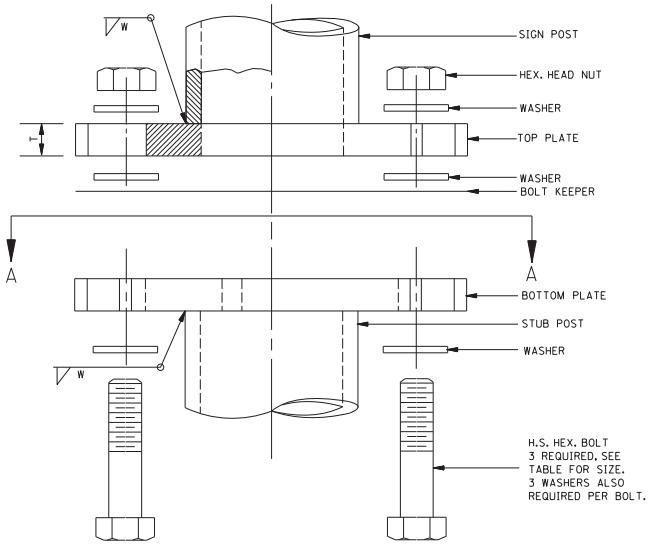
SHEET ID
RWIS 1

SHEET NO.
3038

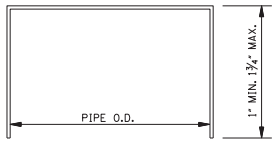
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12/3/2024 11:51:54 AM ITS Standard Drawings ORD Format.dgn

179

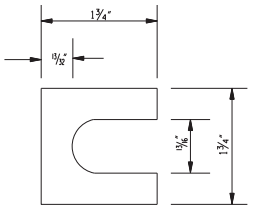


MULTI-DIRECTIONAL SIGN POST & STUB POST



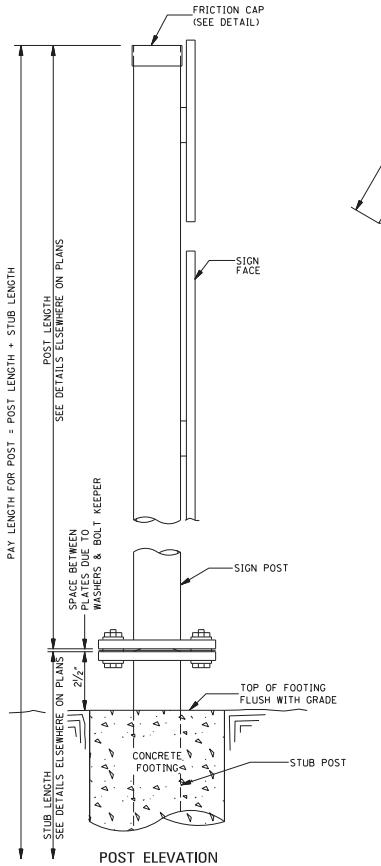
FRICTION CAP DETAIL

NOTE: SEE NOTE 3

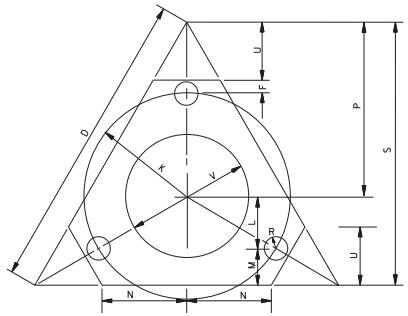


SHIM DETAIL

NOTE: FURNISH 2-0.012" ± THICK AND 2-0.032" ± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO ASTM B 36.



POST ELEVATION



BOLT KEEPER PLATE DETAIL

NOTE: TO BE FABRICATED FROM 28 GAGE THICK GALVANIZED STEEL. TO BE INSTALLED AS SHOWN IN DETAIL AT UPPER LEFT.

GENERAL NOTES: (SEE SN-6 FOR ADDITIONAL GENERAL NOTES)

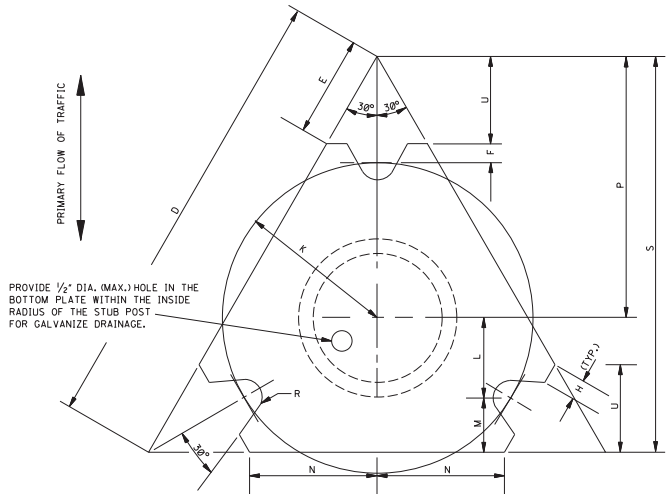
1. THE TOP PLATE OF THE TRIANGULAR SLIP BASE SHALL HAVE THE SAME EXTERIOR DIMENSIONS AS THE BOTTOM PLATE. THE LIFTING CONE SHALL BE WELDED TO THE BOTTOM PLATE ONLY. A HOLE EQUAL TO THE INSIDE DIAMETER OF THE SIGN POST SHALL BE CUT THROUGH THE CENTER FO THE TOP PLATE WITH THE HOLE EDGE BEVELED AS DETAILED. TOP AND BOTTOM PLATES SHALL BE SYMMETRICAL FOR THE PURPOSE OF ASSEMBLY IN ANY POSITION.

2. BASE CONNECTION ASSEMBLY AS FOLLOWS:
   A. ASSEMBLE POST TO STUB WITH THREE (3) BOLTS AND WITH THREE (3) FLAT WASHERS PER BOLT.
   B. SHIM AS REQUIRED TO PLUMB POST
   C. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12" TO 15" WRENCH TO BED WASHERS, KEEPER PLATE, SHIMS, AND TO CLEAN THREADS.
   D. LOOSEN EACH BOLT IN TURN & RETIGHTEN IN A SYSTEMATIC ORDER TO PRESCRIBED TORQUE. (SEE BASE CONNECTION DATA TABLE).
   E. BURR THREADS AT JUNCTION WITH NUT WITH A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

3. FRICTION CAPS TO BE MANUFACTURED FROM HOT ROLLED OR COLD ROLLED STEEL SHEETS. FOR ALL PIPE SIZES, MINIMUM THICKNESS SHALL BE REASONABLY STRAIGHT AND SMOOTH. CAPS SHALL BE SIZED AND FORMED IN SUCH A MANNER AS TO PROVIDE A DRIVE-ON FRICTION FIT AND HAVE NO TENDENCY TO ROCK WHEN SEATED ON PIPE. THE DEPTH SHALL BE SUFFICIENT TO GIVE POSITIVE PROTECTION AGAINST ENTRANCE OF RAINWATER. THE SHALL BE FREE OF SHARP CREASES OR INDENTATIONS AND SHOW NO SIGNS OF METAL FRACTURE. ALL CAPS ARE TO BE THE SAME IN SHAPE AND GENERAL APPEARANCE AS APPROVED BY THE ENGINEER.

4. STUB PROJECTION SHOULD BE MEASURED OVER A 5'-0" CHORD AS PER AASHTO SPECIFICATIONS, LATEST EDITIONS. SEE SHEET SN-6A FOR DIAGRAM.

5. AS AN ALTERNATIVE THE POST LENGTH OF THE SIGN POST CAN BE MADE-UP USING A NOMINAL LENGTH OF GALVANIZED PIPE, A GALVANIZED SLIP BASE CASTING, GALVANIZED FLAT PLATES, OR APPROVED EQUAL WITH ALL NECESSARY HARDWARE REQUIRED TO SECURE THEM TO THE SIGN POST, A GALVANIZED KEEPER PLATE AND A GALVANIZED FRICTION CAP. THE SLIP BASE CASTING SHALL HAVE THREE (3) SCREWS TO SECURE THE POST TO THE CASTING AND ONE (1) SET SCREW TO PREVENT ROTATION. THE MANUFACTURER SHALL PROVIDE SHOP DRAWINGS OF THE COMPLETE ASSEMBLY FOR MDOT APPROVAL.



SECTION A-A

NOTE: SEE DATA TABLE FOR DIMENSIONS

BASE CONNECTION DATA TABLE

DIMENSIONS NOMINAL PIPE SIZES	BOLT SIZE & TORQUE	T	W	C	*D	*E	F	G	*H	J	K	L	M	*N	P	S	U	V	R
3" 3 1/2"	5/8" X 2 1/2" 300 In · lbs	5/8"	3/8"	1"	10 3/8"	2 5/16"	1/2"	3/8"	1/2"	1 3/4"	3 1/2"	1 3/4"	1 1/4"	2 7/8"	6"	9"	2"	4 1/4"	11/16"
4" 5"	3/4" X 3" 500 In · lbs	7/8"	7/16"	1 7/16"	13"	2 7/8"	1/2"	3/8"	5/8"	2 1/2"	4 1/2"	2 1/4"	1 1/2"	3 5/8"	7 1/2"	11 1/4"	2 1/2"	5 3/4"	13/16"

*NOTE: APPROXIMATE DIMENSIONS

Notice to Bidders
Revised Standard Drawing
WIRELESS DETECTION
SYSTEM FOR
REDUCED SPEED
Construction

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 55 -
COUNTY: YAZOO

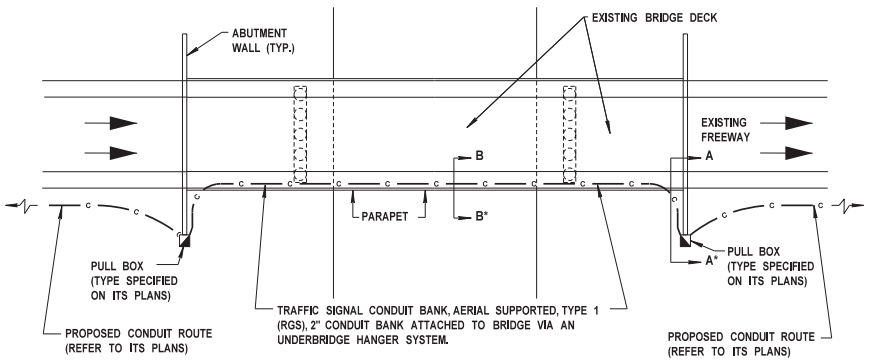
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SHEET NO.
3039

180

PLAN SHEET

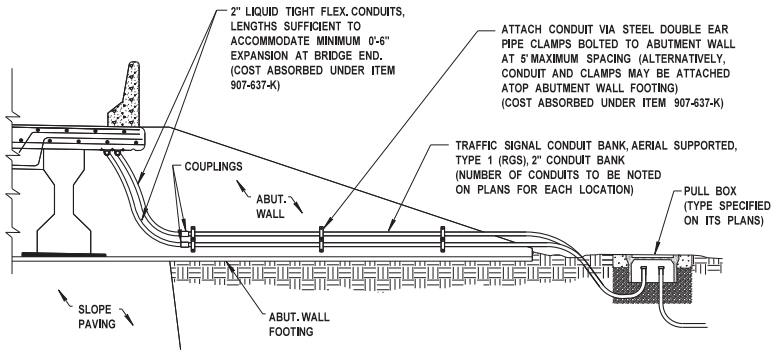
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TYPICAL BRIDGE PLAN

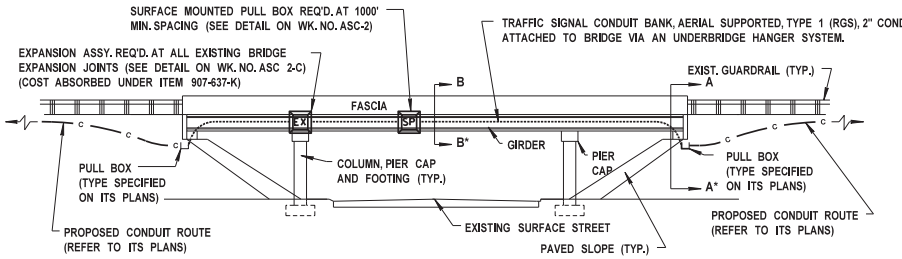
NOT TO SCALE

* SEE TYPICAL SECTIONS THIS SHEET



SECTION A-A: TYPICAL CONDUIT ATTACHMENT TO BRIDGE ABUTMENT WALL

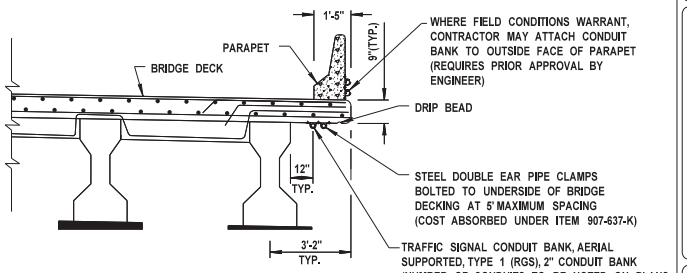
NOT TO SCALE



TYPICAL BRIDGE PROFILE

NOT TO SCALE

* SEE TYPICAL SECTIONS THIS SHEET



TYPICAL BRIDGE SECTION B-B

NOT TO SCALE

AERIAL SUPPORTED CONDUIT NOTES:

1. REFER TO ITS PLAN SHEETS FOR AERIAL SUPPORTED (i.e., STRUCTURE-ATTACHED) CONDUIT LOCATIONS.
2. THE CONDUIT HANGER SYSTEM IS TO BE SUSPENDED BENEATH THE BRIDGE DECK, CENTERED APPROXIMATELY BETWEEN THE OUTERMOST GIRDER AND BRIDGE PARAPET. ALL CONDUIT, HANGERS, EXPANSIONS, ETC. MUST BE ABOVE THE LOW POINT OF EACH SUPERSTRUCTURE. WHERE BELOW DECK OBSTRUCTIONS OR OTHER FIELD CONDITIONS WARRANT, CONTRACTOR MAY BE ALLOWED TO ATTACH CONDUIT BANK TO OUTER FACE OF BRIDGE PARAPET, PENDING APPROVAL BY THE ENGINEER.
3. NO WELDING OR DRILLING TO STRUCTURAL STEEL WILL BE PERMITTED. ATTACHMENT TO STRUCTURAL STEEL SHALL BE MADE BY CLAMPS, STRAPS, ETC.
4. ALL AERIAL SUPPORTED CONDUIT SHALL BE 2" TYPE 1 (RGS) UNLESS OTHERWISE NOTED ON PLANS, EXCEPT FOR SHORT SEGMENTS OF 2" LIQUID TIGHT FLEXIBLE CONDUIT TO BE USED AT BRIDGE ABUTMENTS, EXISTING BRIDGE EXPANSION JOINTS, AND AS INDICATED IN THE PLANS.
5. IN ALL CASES, THE CONDUIT SUPPORT SPACING SHALL BE A MAXIMUM OF FIVE (5) FEET.
6. CONDUIT SHALL NOT BE INSTALLED IN A MANNER WHICH OBSTRUCTS EXISTING BRIDGE DECK DRAINS.
7. CORE DRILLING OF EXISTING BRIDGE ABUTMENTS WILL NOT BE ALLOWED, UNLESS SPECIFICALLY REVIEWED AND APPROVED BY THE MDOT BRIDGE DIVISION.

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COUNTY: YAZOO

-AERIAL SUPPORTED CONDUIT, CONDUIT BANK AND CONDUIT ROUTING-

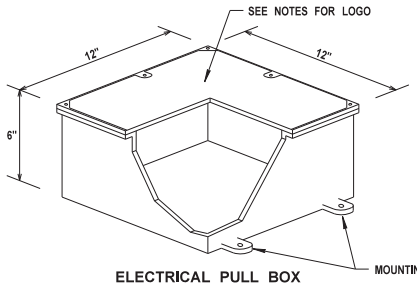
SHEET ID
ASC-1C

SHEET NO.
3040

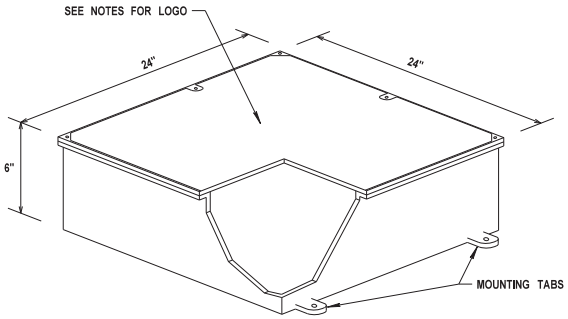
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PLAN SHEET

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ELECTRICAL PULL BOX



COMMUNICATION PULL BOX

TYPICAL SURFACE MOUNTED PULL BOX ASSEMBLY

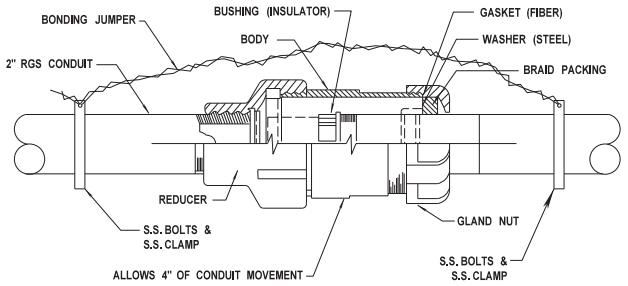
NOT TO SCALE

SHOWN AS

SP

NOTES FOR SURFACE MOUNTED PULL BOX:

1. PULL BOX SHALL BE UL RATED TYPE 4X ALUMINUM.
2. ELECTRICAL POWER PULL BOX LIDS SHALL BE LABELED "MDOT ITS ELECTRIC".
3. COMM. PULL BOX LIDS SHALL BE LABELED "MDOT ITS COMMUNICATIONS".
4. DIMENSIONS ARE MINIMUMS.
5. MAXIMUM SPACING BETWEEN PULL BOXES SHALL BE 1000' FOR COMMUNICATION BOXES AND 400' FOR ELECTRICAL BOXES. CONTRACTOR MAY, AT HIS DISCRETION, FURNISH AND INSTALL ADDITIONAL PULL BOXES SHOULD HE DEEM THEM NECESSARY TO PROVIDE A COMPLETE AERIAL CABLE/CONDUIT INSTALLATION.
6. COST OF ALL SURFACE MOUNTED PULL BOXES SHALL BE ABSORBED UNDER ITEM NO. 907-637-K, AERIAL SUPPORTED CONDUIT BANK.



TYPICAL AERIAL CONDUIT EXPANSION ASSEMBLY

NOT TO SCALE

SHOWN AS (IF SHOWN)

EX

NOTES FOR EXPANSION ASSEMBLY:

1. THE DETAIL ABOVE IS TO SERVE AS A GUIDE ONLY. CONTRACTOR SHALL COORDINATE INSTALLATION OF EXPANSION ASSEMBLIES WITH THE MDOT BRIDGE DIVISION TO ENSURE THAT ANTICIPATED BRIDGE EXPANSION IS ADEQUATELY ACCOMMODATED AT EACH JOINT.
2. NO PORTION OF EXPANSION ASSEMBLY SHALL HANG BELOW BRIDGE SUPERSTRUCTURE.
3. COST OF EXPANSION ASSEMBLIES SHALL BE ABSORBED UNDER ITEM NO. 907-637-K, AERIAL SUPPORTED CONDUIT BANK.
4. EXPANSION ASSEMBLIES SHALL BE REQUIRED AT 125' MAX. SPACING AND AT ALL EXISTING BRIDGE EXPANSION JOINTS.

DEPARTMENT OF TRANSPORTATION MISSISSIPPI

MDOT MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 57 -
COUNTY: YAZOO

-AERIAL SUPPORTED CONDUIT-
TYPE 1 (RGS) CONDUIT
SURFACE MOUNTED PULL BOX
AND EXPANSION DETAILS
(FIBER AND POWER)

SHEET ID
ASC-2C

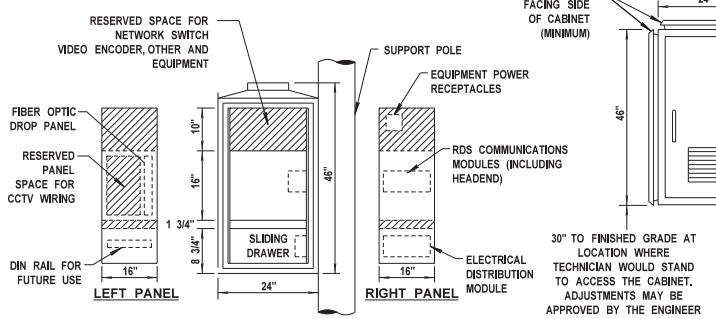
SHEET NO.
3041

Notice to Contractors -- 8/7/2025 -- Contract No. 108150-304000

182

PLAN SHEET

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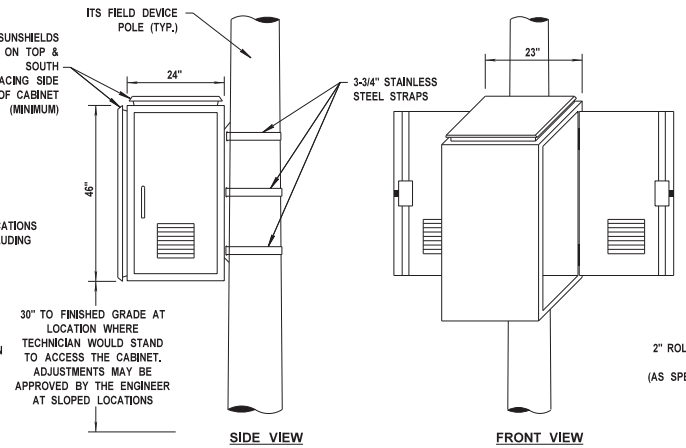


TYPE "B" FIELD CABINET LAYOUT

NOT TO SCALE

NOTES:

1. ALL DIMENSIONS ARE APPROXIMATE.

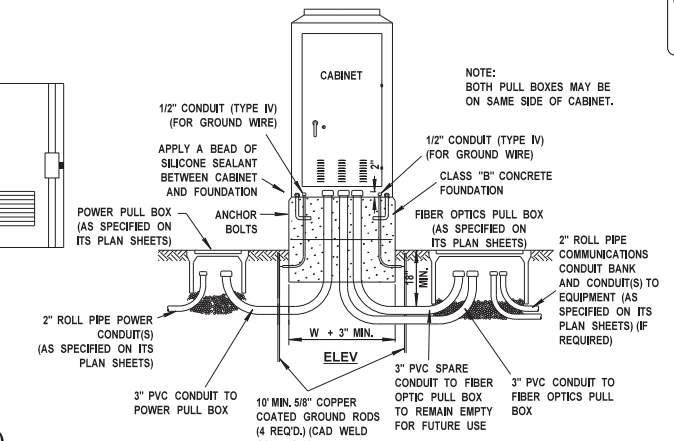


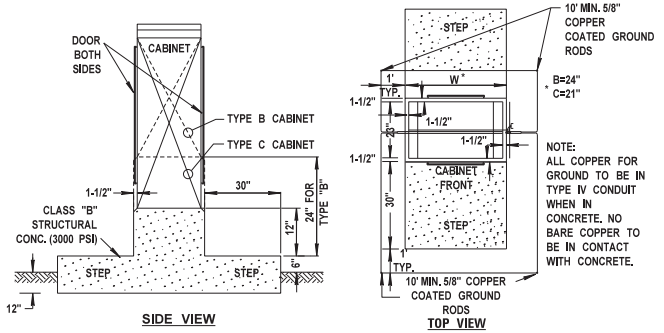
TYPE "B" FIELD CABINET (46" x 24" x 23")

NOT TO SCALE

NOTES:

1. FIELD CABINETS MAY BE ATTACHED TO A NUMBER OF DIFFERENT DEVICES (PROPOSED STRAIN POLES, PROPOSED UTILITY POLES, PROPOSED SPAN SIGN SUPPORTS, EXISTING LIGHT POLES, EXISTING SPAN OR CANTILEVER SIGN SUPPORTS). CABINET MAY ALSO BE INSTALLED AS PAD MOUNTED ON CONCRETE BASE AS SHOWN ON DETAIL THIS SHEET. REFER TO THE ITS PLAN SHEETS AND DETAIL SHEETS FOR SPECIFIC SITE REQUIREMENTS.
2. CABINET DIMENSIONS ARE NOMINAL MINIMUMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL CABINET DETAILS.
3. CABINETS SHALL BE LABELED "MDOT ITS" WITH DEVICE NAME, TYPE, AND NUMBER.
4. STEP REQUIRED FOR NEW INSTALLATIONS (SEE CCTV DETAILS).



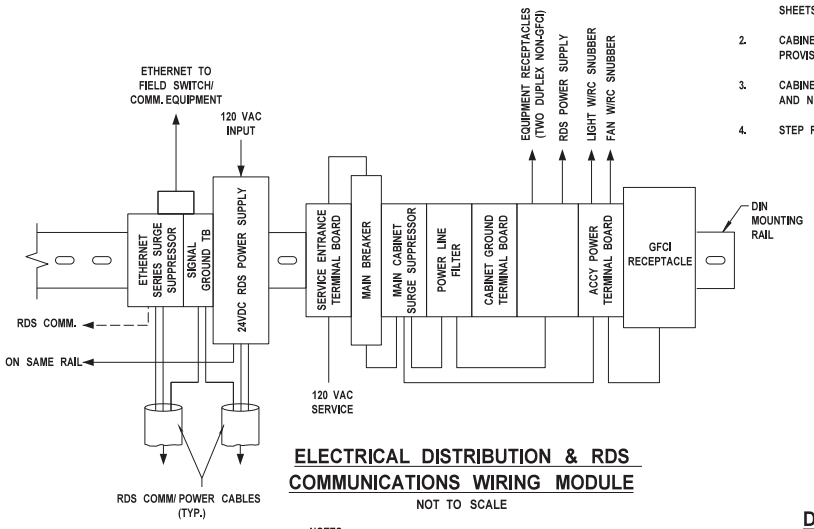


TYPICAL DETAIL OF BASE FOR DMS EQUIPMENT CABINET (TYPE C) - (50" x 21" x 23") AND GROUND MOUNTED TYPE B CABINET (46" x 24" x 23")

NOT TO SCALE

NOTES:

1. DIMENSIONS OF CABINETS TO BE VERIFIED PRIOR TO POURING FOUNDATION. DIMENSIONS SHOWN ABOVE ARE MINIMUMS.
2. ALL CONDUIT BETWEEN PULL BOXES AND THE CABINET FOUNDATION SHALL BE INCLUDED IN THE COST OF OTHER PAY ITEMS AND SHALL NOT BE MEASURED SEPARATELY FOR PAYMENT.

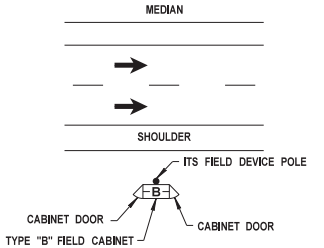


ELECTRICAL DISTRIBUTION & RDS COMMUNICATIONS WIRING MODULE

NOT TO SCALE

NOTES:

1. SOME EQUIPMENT SHOWN MAY NOT BE NECESSARY IF CAMERAS, BDS OR RDS EQUIPMENT IS IP ADDRESSABLE.



DETAIL: PLAN VIEW OF TYPE "B" FIELD CABINET ORIENTATION

NOT TO SCALE

DESIGNED BY:
DETAILED BY:
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DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 58 -
COUNTY: YAZOO

CABINET DETAILS
STATE PROJECT NO. 7730 -- Control No. 108150

SHEET ID
CAB-1

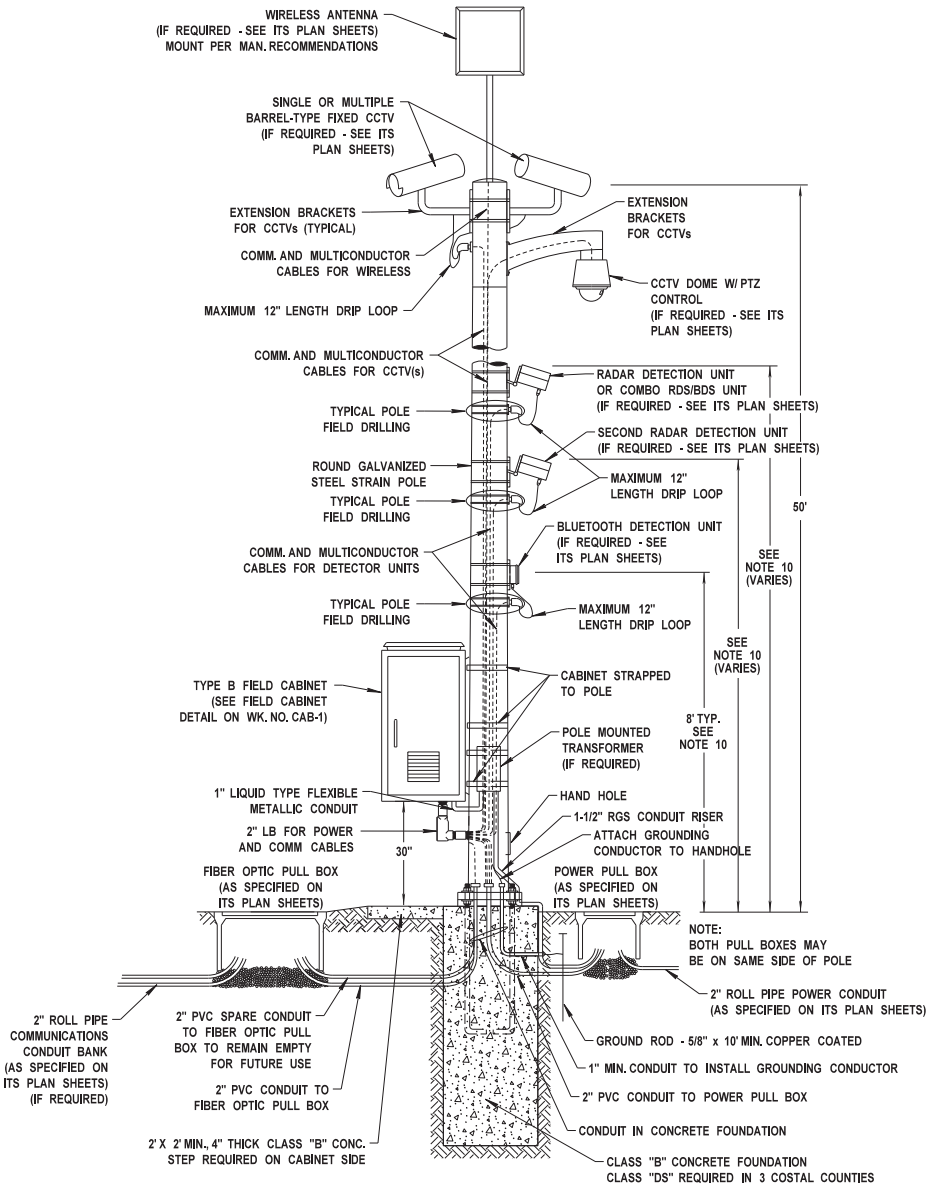
SHEET NO.
3042

183

PLAN SHEET

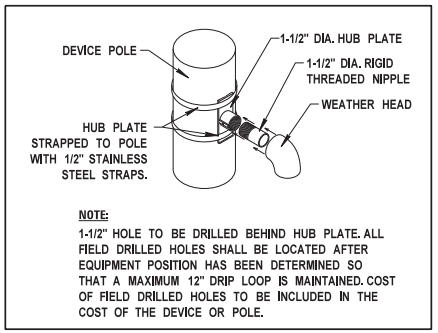
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Notice to Bidders



TYPICAL CCTV(s) ON 50' CAMERA POLE WITH DETECTORS AND WIRELESS

NOT TO SCALE



NOTE:
1-1/2" HOLE TO BE DRILLED BEHIND HUB PLATE. ALL FIELD DRILLED HOLES SHALL BE LOCATED AFTER EQUIPMENT POSITION HAS BEEN DETERMINED SO THAT A MAXIMUM 12" DRIP LOOP IS MAINTAINED. COST OF FIELD DRILLED HOLES TO BE INCLUDED IN THE COST OF THE DEVICE OR POLE.

TYPICAL POLE FIELD DRILLING

NOT TO SCALE

NOTES:

1. THE CONTRACTOR SHALL SUBMIT FOUR (4) SETS OF LAYOUT/SHOP DRAWINGS OF THE POLE AND ITS COMPONENTS (INCLUDING THE PLAN OF ATTACHMENT) TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOUNDATION DESIGN AND SHALL SUBMIT TWO (2) COPIES OF THE DESIGN CALCULATIONS TO ITS PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. ELECTRONIC SUBMITTALS ARE ACCEPTABLE.
3. SUPPORTS AND FOUNDATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATIONS AND ATTACHMENTS SHALL BE DESIGNED BY THE CONTRACTOR AS SPECIFIED ABOVE AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS AND DRAWINGS FOR FURTHER INFORMATION.
4. ALL EQUIPMENT CONNECTIONS SHALL BE MADE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
5. THE TOP OF THE FOUNDATION SHALL NOT PROJECT OVER 4" MAX. ABOVE THE GROUND LINE.
6. ALL CONDUIT BETWEEN PULL BOXES AND THE POLE FOUNDATION SHALL BE INCLUDED IN THE COST OF OTHER PAY ITEMS AND SHALL NOT BE MEASURED SEPARATELY FOR PAYMENT.
7. COMMUNICATION / POWER CABLES USED FOR CCTV, RDS, AND BDS FROM NETWORK SWITCH TO EQUIPMENT SHALL BE COST ABSORBED.
8. ALL GROUNDING CABLES AND EQUIPMENT SHALL BE COST ABSORBED. REFER TO SECTION 722.09 FOR MORE INFORMATION.
9. BOND RGS CONDUIT TO POLE GROUND ROD.
10. DETECTION UNIT MOUNTING HEIGHTS SHALL BE PER MANUFACTURERS RECOMMENDATIONS BASED ON SITE CONDITIONS, OFFSET, AND NUMBER OF LANES MONITORED.

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FMS CON: / 108150-304000
PROJECT NO.: - 59 -
COUNTY: YAZOO

CCTV DETAILS:
CAMERA POLE WITH CCTV, RDS, BDS
AND WIRELESS MOUNTING DETAILS

SHEET ID
CCTV1

SHEET NO.
3043

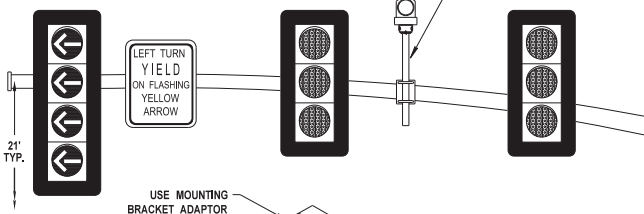
Construction

PLAN SHEET
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NOTES:

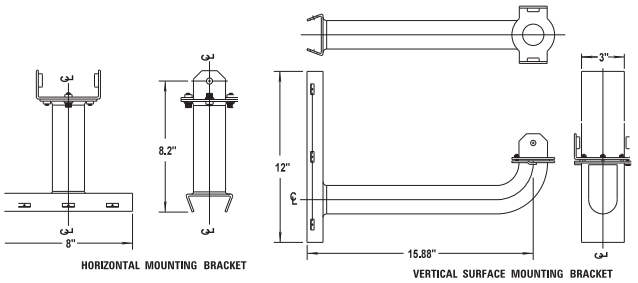
1. CONTRACTOR SHALL FIELD VERIFY CAMERA SITE LOCATION AND ORIENTATION FOR COMPLETE COVERAGE OF ROADWAY PRIOR TO INSTALLING CAMERAS, RDS, OR BDS. LOCATIONS AND ORIENTATIONS TO BE APPROVED BY THE PROJECT ENGINEER.

2. FIELD LOCATION ADJUSTMENTS MAY BE REQUIRED AT TIME OF EQUIPMENT INSTALLATION DUE TO POTENTIAL CONFLICTS OR OTHER FACTORS THAT WERE UNIDENTIFIABLE DURING THE PROJECT DESIGN PHASE. ANY REQUIRED ADJUSTMENT'S SHALL BE APPROVED BY THE PROJECT ENGINEER.



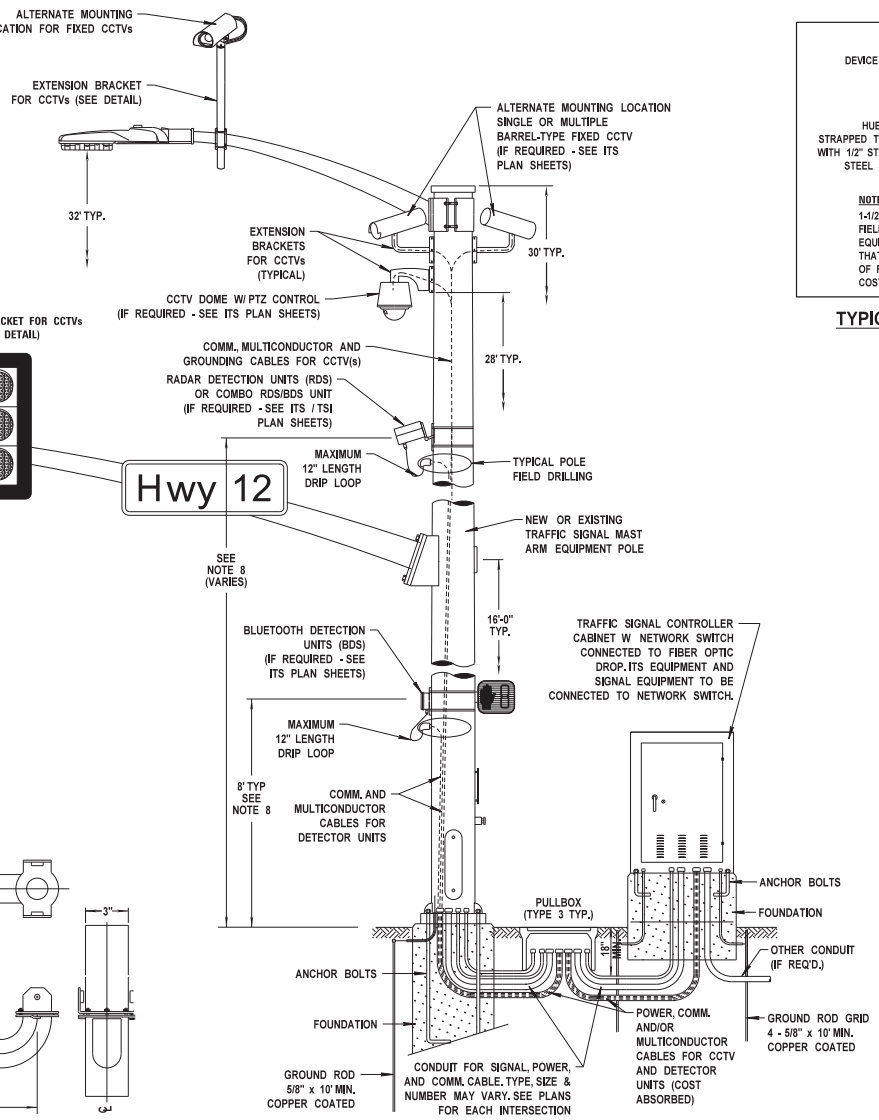
FIXED CAMERA EXTENSION BRACKET

NOT TO SCALE



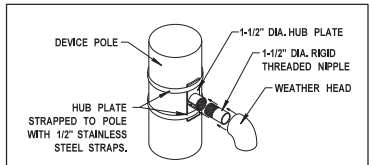
TYPICAL CAMERA MOUNTING BRACKETS

NOT TO SCALE



TYPICAL CCTV(s) ON MAST ARM SIGNAL POLE WITH DETECTORS

NOT TO SCALE



TYPICAL POLE FIELD DRILLING

NOT TO SCALE

NOTES:

1. MAST ARM POLES AND FOUNDATIONS TO FOLLOW STANDARD SUBMITTAL PROCESSES OF TRAFFIC SIGNAL EQUIPMENT. THE CONTRACTOR SHALL SUBMIT LAYOUT/SHOP DRAWINGS OF THE ITS COMPONENTS (INCLUDING THE PLAN OF ATTACHMENT).

2. ALL EQUIPMENT CONNECTIONS SHALL BE MADE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.

3. SUPPORTS AND FOUNDATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATIONS AND ATTACHMENTS SHALL BE DESIGNED BY THE CONTRACTOR AS SPECIFIED ABOVE AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MISSISSIPPI. SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS AND DRAWINGS FOR FURTHER INFORMATION.

4. CONDUIT BETWEEN PULL BOXES AND THE POLE FOUNDATION ARE SHOWN ON THE TSI PLANS AND INCLUDED IN THE TRAFFIC SIGNAL ESTIMATED QUANTITIES RECAP SHEET.

5. POWER AND COMM. CABLE TO ITS DEVICES MOUNTED ON POLE FROM NETWORK SWITCH IN TRAFFIC SIGNAL CONTROLLER TO BE COST ABSORBED.

6. ALL GROUNDING CABLES AND EQUIPMENT SHALL BE COST ABSORBED. REFER TO SECTION 722.09 FOR MORE INFORMATION.

7. ALL WIRING TO BE ROUTED INSIDE OF POLE.

8. CAMERA / DETECTION DEVICES SUPPLIER TO ASSIST CONTRACTOR WITH INFORMATION ON BEST MOUNTING POSITION (LOCATION ON ARM / SHAFT, MOUNTING HEIGHT, ETC.).

9. RADAR / BLUETOOTH DETECTION MOUNTING HEIGHTS SHALL BE PER MANUFACTURERS RECOMMENDATIONS BASED ON SITE CONDITIONS, OFFSET, AND NUMBER OF LANES MONITORED.

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DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 60 -
COUNTY: YAZOO

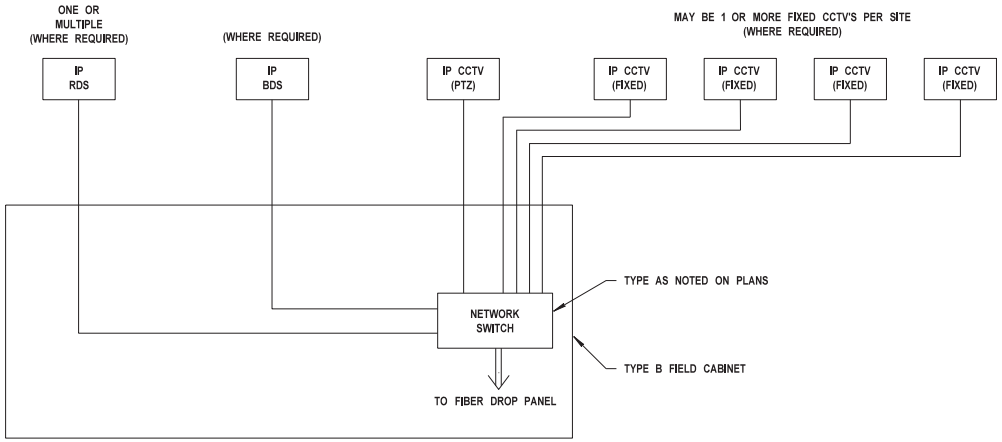
CCTV DETAILS:
MAST ARM SIGNAL POLE WITH RDS, AND BDS MOUNTING DETAILS

SHEET ID
CCTV3
SHEET NO.
3044

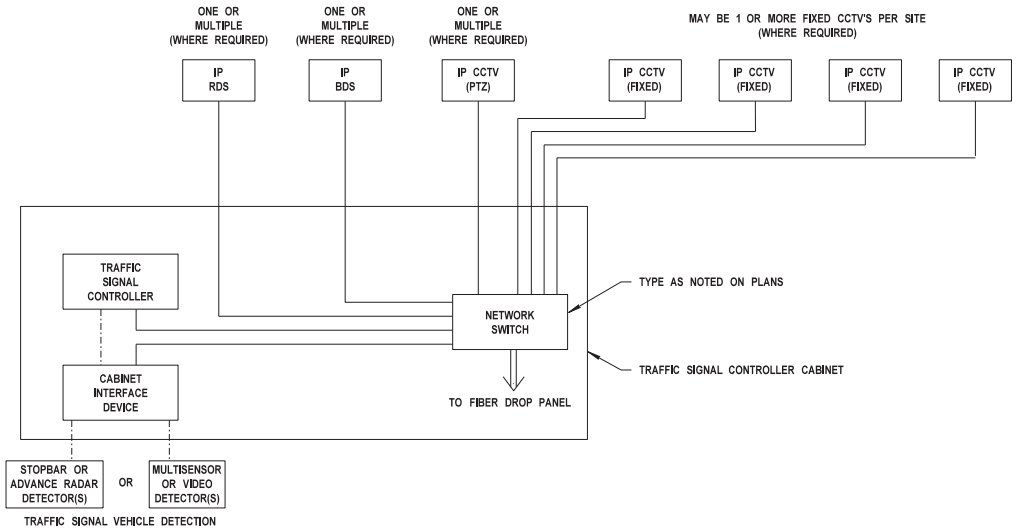
Notice to Bidders - Contract ID: 108150-304000

PLAN SHEET

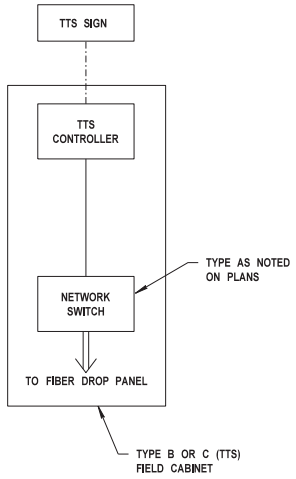
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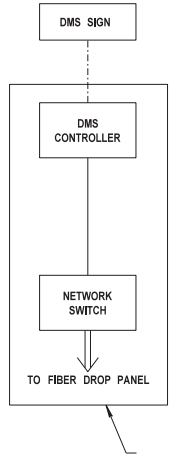
TYPICAL CCTV, BDS, AND RDS SITE - FIBER



TYPICAL TRAFFIC SIGNAL WITH NETWORKABLE DETECTION AND CCTV, BDS, AND / OR RDS SITE - FIBER



TYPICAL TTS SITE



TYPICAL DMS SITE

LEGEND

MFG. SPECIFIED DATA CABLE

CAT 6 ETHERNET CABLE / COMPOSITE TYPE CABLE

Notice to Bidders

ITS EQUIPMENT DETAILS

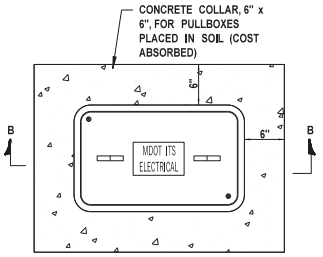
DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 61 -
COUNTY: YAZOO

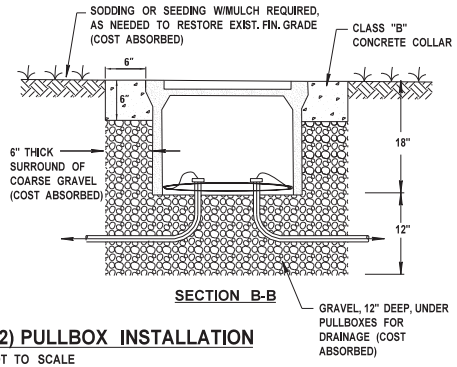
SHEET ID
SHEET NO. 3045

PLAN SHEET

12/3/2024 11:51:26 AM ITS Standard Drawings ORD Format.dgn



PLAN VIEW



SECTION B-B

ELECTRICAL (TYPE 2) PULLBOX INSTALLATION

NOT TO SCALE

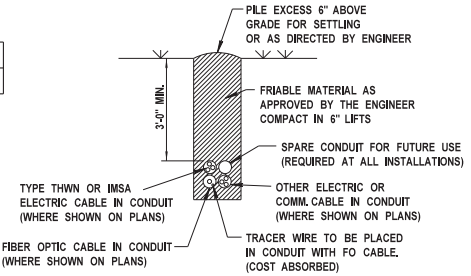
PRECAST CLASS "B" CONCRETE, CAST IRON, COMPOSOLITE, OR APPROVED EQUAL

NOMINAL MINIMUM DIMENSIONS

TYPE (min. nom. dims.)	W	L	D	LOGO
2 (13 In. x 24 In.)	13"	24"	18"	MDOT ITS ELECTRICAL

TYPE 2 PULLBOX NOTES:

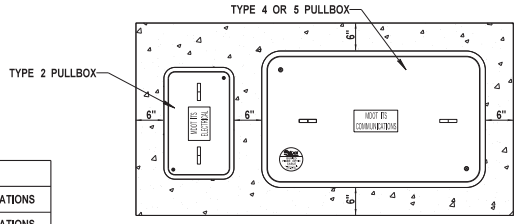
1. NOMINAL PULLBOX DIMENSIONS: 25"(L) x 15"(W) x 18"(D)
2. GRAVEL, 12" DEEP, IS REQUIRED UNDER PULLBOXES FOR DRAINAGE (COST ABSORBED).
3. CONCRETE COLLAR, 6" x 6", IS REQUIRED FOR PULLBOXES PLACED IN SOIL (COST ABSORBED).
4. "MDOT ITS ELECTRICAL" LOGO REQUIRED.
5. COVERS SHALL BOLT DOWN.
6. PULL BOXES AND COVERS SHALL BE TIER 22 - 22,500-POUND DESIGN LOAD, 33,750-POUND TEST LOAD.



TRENCHING DETAIL - TYPICAL CONDUIT BANK

NOT TO SCALE

ELECTRIC AND/OR FIBER OPTIC CABLE INSTALLATIONS (# OF CONDUITS AND CABLES AS SHOWN ON PLANS)



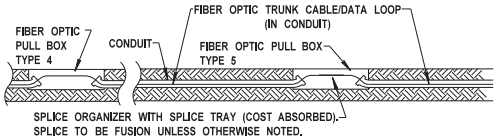
COMBINATION COLLAR FOR TYPE 2 AND 4 OR 5 BOX

NOT TO SCALE

USED WHEN TYPE 2 BOX IS SET ADJACENT TO TYPE 4 OR 5 BOX, MAINTAIN 6" MIN. COLLAR AROUND OUTSIDE OF LARGEST BOX

CONDUIT INSTALLATION NOTES:

1. IN SOME CASES, CONTRACTOR SHALL HAVE THE OPTION TO INSTALL CONDUIT BY DIRECTIONAL BORING OR PLOWING. SEE WK. NO. GN-ITS FOR ADDITIONAL DETAILS.
2. SEPARATE PULL BOXES SHALL BE PROVIDED FOR POWER SUPPLY AND COMM. CABLES. WHERE SHOWN ON THE PLANS, TYPE 2 PULL BOXES WILL BE PROVIDED FOR POWER SUPPLY CABLES, AND TYPE 4 OR 5 PULL BOXES WILL BE PROVIDED FOR COMM. CABLES. POWER AND COMM. CABLES SHALL NOT BE INSTALLED WITHIN THE SAME PULL BOX UNLESS OTHERWISE SPECIFICALLY NOTED ON PLANS.
3. ALL CONDUITS TO BE SEALED WITH DUCT PLUG TO PREVENT WATER INTRUSION ONCE CABLE IS INSTALLED. COST TO BE ABSORBED IN CONDUIT PAY ITEMS.

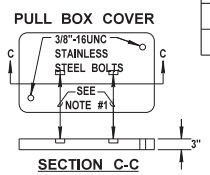


TRENCHING DETAIL - TYPICAL CONDUIT BANK

NOT TO SCALE

NOMINAL MINIMUM DIMENSIONS

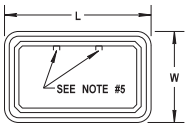
TYPE (min. nom. dims.)	W	L	D	LOGO
4 (24 In. x 36 In.)	24"	36"	24"	MDOT ITS COMMUNICATIONS
5 (30 In. x 48 In.)	30"	48"	24"	MDOT ITS COMMUNICATIONS



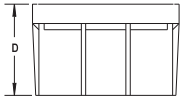
SECTION C-C

TYPE 5 FIBER OPTIC PULLBOXES MUST BE USED AT ALL LOCATIONS WHERE TRUNK SPLICING IS REQUIRED IN THE PULLBOX.

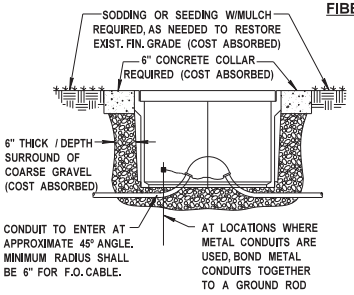
TYPE 4 OR TYPE 5 FIBER OPTIC PULLBOXES MAY BE USED WHERE NO TRUNK SPLICING IS REQUIRED (AS SHOWN ON PLANS).



TOP VIEW



FRONT VIEW



FIBER OPTIC (TYPES 4 AND 5) PULLBOX NOTES:

1. NOTCHES SHALL BE PROVIDED FOR REMOVING THE COVER. COVER BOLTS SHALL BE TAMPER-RESISTANT.
2. COVER TO HAVE ROUGHENED TOP SURFACE.
3. LOGO (MDOT ITS COMMUNICATIONS) IS TO BE INSCRIBED ON TOP OF THE COVER.
4. PULL BOXES AND COVERS SHALL BE TIER 22 - 22,500-POUND DESIGN LOAD, 33,750-POUND TEST LOAD.
5. INSTALL STRUTS AND SPLICE CLOSURE INSIDE ALL TYPE 5 FIBER OPTIC PULLBOXES (COST ABSORBED).
6. WHERE PULLBOX IS INSTALLED OVER RUN OF EXISTING CONDUIT, EXISTING CONDUITS SHALL BE CUT AND COUPLED TO NEW LARGE RADIUS (6" MIN.) BENDS AS REQUIRED. (COST ABSORBED).

FIBER OPTIC (TYPE 4 OR 5) PULLBOX INSTALLATION

NOT TO SCALE

PRECAST CLASS "B" CONCRETE, CAST IRON, COMPOSOLITE, OR APPROVED EQUAL

PULLBOX GENERAL NOTES:

1. CONDUIT FOR FIBER OPTIC CABLE REQUIRED TO UTILIZE LARGE RADIUS BENDS (MINIMUM RADIUS 6") NO ELBOW JOINTS ALLOWED.
2. WHEN EXISTING PULLBOXES ARE TO BE REPLACED BY LARGER FIBER OPTIC PULLBOXES, THE COST OF REMOVAL, BACKFILL, SIDEWALK, ETC. TO BE COST ABSORBED.
3. THE COST OF ALL MODIFICATIONS, ADJUSTMENTS, MATERIALS, MOUNTING HARDWARE, ETC. TO BE ABSORBED IN OTHER ITEMS, UNLESS A DIRECT PAY ITEM IS PROVIDED.

MDOT

BURIED FIBER OPTIC CABLE

Call Before You Dig (601) 359-1454 LOCATION 0000

FIBER OPTIC PULLBOX LABEL

NOTES:

1. LABEL PROVIDED BY MDOT ITS DEPARTMENT INSTALLED BY CONTRACTOR ON COVER OF ALL COMMUNICATIONS PULLBOXES.
2. PULL BOX LOCATION LABELS TO BE NUMBERED IN SEQUENTIAL ORDER WITHIN THE PROJECT.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 62 -
COUNTY: YAZOO

FIBER OPTIC DETAILS
PULLBOX AND CONDUIT
TRENCHING DETAILS

Notice to Bidders
Contract No. 114730

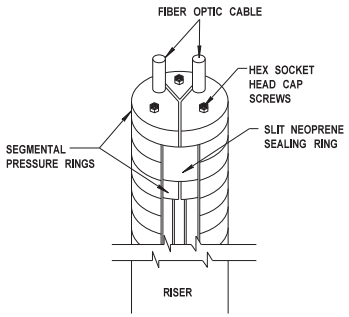
SHEET ID
FO1

SHEET NO.
3046

187

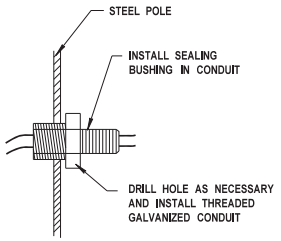
PLAN SHEET

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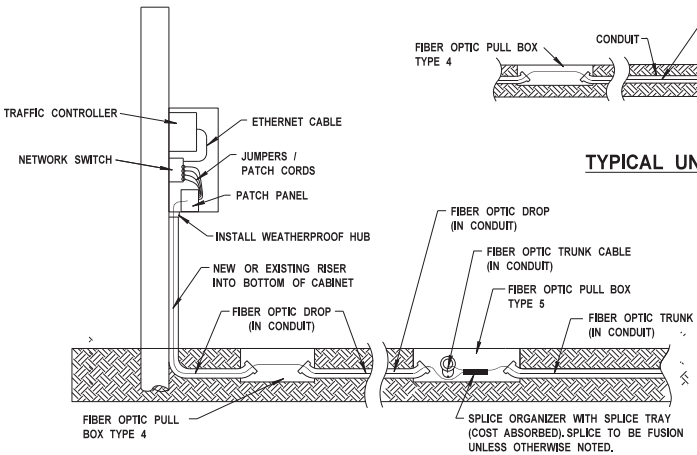


RISER SEALING BUSHING FOR FIBER OPTIC CABLE

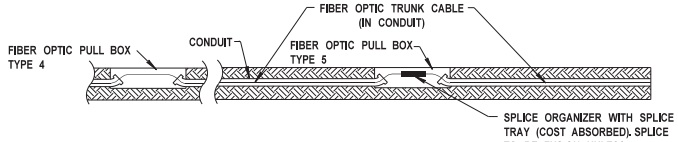
NOTE:
TOP OF BUSHING SHALL BE APPROXIMATELY 11" BELOW MESSENGER ATTACHMENT HEIGHT.



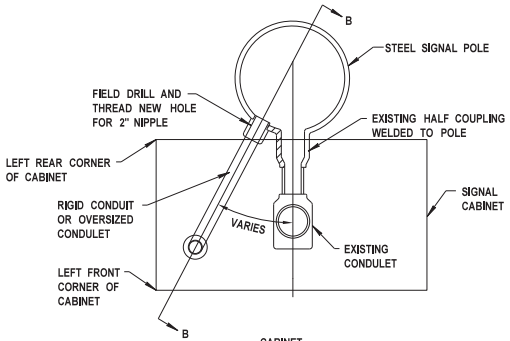
FIBER ENTRANCE TO EXISTING STEEL POLES

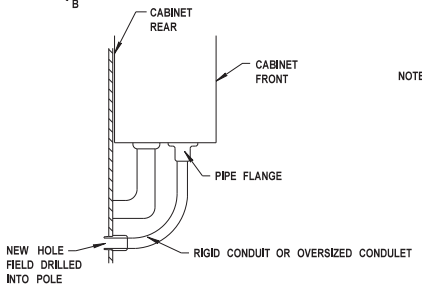


UNDERGROUND ENTRANCE FOR EMBEDDED STEEL, CONCRETE, OR WOOD POLE INTO POLE MOUNTED CABINET (EXTERNAL SPLICE)

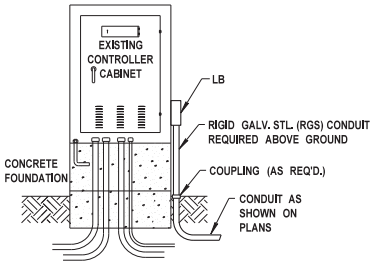


TYPICAL UNDERGROUND SPLICE



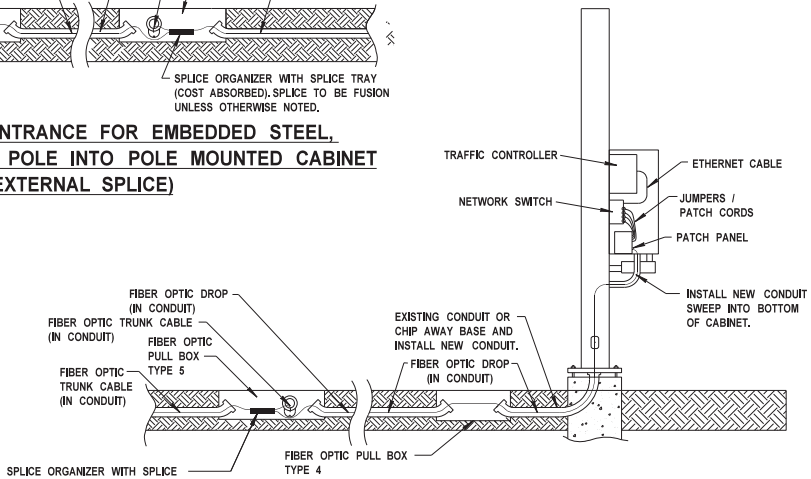


DETAIL OF NEW CONDUIT SWEEP INTO BOTTOM OF POLE MOUNTED CABINET ON STEEL POLE



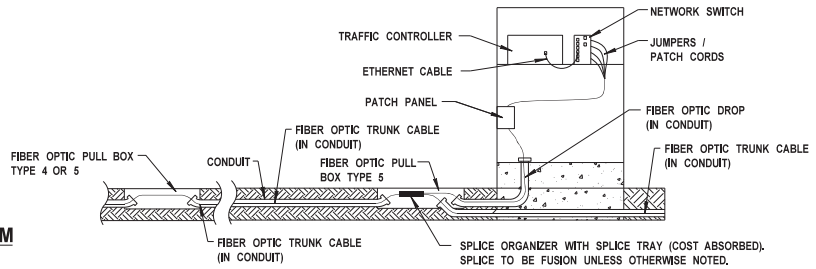
CONDUIT ENTRANCE DETAIL (EXISTING CABINET)

NOTE: TO BE USED ONLY WHEN SPARE CONDUIT IS NOT AVAILABLE.



UNDERGROUND ENTRANCE FOR STEEL POLE INTO POLE MOUNTED CABINET (EXTERNAL SPLICE)

NOTE:
ALL MODIFICATIONS, ADJUSTMENTS, MATERIALS, ETC. TO BE COST ABSORBED, UNLESS OTHERWISE NOTED.



UNDERGROUND ENTRANCE INTO BASE MOUNTED CABINET (EXTERNAL SPLICE)

DEPARTMENT OF TRANSPORTATION MISSISSIPPI

MDOT MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 63 -
COUNTY: YAZOO

FIBER OPTIC DETAILS
FIBER ENTRANCE DETAILS

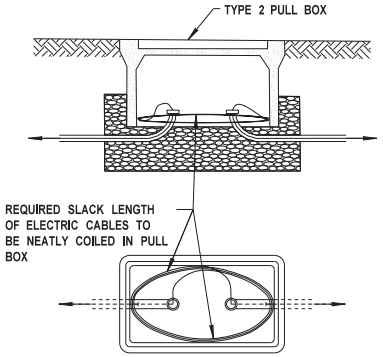
SHEET ID
F&T
SHEET NO.
3047

Notice to Bidders -- Contract No. 108150

188

PLAN SHEET

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CABLE MANAGEMENT IN ELECTRICAL (TYPE 2) PULL BOX

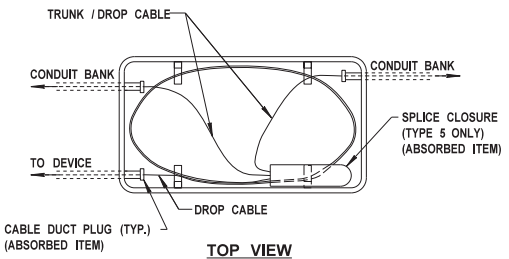
NOT TO SCALE

TYPICAL CABLE COIL INSTALLATION GUIDE

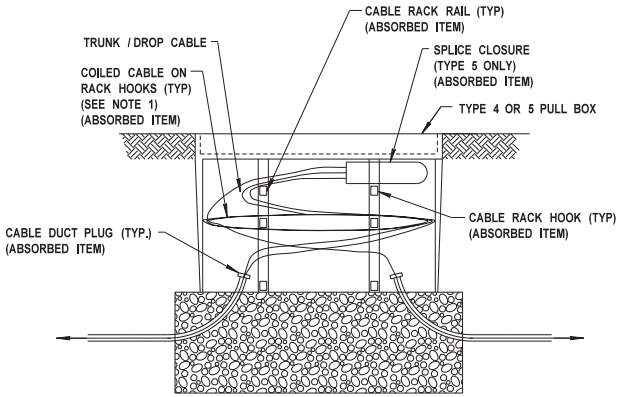
(FEET OF COIL LENGTH PER ENTERING CABLE)

CABLE TYPE	TYPE 2 PULL BOX	TYPE 4 PULL BOX ON TRUNK	TYPE 4 PULL BOX ON DROP	TYPE 5 PULL BOX
FIBER OPTIC CABLES (TRUNK)		25		200
FIBER OPTIC CABLES (DROP)			10	100
ELECTRICAL SERVICE CONDUCTORS	10			
VDS LEAD-IN CABLE			10	
RDS COMM CABLE		20	20	20
DMS COMM CABLE			10	

NOTE: SEE SPECIAL PROVISION 907-661 FOR ADDITIONAL INFORMATION



TOP VIEW



SIDE VIEW

CABLE MANAGEMENT IN FIBER OPTIC (TYPE 4 OR 5) PULL BOX

NOT TO SCALE

NOTES:

1. FIBER TRUNK AND DROP CABLE SHALL BE COILED TOGETHER. EACH RDS COMM CABLE SHALL BE COILED SEPARATELY AND SUPPORTED ON RACK HOOKS.
2. CONDUIT MAY ENTER EITHER SIDE OF THE PULL BOX (RATHER THAN THROUGH BOTTOM) WHERE FIELD CONDITIONS WARRANT.

DEPARTMENT OF TRANSPORTATION MISSISSIPPI

MDOT MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 64 -
COUNTY: YAZOO

FIBER OPTIC DETAILS
CABLE MANAGEMENT

SHEET ID
FO13

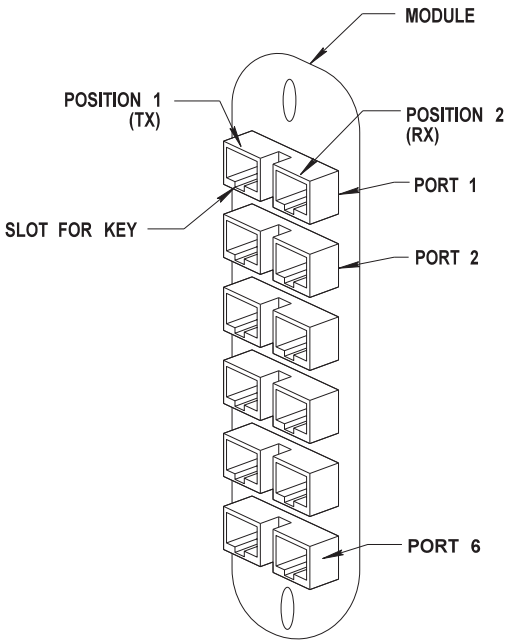
SHEET NO.
3048

Notice to Contractors -- 64 - 108150-304000 - YAZOO

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PLAN SHEET

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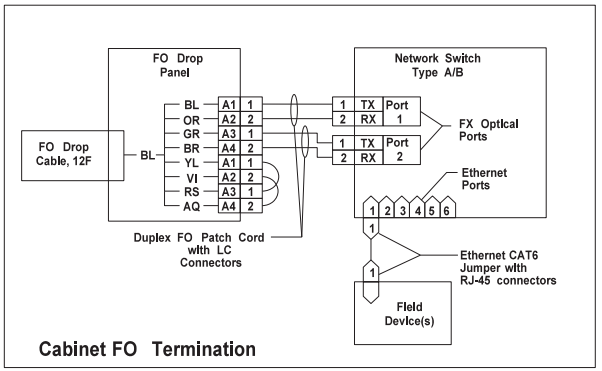
Module Detail

Trunk Cable Termination Cabinet

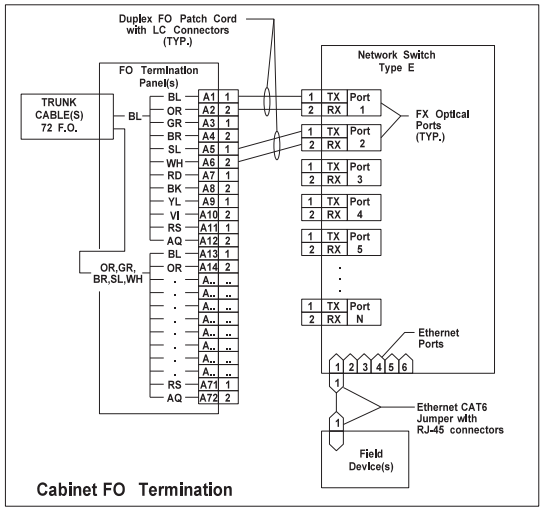
Cable				Cable Trunk Beginning				Cable Trunk Ending			
Tube	Fiber Color	Fiber Number	Module	FDC Port	Position	Ref	Module	FDC Port	Position	Ref
Blue	Blue	1	A	1	1	TX	A	1	1	RX
	Orange	2	A	1	2	RX	A	1	2	TX
	Green	3	A	2	1	TX	A	2	1	RX
	Brown	4	A	2	2	RX	A	2	2	TX
	Slate	5	A	3	1	TX	A	3	1	RX
	White	6	A	3	2	RX	A	3	2	TX
	Red	7	A	4	1	TX	A	4	1	RX
	Black	8	A	4	2	RX	A	4	2	TX
	Yellow	9	A	5	1	TX	A	5	1	RX
	Violet	10	A	5	2	RX	A	5	2	TX
	Rose	11	A	6	1	TX	A	6	1	RX
	Aqua	12	A	6	2	RX	A	6	2	TX
Orange	Blue	13	B	1	1	TX	B	1	1	RX
	Orange	14	B	1	2	RX	B	1	2	TX
	Green	15	B	2	1	TX	B	2	1	RX
	Brown	16	B	2	2	RX	B	2	2	TX
	Slate	17	B	3	1	TX	B	3	1	RX
	White	18	B	3	2	RX	B	3	2	TX
	Red	19	B	4	1	TX	B	4	1	RX
	Black	20	B	4	2	RX	B	4	2	TX
	Yellow	21	B	5	1	TX	B	5	1	RX
	Violet	22	B	5	2	RX	B	5	2	TX
	Rose	23	B	6	1	TX	B	6	1	RX
	Aqua	24	B	6	2	RX	B	6	2	TX
Green	Blue	25	C	1	1	TX	C	1	1	RX
	Orange	26	C	1	2	RX	C	1	2	TX
	Green	27	C	2	1	TX	C	2	1	RX
	Brown	28	C	2	2	RX	C	2	2	TX
	Slate	29	C	3	1	TX	C	3	1	RX
	White	30	C	3	2	RX	C	3	2	TX
	Red	31	C	4	1	TX	C	4	1	RX
	Black	32	C	4	2	RX	C	4	2	TX
	Yellow	33	C	5	1	TX	C	5	1	RX
	Violet	34	C	5	2	RX	C	5	2	TX
	Rose	35	C	6	1	TX	C	6	1	RX
	Aqua	36	C	6	2	RX	C	6	2	TX

Trunk Cable Termination Cabinet

Cable				Cable Trunk Beginning				Cable Trunk Ending			
Tube	Fiber Color	Fiber Number	Module	FDC Port	Position	Ref	Module	FDC Port	Position	Ref
Brown	Blue	37	D	1	1	TX	D	1	1	RX
	Orange	38	D	1	2	RX	D	1	2	TX
	Green	39	D	2	1	TX	D	2	1	RX
	Brown	40	D	2	2	RX	D	2	2	TX
	Slate	41	D	3	1	TX	D	3	1	RX
	White	42	D	3	2	RX	D	3	2	TX
	Red	43	D	4	1	TX	D	4	1	RX
	Black	44	D	4	2	RX	D	4	2	TX
	Yellow	45	D	5	1	TX	D	5	1	RX
	Violet	46	D	5	2	RX	D	5	2	TX
	Rose	47	D	6	1	TX	D	6	1	RX
	Aqua	48	D	6	2	RX	D	6	2	TX
Slate	Blue	49	E	1	1	TX	E	1	1	RX
	Orange	50	E	1	2	RX	E	1	2	TX
	Green	51	E	2	1	TX	E	2	1	RX
	Brown	52	E	2	2	RX	E	2	2	TX
	Slate	53	E	3	1	TX	E	3	1	RX
	White	54	F	3	2	RX	F	3	2	TX
	Red	55	E	4	1	TX	E	4	1	RX
	Black	56	E	4	2	RX	E	4	2	TX
	Yellow	57	E	5	1	TX	E	5	1	RX
	Violet	58	E	5	2	RX	E	5	2	TX
	Rose	59	E	6	1	TX	E	6	1	RX
	Aqua	60	E	6	2	RX	E	6	2	TX
White	Blue	61	F	1	1	TX	F	1	1	RX
	Orange	62	F	1	2	RX	F	1	2	TX
	Green	63	F	2	1	TX	F	2	1	RX
	Brown	64	F	2	2	RX	F	2	2	TX
	Slate	65	F	3	1	TX	F	3	1	RX
	White	66	F	3	2	RX	F	3	2	TX
	Red	67	F	4	1	TX	F	4	1	RX
	Black	68	F	4	2	RX	F	4	2	TX
	Yellow	69	F	5	1	TX	F	5	1	RX
	Violet	70	F	5	2	RX	F	5	2	TX
	Rose	71	F	6	1	TX	F	6	1	RX
	Aqua	72	F	6	2	RX	F	6	2	TX

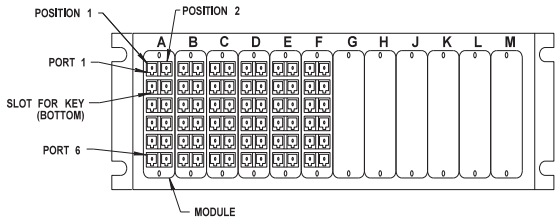


Cabinet FO Termination



Cabinet FO Termination

Note: These connections are examples. See NTB for more detail.



FO Termination Cabinet (Vertical Connector Module)

Notice to Bidders -- Continued

FIBER OPTIC DETAILS

190

PLAN SHEET

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DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: /108150-304000
PROJECT NO.: - 65 -
COUNTY: YAZOO

SHEET ID
FO1

SHEET NO.
3049

NOTES FOR POLE-MOUNTED DEMARCATION METER POLE:

(1) SET TREATED ROUND WOODEN POLE WITH MINIMUM TOP DIAMETER OF 6 INCHES. SET MINIMUM DEPTH OF 5 FEET. GUYS IF NEEDED TO OFFSET PULL OF SERVICE DROP. (COST ABSORBED)

(2) LOCATE ELECTRICAL DEMARC WITHIN 100 FEET OF ELECTRICAL UTILITY POLE.

(3) PROVIDE MINIMUM 1/2" GALVANIZED EYE BOLTS WITH 2" BY 2" SQUARE WASHERS. POINT OF ATTACHMENT SHALL BE EITHER ACCESSIBLE TO ELECTRIC UTILITY'S BUCKET TRUCK OR HAVE ENOUGH SURFACE (SUCH AS WALL OR BUILDING STRUCTURE) AND SUFFICIENT GROUND SPACE ON SAME PROPERTY TO SAFELY SUPPORT A LADDER.

(4) SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER AND EXTEND 3 FEET BEYOND THE WEATHERHEAD. THE NEUTRAL SERVICE ENTRANCE CONDUCTOR CAN BE SIZED TWO SIZES SMALLER THAN LOAD MAIN CONDUCTORS AND SHALL BE IDENTIFIED WITH GRAY OR WHITE TAPE AT THE WEATHER HEAD AND METER BASE.

(5) CONDUIT SHALL BE RIGID STEEL CONDUIT (NO EMT). CONDUCTORS AND CONDUIT SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.

(6) FOR 480 VOLT SERVICE PROVIDE ELECTRIC UTILITY PROVIDER APPROVED LOCKABLE, NON-FUSED DISCONNECT SWITCH ON THE SUPPLY SIDE OF THE METER BASE. IF LOAD DISCONNECT DOES NOT PROVIDE OVERCURRENT PROTECTION PROVIDE SEPARATE OVERCURRENT DEVICE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 230.91.

(7) MAIN DISCONNECT CIRCUIT BREAKER OR FUSED DISCONNECT SHALL BE SIZED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND BE NEMA TYPE 3R WITH PROVISION TO BE LOCKED IN OPEN OR CLOSED POSITION.

(8) LINE SIDE CIRCUIT BREAKER SHORT CIRCUIT RATING SHALL BE EQUAL OR GREATER THAN THE AVAILABLE INTERRUPTIBLE CAPACITY (AIC) AND SHALL BE RATED AS SERVICE ENTRANCE EQUIPMENT.

(9) METER BASE -125 AMP LOCATED BETWEEN 5 FEET TO 6 FEET ABOVE GRADE AND FACE OPEN SPACE TO FACILITATE METERING READING. IF THE CONDUIT BETWEEN THE METER SOCKET AND THE MAIN DISCONNECT IS NOT METAL, A BONDING GROUND IS REQUIRED. EXACT METER CONNECTION CONFIGURATION SHALL BE AS SPECIFIED BY LOCAL POWER COMPANY.

(10) METER BASE GROUND SHALL BE A MINIMUM OF #6 AWG SOFT DRAWN COPPER AND IN CONDUIT FROM THE METER BASE TO THE GROUND ROD. THE GROUND ON THE METER BASE MUST BE CONNECTED TO THE GROUND LUG, NOT THE SERVICE NEUTRAL LUG. GROUND ROD SHALL BE 5/8 INCH COPPERCLAD 8 FEET IN LENGTH. THE GROUND CONDUCTOR SHALL BE EXOTHERMAL BONDED TO THE GROUND ROD. THE UPPER END OF THE GROUND SHALL BE AT LEAST 1 INCH BELOW GRADE.

(11) THE POLE GROUNDING CONDUCTOR SHALL BE A MINIMUM #6 AWG BARE SOFT DRAWN COPPER WIRE AND EXTEND 6 INCHES ABOVE THE TOP OF THE POLE AND RUN TO THE GROUND ROD. INSTALLED CONDUCTOR ON THE OPPOSITE SIDE OF THE POLE FROM THE SERVICE ENTRANCE CONDUIT. POLE GROUND CONDUCTOR SHALL BE STAPLED STARTING FROM THE TOP AT 2 FEET INTERVALS UNTIL 6 FEET ABOVE GROUND WHEN STAPLE AT 6 INCH INTERVALS.

(12) ANY UNUSED OR OPEN HOLES IN METER BASE, MAIN DISCONNECT OR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS. SELECT SIZE AND INSTALL IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.

(13) COST OF AERIAL POWER FEED, POLE, WEATHER HEAD, CONDUIT, CONDUCTORS, METER BASE, DISCONNECTS FUSES, CIRCUIT BREAKERS, AND GROUND TO BE ABSORBED IN OTHER ITEMS.

(14) ALL EQUIPMENT TO BE PROVIDED, SIZED AND INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.

(15) ALL CONDUIT CONNECTIONS TO BE RAINTIGHT.

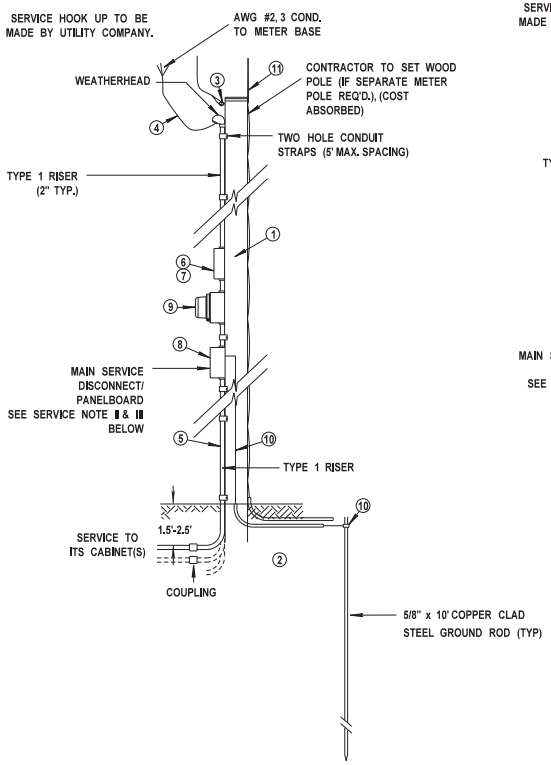
(16) PHYSICAL LOCATION OF POLE AND ANY GUYING AND BRACING (IF NEEDED) SHALL BE APPROVED BY THE ELECTRIC UTILITY PROVIDER.

(17) ANY RECEPTACLE SHALL BE A GROUND FAULT INTERRUPTING TYPE.

(18) ADDITIONAL POLE HEIGHT MAY BE REQUIRED TO MAINTAIN PROPER CLEARANCE PER ELECTRIC UTILITY'S REQUIREMENTS.

(19) NO UTILITY SERVICE LINES WILL BE INSTALLED OVER ANY STRUCTURES.

(20) LOCATION OF THE POWER COMPANY SERVICE POLE SHALL BE COORDINATED WITH THE PROJECT ENGINEER AND THE LOCAL POWER COMPANY. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE UTILITY COMPANY BEFORE INSTALLATION.



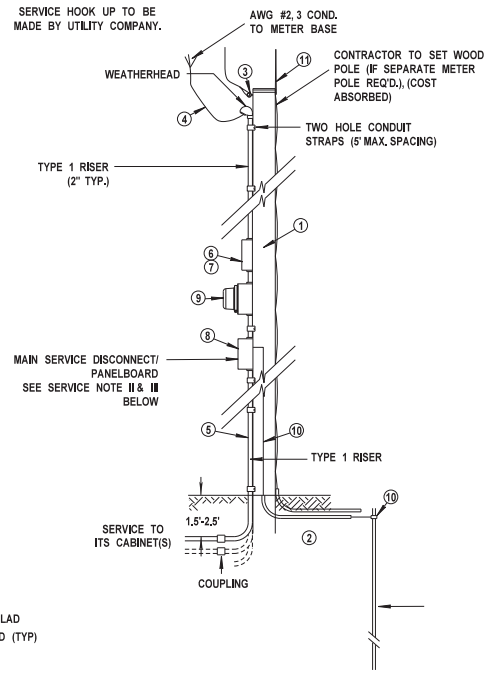
480 VOLT SINGLE PHASE SINGLE/MULTIPLE SITE POLE-MOUNTED DEMARCATION DETAIL

NOTES 480V SINGLE PHASE SERVICE:

I. LOAD AND SUPPLY WIRES SHALL NOT CROSS IN THE METER SOCKET.

II. CONTRACTOR SHALL FURNISH A SEPARATE LOAD SIDE MAIN DISCONNECT SWITCH WITH OVERCURRENT PROTECTION WITHIN 2 FEET OF THE METER FOR SERVICE TO SINGLE SITE.

III. CONTRACTOR SHALL FURNISH A PANELBOARD FOR SERVICE TO MULTIPLE SITES. SEE PLANS FOR SITE DETAILS.



240/120V AND 120V SINGLE PHASE SINGLE/MULTIPLE SITE POLE-MOUNTED DEMARCATION DETAIL

NOTES FOR 120/240V SINGLE PHASE SERVICE:

I. LOAD AND SUPPLY WIRES SHALL NOT CROSS IN THE METER SOCKET.

II. CONTRACTOR SHALL FURNISH A MAIN SERVICE DISCONNECT FOR SERVICE TO SINGLE SITE. SEE PLANS FOR SITE DETAILS.

III. CONTRACTOR SHALL FURNISH A PANELBOARD REQUIRED FOR SERVICE TO MULTIPLE SITES. SEE PLANS FOR SITE DETAILS.

IV. FOR 240/120V SERVICE, USE AWG #2, 3 COND. TO METER BASE. FOR 120V SERVICE, USE AWG #2, 2 COND. TO METER BASE.

DEPARTMENT OF TRANSPORTATION MISSISSIPPI

MDOT MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
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CHECKED BY:
DATE:

FMS CON: / 108150-304000
PROJECT NO.: - 99 -
COUNTY: YAZOO

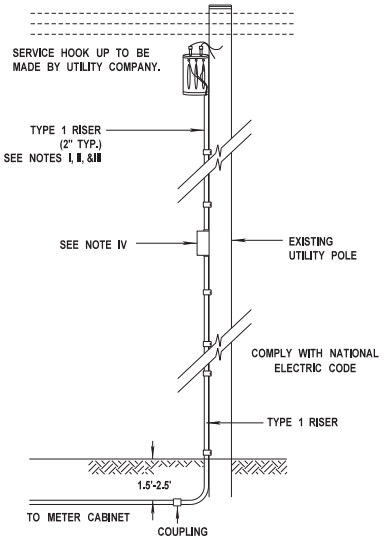
ELECTRICAL DETAILS
POWER SERVICE METER POLE DETAILS

SHEET ID
POWER1A

SHEET NO.
3050

191 PLAN SHEET

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240/120V SINGLE PHASE UNDERGROUND UTILITY DEMARCATION DETAIL

NOT TO SCALE

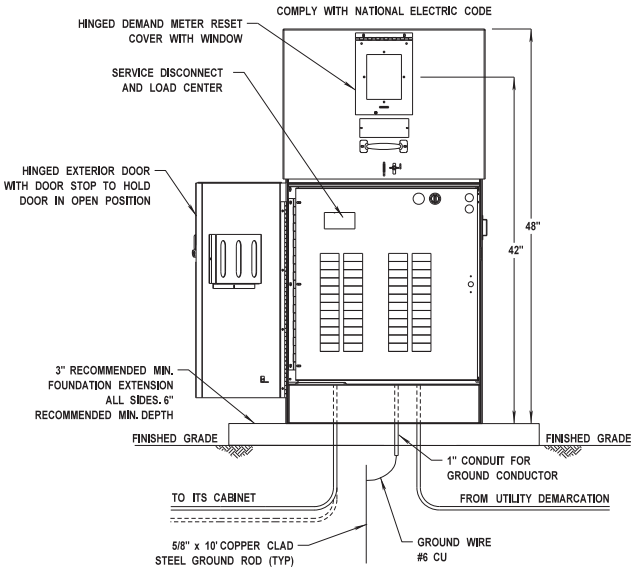
NOTES FOR UNDERGROUND UTILITY DEMARCATION DETAIL

I. CONDUIT SHALL BE RIGID STEEL CONDUIT (NO EMT). CONDUCTORS AND CONDUIT SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.

II. COST OF CONDUIT AND CONDUCTORS TO BE ABSORBED IN OTHER ITEMS.

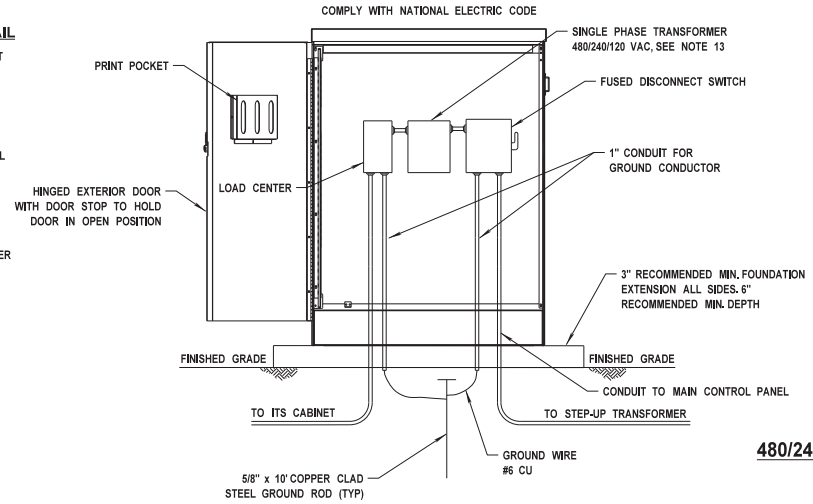
III. INSTALLATION OF CONDUIT AND CONDUCTORS ON EXISTING UTILITY POLE SHALL BE COORDINATED WITH THE PROJECT ENGINEER AND THE LOCAL POWER COMPANY. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE UTILITY COMPANY BEFORE INSTALLATION.

IV. FOR 480 VOLT SERVICE PROVIDE ELECTRIC UTILITY PROVIDER APPROVED LOCKABLE, NON-FUSED DISCONNECT SWITCH ON THE SUPPLY SIDE OF THE METER BASE. IF LOAD DISCONNECT DOES NOT PROVIDE OVERCURRENT PROTECTION PROVIDE SEPARATE OVERCURRENT DEVICE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 230.91.



SINGLE PHASE (240/120V AND 480V) METER CABINET DEMARCATION DETAIL

NOT TO SCALE



480/240/120V STEP-DOWN TRANSFORMER CABINET DETAIL

NOT TO SCALE

DETAIL NOTES:

(1) LOCATE METER CABINET WITHIN 100 FEET OF UTILITY DEMARCATION.

(2) LOCATE STEP-DOWN TRANSFORMER WITHIN 15 FEET OF ITS CABINET.

(3) REFER TO PLAN SHEETS FOR QUANTITY AND SIZE OF CONDUIT(S). SERVICE MAY BE REQUIRED TO CONNECT MULTIPLE CABINETS.

(4) CONDUIT SHALL BE SCHEDULE 80 GRAY PVC (WITH UV PROTECTION) OR RIGID STEEL CONDUIT (NO EMT). CONDUCTORS AND CONDUIT SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.

(5) MAIN DISCONNECT CIRCUIT BREAKER OR FUSED DISCONNECT SHALL BE SIZED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND BE NEMA TYPE 3R WITH PROVISION TO BE LOCKED IN OPEN OR CLOSED POSITION.

(6) LINE SIDE CIRCUIT BREAKER SHORT CIRCUIT RATING SHALL BE EQUAL OR GREATER THAN THE AVAILABLE INTERRUPTIBLE CAPACITY (AIC) AND SHALL BE RATED AS SERVICE ENTRANCE EQUIPMENT.

(7) ANY UNUSED OR OPEN HOLES IN METER BASE, MAIN DISCONNECT OR DISTRIBUTION PANEL SHALL BE PLUGGED WITH WATERTIGHT PLUGS. SELECT SIZE AND INSTALL IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.

(8) COST OF POWER FEED, RACK, TRANSFORMER, CONDUIT, CONDUCTORS, DISCONNECT SWITCH, DISCONNECT FUSES, PANELBOARD, CIRCUIT BREAKERS, AND GROUND TO BE ABSORBED IN OTHER ITEMS.

(9) ALL EQUIPMENT TO BE PROVIDED, SIZED AND INSTALLED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.

(10) ALL CONDUIT CONNECTIONS TO BE RAINTIGHT

(11) PHYSICAL LOCATION OF POLE AND ANY GUYING AND BRACING (IF NEEDED) SHALL BE APPROVED BY THE ELECTRIC UTILITY PROVIDER.

(12) ANY RECEPTACLE SHALL BE A GROUND FAULT INTERRUPTING TYPE.

(13) TRANSFORMER SHALL BE DESIGNED FOR OUTDOOR INSTALLATION. RATING OF TRANSFORMER SHALL BE SIZED ACCORDING TO PLAN DETAILS.

DEPARTMENT OF TRANSPORTATION MISSISSIPPI

MDOT MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: /108150-304000
PROJECT NO.: - 67 -
COUNTY: YAZOO

POWER SERVICE CABINET AND POLE DETAILS

SHEET ID
POW-3A

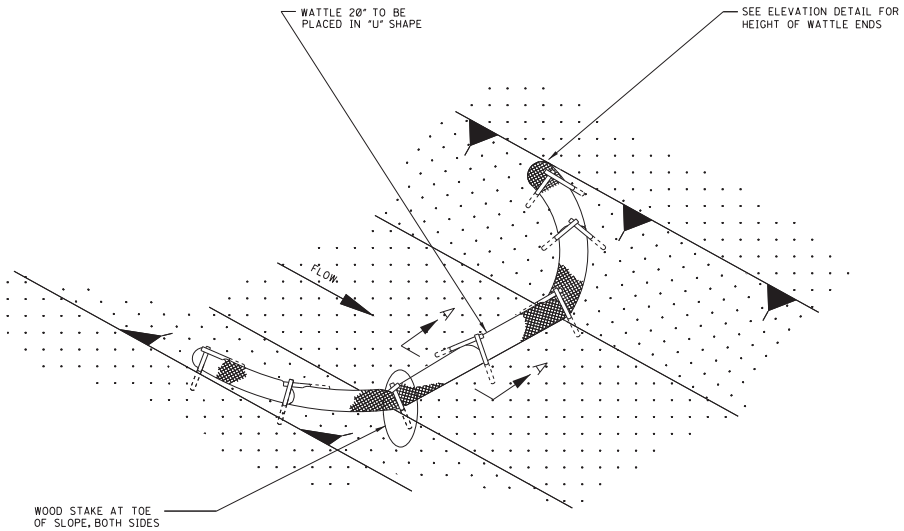
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3051

192

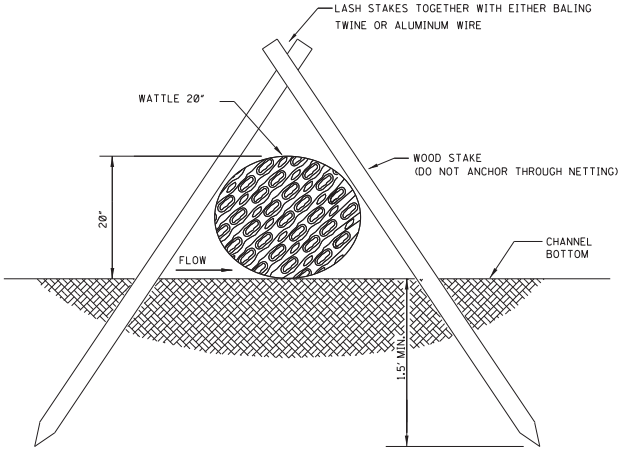
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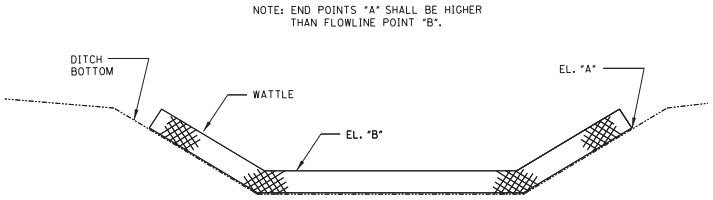
STATE	PROJECT NO.
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DETAIL (DITCH CHECK)



SECTION A–A



ELEVATION DETAIL

NOTES:

1. WATTLE DITCH CHECKS CAN BE USED FOR VELOCITY REDUCTION AND CONTROL OF SEDIMENT TRANSPORT UNDER LOW TO MEDIUM FLOW CONDITIONS.
2. THE PLACEMENT INTERVAL BETWEEN WATTLE DITCH CHECK SHALL BE 100' UNLESS SHOWN OTHERWISE ON THE PLANS OR EROSION CONTROL PLAN APPROVED BY THE ENGINEER. SEE SPACING GUIDANCE ON WK. NO. ECD-4.
3. ANCHORING WOOD STAKES SHALL BE SIZED, SPACED, DRIVEN, AND BE OF A MATERIAL THAT EFFECTIVELY SECURES THE CHECK. STAKE SPACING SHALL BE A MAXIMUM OF THREE FEET. ALL NON-DEGRADABLE MATERIALS SHALL BE REMOVED WHEN NO LONGER NEEDED.
4. TRENCHING OF WATTLES MAY BE NECESSARY IF PIPING BECOMES EVIDENT.
5. WATTLES SHOULD NOT BE USED IN HARD BOTTOM CHANNELS.
6. IN THE EVENT WATTLES CANNOT BE SECURED IN PLACE USING WOOD STAKES, SAND BAGS MAY BE USED IN LIEU OF WOOD STAKES IN ORDER TO SECURE THE WATTLES IN PLACE. IF SANDS BAGS ARE USED IN THIS APPLICATION THEY WILL NOT BE A SEPARATE PAY ITEM.

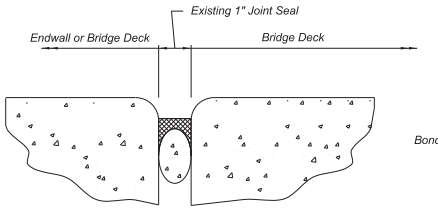
DATE	REVISION	BY

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION
STANDARD PLAN

DETAILS OF EROSION CONTROL WATTLE DITCH CHECK

ISSUE DATE: AUGUST 01, 2017

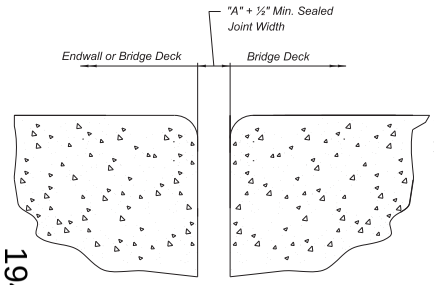
MDOT
WORKING NUMBER ECD-6
SHEET NUMBER 3052



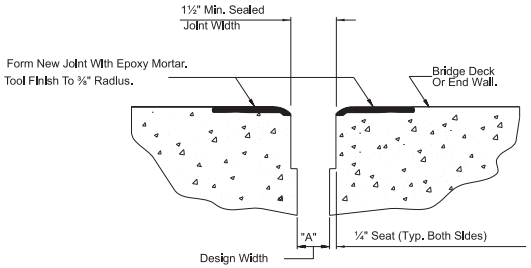
TYPICAL SECTION AT SEALED JOINT

Showing Existing Joint to be Removed and Replaced with Preformed Joint

NOTE:
Joints with existing seats do not require a saw cut.

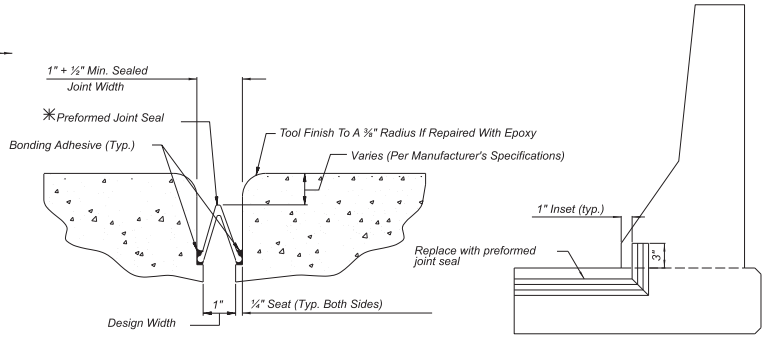


TYPICAL SECTION AT EXISTING JOINT



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SEALED JOINT

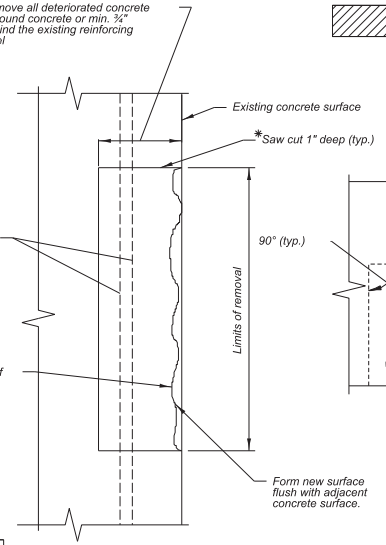
Showing Sealed Joint After Sawcut and Joint Repair

ELEVATION AT END OF SPAN

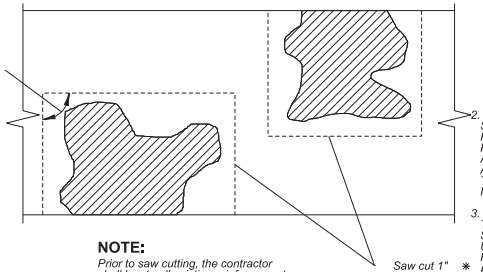
✳NOTES:

For Jersey Shape Barriers, The minimum required Vertical Joint Seal Dimension Within The Barrier is 3".
For Post and Beam Barriers, The minimum required Vertical Joint Seal Dimension Within The Barrier is 6".

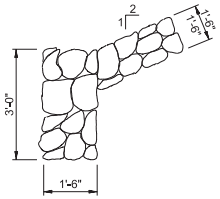
~ Denotes areas of existing spalled concrete



✳ **NOTE:**
Saw cut existing concrete 1" deep so as to obtain a rectangular area. All existing reinforcement shall be carefully preserved and blast cleaned.



NOTE:
Prior to saw cutting, the contractor shall locate all existing reinforcement in the repair area. All existing reinforcement shall be carefully preserved and blast cleaned. Any damage to the existing reinforcement shall be repaired by the Contractor to the satisfaction of the Engineer at no cost to the State.



RIPRAP TOE DETAILS

NOTES ON ASSOCIATED ITEMS OF WORK:

907-808-A002 JOINT REPAIR

Description: *Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Shall Be Included Under This Item Of Work. Removal of joint materials and any trash and debris (including but not limited to compacted dirt, vegetation and trash) Located at any depth within the joint shall be included under this item of work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.*

Basis Of Payment: *The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.*

907-823-A001 PREFORMED JOINT SEAL, TYPE I

Description: *Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal*

Basis Of Payment: *The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.*

907-823-B001 SAW CUT, TYPE I

Description: *The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected*

Basis Of Payment: *The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.*

✳NOTES:

1. *The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:*

   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. *For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.*
3. *Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". Type III shall be used for joint openings greater than 2 ½" with the Maximum joint opening being 3 ½". In Cases Where Design Widths Are Greater Than 4", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.* ✳

GENERAL NOTES:

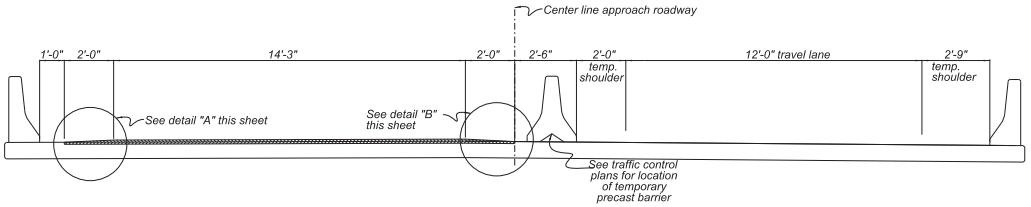
1. *Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.*
2. *No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.*
3. *Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.*

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

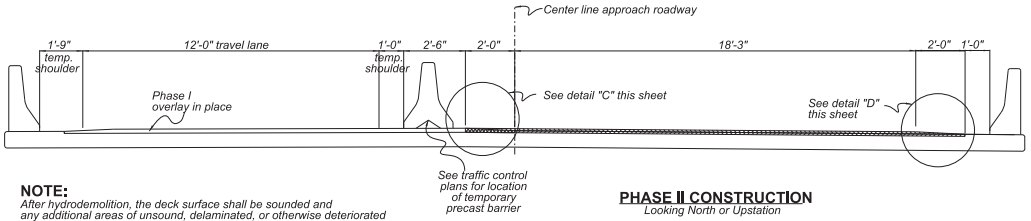
Either Epoxy Mortar or Polymer Concrete may be used. Guidelines for selection of materials can be found in Section 808 of the Specifications.

APPROACH ROADWAY NOTES:

Existing approach roadway to remain in place. Any damage that occurs to the existing approach roadway or existing endwall shall be repaired by the Contractor to the satisfaction of the Engineer at no additional cost to the state.



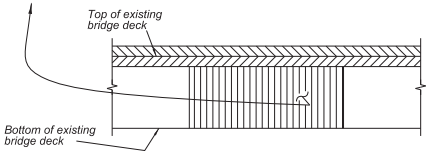
PHASE I CONSTRUCTION
Looking North or Upstation



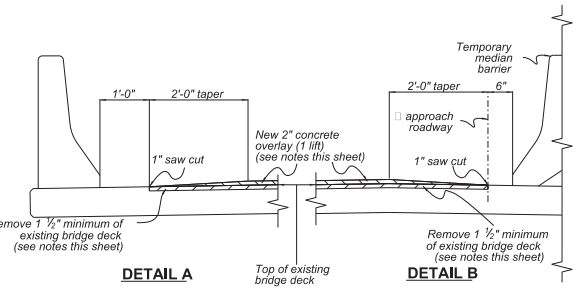
PHASE II CONSTRUCTION
Looking North or Upstation

NOTE:
After hydrodemolition, the deck surface shall be sounded and any additional areas of unsound, delaminated, or otherwise deteriorated concrete shall be removed at the direction of the Engineer by hydrodemolition under pay item 907-202-B001 or with 30 lb hammers under pay item 907-824-PP003: Bridge Repair, Removal of Bridge Deck. All concrete placed shall be paid for under pay item 907-804-0001.

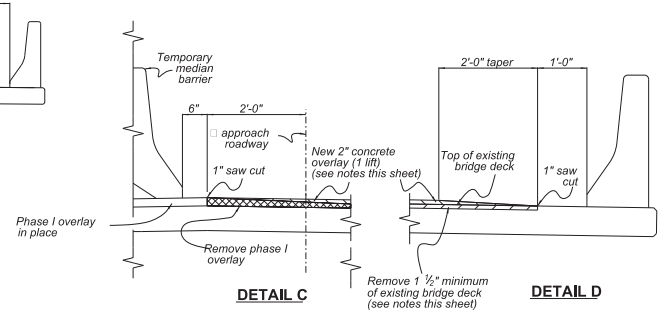
***During full or partial depth removal, the Contractor shall ensure that only bridge deck concrete is removed. No damage shall be sustained by the existing beams, diaphragms, or any other part of the structure beyond the depth of the bridge deck. Any damage that occurs to the existing structure or reinforcement as a result of full or partial detph removal of the bridge deck shall be repaired by the Contractor to the satisfaction of the Engineer at no additional cost to the State.*



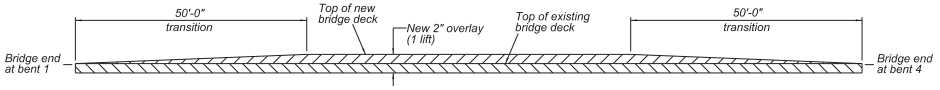
DETAIL OF FULL DEPTH DECK REPAIR
Deck reinforcement not shown for clarity (Not to scale)



DETAIL A **DETAIL B**



DETAIL C **DETAIL D**



LONGITUDINAL SECTION OF BRIDGE DECK OVERLAY
(Not to scale)

SPECIAL PROVISIONS REQUIRED:
907-202: Removal of Bridge Deck, Hydrodemolition
907-804: Bridge Deck Overlay

1" SAWCUT & REINFORCEMENT NOTES:
1. *All 1" sawcuts shall be considered an absorbed item of work. The Contractor shall verify depth of reinforcing steel before making any sawcuts. The depth of the sawcut shall be no more than the depth of the reinforcing steel.*
2. *All existing reinforcement shall remain in place. Any damage to reinforcing steel shall be repaired to the satisfaction of the Engineer at no cost to the State.*

HYDRODEMOLITION AND CONCRETE OVERLAY NOTES:
1. *Remove a minimum of 1½" of existing bridge deck as per Special Provision 907-202.*
2. *Areas of unsound concrete shall be removed.*
3. *Bridge concrete for hydrodemolition repair and bridge deck repair shall be bridge deck overlay concrete meeting the requirements of Special Provision 907-804. The mix design shall be furnished by the Contractor for approval by the Materials Division.*
4. *All existing concrete surfaces that will be in contact with the new concrete shall be painted with a cement slurry.*
5. *The new concrete overlay shall be placed in one (1) lift.*
6. *The new concrete overlay shall have a minimum thickness of 2".*
7. *The new concrete overlay shall be tine finished.*

TRAFFIC CONTROL PLAN - PHASE 1
AT BR NO. 187.3B

SHEET NO.	SHEET ID
	TCP1

FMS CON: 108150/304000
PROJECT NO.: NHPP-0008-01(085)
COUNTY: YAZOO

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

MISSISSIPPI DEPARTMENT OF TRANSPORTATION
MDOT

NOTE: FOR LANE CLOSURE SIGN SPACINGS AND LOCATIONS, SEE STANDARD DRAWINGS TCP-4 AND TCP-5.

PLAN SHEET

3/5/2026 8:24:45 AM TC-Ph 1.dgn

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

MDOT

DESIGNED BY:
DETAILED BY:
CHECKED BY:
DATE:

FMS CON: 108150/304000
PROJECT NO.: NHPP-0008-02(085)

COUNTY: YAZOO

TRAFFIC CONTROL PLAN - PHASE 2
ST. RTE. NO.: NHPP

SHEET ID
TC-2

SHEET NO.

NOTE: FOR LANE CLOSURE SIGN SPACINGS AND LOCATIONS, SEE STANDARD DRAWINGS TCP-4 AND TCP-5.

3/5/2026 8:24:51 AM TC-PH 2.dgn

PLAN SHEET

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SECTION 904 - NOTICE TO BIDDERS NO. 7731 **CODE: (SP)**

DATE: 3/12/2026

SUBJECT: Additional Construction Requirements – USFWS Commitments

PROJECT: NHPP-0008-04(085) / 108150304 – Yazoo County

Bidders are hereby notified of the following MDOT commitments to the U.S. Fish and Wildlife Service.

1. Construction activities to the existing bridges shall not be allowed during the bat pup (May 1 – July 31) and torpor (December 15 – February 15) seasons due to the potential presence of the federally endangered northern long-eared bat and the proposed federally endangered tricolored bat per USFWS.

2. Clearing operations shall not be allowed during the bat pup (May 1 – July 31) and torpor (December 15 – February 15) seasons due to the potential presence of the federally endangered northern long-eared bat and the proposed federally endangered tricolored bat per USFWS.

"General Decision Number: MS20260123 01/02/2026

Superseded General Decision Number: MS20250123

State: Mississippi

Construction Type: Highway

County: Yazoo County in Mississippi.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number | Publication Date
0 | 01/02/2026

SUMS2010-046 08/04/2014

	Rates	Fringes
CARPENTER (Form Work Only)	$ 12.26	0.12
CARPENTER, Excludes Form Work	$ 14.21	0.00
CEMENT MASON/CONCRETE FINISHER	$ 13.23	0.00
ELECTRICIAN	$ 22.64	7.73
HIGHWAY/PARKING LOT STRIPING: Truck Driver (Line Striping Truck)	$ 12.63	0.00
INSTALLER - GUARDRAIL	$ 11.42	0.00
INSTALLER - SIGN	$ 11.56	0.00
IRONWORKER, REINFORCING	$ 16.43	0.00
LABORER: Common or General, Including Asphalt Raking, Shoveling, Spreading and Concrete Work	$ 10.92	0.00
LABORER: Flagger	$ 9.83	0.00
LABORER: Grade Checker	$ 10.46	0.00
LABORER: Landscape	$ 9.82	0.00
LABORER: Mason Tender - Cement/Concrete	$ 11.69	0.00
LABORER: Pipelayer	$ 13.13	0.00
LABORER: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper	$ 10.53	0.00
OPERATOR: Asphalt Spreader	$ 16.13	0.00
OPERATOR: Backhoe/Excavator/Trackhoe	$ 13.28	0.00
OPERATOR: Broom/Sweeper	$ 10.17	0.00

OPERATOR: Bulldozer.....$ 15.69 0.00

OPERATOR: Concrete Saw.....$ 13.60 0.00

OPERATOR: Crane.....$ 16.00 0.00

OPERATOR: Distributor.....$ 11.70 0.00

OPERATOR: Drill.....$ 19.22 0.00

OPERATOR: Grader/Blade.....$ 13.84 0.00

OPERATOR: Loader.....$ 11.73 0.00

OPERATOR: Mechanic.....$ 16.28 0.00

OPERATOR: Milling Machine.....$ 15.38 0.00

OPERATOR: Mixer.....$ 14.85 0.00

OPERATOR: Oiler.....$ 13.08 0.48

OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....$ 13.01 0.00

OPERATOR: Piledriver.....$ 15.13 0.00

OPERATOR: Roller (All Types)....$ 12.14 0.00

OPERATOR: Scraper.....$ 12.63 0.00

OPERATOR: Tractor.....$ 9.98 0.00

OPERATOR: Trencher.....$ 15.00 0.00

TRUCK DRIVER: Flatbed Truck.....$ 13.29 0.00

TRUCK DRIVER: Lowboy Truck.....$ 12.49 0.00

TRUCK DRIVER: Mechanic.....$ 12.35 0.00

TRUCK DRIVER: Off the Road Truck.....$ 12.31 0.00

TRUCK DRIVER: Water Truck.....$ 13.15 0.00

TRUCK DRIVER: Dump Truck (All Types).....$ 13.58 0.00

TRUCK DRIVER: Semi/Trailer Truck.....$ 17.34 0.00

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year.

Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

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

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification

and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

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

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

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

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

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

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

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

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

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END OF GENERAL DECISION
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SUPPLEMENT TO FORM FHWA-1273

DATE: 07/26/2022

SUBJECT: Federal Contract Provisions for Subcontracts

Federal 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 the subcontract. The federal contract provisions (FHWA-1273, SUPPLEMENT TO FORM FHWA-1273, NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246), DAVIS-BACON AND RELATED ACT PROVISIONS (WAGE RATES)) must be physically incorporated as part of the subcontract. A completed Mississippi Department of Transportation Form CAD-521 and Form CAD-725 must be attached to the CAD-720.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

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

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

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

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

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

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

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

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

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

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

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

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or 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 or other knowledgeable company official.

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

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

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

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

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

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

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

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

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

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

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

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

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

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

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

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

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

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

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

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

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

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

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

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

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

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. 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 part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

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

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

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

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

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

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

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

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

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

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

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

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

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

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

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

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to *DBAconformance@dol.gov*. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The 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.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* 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 may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, 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.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and 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.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section 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 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working 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 29 CFR part 3; and

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

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

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. 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. 23 CFR 230.111(e)(2). 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 journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

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

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

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

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, 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 that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

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

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;

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

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

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

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

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

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 Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

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

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

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

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

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

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

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

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

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

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. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

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

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

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

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

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

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

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant 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. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

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. 2 CFR 180.325.

* * * * *

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

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

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

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

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

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

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

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

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

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

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

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

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

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

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

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

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

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

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

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

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

(12/04/2018)

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-101-1 **CODE: (IS)**

DATE: 07/20/2023

SUBJECT: Definitions and Terms

Section 101, Definitions and Terms, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-101.01--Abbreviations. After the abbreviation API on page 1, add the following.

APL Approved Products List

Replace the abbreviation for AWPA on page 1 with the following.

AWPA American Wood Protection Association

907-101.02--Definitions. Delete the sentence after the list of holidays in Subsection 101.02 on page 6 under **holidays, legal**, and substitute the following.

When a legal holiday falls on a Saturday or Sunday, the succeeding Monday, or as proclaimed by the Governor, will be observed as a legal holiday.

Delete the definition for Notice to Proceed in Subsection 101.02 on page 8, and substitute the following.

Notice to Proceed - Written notice to the Contractor to proceed with the contract work.

Delete the definition for "Plans" in Subsection 101.02 on page 8, and substitute the following.

plans - The approved plans, profiles, typical cross-sections, working drawings and supplemental drawings, or exact reproduction thereof, that show the location, character, dimensions, and details of the work to be done. The plans may also include electronic files, referred to on the plans as Electronic Files Identified as Plans, which may include engineering models, spreadsheets, CADD files or other electronic files used to convey design intent. When the contract does not have an official set of plans, reference to the plans shall mean the contract documents.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-102-2 **CODE: (IS)**

DATE: 11/22/2017

SUBJECT: Bidding Requirements and Conditions

Section 102, Bidding Requirements and Conditions, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-102.01--Prequalification of Bidders. Delete the last sentence of the third paragraph of Subsection 102.01 on page 13, and substitute the following.

The Bidder's Certificate of Responsibility number must be on file with the Department's Contract Administration Division prior to request for permission to bid.

907-102.02--Contents of Proposal Forms. Delete the fourth paragraph in Subsection 102.02 on page 13, and substitute the following.

Prospective bidders must complete an online request for permission to be eligible to bid a project. Upon approval, the bidder will be authorized to submit a bid electronically using Bid Express at http://bidx.com.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-104-2 **CODE: (SP)**

DATE: 06/17/2025

SUBJECT: Minor Alteration to the Contract

Section 104, Scope of Work, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-104.02--Alterations of Plans or Character of Work.

907-104.02.3--Minor Alteration to the Contract. In the first paragraph of Subsection 104.02.3 on page 25, change $10,000.00 to $25,000.00.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-105-2 **CODE: (IS)**

DATE: 07/20/2023

SUBJECT: Control of Work

Section 105, Control of Work, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-105.01--Authority of the Engineer. Delete the first sentence of the second paragraph of Subsection 105.01 on page 31, and substitute the following.

The Engineer has the right to suspend the work wholly or in part and to withhold payments because of the Contractor's failure to correct conditions unsafe for workmen or the general public, for failure to carry out provisions of the Contract, or for failure to carry out orders.

907-105.02--Plans and Working Drawings. Delete the first paragraph of Subsection 105.02 on page 31, and substitute the following.

After the contract is executed by the Executive Director, the Contractor will receive, free of charge, two bound copies of the proposal and contract documents (one executed and one blank) two full scale copies of the plans, five half-scale copies of the Plans, and Electronic Files Identified as Plans. The Contractor shall have one copy of the proposal and contract documents and one half-scale copy of the plans available at all times during work activity on the project.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-106-4 **CODE: (IS)**

DATE: 12/16/2025

SUBJECT: Control of Materials

Section 106, Control of Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

After Subsection 106.13 on page 47, add the following:

907-106.14--Buy America Materials Sourcing Requirements for Federal-Aid Projects.

The "Infrastructure Investment and Jobs Act" (the "Act"), or Bipartisan Infrastructure Law (BIL), was enacted on November 15, 2021 (See Public Law No. 117-58, Sections 70901-70953). The Buy America provisions of the Act expand the previous Buy America requirements beyond what was currently required for steel and iron products.

Articles, materials, or supplies will only be classified under one of the following categories: iron or steel products, construction materials, manufactured products, or excluded materials (as further described in subsection 907-700.01.1). An article, material, or supply shall not be considered to fall under multiple categories. The applicable classification of the article, material, or supply being permanently incorporated into a construction project will be based on the status at the time the article, material, or supply is brought to the project work site.

Any iron or steel products, construction materials, and manufactured products that are permanently incorporated into a construction project, shall be domestically manufactured and compliant with current requirements of the Act, including 2 CFR 184, 2 CFR 200.322, 0MB 24-02 Memo and related requirements therein, and with the current requirements within 23 CFR 635.410.

It is the prime Contractor's responsibility to ensure all submittals and/or certifications required by the above listed Buy America provisions are submitted to the Project Engineer prior to the article, material, or supply being incorporated into the work.

Buy America provisions do not apply to temporarily used articles, materials, or supplies that: (1) are specified to be removed at the end of the project per the contract provisions, or (2) are specified to remain in place per the contract provisions and are also documented by the Department in the contract provisions to be removed in a subsequent imminent, near-term phased project.

The following categories, as described above, require Domestic Materials Self-Certification Form (as described within Subsection 907-700.01.2) on construction projects:

Iron or Steel Products
Construction Materials
Manufactured Products.

Buy America provisions do not apply to excluded materials.

A list of items that must comply with the above listed Buy America requirements and require Buy America Certificate of Conformance may be viewed at www.goMDOT.com under Business Center ➔ Engineering Standards/Guides/Manuals ➔ Construction Materials.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-108-4 **CODE: (SP)**

DATE: 10/07/2020

SUBJECT: Subletting of Contract

Section 108, Prosecution and Progress, of the 2017 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. Delete the third sentence of the tenth paragraph of Subsection 108.01.1 on the bottom of page 72.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-108-6 **CODE: (SP)**

DATE: 03/11/2025

SUBJECT: Default and Termination of Contract

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

907-108.08--Default and Termination of Contract. At the end of the Subsection 108.08 on page 85, add the following.

907-108.08.1--Debarment of Contractor. If the Contractor is declared to be in default under this Subsection and the Contract terminated for the reason(s) indicated in Subsections 108.08 (d), (f), or (g) above, the Commission may, in its discretion and in addition to default and termination, declare the Contractor to be debarred from bidding on any other projects for a period of one (1) year from the date of the termination letter. If the debarred Contractor has multiple on-going Contracts with the Commission and receives a one (1) year debarment, the on-going Contract(s) may continue; however, the Contractor will not be allowed to bid another project until one (1) year has passed from date of the termination letter.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-109-5 **CODE: (IS)**

DATE: 11/14/2023

SUBJECT: Measurement and Payment

Section 109, Measurement and Payment, of the 2017 Edition of the Mississippi StandardSpecifications for Road and Bridge Construction is hereby amended as follows.

907-109.01--Measurement of Quantities. Delete the sixth full paragraph of Subsection 109.01on page 88, and substitute the following.

If appropriate based on the specific circumstances of the project, the Contractor may request that material specified to be measured by the cubic yard or ton be converted to the other measure. The Contractor must submit this request to the Engineer. The Engineer will provide an approval or denial in writing. The decision is in the sole discretion of the Engineer. If approved, factors for this conversion will be determined by the District Materials Engineer and agreed to by the Contractor. The conversion of the materials along with the conversion factor will be incorporated into the Contract by supplemental agreement. The supplemental agreement must be executed before such method of measurement is used.

907-109.04--Extra Work.

907-109.04.1--Supplemental Agreement. Delete the second paragraph of Subsection 109.04.1 on page 90.

907-109.04.2--Force Account Agreement. Delete the last sentence of subparagraph (c) in Subsection 109.04.2 on page 91, and substitute the following.

An amount will be added equal to fifteen percent (15%) of the sum thereof, excluding sales tax.

Delete subparagraph (d) in Subsection 109.04.2 on pages 91 & 92, and substitute the following.

(d) **Equipment.** Equipment used for force account work shall be of sufficient size and type necessary to perform the required work in an economic and expeditious manner. The Contractor must provide the manufacturer, make, model, year, type of fuel and other necessary information to determine proper hourly payment rates. Subject to advance approval of the Engineer, actual transportation cost for a distance of not more than 200 miles will be reimbursed for equipment not already on the project.

For equipment authorized by the Engineer for use on the force account work, the Engineer will use the equipment rental rates from the "*Rental Rate Blue Book*" as published on the Equipment Watch website www.equipmentwatch.com for the time period the force account work is authorized to determine payment to the Contractor. The maximum allowable rates

are determined as follows:

1. The hourly equipment rate will equal the FHWA total hourly rate. This rate takes into account adjustment factors for age and region.
2. The hourly estimated operating costs have been included in the FHWA total hourly rate.
3. The idle and standby rates shall be as listed in the "*Rental Rate Blue Book*" as reported by *Equipment Watch*.
4. These rates include the basic machine plus any necessary attachments.

Standby rates shall apply when equipment is not in operation and is approved by the Engineer to standby for later use to complete the work. Idle rates shall apply to equipment located on the project and the engine is burning fuel but no ground engaging or other components are actively engaged in meaningful work. In general, idle or standby rates shall apply when equipment is not in use, but will be needed again to complete the work and the cost of moving the equipment will exceed the accumulated standby cost. If the idle standby cost should exceed the equipment moving cost to or from the work site, the Contractor will be entitled to the moving cost only. Idle or standby rates will be used under the following conditions:

1. The equipment is totally dedicated to the force account work and not used intermittently on other work.
2. Idle or standby cost will be considered only after equipment has been operated on force account work.
3. The sum of idle or standby time and operating time shall not exceed eight (8) hours per day or 40 hours in a week.
4. Idle or standby payment will not apply to days not normally considered to be work days such as holidays, weekends, or days of inclement weather when no other work is taking place.

The Department will not pay for idle or standby time when equipment is inoperable, for time spent repairing equipment, or for the time elapsed after the Engineer has advised the Contractor that the equipment is no longer needed. The Department will determine if it will be more cost effective to pay standby time on approved equipment on site or for multiple mobilizations.

If equipment is needed, which is not included in the *Rental Rate Blue Book* as reported by *Equipment Watch*, the Department and Contractor will agree upon reasonable rental rates in writing before the equipment is used.

All equipment shall be subject to approval from day to day in accordance with the requirements of Subsection 108.05.

907-109.06--Partial Payment.

907-109.06.2--Advancement on Materials.
Delete the next to last paragraph of Subsection 109.06.2 on page 95, and substitute the following.

Materials for which an advanced payment has been allowed must be paid for by the Contractor within 30 days of the estimate on which the advanced payment was first allowed and proof of said payment must be verified by the supplier. If proof of payment is not furnished within the allowable 30 days, the advanced payment will be deducted on subsequent current estimates until such time that proof of payment is furnished.

907-109.07--Changes in Material Costs. After the fifth paragraph of Subsection 109.07 on page 96, change the web address to the following.

https://mdot.ms.gov/portal/current_letting

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-202-8 **CODE: (SP)**

DATE: **08/29/2025**

SUBJECT: **Removal of Bridge Deck**

Section 202, Removal of Structures and Obstructions, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as amended by this special provision is applicable to hydrodemolition of bridge decks only.

907-202.01--Description. This work shall consist of the removal of bridge deck concrete using hydrodemolition equipment as preparation for bridge deck repairs or overlay. Rotomilling of the existing concrete deck prior to hydrodemolition will not be allowed. All work shall be performed in accordance with the details shown on the plans or as directed by the Engineer.

907-202.02--Materials and Equipment. The hydrodemolition equipment shall be a self-propelled machine that utilizes a high pressure water jet 15-degree fan stream capable of removing concrete to the depths shown on the plans or as directed by the Engineer and be capable of removing rust and concrete particles from reinforcing steel. Hand-held wands or pneumatic hammers, 30-pound class maximum, shall be used to remove unsound concrete in areas that are inaccessible or inconvenient to the self-propelled machine, such as areas under reinforcing steel or around expansion joints. Pneumatic hammers and chipping tools exceeding a 15-pound class shall not be operated at an angle exceeding 45° relative to the surface of the bridge deck. Such tools may be started in the vertical position but must be immediately tilted to a 45° operation angle.

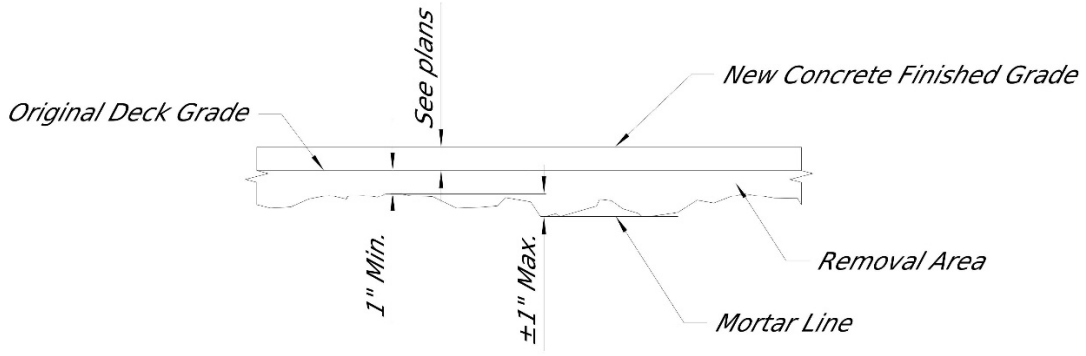
907-202.03--Construction Requirements. Prior to the commencement of the removal operation, the hydrodemolition equipment shall be calibrated on an area of sound concrete approximately 2 feet x 5 feet as directed by the Engineer. The cost of the calibration procedure shall be included in the unit price bid for hydrodemolition. The Engineer shall verify the following settings:

1. Water pressure (minimum 13,000 psi)
2. Machine staging control (step)
3. Nozzle size
4. Nozzle speed (travel)

During the calibration, any or all of the above settings may be adjusted in order to achieve removal in accordance with the requirements of the plans. When the designated depth of removal is attained, the settings shall be recorded and maintained throughout the removal -operation unless otherwise directed by the Engineer. The depth of removal shall be verified periodically and, if necessary, the equipment re-calibrated to ensure the plan depth of removal is obtained.

The concrete bridge deck shall be removed as detailed in the plans and Figure 1 below or directed by the Engineer. After the hydrodemolition is completed, the deck shall be inspected (by sounding) to ensure that all partial depth deteriorated concrete has been removed. Should deteriorated concrete be found, the Contractor shall remove the areas of deteriorated concrete by

additional passes of the hydrodemolition equipment or jackhammers. The hydrodemolition should produce a reasonably uniform rough surface suitable for bonding a concrete overlay.



DETAIL SHOWING DEPTH OF REMOVAL

Figure 1

No removal of concrete by conventional (mechanical impact) methods will be allowed within a bridge unit (expansion joint to expansion joint) following concrete placement within the same unit until 48 hours of curing has elapsed, unless otherwise approved by the Engineer.

The Contractor shall provide shielding, as necessary, to ensure containment of all dislodged concrete within the removal area in order to protect the traveling public from flying debris both on and under the work site.

Waste water from the hydrodemolition process shall be controlled and filtered to produce a visibly clear water prior to releasing it to the surrounding environment. Sediment basins at the end of or outside of the structure shall be used if further filtration is required to produce visibly clear water. Bridge deck drains shall be plugged during the hydrodemolition process. The release of wastewater and solids generated by full depth hydrodemolition shall be minimized.

Cleaning of the bridge deck shall be performed with a vacuum system capable of removing wet debris and water. The deck shall then be blown dry with air to remove excess water and residual debris. Cleaning shall be done before debris and water are allowed to dry on the deck surface. All exposed reinforcing steel which is left unsupported by the hydrodemolition process shall be adequately supported and protected from bending by vacuum trucks or any other equipment. All reinforcing steel damaged or dislodged by these operations shall be replaced with bars of the same size and type in accordance with the plans or approved by the Engineer, at no additional costs to

the State. Replacement shall include the removal of any additional concrete required to position or splice the new reinforcing steel.

When full depth repair is specified on plans, only those areas marked in the field by the Engineer as full depth repair will be paid for as full depth repair. Other areas where hydrodemolition equipment blows through the deck shall be the responsibility of the Contractor and will not be paid for as full depth repair.

907-202.04--Method of Measurement. Removal of Bridge Deck, Hydrodemolition shall be measured by the square yard of the total deck area regardless of depth. Measurements shall be made to the nearest 0.1 square yard.

907-202.05--Basis of Payment. The accepted quantity of Removal of Bridge Deck, Hydrodemolition will be paid for at the contract unit price per square yard, which price will be full compensation for all materials, equipment and labor necessary to remove and dispose of all concrete and other debris to the depth shown on the plans or as directed by the Engineer. This item shall also include vacuuming, shielding, containment and filtration of waste water, additional jackhammering and all other aspects of work necessary to remove bridge deck concrete by hydrodemolition.

Payment will be made under:

907-202-B: Removal of Bridge Deck, Hydrodemolition - per square yard

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-401-4 **CODE: (IS)**

DATE: 03/02/2026

SUBJECT: Asphalt Pavement - General

Section 401, Asphalt Pavement - General, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows..

907-401.02--Materials.

907-401.02.6--Standards of Acceptance.

907-401.02.6.4—Acceptance Procedure for Density.

Delete the paragraph and Lot Determination table of Subsection 401.02.6.4 and substitute the following:

Each completed lift will be accepted with respect to compaction on a lot to lot basis from density tests performed by the Department. For normal production days, every 350 tons will be considered a lot. When cores are being used for the compaction evaluation, randomly obtain one core from each lot. When the nuclear density gauge is being used for compaction evaluation, obtain two random readings from each lot and average the results. See Chapter 7 of the latest edition of MDOT's Field Manual for Asphalt Mixtures for more details. Additional tests may be required by the Engineer to determine acceptance of work appearing deficient. The Contractor shall furnish and maintain traffic control for all compaction evaluations, including coring, required in satisfying specified density requirements.

907-401.02.6.4.1 –Roadway Density.

Delete the last sentence in section 1 of Subsection 401.02.6.4.1 on page 250 and substitute the following:

For all other leveling, no density shall be required but the pavement shall be rolled to refusal densification as defined in Subsection 907-401.02.6.4.3.

907-401.02.6.4.3—Roll to Refusal Densification.

Roll to refusal densification is defined as the number of roller passes to maximize the in-place unit weight of the mixture. A density gauge shall be used to determine the number of passes to achieve the maximum in-place unit weight.

907-401.02.6.4.4—Irregular Areas.

Irregular areas are defined as a mat where an established rolling pattern cannot be obtained. Irregular areas include areas with a width of less than 8 feet or shorter than 300 feet in length, pre-leveling, wedging [less than fifty percent (50%) of width greater than minimum lift thickness], ramp pads, median crossovers, turnouts, and other areas where an established rolling pattern cannot be obtained.

907-401.02.6.8--Acceptance Procedure for Pavement Smoothness Using Mean Roughness Index (MRI). Delete the third sentence of the second paragraph of Subsection 401.02.6.8 on page 253, and substitute the following.

The surface shall be tested and corrected to a smoothness index as described herein except those locations or specific projects that are excluded from smoothness testing with an IPS.

Delete the third, fourth and fifth paragraphs of Subsection 401.02.6.8 on pages 253 & 254, and substitute the following.

The smoothness of the surface lift will be determined for traffic lanes, auxiliary lanes, climbing lane and two-way turn lanes. Areas excluded from a smoothness test with the IPS are acceleration and deceleration lanes, tapered sections, transition sections for width, shoulders, crossovers, ramps, side street returns, etc. The roadway pavement on bridge replacement projects having 1,000 feet or less of pavement on each side of the structure will be excluded from a smoothness test. Smoothness testing shall exclude 264 feet from each transverse joint that separates the pavement from a bridge deck, bridge approach slab or existing pavement not constructed under the contract. This can apply to any other exceptions including, but not limited to, railroad crossings and manholes. Segments containing a considerable number of encroachments such as intersections, manholes, curb and gutter sections, etc. may be excluded at the Engineer's discretion.

Once paving has concluded, one final smoothness measurement shall be performed for both pay adjustments and corrective action. Multiple smoothness measurements for pay adjustments and correction can still be performed at the Engineer's discretion. These measurements must be performed at the posted speed limit or 50 miles per hour (±5 miles per hour), whichever is lower. Measurements will be made in both wheel paths of exterior and interior lanes. The wheel paths shall be designated as being located three feet (3') and nine feet (9') from centerline or longitudinal joint, respectively. Testing will also be required on sections that have been surface corrected. No smoothness testing shall be performed when there is any residual moisture on the pavement surface. Any additional testing shall meet the requirements of Subsection 907-403.03.2.

The surface lift will be accepted on a continuous interval basis for pavement smoothness. Continuous reporting is based upon all MRI values for a specified running interval. These values are averaged and presented at the midpoint of the specified running interval.

Delete the last sentence of the last paragraph of Subsection 401.02.6.8 on page 254, and substitute the following.

All tests and corrections shall be in accordance with AASHTO R 54, Accepting Pavement Ride Quality When Measured Using Inertial Profiling Systems.

Delete Subsection 401.02.6.9 on pages 254 & 255, and substitute the following.

907-401.02.6.9--Inertial Profiling System.

907-401.02.6.9.1--General. The Inertial Profiling System (IPS), furnished and operated by the Contractor under the supervision of the Engineer or the Engineer's representative, shall be a dual-line laser on a high speed vehicle meeting the requirements of AASHTO M 328, Standard Specification for Inertial Profiler. Additionally, each IPS should be equipped with a GPS to ensure distance measurement accuracy. The profiler system and operator shall be certified at an MDOT approved regional calibration facility in accordance with AASHTO R 56, Standard Practice for Certification of Inertial Profiler Systems and AASHTO R 57, Operating Inertial Profiler Systems.

907-401.02.6.9.2--Computer Requirements. The computer measurement program must be menu driven, Windows compatible, and able to produce unfiltered profiler runs in the Pavement Profile (*.ppf) file format. The computer shall have the ability to display and print data on site for verification and shall have the ability to save and transfer data via Universal Serial Bus (USB) flash drive, which shall be provided by the Contractor.

All runs must be stored in a directory named in the following format for acceptance by the Project Engineer:

Project_County_Route

All profiler runs must be named in the following format for acceptance by the Project Engineer:

Direction_Lane_BeginStation_EndStation

In addition to manufacturers' software; the latest version of FHWA's ProVAL software shall be installed on the IPS computer.

907-401.03--Construction Requirements.

907-401.03.1--Specific Requirements.

907-401.03.1.2--Tack Coat. Delete the fourth sentence of Subsection 401.03.1.2 and substitute the following:

A hand wand will only be allowed for applying tack coat on irregular areas as defined in Subsection 907-401.02.6.4.4 if the distributor bar is not a feasible option.

907-401.03.1.4--Density. Delete the first sentence of the first paragraph of Subsection 401.03.1.4 and substitute the following.

The lot density for all dense graded pavement lifts, except for irregular areas as defined in Subsection 907-401.02.6.4.4, shall not be less than the specified percent (92% or 93%) of the maximum density based upon AASHTO T 209 for the day's production..

Delete the third paragraph of Subsection 401.03.1.4 and substitute the following.

Irregular areas as defined in Subsection 907-401.02.6.4.4 shall be compacted to roll to refusal densification as defined in Subsection 907-401.02.6.4.3.

907-401.03.9--Material Transfer Equipment. In the third sentence of Subsection 401.03.9 on page 261, change "include:" to "include".

907-401.03.14--Shoulder Wedge. In the second sentence of the first paragraph of Subsection 401.03.14 on page 263, change "cross roads" to "crossroads".

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-403-4 **CODE: (SP)**

DATE: **03/19/2025**

SUBJECT: **Asphalt Pavements**

Section 403, Asphalt Pavements, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

907-403.03--Construction Requirements.

907-403.03.2--Smoothness Tolerances. In the tenth paragraph of Subsection 403.03.2 on page 283, change "Sections(s)" to "Segment(s)".

907-403.03.2.1--Smoothness Tolerances for Mean Roughness Index (MRI). After the second paragraph of Subsection 403.03.2.1 on page 283, add the following.

For all projects, smoothness data shall be reported by two MRI methods:

1. A continuous long interval MRI report
2. A continuous 25-foot short interval MRI report

At the bottom of page 283 and top of 284 in Subsection 403.03.2.1, delete the paragraphs for Category, A, Category B, and Category C, and substitute the following.

Category A projects shall have a long interval surface MRI of not more than 60 inches per mile.

Category B projects shall have a long interval surface MRI of not more than 70 inches per mile.

Category C projects shall have the existing surface profiled at no additional cost to the State. These projects shall be measured by a long fixed interval (528-foot) surface MRI and meet the following requirements:

A 50% improvement in MRI from the existing surface
or
80 inches per mile (whichever value is higher)

Delete the first, second, and third full paragraphs on page 284, and substitute the following.

For all projects, areas of the surface lift with localized roughness greater than 160 inches per mile as determined by the continuous short interval (25') report will be identified for correction by the Contractor.

When a project has multiple lifts, the intermediate lift shall meet the short interval requirement of 200 inches per mile. Corrective action must be taken on those segments that do not meet this requirement. No unit price adjustment will be applied on the underlying lift.

Delete the table at the bottom of page 284, and substitute the following.

Mean Roughness Index (inches / mile)	Contract Price Adjustment Percent of Asphalt Unit Bid Price
Above 20.0 Over	REMOVE AND REPLACE *
15.1 to 20.0 Over	80
10.1 to 15.0 Over	85
5.1 to 10.0 Over	90
0.1 to 5.0 Over	95
Required Surface MRI	100

* In lieu of removal and replacement, segments may be brought into compliance through corrective action at the discretion of the Project Engineer.

Delete the table and footnote at the top of page 285, and substitute the following.

Mean Roughness Index (inches/mile) Percent Improvement	Contract Price Adjustment Percent of Asphalt Unit Bid Price
Below 30.1 Percent	80 **
30.1 to 35.0 Percent	80
35.1 to 40.0 Percent	85
40.1 to 45.0 Percent	90
45.1 to 50.0 Percent	95
Above 50%	100

** Segments that show less than 30 percent improvement as well as a final surface MRI greater than 100 inches/mile will be subject to removal.

Before the last paragraph on Subsection 403.03.2.1 on page 285, add the following.

Corrective action for all categories must be taken on those segments that exceed the localized roughness or the 'Remove and Replace' threshold. All locations must be located and marked by the Contractor and approved by the Project Engineer before corrective action shall take place. The minimum remove and replace length will be 528 feet (0.1 mile). Additional smoothness testing shall be required on segments following corrective action and/or replacement and will be required to meet *at least* the maximum surface MRI short of 'Remove and Replace' tolerance.

907-403.05--Basis of Payment.

907-403.05.2--Pay Items. Add the "907" prefix to the list of pay items on page 291.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-405-1 **CODE: (SP)**

DATE: 09/21/2021

SUBJECT: Stone Matrix Asphalt

Section 907-405, Stone Matrix Asphalt, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-405.02--Materials.

907-405.02.5--Contractor's Quality Management Program.

Delete Subsection 405.02.5.9 on page 300, and substitute the following.

907-405.02.5.9--Trial Section. At the beginning of placement for each lift, the Contractor shall construct a trial section of a maximum of 400 tons of mixture, for the purpose of establishing and evaluating consistent mixture properties and the compactability of the mixture. At the discretion of the Engineer, the requirement of a trial section may be waived if the Contractor has successfully produced and placed the asphalt mixture within the previous 365 calendar days. The Contractor shall determine the production point at which the mixture shall be sampled during trial section construction. This sample does not have to be selected by the formal random selection procedures used during actual production, but should be representative of the mixture produced.

Density tests shall be performed according to the procedures in Chapter 7 of MDOT's Field Manual for Asphalt Mixtures (First Production Day) with the exception that two (2) lots shall be tested and the core densities be averaged. The Contractor (QC) and the Department (QA) will conduct tests for mixture quality. A trial section is considered to be successful if the QC test results are within the Warning Limits (the testing indicates a pay factor of 1.0) and the QC tests compare to the QA tests within the allowable differences set forth in Subsection 401.02.6.2. If the criteria for a successful trial section are not achieved, additional trial sections of at least 200 tons but not more than 400 tons shall be constructed until the criteria are achieved, at which time full production can begin. In the event a successful trial section is not accomplished by the completion of the second trial section, the Contractor shall construct additional trial sections at an offsite location. The Engineer reserves the right to have any trial section removed and replaced at no additional cost to the State, if the pay factor for any characteristic for a trial section is less than 0.75.

For actual payment purposes, a pay factor of 1.00 will be used for all first and second trial sections allowed to remain in place. Any required offsite trial sections will be constructed at no additional cost to the State.

907-405.05--Basis of Payment. Add the "907" prefix to the pay item listed on page 305.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-407-1 **CODE: (SP)**

DATE: **01/16/2026**

SUBJECT: **Tack Coat**

Section 407, Tack Coat, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-407.03—Construction Requirements.

907-407.03.3—Application of Bituminous Material.

Delete the second sentence of the first paragraph of Subsection 407.03.3 and substitute the following.

A hand wand will only be allowed for applying tack coat on irregular areas as defined in Subsection 907-401.02.6.4.4.

907-407-05-- Basis of Payment.

Add the "907" prefix to the pay item listed on page 309.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-413-2 **CODE: (SP)**

DATE: 05/09/2023

SUBJECT: Cleaning and Sealing Joints and Cracks

Section 413, Cleaning and Sealing Joints and Cracks, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-413.03--Construction Requirements.

907-413.03.3--Sawing and Sealing Transverse Joints in Asphalt Pavement.

907-413.03.3.4--Sealing. Delete the last sentence of the last paragraph of Subsection 413.03.3.4 on page 333, and substitute the following.

Poured joint sealing material shall only be placed when the air temperature is within the limits specified by the manufacturer.

907-413.05--Basis of Payment. Delete the last pay item listed on page 336, and substitute the following.

907-413-E: Sawing and Sealing Transverse Joints in Asphalt Pavement - per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-420-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Undersealing

Section 907-420, Undersealing, is hereby added to and made a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-420 -- UNDERSEALING

907-420.01--Description. This work shall consist of raising, filling voids, undersealing, or densification of base soils under concrete pavement or other locations by furnishing, hauling and injecting polyurethane material through tubes placed at the horizontal and vertical locations determined by the Contractor and approved by the Project Engineer into the base soils, which most effectively and efficiently complete the desired repairs. All work will be monitored at the surface to insure that the pavement is raised to the desired elevations or soils are at the desired degree of densification. This work shall be performed using The URETEK Method™ and The URETEK Deep Injection Process™ by URETEK USA, Inc., Tomball, Texas, or an approved equal.

907-420.02--Material.

907-420.02.1--General. The material for raising and undersealing shall be a water blown, closed cell, high density polyurethane system with the following physical characteristics and properties:

Technical Property	Requirement	Test Method
Density, minimum	3.69 lbs / ft^3	ASTM D1622 (air rise)
Compressive strength, minimum	53 psi	ASTMD 1621
Density, maximum	4.2 lbs / ft^3	ASTM D1622 (air rise)
Volume Change, maximum shrinkage (10 years)	5.0 %	
Curing Rate	90 percent of compressive strength within 15 minutes after injection	

The material used for raising and/or undersealing shall be a high-density polyurethane material, such as URETEK 486 Star or equivalent, as approved by the Engineer. The material shall be a polyurethane-forming mixture, having a water insoluble diluent, that permits the formation of polyurethanes in excess water. The presence of these water insoluble diluents provides polyurethane foam with improved dimensional stability properties. This formula and these

characteristics must be certified by the manufacturer.

The material shall have a warranty against shrinkage and deterioration for a period of ten years. During the warranty period, the manufacturer shall replace by injection any failed material at the manufacturer's expense.

Acceptance of the polyurethane material will be based on certification and results from tests required by the Engineer.

The Contractor shall provide to the Engineer certification from the manufacturer stating that the material provided is in accordance with this special provision. The MSDS for all pertinent production material shall be included with the certification.

When requested by the Engineer, pumping units in service shall perform a product density test by injecting a sample of the unit's polyurethane material into a test cylinder of known volume. The sample's density shall be in accordance with this special provision.

When requested by the Engineer, the Contractor, in the presence of the Engineer, shall inject the ambient temperature (70º - 90º F) polyurethane material into a container holding 40 gallons of ambient temperature water at 70º F. The resulting product shall demonstrate consistent, closed cell polyurethane material.

All stored polyurethane material shall be sealed and protected from contamination of dust or any foreign material.

907-420.02.2--Contractor Pre-Qualification Requirements. The Contractor shall have a minimum of three years of experience in performing this type of work and a minimum of 20 projects on which the Contractor has successfully done this type of work. Prior to beginning work, the Contractor shall submit certification to the Engineer that the Contractor meets the minimum required experience. The certification shall include a listing of previous clients with contact names and phone numbers.

Prior to being approved for performing this type of work, the following documents shall be supplied by the Contractor to the Engineer and found to be acceptable:

(a) A report from an industrial hygienist who has conducted a personnel, production vehicle and typical jobsite safety review of the Contractor's implementation procedures involving the polyurethane material.
(b) A copy of the Contractor's Employee Safety Manual specific to polyurethane pavement raising and undersealing work.

907-420.02.3--Equipment Requirements. The Contractor shall provide at minimum, the following equipment:

(a) A truck-mounted pumping unit capable of injecting the high density polyurethane material beneath the pavement. The pumping unit shall be equipped with a dial gauge in increments of 0.10 pound and shall be capable of controlling the rate of flow of material

as well as the rate of rise of the pavement.

(b) Pressure and temperature control devices capable of maintaining proper temperature and proportionate mixing of the polyurethane component materials.

(c) Pneumatic or electric drills capable of efficiently drilling 9/16 to 3/4-inch diameter injection holes through the pavement without damaging the structural integrity of the existing pavement.

(d) Laser levels or dial indicator devices capable of monitoring and verifying that the pavement is raised to an even plane and to the required elevation.

(e) All necessary electric generators, compressors, heaters, hoses, containers, valves and gauges to efficiently conduct and control the work.

907-420.03--Construction Requirements. The Contractor shall provide a profile from laser level readings or string lines of each area that needs to be raised or undersealed. Each profile shall be accepted by the Engineer prior to performing the work at the profile location.

At locations where pavement is to be raised or undersealed, a series of 9/16-inch to 3/4-inch diameter holes shall be drilled through the pavement and underlying base at the appropriate locations and depths as determined by the Contractor. The pavement surrounding each hole shall not be damaged.

The polyurethane material shall be injected through the drilled holes until all known or encountered voids under the pavement are filled. The rate and amount of material injection shall be determined by the Contractor.

The pumping unit shall be calibrated daily or as directed by the Engineer. If calibration results show inconsistencies from calibration to calibration, the work shall be stopped until the cause for the inconsistencies are corrected to the satisfaction of the Engineer.

Injection nozzles shall prevent leakage during injection and shall be removed at completion of the injection or driven into the injection hole to a minimum of 1¼ inches below the surface. Any excessive material on the surface shall be removed from the area and the holes shall be sealed with polyurethane material or a non-expansive cementitious grout approved by the Engineer.

907-420.03.1--Raising or Undersealing Roadway Pavements. All drill tailings, excess polyurethane material and other debris shall be cleaned up at the end of each working day or before the lane is opened to traffic. When adjacent lanes are open to traffic, provisions shall be made to prevent material from encroaching onto the open lane or squirting onto passing vehicles. Polyurethane material shall not enter into gutters or closed drainage systems. Suitable means to restrict the infiltration of the residue into a closed drainage system shall be provided. Polyurethane material shall be removed from the pavement surface before any residue is blown by traffic action or wind. All removed material shall be disposed of in an environmentally acceptable manner in accordance with all federal, state and local regulations.

Corrections to the grade of adjacent slabs, if necessary, or as determined by the Engineer, shall be made in accordance with this special provision. All raised pavement shall match the existing grade of adjacent slabs to provide positive drainage. Final elevations of raised pavement areas shall be within 1/4 inch of the required elevations as determined by the profile or the Engineer.

The Contractor will be responsible for any pavement blowouts, excessive pavement lifting or pavement damage that may occur as a result of the Contractor's work. The Contractor shall repair any subject areas to the satisfaction of the Engineer at the Contractor's expense.

The roadway may be open to traffic when the polyurethane material has reached 90 percent of the material's designed compressive strength.

The Contractor shall transfer all warranties on the polyurethane material to the client upon acceptance of the work by the Engineer.

907-420.03.2--Undersealing Bases. For soil densification and compaction of unconsolidated base soils, a series of 9/16-inch to 1 3/8-inch diameter holes (as required for tube placement) shall be drilled at approximately 3 to 4-foot intervals through the pavement above the area requiring soil remediation. The exact location, spacing, hole size and depth shall be determined by the Contractor and approved by the Engineer.

The polyurethane material shall be injected through injection tubes inserted into the drilled holes to the proper depth or depths as determined by on-site soils analysis, or dynamic cone penetrometer testing. The rate and amount of material injected shall be determined by the Contractor.

Continuous laser level or dial indicator micrometer readings shall be in place and monitored by the Contractor during injection to determine sufficient material usage and soils densification as indicated by pavement movement of 1/16 of an inch.

907-420.04--Method of Measurement. Undersealing, complete and accepted, will be measured by the pound. The quantity will be based on the supplier's packaging information for the material delivered and incorporated into the project.

907-420.05--Basis of Payment. Undersealing concrete pavement, as measured above, will be paid for at the contract price per pound, which price shall include all mobilization, labor, equipment, materials, and incidentals necessary to complete the required work.

Payment will be made under:

907-420-A: Undersealing * - per pound

* Type of Undersealing may be specified

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-618-4

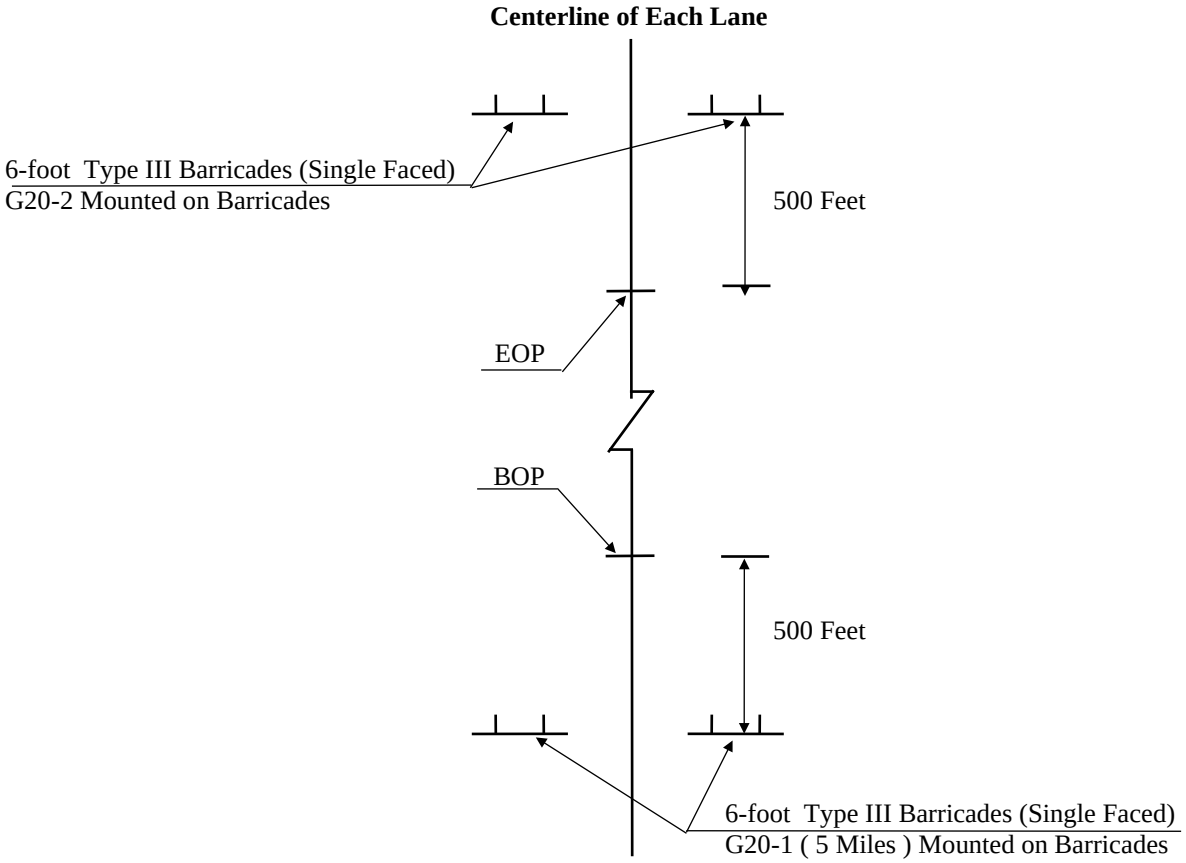
DATE: 3/12/2026

PROJECT: NHPP-0008-04(085) / 108150304 – Yazoo County

Delete the paragraph in Subsection 907-618.01.2 on page 1, and substitute the following.

For compliance with the traffic control plan, the Contractor will be required to install and maintain traffic control devices at various locations throughout the project. Payment for these devices will be included in the price bid for pay item no. 907-618-A: Maintenance of Traffic per lump sum.

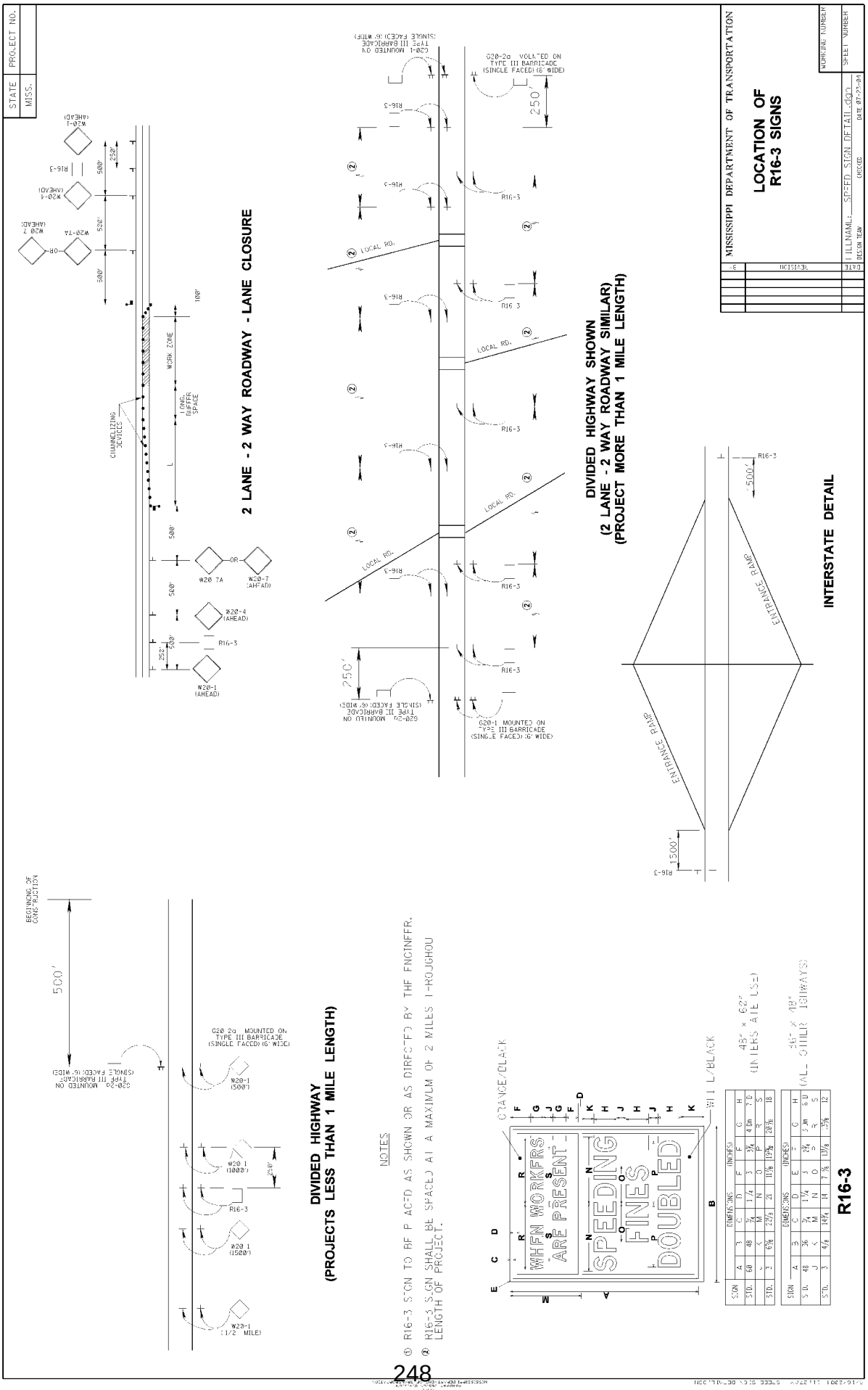
Additional traffic control devices will be required as follows.



ADDITIONAL TRAFFIC CONTROL SIGNS REQUIRED:

9 - W20-1 "AHEAD" signs required. One (1) sign is required at each local road or street entering the project.

All construction signs and barricades shown on this page shall be included in the bid price for pay item 907-618-A, Maintenance of Traffic. Fluorescent orange sheeting shall be used on all construction and traffic control signs.


STATE MISS.
PROJECT NO.
MISSISSIPPI DEPARTMENT OF TRANSPORTATION
LOCATION OF R16-3 SIGNS
WORKZONE NUMBER
SHEET NUMBER
DESIGN TEAM
CHECKED
DATE 07-29-04
I:\ILLNAME\...SPEED_SIGN_DETAIL.dgn
DATE
REVISION
2 LANE - 2 WAY ROADWAY - LANE CLOSURE
CHANNELIZING DEVICES
WORK ZONE
LONG BUFFER SPACE
W20 7A
OR
W20-7 (AHEAD)
W20-4 (AHEAD)
R16-3
W20-1 (AHEAD)
DIVIDED HIGHWAY SHOWN
(2 LANE - 2 WAY ROADWAY SIMILAR)
(PROJECT MORE THAN 1 MILE LENGTH)
LOCAL RD.
R16-3
250'
G20-2a MOUNTED ON TYPE III BARRICADE (SINGLE FACED) (6' WIDE)
G20-1 MOUNTED ON TYPE III BARRICADE (SINGLE FACED) (6' WIDE)
INTERSTATE DETAIL
ENTRANCE RAMP
EXIT RAMP
1500'
500'
BEGINNING OF CONSTRUCTION
5.00'
W20-1 (500')
W20-1 (1000')
W20-1 (1500')
W23-1 (1/2 MILE)
DIVIDED HIGHWAY
(PROJECTS LESS THAN 1 MILE LENGTH)
NOTES
① R16-3 SIGN TO BE PLACED AT A MAXIMUM OF 2 MILES FROM BEGINNING OF PROJECT.
② R16-3 SIGN SHALL BE SPACED AT A MAXIMUM OF 2 MILES THROUGHOUT LENGTH OF PROJECT.
ORANGE/BLACK
WHITE/BLACK
SPEEDING
FINES
DOUBLED
WHEN WORKERS ARE PRESENT
48" x 60"
(INTERSTATE USE)
36" x 48"
(ALL OTHER HIGHWAYS)
R16-3

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-618-4 **CODE: (SP)**

DATE: 02/01/2018

SUBJECT: Additional Signing Requirements

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

907-618.01.2--Traffic Control Plan. At the end of Subsection 618.01.2 on page 441, add the following:

For compliance with the traffic control plan, the Contractor will be required to install and maintain traffic control devices at various locations throughout the project. Payment for these devices 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. 907-618-12 **CODE: (SP)**

DATE: 05/03/2024

SUBJECT: Traffic Control Management

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

907-618.01--Description.

907-618.01.2--Traffic Control Management. Delete subparagraph (g) of Subsection 618.01.2 on page 441, and substitute the following.

g) Perform a minimum of once-a-week inspections from the Notice to Proceed until a Partial or Final Maintenance Release is obtained. Once work begins, daily daytime inspections and weekly nighttime inspections are required on projects with predominantly daytime work, and daily nighttime inspections and weekly daytime inspections are required on projects with predominantly nighttime work. Weekly inspections will be allowed for periods outside of active construction. When lane closures are present or any non-fixed signs or traffic handling devices such as cones or barrels are in place, inspections shall be performed daily whether work is being performed or not.

907-618.05--Basis of Payment. Delete pay item 618-A on page 449 and substitute the following.

907-618-A: Maintenance of Traffic - lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-619-5 **CODE: (IS)**

DATE: 01/17/2018

SUBJECT: Traffic Control for Construction Zones

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

907-619.02--Materials.

907-619.02.8--Traffic Signals and Flashers. Delete Subsection 619.02.8.1 on pages 452 thru 455, and substitute the following.

907-619.02.8.1-Portable Traffic Signals. Portable traffic signals shall be trailer or pedestal mounted units that provide for easy, legal transportation and quick setup and deployment. Each unit shall be self-contained. The types of portable traffic signals are as follows.

- Type 1 portable traffic signal shall include two signal heads per trailer with one signal head mounted on an overhead mast arm that can be extended over the travel lane, and the other signal head shall be mounted on the vertical upright of the trailer.

- Type 2 portable traffic signal shall include one signal head that is mounted on the vertical upright of the pedestal/cart or trailer. Pedestal/Cart mounted shall be designated as Type 2A and Trailer mounted shall be designated as Type 2B. Type 2 portable traffic signals shall be tested to MASH Standards or NCHRP Test Level 3 crash testing requirements by an accredited independent test facility, with supporting documentation available upon request.

- Type 3 portable traffic signal shall be the same as Type 1 mentioned above but with enhanced capabilities as mentioned in each applicable section below.

The portable traffic signals shall be MUTCD Compliant and utilize standard ITE signal heads, and adhere to the ITE Specifications and Standards for Vehicle Traffic Control Signal Heads, Light Emitting Diode (LED) Circular Signal Supplement. The units shall be battery powered with a solar charging system, and be equipped with an onboard battery charger capable of being used with a 120V AC power source. Portable traffic signals shall be able to communicate with other portable signals via 900 MHz or other accepted wireless communications. If wireless connectivity is not feasible, hardwired connectivity shall be an acceptable alternative, as approved by the Engineer. Portable Traffic Signals shall include all the major components listed below or be able to perform the functions of these components. The major components of the unit shall include, but are not limited to, the trailer or pedestal/cart, telescoping mast arm (on Type 1 and 3), signal head(s) and back plates, traffic signal controller with operating software, solar charging system with batteries, input and output devices, vehicle detection, flasher units, conflict monitor, relays,

communications system and other equipment required for the safe operation and installation of the unit.

907-619.02.8.1.1--Signal Heads. The signal heads and all applicable components of the portable traffic signal shall meet the physical display and operational requirements of conventional traffic signals as specific in the Manual on Uniform Traffic Control Devices (MUTCD). The signal heads shall be cast aluminum or polycarbonate and shall meet the requirements laid out in the Mississippi Standard Specification for traffic signal heads and associated MDOT material specifications for traffic signal heads. The signal heads shall accommodate standard 12-inch LED indications meeting the ITE Specification "Vehicle Traffic Control Signal Heads" and ITE Specifications and Standards for Vehicle Traffic Control Signal Heads, Light Emitting Diode (LED) Circular Signal Supplement.

For Type 1, Type 2 and Type 3 portable traffic signals, the signal heads shall have the ability to be rotated 180 degrees to face in the opposite direction and shall have the ability to rotate and lock in approximately 10 degree increments to position the signal head for the optimum visibility to motorists.

For Type 1 portable traffic signals, each unit shall contain two signal heads with one signal head mounted on an overhead mast arm that can be extended over the travel lane with a minimum clearance of 17 feet measured from the bottom of the signal head unit to the road surface. The lower signal head shall be mounted to the vertical upright of the trailer at a minimum height of eight feet (8') from the bottom of the signal head unit to the road surface.

For Type 2 portable traffic signals, the signal head shall be mounted to the vertical upright of the trailer at a minimum height of eight feet (8') from the bottom of the signal head unit to the road surface.

For Type 3 portable traffic signals, each unit shall be the same as Type 1 mentioned above but with enhanced capabilities as mentioned below.

907-619.02.8.1.2--Controller and Operating Requirements. The portable traffic signal (Types 1, 2, and 3) shall include a solid state Controller Unit (CU) that is in compliance with NEMA TS 5 Performance Standard. The CU shall have an easy to read front panel backlit display for viewing and programming the configuration settings and CU status. The CU shall be capable of operating the portable traffic signal system in a fixed time, traffic actuated or manual control mode. Multiple portable traffic signals shall have the capability to be interconnected to form a portable traffic signal system. Each portable traffic signal within a connected system shall have the capability to serve as either the master or remote signal. Each portable traffic signal shall include a Conflict Monitor Unit (CMU), or Malfunction Management Unit (MMU) to ensure phase conflicts do not exist during operation.

For Type 1 and Type 2 portable traffic signals, a minimum of five (5) automatic time-of-day timing plans within a 24-hour period should be available in fixed time mode. The CU should have the ability to control a minimum of four (4) traffic phases with programmable cycle time adjustments and user adjustable red, amber, minimum green and maximum green times. The CU shall have

the capability of programming green and red times from 1 to 999 seconds and yellow times up to 15 seconds in one-second increments. The CU shall also have the capability of facilitating standby modes of red, red flash and yellow flash.

For Type 3 portable traffic signals, a minimum of ten (10) automatic time-of-day timing plans within a 24-hour period should be available in fixed time mode. The CU should have the ability to control a minimum of 16 traffic phases with programmable cycle time adjustments and user adjustable red, amber, minimum green and maximum green times. The CU shall have the capability of programming green and red times from 1 to 999 seconds and yellow times up to 15 seconds in one-second increments. The CU shall also have the capability of facilitating standby modes of red, red flash and yellow flash.

The system shall also have the ability to operate in vehicle actuation mode when vehicle detection components are used. The operating system shall have the capability to allow the Portable Traffic Signal to be connected to and controlled by a standard NEMA controller.

The system shall have the capability to be controlled remotely using a hardwired or wireless remote. The wireless radio remote shall be capable of communicating at a clear line of site distance up to ¼ mile from the master.

The CU shall have the capability of interfacing with a Remote Monitoring System (RMS) capable of reporting signal location, battery voltage, and system faults. The RMS shall include a password-protected web site, viewable via an internet connection. In the event of a system fault, the RMS shall provide specific information concerning the cause of the system fault (example: "red lamp on signal number 1 out"). The RMS shall immediately contact previously designated individuals via SMS text messaging or email, upon a fault event.

The active timing program operating the PTS system shall be available and viewable through the RMS website at all times. The RMS shall maintain a history of the operating system in each signal including total operating hours, alerts, and the location of the PTS trailer.

907-619.02.8.1.3--Wireless Communications. The portable traffic signals shall communicate with other portable traffic signals within the signal system via license-free wireless 900 MHZ radio link communications as specified in Subsection 662.02.2 of the radio Interconnect System specification. The radio units shall maintain communications at a minimum distance of one (1) mile. The radio system shall conform to the applicable Federal Communications Commission requirements and all applicable state and local requirements.

The portable traffic signals shall be in direct communication at all times either by wireless or hardwire connection to provide for the required conflict monitoring / malfunction management system.

907-619.02.8.1.4--Power Requirements. Each Portable Traffic Signal shall be equipped with a power source consisting of a solar collection array, solar controller and/or charging unit and batteries sufficient to operate the signal system. The number and size of batteries shall be sufficient to operate the Type 1 and Type 3 signals for a minimum of 30 days and Type 2A signals for

minimum of five (5) days, and Type 2B signals for minimum of 15 days without additional charging or assist from the solar array. An on-board battery charger shall be compatible with both the solar array and with a 120V AC power source.

For Type 1 signals, the solar panel array shall provide for a minimum of 440 watts of solar collection capability.

For Type 2A signals, the solar panel array shall provide for a minimum of 90 watts of solar collection capability.

For Type 2B signals, the solar panel array shall provide for a minimum of 110 watts of solar collection capability.

For Type 3 signals, the solar panel array shall provide for a minimum of 480 watts of solar collection capability and shall include a tilt and rotate system to optimally position the panels.

All instrumentation for the electrical system and battery compartment shall be contained in a lockable weatherproof enclosure. Solar panels shall be secured to the mounting brackets for theft prevention.

907-619.02.8.1.5--Trailer and Lift System. The trailer or pedestal/cart and all mounted components shall conform to the wind loading requirements as follows: 100 mph minimum for Type 1 portable traffic signals, 55 mph minimum for Type 2A portable traffic signals, 75 mph minimum for Type 2B portable traffic signals, and 90 mph minimum for Type 3 portable traffic signals as described in the AASHTO *Standard Specifications for Highway Signs, Luminaries and Traffic Signals*, as specified in the plans including all interims and updates. At the request of the Engineer, proof of conformance to these wind load ratings shall be verified by a third-party. No additional loose ballast shall be used to meet these wind load requirements. The trailer shall be made of structural steel and shall include four (4) leveling/stabilizer jacks capable of lifting the trailer a minimum of six inches (6").

The trailer or pedestal shall be equipped with a mechanical, hydraulic or electric lift system sufficient for one person to be able to raise and lower the vertical upright and/or horizontal mast arm to and from the operating position.

For Type 1, 2B, and Type 3 signals, the trailer shall be equipped to provide legal and safe transport on the public highway system at speeds up to 55 mph.

All exterior metal surfaces, except signal heads and back plates, shall be powder-coat painted highway safety orange.

907-619.02.9--Impact Attenuators. Delete the sentence in the first paragraph of Subsection 619.02.9 on page 455, and substitute the following.

Impact attenuators must be listed on the Department's APL.

907-619.02.11--Snap-Back Delineators. Delete the sentence in the paragraph of Subsection 619.02.11 on page 456, and substitute the following.

Snap-back delineators shall be selected from the list of surface mounted flexible delineator posts as shown on the Department's APL.

907-619.02.14--Changeable Message Sign.

907-619.02.14.5--PCMS Controller and Storage Cabinets. Delete the fifth sentence in the first paragraph of Subsection 619.02.14.5 on pages 462 and 463, and substitute the following.

The controller cabinet shall be illuminated.

907-619.05--Basis of Payment. Add the following to the list of pay items ending on page 480.

907-619-E3: Changeable Message Sign ***** - per each

907-619-H2: Traffic Signal, Portable, Type ___ - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-626-12 **CODE: (IS)**

DATE: 06/17/2025

SUBJECT: Thermoplastic Traffic Markings

Section 626, Thermoplastic Traffic Markings, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete Section 626 on pages 492 thru 496, and substitute the following.

SECTION 626 - THERMOPLASTIC TRAFFIC MARKINGS

907-626.01--Description. This work consists of furnishing materials and placing thermoplastic pavement markings of the type specified in conformity with these specifications and the details shown on the plans or established. All hot-applied thermoplastic pavement markings shall be coated with a double-drop combination of optics.

This work may also consist of placing an audible bump or puck style marking system on the edge line that provides an audible and vibratory warning when driven over. The marking system shall be a road marking system of the dimensions indicated at regular and predetermined intervals.

This work may also consist of placing a profile or raised shape marking system on centerline or edge line that provides audible and vibratory warning when driven over. The marking system shall be a road marking system of the dimensions indicated and at regular and predetermined intervals. When placed on centerline, the markings system shall consist of an extruded black transverse thermoplastic bar of the dimensions indicated at regular and predetermined intervals.

This work may also consist of placing high contrast thermoplastic markings. High contrast thermoplastic markings shall consist of placing thermoplastic pavement markings over a black thermoplastic pavement marking to enhance the marking's visibility.

All pavement marking material, excluding lines over rumble strips, shall be applied using the extrusion/ribbon method. Lines placed over rumble strips shall be applied using the atomization/spray method, unless the extrusion/ribbon method can be demonstrated to perform adequately and is approved by the Engineer.

Permanent pavement marking tape (permanent cold plastic tape) may be used in lieu of hot applied thermoplastic markings. Substitution will only be allowed for pay items 907-626-A through H. Substituted pavement marking tape shall be of the same color and width as that required for the hot applied thermoplastic. Unless otherwise specified, the markings, whether hot applied or pavement marking tape, shall be of the same type of material for the entire project. Stop bars and crosswalks shall not be substituted with pavement marking tape and shall be alkyd hot-applied thermoplastic markings or heat-fused preformed pavement markings. Material and construction

requirements for substituted pavement marking tape shall meet the requirements of Special Provision 907-628. The layout and spacing for substituted pavement markings will remain as shown in the plans, or in the contract documents, for hot applied thermoplastic markings. Measurement of adhesive substituted pavement markings shall be made in accordance with Special Provision 907-628. Payment for adhesive substituted pavement markings shall be made at the unit price for the appropriate hot applied thermoplastic marking.

When thermoplastic pavement markings are used on bridge decks or concrete surfaces, the surface shall be sealed with an epoxy sealer prior to the application of thermoplastic.

907-626.02--Materials. All pavement marking materials shall meet the requirements of Special Provision 907-720.

907-626.02.1--Audible Bumps. Audible bumps shall have a profile such that the leading and trailing edges are sloped at a sufficient angle to create an audible and vibratory warning.

Audible bumps shall be at least 0.45 inches above the pavement surface at the highest point of the bump. The height shall be measured after the application of drop-on material. The bumps shall have a minimum dimension of two and one-half inches (2½") in both transverse and longitudinal directions. The bumps may have a drainage channel. The width of each drainage channel shall not exceed one-quarter of an inch (¼") at the bottom of the channel.

907-626.02.2--Audible Transverse Bars. The length of transverse bars is the measurement lateral to the direction of travel, also known as transverse width. The width of transverse bars is the measurement parallel to the travel way.

Transverse bars on centerline shall have a length of 10 inches, a width of three inches (3"), and a height of 350 mils. Transverse bars on centerline shall be placed on 2-foot centers through no-passing zones and 5-foot centers through passing zones. Transverse bars on centerline shall be placed in advance of permanent thermoplastic markings.

Transverse bars on edge lines shall have a length of six inches (6"), a width of three inches (3"), and a height of 350 mils. Transverse bars on edge lines shall be placed on 2-foot centers. Tolerance for the longitudinal and transverse measurements shall be one quarter of an inch (¼") and the tolerance for height shall be 50 mils. The above dimensions are based on 6-inch strip application.

Thermoplastic material for edge line transverse bars shall be as specified on the Plans and meet the requirements of Special Provision 907-720 or as specified on the plans. Thermoplastic material for centerline transverse bars shall be black and shall meet the requirements of Special Provision 907-720.

907-626.02.3--High Contrast Markings. High contrast markings shall be black with the pertinent marking color overlaid on top and shall meet the requirements of Special Provision 907-720.

907-626.03--Construction Requirements.

907-626.03.1--Equipment. Equipment for hot application shall be of sufficient size and stability to ensure smooth, uniform, properly aligned markings of the dimensions specified. The equipment shall be suitably equipped for heating and controlling the flow of the material. The equipment shall be constructed to provide continuous mixing and agitation of the material. The conveying parts of the equipment, between the main material reservoir and applicator, shall be so constructed as to prevent accumulation and clogging. The equipment shall be constructed so that all mixing and conveying parts, up to and including the applicator, maintain the material at the plastic temperature. The thermoplastic material shall be dispensed at a temperature recommended by the manufacturer. The applicator shall include a cutoff device remotely controlled to provide clean, square stripe ends and to provide a method for applying skip lines. The thermoplastic reservoir shall be insulated and equipped with an automatic thermostatic control to maintain the proper temperature of the material.

The application equipment shall be capable of automatic placement of intermittent and continuous line patterns in single or double line applications simultaneously. The intermittent timer mechanism shall provide a variable ratio of materials applied and variable cycle length such that accurate placement of new patterns, or replacement of existing patterns can be achieved.

The equipment shall also be capable of applying the top dressing of optics (beads) in a manner that firmly embeds them into the surface of the thermoplastic material for at least one half of the diameter of the larger gradation sizes of the optics. The dispensing equipment shall be equipped with an automatic cut-off control for the application of the optics that is synchronized with the cut-off of the thermoplastic material.

Optics applied to the surface of the completed stripe shall be applied by an automatic dispenser attached to the pavement marking equipment in such a manner that the optics are immediately dispensed upon the completed line. The dispenser shall be equipped with an automatic cutoff control, synchronized with the cutoff of the pavement marking equipment. The double-drop optics as defined in 907-720 shall be automatically applied at a uniform rate to achieve the minimum retroreflectivity requirements of 907-626.

907-626.03.2--Construction Details. The thermoplastic compound shall be screed or ribbon extruded to the pavement surface. Heat-fused, pre-formed pavement markings shall be fusible to asphalt surfaces by means of the normal heat of a propane weed-burner type of torch or other heating device as recommended by the manufacturer. Heat-fused, pre-formed pavement markings shall be instantly highly reflective without the application of additional optics.

Thermoplastic markings shall not be applied to the pavement surface when the pavement surface temperature is less than 55°F. The pavement surface shall be dry, to the satisfaction of the Engineer, before application will be permitted. Unless otherwise specified by the manufacturer, thermoplastic pavement marking material shall be applied to the surface between 400°F and 450°F with a recommended application temperature being 420°F.

Immediately before application, all areas to be marked shall be thoroughly cleaned. Cleaning may be done by rotary brooms, air blast, scrapers, or whatever combination of equipment is necessary to clean the pavement thoroughly without damage to the pavement surface. On areas of pavement

cured with compound, the membrane shall be removed completely by shot blasting, sand blasting or other approved method. Before edge striping, particular care shall be taken to remove all vegetation, loose soil, and the like from the area to be marked. Should other methods fail, the surface shall be wetted with a water jet and scrubbed as necessary to dislodge all foreign material. After washing, the surface shall be allowed to dry thoroughly, and all films of dried mud apparent after surface drying shall be removed before application of markings. Marking shall follow as closely as practicable after the surface has been cleaned and dried, but no markings shall be applied until the surface has been inspected and permission given to proceed. The cost for preparing the surface shall be included in the contract unit prices for the marking items.

Unless otherwise directed by the Engineer, traffic stripes that are conflicting with the thermoplastic stripe shall be removed prior to placement of the thermoplastic material. Removal of pavement markings shall be done by a means that will not gouge the surface of the pavement in a manner that requires patching to ensure the integrity of the pavement. Temporary paint stripe may be left in place when satisfactorily placed in the proper location. Any temporary stripe not covered shall be removed. Payment for removal of stripe, except temporary stripe, will be made under Section 202.

On newly constructed asphalt pavements, any sand, grit, or other surface contaminants shall be removed using compressed air and/or sweeping. Water blasting may be necessary to remove surface contaminants which cannot be removed by the use of compressed air and/or sweeping. This work is considered surface preparation.

The finished lines shall have well defined edges and the thickness of thermoplastic markings above the roadway surface shall be no less than 90 mils for edge lines, center lines, lane lines, barrier lines, and detail stripe including gore markings, and no less than 120 mils for crosswalks, stop lines, and railroad, word and symbol markings. The minimum thickness, as required above, will be measured in the center of the line when gauged. The minimum thickness one-half inch (½") from the edges shall not be less than 75% of the thickness required in the center.

Any thermoplastic traffic marking less than the required thickness shall be corrected by recapping at no additional costs to the Department. Although a thickness tolerance of 25 percent from center to edge is allowed, a consistent underrun of any amount in thickness as determined by the Engineer will not be acceptable.

The length and width of lines shall be within a tolerance of ±3 inches and ±1/8 inch, respectively. For skip markings, the tolerance for intervals shall not exceed the line length tolerance. On curves, unsightly variations from the normal curvature will not be permitted unless specifically shown on the plans or ordered by the Engineer.

Heat-fused, pre-formed pavement markings shall be supplied with a minimum average thickness of 90 mils before application on the roadway surface.

All newly applied thermoplastic material shall be protected from traffic until the material is sufficiently dry so as not to sustain damage from vehicle tires. Any material so damaged by traffic shall be repaired, and the thermoplastic material tracked onto the pavement shall be removed and

replaced.

907-626.03.3--Reflectivity Requirements. The longitudinal pavement markings shall meet the following retroreflectivity values when measured within 10 to 30 calendar days of placement, after removing loose beads.

Table 1. Minimum Dry Retroreflectivity

Color	All Stripe without Rumble mcd/m²/lx	Rumble Stripe mcd/m²/lx
White	375	250
Yellow	225	150

For projects with less than two miles between the BOP and EOP, retroreflectivity measurements will not be required.

907-626.03.3.1--Measuring Devices. Retroreflectivity measurements are required to be taken using a vehicle mounted mobile retroreflectometer using 30-meter geometry with video and mapping capabilities as per AASHTO T-398. The retroreflectometer and operator shall be certified by the manufacturer, authorized representative of the manufacturer, or an MDOT approved program such as the Texas A&M Transportation Institute (TTI) Mobile Retroreflectometer Certification Program. The Contractor shall provide copies of current certifications for the operator(s) and the device(s) to the Engineer.

907-626.03.3.2--Acceptance Procedure. Averages of the mobile measurements shall be provided for every 0.1 miles unless otherwise specified or approved. Take measurements on each section of roadway for each series of markings (i.e., edge line, center skip line, each line of a double line, etc.) and for each direction of traffic flow. Measure each line in both directions for centerlines on two-way roadways (i.e., measure both double solid line in both directions and measure all center skip lines in both directions). Furnish measurements in compliance with the below requirements. Use all equipment in accordance with the manufacturer's recommendations and directions. Inform the Engineer at least 24 hours before taking any measurements.

A marking meets the retroreflectivity requirements if:

- The combined average retroreflectivity value for a one-mile segment meets the minimum retroreflectivity values specified, and
- Within the one-mile segment, no more than three consecutive 0.1 mile intervals shall have an average retroreflectivity value below the minimum required value.

The one-mile segment will start from the beginning of the data collection and end after a mile worth of measurements have been taken; each subsequent mile of measurements will be a new segment. If the remainder is 0.5 miles or less, it shall be included in the previous mile segment, otherwise the remaining segment of greater than 0.5 mile shall be its own segment. Centerlines with 2 stripes (either solid or broken) will result in 2 miles of data for each mile segment. Each centerline stripe must be tested for compliance as a stand-alone stripe.

The Contractor may elect to restripe with a minimum of 0.060 in. (60 mils) at no cost to the Department each one-mile segment that failed to meet the minimum retroreflectivity requirements.

Measurements shall be retaken within 10 to 30 calendar days after the second application for the mile segment for that series of markings. If the markings do not meet minimum retroreflectivity after the second application, the Engineer may require removal of all existing markings, a new application as initially specified, and a repeat of the application process until minimum retroreflectivity requirements are met.

907-626.03.3.3--Mobile Retroreflectivity Data Collection. Mobile Retroreflectivity Data Collection (MRDC) shall be conducted on dry pavement only and when the ambient air temperature is greater than 40°F. Data shall be submitted to the Engineer no later than 3 working days after the day the data is collected. Submit all raw data collected in addition to all other data submitted. Provide data files in Microsoft Excel format or a format approved by the Engineer. The data file and video must contain the following information.

907-626.03.3.3.1--Data File. Data files shall be provided with the following:

- Date;
- District;
- County;
- Name of mobile retroreflectometer operator;
- Route number with reference markers or other reference information provided by the Engineer to indicate the location of beginning and end data collection points on that roadway;
- Cardinal direction;
- Line type (single solid, single broken, double solid, etc.);
- Line color;
- File name corresponding to video;
- Data for each centerline listed separately;
- Average reading taken for each 0.1-mi. interval (or interval designated by the Engineer);
- Accurate GPS coordinates (within 20 ft.) for each interval;
- Color-coding for each interval indicating passing or failing, unless otherwise directed by the Engineer (passing and failing thresholds provided by the Engineer);
- Graphical representation of the MRDC (y-axis showing retroreflectivity and x-axis showing intervals) corresponding with each data file;
- Distance in miles driven while measuring the pavement markings;
- Event codes (pre-approved by the Engineer) indicating problems with measurement;
- Upper validation threshold (may be included separately with the raw data but must be clearly identified with the data collected using that threshold).

907-626.03.3.3.2--Map. A map shall be provided in an electronic format approved by the Engineer with each MRDC submission that includes the following information:

- Date;
- District number;
- County;

- Color-coded 1-mi. intervals (or interval length designated by the Engineer) for passing and failing retroreflectivity values or retroreflectivity threshold values provided by the Engineer; and
- Percentage of passing and failing intervals, if required by the Engineer.

907-626.03.3.3.3--Video. A high-quality video file shall be provided with the following information:

- Date and corresponding data file name on label;
- District number;
- County;
- Route number with reference markers or other designated reference information to indicate the location of beginning and end collection points on that roadway; and
- Retroreflectivity values presented on the same screen with the following information:
    - Date;
    - Location;
    - Starting and ending mileage;
    - Total miles;
    - Retroreflectivity readings; and
    - Upper validation thresholds (may be included separately with the raw data but must be clearly identified with the data collected using that threshold).

907-626.03.4--Reflectivity Verification Testing. The Engineer or a third party may perform retroreflectivity verification testing on any project. At a minimum, each Contractor performing work for the Department will be verified on an annual basis. The Contractor-submitted retroreflectivity data will be compared to the verification test data to determine acceptability of the Contractor's mobile retroreflectometer data. Comparison of the data will result in one of the two scenarios below:

- Contractor's Data is Validated – If the difference between Contractor's and Engineer/third party data is 20% or less, then the Contractor's data is validated. The Contractor's data will be used for acceptance.
- Contractor's Data is not Validated – If the difference between the Contractor's and Engineer/third party data is more than 20%, then the Contractor's data is not validated. The Engineer/third party data will be used for acceptance and the Contractor will be required to take corrective action prior to additional Contractor data collection and may require re-certification of the mobile retroreflectometer.

907-626.04--Method of Measurement. Thermoplastic stripe completed in accordance with the plans and specifications will be measured by the mile or by the linear foot, as indicated, from end-to-end of individual stripes. In the case of skip lines the measurement will include skip intervals. The length used to measure centerline, lane lines, and edge stripes will be the horizontal length computed along the roadway.

Detail traffic stripe will be measured by the linear foot from end-to-end of individual stripes. Measurements will be made along the surface of each stripe and will exclude skip intervals where

skips are specified. Stripes more than six inches (6") in width will be converted to equivalent lengths of 6-inch stripe.

Hot-applied legend, which is to include railroad markings, pedestrian crosswalks, and stop lines, will be measured by the square foot or linear foot. Pay areas of individual letters and symbols will usually be shown on the plans and measured by the square foot. Transverse railroad bands, pedestrian crosswalks and stop lines will generally be measured by the linear foot, in which case, stripes more than six inches (6") in width will be converted to equivalent lengths of 6-inch widths.

Pre-formed legend which is to include railroad markings and pedestrian crosswalks will be measured and paid for by each.

The length measured for thermoplastic audible bump edge stripe will not include the permanent thermoplastic edge stripe. Permanent thermoplastic edge stripe will be measured for payment under a separate pay item.

Thermoplastic audible bar centerline skip stripe will be measured by the linear foot or mile. Measurements will be made along the surface from end-to-end of the stripe and will include skip intervals. The length used to measure audible bar centerline stripe will be the horizontal length computed along the roadway. The length measured for thermoplastic audible bar centerline skip stripe will not include the permanent centerline continuous or skip stripe. Permanent centerline continuous and skip stripe will be measured for payment under separate pay items.

Thermoplastic audible bar edge stripe will be measured by the linear foot or mile. Measurements will be made along the surface from end-to-end of the stripe. The length used to measure thermoplastic audible bar edge stripe will be the horizontal length computed along the roadway. The length measured for thermoplastic audible bar edge stripe will not include the permanent thermoplastic edge stripe. Permanent thermoplastic edge stripe will be measured for payment under a separate pay item.

907-626.05--Basis of Payment. Thermoplastic traffic markings will be paid for at the contract unit price per mile, linear foot, square foot or each as applicable. Any deductions for non-satisfactory material test results will be made after final testing has been performed.

Payment will be made under:

907-626-A:	6" Thermoplastic Traffic Stripe, Skip White	- per linear foot or mile
907-626-B:	6" Thermoplastic Traffic Stripe, Continuous White	- per linear foot or mile
907-626-C:	6" Thermoplastic Edge Stripe, Continuous White	- per linear foot or mile
907-626-D:	6" Thermoplastic Traffic Stripe, Skip Yellow	- per linear foot or mile
907-626-E:	6" Thermoplastic Traffic Stripe, Continuous Yellow	- per linear foot or mile

907-626-F:	6" Thermoplastic Edge Stripe, Continuous Yellow	- per linear foot or mile
907-626-G:	Thermoplastic Detail Stripe, Color *	- per linear foot
907-626-H:	Thermoplastic Legend, Color *	- per linear foot, square foot, or per each
907-626-Q:	Thermoplastic Audible Bump Edge Stripe	-per linear foot or mile
907-626-R:	Thermoplastic Detail Audible *** Stripe, Color **,	-per mile
907-626-AA:	6" High Contrast Thermoplastic Traffic Stripe, Skip White	- per linear foot or mile
907-626-BB:	6" High Contrast Thermoplastic Traffic Stripe, Continuous White	- per linear foot or mile
907-626-CC:	6" High Contrast Thermoplastic Edge Stripe, Continuous White	- per linear foot or mile
907-626-DD:	6" High Contrast Thermoplastic Traffic Stripe, Skip Yellow	- per linear foot or mile
907-626-EE:	6" High Contrast Thermoplastic Traffic Stripe, Continuous Yellow	- per linear foot or mile
907-626-FF:	6" High Contrast Thermoplastic Edge Stripe, Continuous Yellow	- per linear foot or mile
907-626-GG:	High Contrast Thermoplastic Detail Stripe, Color *	- per linear foot
907-626-HH:	High Contrast Thermoplastic Legend, Color *	- per linear foot, square foot, or each

* Indicate Blue - ADA if applicable
** Indicate White or Black
*** Indicate Centerline - Passing Zone, Centerline - No-Passing Zone, or Edge Line

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-627-1 **CODE: (IS)**

DATE: 06/24/2024

SUBJECT: Raised Pavement Markers

Section 627, Raised Pavement Markers, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows:

Delete Subsection 627.02 on page 496, and substitute the following.

907-627.02--Materials. Pavement and jiggle markers of the types specified shall conform to the applicable requirements of Subsection 907-720.06 and shall be listed on the Department's APL.

Type B through G High Performance reflective markers shall be listed on the Department's APL for high performance raised pavement markers.

The bituminous adhesive for pavement markers shall meet the requirements of Subsection 907-720.07.3.

907-627.05--Basis of Payment. Add the "907" prefix to the pay items listed on page 498.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-630-2 **CODE: (SP)**

DATE: 03/01/2017

SUBJECT: Contractor Designed Sign Supports

Section 630, Traffic Signs and Delineators, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-630.01--Description. After the last paragraph of Subsection 630.01 on page 503, add the following.

For smaller and lighter Type 3 DMS signs where an overhead support is not specified on the plans and a walk-in enclosure is not included, a triple post support can be provided. This post sign support shall be designed to withstand the same wind speed requirements specified above for the overhead supports.

901-630.01.1--Dynamic Message Sign Supports. In addition to the requirements above, supports for Dynamic Message Signs (DMS) shall also meet the following requirements.

The sign structure manufacturer shall consider truck induced wind loading in deflection calculations. The natural frequency response of the structure to truck induced wind loads when span type DMS structure are used shall be considered. More information can be obtained on this subject in the Transportation Research Board (National Research Council) "Truck Induced Wind Loads on Variable Message Signs", Research Record No. 1594, published in 1997.

The Contractor shall be responsible for the complete design of the structure, catwalk, footing, median barrier replacement, DMS attachments and all other related hardware.

Each structure shall be fully warranted for but not limited to rust, corrosion and structural failure as a complete assembly by the manufacturer.

The Contractor shall determine the actual span length and the actual length of support columns for all sign structures on the basis of existing field conditions and detailed survey completed by the Contractor.

All DMS over the roadway sign structures shall include a catwalk. The Contractor shall be responsible for the catwalk design and shall submit the design calculations to the Bridge Engineer for approval. For over the roadway signs, the catwalk shall span from the outside edge of the shoulder to the door on the DMS. The bottom of the catwalk shall be covered with a heavy galvanized wire mesh which shall have openings no larger than ¼". The handrail for the catwalk shall be designed such that it can be lowered when it is not in use. The catwalk shall include a gate that shall be designed such that it is lockable via a pad lock and key or other approved locking mechanism to prevent unauthorized entry.

All pedestal mounted DMS sign structures shall consist of a single steel pole with the DMS centered over the front face of the pole. The top of the pole shall not extend above the top of the DMS.

All post supported type 3 DMS shall consist of a triple post support and the top of the posts shall not extend above the top of the DMS.

Pedestal mounted structures shall also include a catwalk "Landing" area on the same side as the door of the DMS. This Landing area shall be of sufficient size and design to allow someone to stand on the landing area prior to opening the door and entering the walk-in structure. If a non-walkin DMS is provided, the pedestal mounted structure shall include a catwalk of sufficient length for the entire DMS to be serviced from the catwalk. The bottom of the catwalk shall be covered with a heavy galvanized wire mesh which shall have openings no larger than ¼". The handrail for the catwalk shall be designed such that it can be lowered when it is not in use.

The Contractor shall be responsible for performing soil borings at each location to be used in the design of the foundations and sign supports. If soil conditions required the use of any shoring, casings, or sonotube for proper installation of the foundations, the cost of the shoring, casings or sonotube shall be included in the price of the structure.

907-630.04--Method of Measurement. After the last paragraph of Subsection 630.04 on page 510, add the following.

Pedestal Sign Supports will be measured per lump sum for each specific assembly.

Post Sign Supports will be measured per lump sum for each specific assembly.

907-630.05--Basis of Payment. After the first paragraph of Subsection 630.05 on page 510, add the following.

Pedestal Sign Supports, measured as prescribed above, will be paid for at the contract bid price per lump sum, which price shall include the support structure, foundations, catwalk, connection hardware, conduit on the structure and foundation, soil borings, sign and footing design, connections to the support structure, median barrier repair, required repaving around median barrier foundations and all work, equipment and appurtenances as required to have the structure complete, in place and ready for use. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work.

Post Sign Supports, measured as prescribed above, will be paid for at the contract bid price per lump sum, which price shall include all the support posts, foundations, connection hardware, conduit on the structure and foundation, soil borings, sign and footing design, connections to the support structure, median barrier repair, required repaving around median barrier foundations and all work, equipment and appurtenances as required to have the structure complete, in place and ready for use. This price shall be full compensation for all labor, tools, materials, equipment and incidentals necessary to complete the work

After the last pay item listed on page 511, add the following.

907-630-L:	Pedestal Sign Support, Assembly No. ____, Contractor Designed	- lump sum
907-630-M:	Post Sign Support, Assembly No. ____, Contractor Designed	- lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-632-1 **CODE: (IS)**

DATE: 11/15/2017

SUBJECT: Traffic Signal Cabinet Assemblies

Section 632, Traffic Signal Cabinet Assemblies, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete Section 632 on pages 517 thru 538, and substitute the following.

SECTION 907-632 - TRAFFIC SIGNAL CABINET ASSEMBLIES

907-632.01--Description. This work consists of furnishing, assembling, configuring and installing all component materials and software required to form completed traffic signal controller assemblies, closed loop master controller assemblies and signal system installation of the types specified, in conformity with these specifications, to ensure fully operational traffic signal installations as shown on the plans.

907-632.02--Materials.

907-632.02.1--Cabinet Assembly. Cabinet Assemblies shall meet the NEMA 3R requirements and be constructed principally of 0.125-inch thick, 5052-H32 aluminum. The aluminum shall have a mill finish per NEMA TS 2 7.7.3. Intermittent welds may be used for construction and any un-welded cabinet seams shall be sealed with clear RTV silicone. All external fasteners shall be stainless steel and no holes will be allowed in top of cabinet.

The door handles shall be stainless steel or cast aluminum. Door hinges shall be of the continuous type with a stainless steel hinge pin. Rivets are not be used to attach the hinge. The main door stop rod shall be constructed using stainless steel. The door stop mechanism shall be adjustable and capable of being securely latched in multiple opened positions including 90 degrees and a maximum of 120 degrees. The brackets attaching the stop rod to the door and cabinet shall be aluminum and welded in place. The main door cylinder lock shall be a #2 key type lock. Two (2) traffic industry standard No. 2 keys shall be provided with each cabinet and shall be made using heavy duty key blanks.

Extruded aluminum channels permanently attached to the right and left cabinet sides shall be provided for attaching adjustable shelving and mounting of other component panels. The cabinet shall have two (2) shelves installed. Both shelves shall be provided with the front edge pre-drilled with 0.25-inch holes located twelve (12) inches apart.

907-632.02.2--Physical Features.

907-632.02.2.1--Pull Out Drawer. A pull out drawer shall be installed and centered under the

bottom shelf. The drawer shall be made of 0.080-inch thick, 5052-H32 aluminum and come out on full extension drawer slides. The pull out drawer shall provide an approximate 16-inch x 14-inch working area and have the ability to bear a constant 25 pound burden. There shall be a compartment for document storage. The lid shall be hinged at the rear, to gain access to the storage area. The drawer will be used to store documents as well as support a notebook computer. The drawer slides shall be of the full extension ball bearing type. Dimensions of the drawer shall be large enough to support a notebook computer and a drawer of sufficient size to hold at least two (2) copies of the cabinet drawings and other related cabinet documentation. The surface of the lid shall have a non-slip surface.

907-632.02.2.2--Cabinet Lighting. Cabinets shall be provided with a minimum of two (2) white light LED modules. One (1) lighting module shall be installed along the front top section of the cabinet and the second lighting module shall be installed underneath the bottom cabinet shelf in such a location as to provide direct lighting of the load bay area of the cabinet but must not interfere with the cabinet drawer operation.

Both LED lighting modules shall be controlled by a NEMA rated, commercial quality, pushbutton door switch. The cabinet lighting shall turn on when the cabinet main door is opened and shall turn off when the main door is closed or an ON/OFF NEMA rated, commercial quality, toggle switch mounted on the inside cabinet door service panel shall be provided to turn both LED lighting modules on or off.

907-632.02.2.3--Police Panel Switches. Police panel switches shall be provided with all controller cabinets. All switches shall be hard wired and labeled as to their function.

NORMAL-FLASH: When this switch is in the FLASH position, all signal indications shall transfer to the flashing mode. AC power shall be removed from the load switches when the signal indications transfer to the flashing mode.

The controller unit shall operate in accordance with appropriate specifications during the flashing mode. When the switch is placed in the NORMAL position, transfer from the flash mode to normal operation shall be made in accordance with uniform code flash requirements.

SIGNAL ON-OFF: AC power shall be removed from the signal heads and the intersection will become dark when this switch is in the OFF position.

MANUAL CONTROL ON-OFF: When this switch is in the ON position, a logic ground shall be applied to the manual control enable input of the controller unit.

INTERVAL ADVANCE INPUT JACK: A manual jack shall be installed on the police panel. The jack shall inter-mate with a 3-circuit, ¼-inch diameter phone plug. The tip and ring (middle) circuits of the jack shall be connected to the logic ground and the interval advance inputs of the controller unit. When the manual hand cord is plugged into the jack and the pushbutton is pressed, logic ground shall be connected to the interval advance input of the controller unit.

When specified in the contract documents, an interval advance cord shall be provided. The cord

shall have a minimum length of three (3) feet. It shall have a ¼-inch diameter, three circuit plug connected to one end and a manual pushbutton enclosed in a hand-held enclosure at the other end. A complete cycle (push-release) of the manual pushbutton shall terminate the controller unit interval which is active except the vehicular yellow and red clearance intervals. Cycling the push-button during the vehicular yellow or all red clearance intervals shall not terminate the timing of those intervals.

907-632.02.2.4--Service Panel Switches. Service panel switches shall be hard wired and clearly labeled to identify as to their functions. Service panel switches shall be mounted on the service panel located on the inside of the main cabinet door. Alternate switch locations may be described in the plans or contract documents but final switch design and location shall be approved by the Engineer prior to cabinet fabrication.

NORMAL-FLASH: When this switch is in the FLASH position, all signal indications shall transfer to the flashing mode. AC power shall be removed from the load switches when the signal indications transfer to the flashing mode.

The controller unit shall operate in accordance with appropriate specifications during the flashing mode. When the switch is placed in the NORMAL position transfer from the flash mode to normal operation shall be made in accordance with uniform code flash requirements.

CONTROLLER ON-OFF: When this switch is in the OFF position, AC power shall be removed from the controller. When this switch is returned to the ON position, the controller unit shall perform normal start up functions and resume normal operation in accordance with the applicable specification.

STOP TIME-RUN-NORMAL: A 3-position manual switch shall be provided which places the controller into Stop Time mode manually or through remote input.

VEHICLE DETECTORS: A 3-position switch shall be provided for each vehicle and pedestrian detector circuit. All switches shall be located on a panel mounted on the inside of the main cabinet door. The switch panel shall be labeled CALL SWITCH. Labeling of phase number and intended function (vehicles or pedestrian calls) shall be provided for each switch.

The vehicle detector switch functions are defined as follows:

Locked Call	Call is continually placed into the controller unit.
Off (center)	Vehicle detector is connected to the controller unit vehicle detector input, i.e. normal detector operation.
Momentary Call	Call is continuous as long as the switch is manually held in this position.

907-632.02.2.5--Police and Service Panel Locations. The police and service panels shall be constructed of 5052-H32 0.125-inch thick aluminum.

The police panel shall be located behind the police door which is enclosed within the main door.

The police door shall be hinged and provided with a neoprene gasket seal. Access to any portion or equipment contained behind the main cabinet door shall not be accessible through any part of the police panel. The police panel shall be of appropriate dimensions to accommodate all switch or devices described within this specification, the plans or contract document. The police door shall be provided with a treasury #2 key type lock and two (2) keys for the police door lock shall be provided with each cabinet.

The service panel shall be mounted on the inside portion of the main cabinet door, adjacent to the back side of the police panel or on the left hand side of the cabinet.

907-632.02.2.6--Cabinet Ventilation. Cabinets shall be vented to allow dissipation of the heat generated by the equipment contained within. All cabinets shall have a thermostatically controlled exhaust fan located at the top of the cabinet that is capable of 100 cubic feet per minute air displacement. The thermostat shall be mounted on the inside top of the cabinet and shall have a nominal temperature range from 80°F to 170°F.

The intake vent shall be louvered or equivalent design to prevent rain infiltration. The vent area will be located along the bottom portion of the cabinet door. A 16-inch x 12-inch x 1-inch disposable pleated air filter shall be provided on the inside portion of the cabinet and shall fully cover the vent area.

907-632.02.2.7--Air Filter Assembly. Air filters shall be one piece and shall be held firmly in place against the cabinet door in order to prevent dust from bypassing the perimeter of the filter and shall fully cover the vent area. Wing nuts or thumbscrews are preferred. Air filter shall be a 16-inch x 12-inch x 1-inch disposable pleated filter.

907-632.02.2.8--Cabinet Sizes.

907-632.02.2.8.1--Type I Cabinet. A Type I cabinet, 51"H x 30"W x 18"D, may be used for both pole and base mounted cabinets that require a maximum eight (8) position load bay. Pole mounted cabinets do not require rear access.

907-632.02.2.8.2--Type II Cabinet. A Type II cabinet, 51"H x 36"W x 18"D, may be used for both pole and base mounted cabinets that require a maximum twelve (12) position load bay. Pole mounted cabinets do not require rear access.

907-632.02.2.8.3--Type III Cabinet. A Type III cabinet, 56"H x 44"W x 27"D, shall be used for base mount installations and shall require a sixteen (16) position load bay and rear access door.

907-632.02.2.8.4--Type IV Cabinet. A Type IV dual chamber cabinet, 56"H x 57"W x 29"D, shall be used for base mount installations and shall require a sixteen (16) position load bay, rear access door, and external generator plug. When called for in the plans, a UPS shall be housed inside this cabinet.

907-632.02.2.8.5--Type V Cabinet. A Type V cabinet, 77"H x 44"W x 27"D, shall be used for base mount installations and shall require a sixteen (16) position load bay and rear access door.

907-632.02.3--Power Distribution Panel. The power panel shall be wired to provide the necessary power to all equipment. It shall be manufactured from 0.125-inch thick, 5052- H32 aluminum. The power panel shall house the following components: Main Breaker, Auxiliary Breakers, and Terminal Block. The panel shall be of such design so as to allow a technician to easily access the main and auxiliary breakers.

A 3-position terminal block with a removable insulated cover accepting up to AWG #4 stranded wire shall be supplied for accepting only the incoming power lines. This terminal block shall be in advance of and supply only the 30-amp main breaker, 10-amp and 5-amp Auxiliary breakers, AC neutral buss and earth ground buss.

907-632.02.3.1--Ground and Neutral Busbars. Cabinet grounding shall meet the requirements set forth in Subsection 722.09 for grounding and ground rods. A solid copper ground busbar shall be mounted on the side of the cabinet wall adjacent to the power panel for the connection of chassis ground wires. If more than one (1) ground busbar is used in a cabinet, a minimum of an AWG #6 copper wire shall be used to bond them.

The copper ground busbar shall have a minimum of thirteen (13) connector points, each capable of securing at least one (1) AWG #6 conductor.

A solid copper neutral busbar shall be mounted on the side of the cabinet wall adjacent to the power panel for the connection of AC neutral wires.

The copper neutral busbar shall have a minimum of thirteen (13) connector points, each capable of securing at least one (1) AWG #6 conductor.

907-632.02.3.2--Terminal Strips. Conductors shall be terminated on terminal strips with insulated terminal lugs. When two (2) or more conductors are terminated on field wiring terminal strip screws, a terminal ring lug shall be used for termination of those conductors. The voltage and current rating of terminal strips shall be greater than the voltage and current rating of the wire which is terminated on the terminal strip.

907-632.02.3.3--Cabinet Receptacles. A 3-wire 115 Volt AC (15A) Ground Fault Circuit Interrupt (GFCI) duplex receptacle shall be provided in the cabinet for maintenance use. It shall be securely mounted near the bottom right side of the cabinet and easily accessible.

Two (2) 3-wire 115 Volt AC (15A) non-GFCI protected outlets shall be installed, one on each side of the cabinet. These two (2) outlets are used for communication or other auxiliary equipment.

907-632.02.3.4--Operating Line Voltage. All equipment shall be designed to operate from a 120 volt, 60 cycle AC supply. Operation shall be satisfactory at voltages from 105 volts to 130 volts. All operating voltages into and out of the controller shall be NEMA level DC voltages except for the controller AC power source (Connector A, Pin p – AC-Control and Pin U – AC Common).

907-632.02.3.5--Circuit Breakers. Circuit breakers shall meet the requirements set forth in

Subsection 722.07. A 30-amp main breaker, with a minimum of 10,000 amp interrupting capacity, shall be provided for all cabinets to supply power to the controller, MMU, signals, and rack power supply.

Two (2) auxiliary breakers shall be provided. The first breaker, 10-amp, shall supply power to the fan, light, GFCI utility receptacle and two (2) auxiliary standard receptacles. The second breaker, 5-amp, shall be installed to supply power for the Controller Unit and MMU2. The above circuit breakers line side shall be jumpered together and will be fed from an external main circuit. A third 5-amp breaker shall be required if an ITS camera panel is called for in the plans.

907-632.02.3.6--Main Line Arrestors. Surge protection shall be provided that meets the requirements set forth in Subsection 722.12. A main line arrestor shall be provided to reduce the effects of voltage transients on the AC power line. It shall be installed after the circuit breaker. The main line arrestor shall be sufficient to protect all equipment and devices as per the plans and the following minimum specifications.

- Multi-stage Hybrid Design
- Series induction filtering
- Thermally protected Metal Oxide Varistors (TMOV's)
- Operating Voltage: 120 VAC
- Clamping Voltage: 395 VAC
- Operating Current: 15 A
- Peak Surge Current: 50 kA/Mode, 100 kA/Phase
- Operating Frequency: 47-63Hz
- EMI Attenuation: 40 dB Typ
- SPD Technology: TMOV's w/ W-C Filter
- Modes of Protection: L-N, L-G, N-G
- Status Indication: Power On & TMOV's Functional
- Connection Type: ¼-20 Stainless Steel Stud
- Operating Temperature: -40°F to +185°F

907-632.02.3.7--Solid State Main Line Relay (SSR). A normally-open, 75-amp, hybrid SSR shall be provided on the power distribution panel. The relay shall include a LED indicator to verify circuit power.

907-632.02.4--Terminal Facilities Board. The Terminal Facility shall be a hardwired load bay for NEMA TS 2 Type 1 actuated controllers. The load bay shall include either eight (8), twelve (12) or sixteen (16) load switch positions, as specified by the plans, and shall be centered along the back of the cabinet below the bottom shelf.

All wires terminated behind the backboard, as well as any additional panels, shall be soldered. No pressure or solderless connectors shall be used, unless they are soldered to the wire and tab after connection.

907-632.02.4.1--Load Switches and Flashers. Solid State Load Switches, compatible with low

wattage LED signals, shall be provided for the sequence called for on the plans. The load switch sockets shall be wired for triple-signal load switches conforming to NEMA TS 1-1994 and NEMA TS 2-2003 requirements.

The flasher socket shall be wired for and provided with a Type 3, two (2) circuit Solid State Flasher conforming to NEMA TS 1-1994 and NEMA TS 2-2003 requirements. It shall be possible to flash either the amber or red indication on any load switch outputs. It shall be possible to easily change the flash indication from the front side of the panel using readily available tools such as a screwdriver. A nominal flash rate of 50 to 60 FPM shall be provided. Flash rate shall be stable when used with generators or inverters.

Support(s) shall be provided to support the Flasher and Load Switches at some point approximately half of the total length from the panel surface. Sufficient area beneath the Load Switch or Flasher shall be clear in order to allow for free flow of air across the Load Switches or Flasher. Load Switches and Flashers must be provided with LED indicator lights on the side facing the cabinet door.

907-632.02.4.2--Flash Transfer Relay. All flash transfer relays, as a minimum, shall meet NEMA TS 1 requirements. The number of relays that shall be supplied with each cabinet shall accommodate the number of signal phases as indicated in the project plans. The coil of the flash transfer relay must be de-energized for flash operation.

907-632.02.5--Cabinet Wiring. Controller cabinets shall be wired in accordance with the signal phasing plans. If phases are indicated as omitted for future use, or if phases are not shown to be used in the plans, the cabinet shall be wired for use of the phases shown as future or unused. Load Switches shall not be provided for future or unused phases.

Wiring in the cabinets shall conform to the requirements of the National Electrical Code (NEC) and all of these specifications. All conductors in the cabinet shall be stranded copper. All wiring shall be laced. All wiring shall be in accordance as specified by Section 636 and Subsection 722.03 for Electric Cable and IMSA Specification 19 and/or 20 for Signal Wiring.

Connector harnesses for controller, conflict monitor, vehicle detectors, and accessory equipment (including NEMA defined Card Rack with power supply and pre-wired optical detection slots) shall be provided and wired into the cabinet circuitry. Connecting cables for controller and conflict monitor harnesses shall be sleeved in a braided mesh. All wires shall be securely terminated on terminal strips. The lay of the interconnect cable between the components must be such that when the door is closed, it does not press against the cables or force the cables against the various components inside the cabinets.

All communication wiring shall be bundled and routed independently of all other wiring. All live conductors shall be covered with suitable insulating material. All equipment grounds shall run directly and independently to the grounding bus.

All wires shall be cut and terminated as close as possible to the proper length before assembly. Consideration of equipment location adjustments must be made when determining appropriate

wire lengths. Excessive lengths of wire or cable shall not be allowed. All line voltage conductors used in controller cabinet shall conform to the following color code:

AC Neutral: White
AC Hot: Black
Safety Ground: Green

907-632.02.5.1--Signal Terminal Arrestor Grounding Bar. A field terminal arrestor grounding bar shall be provided along the back portion of the cabinet for the installation of signal arrestors. This bar shall be attached using an AWG #10 stranded copper to the earth ground circuitry.

907-632.02.5.2--Signal Terminal Arrestors. The field terminal arrestor shall be a three (3) circuit protective device intended for use on traffic control load relay outputs. The arrestor shall be furnished with three (3) leads and a grounding stud which will be used to attach the arrestor to the grounding bar. The field terminal arrestor shall meet the following minimum specifications:

- Operating Voltage: 120 VAC
- Clamping Voltage: 475 VAC
- Peak Surge Current: 10 kA
- Operating Frequency: 47 – 63 Hz
- SPD Technology: MOV's
- Connection Type: Wire Leads
- Lead Wire: 14 AWG 12" Length
- Ground Stud: 10 x 32 5/8" Length
- Operating Temperature: -40°F to +185°F

907-632.02.6--Accessory Components.

907-632.02.6.1--Traffic Actuated Controller Unit. The fully actuated controller unit shall, at a minimum, meet the requirements of both NEMA TS 1–1989 and NEMA TS 2-2003 requirements for actuated controller units. The controller shall be of the TS 2 Type 2 configuration. The controller shall be provided with the multiple communication interface devices or properties as defined below.

- 10 Base-T Ethernet with front panel RJ-45 connector
- IEEE defined MAC address
- EIA-232 port
- External Serial Fiber options for both single and multi-mode (optional as per plans)
- External FSK 1200 bps modem (optional as per plans)
- D connector with 37 pin configuration for TS 1 compatibility
- USB port for signal controller database upload/download to the controller flash
- Controller
- ECOMM Compatible

The controller unit must have an alphanumeric backlit LCD display with a minimum of sixteen

(16) lines at 40 characters per line. The controller must be air-cooled with sufficient ventilation openings and capable of operating between -30°F and 165°F. The controller unit must be provided with a time-of-day clock, automatic daylight savings time adjustment and a power supply for maintaining SRAM during a power outage. The controller unit shall be capable of being used in a Closed-Loop System and must be capable of operating in the role of master controller in a Closed Loop System. The controller unit firmware shall be fully compatible with the Department's existing Traffic Signal Management Software. The Contractor shall ensure all controller firmware versions are compatible with the existing Traffic Signal Management Software that the Regional Department staff currently utilizes prior to submitting the controller for approval. The Contractor shall notify the Department if any special controller configuration or firmware is needed prior to submitting the controller for approval based on project requirements.

Where Flashing Yellow Arrow (FYA) operations are being used, all traffic signal controller firmware shall be capable of delaying the onset of the flashing yellow arrow.

All operator entered data shall be stored and backed up on to a flash memory device provided with the controller unit at no cost. This flash memory device shall require no battery to support value storage. No internal components of circuitry shall require battery support. The database shall be able to be backed up to a USB drive via the USB drive on the controller.

Traffic Actuated Controllers shall be of the Type shown on the plans. Type 1 Controllers shall have a Linux based processor and a minimum of one (1) USB port. Type 2 Controllers shall have the same features as Type 1 Controllers with the addition of an ATC backplane.

Type 3 Controllers shall have all features of the Type 2 Controller with the addition of the ATC module. All three (3) types of actuated controllers shall have Master controller capability, and if required shall be designated with 'M' in the plans.

907-632.02.6.2--Closed Loop Master Controller Unit. When called for in the plans, this work also consists of furnishing, installing and configuring the equipment, software and accessories necessary to connect one (1) traffic Closed-Loop Master Controller to its corresponding central or portable PC-based Traffic Computer Facility Control System via a communications connection. The communications or network connection device will be either existing or provided by the Contractor.

907-632.02.6.2.1--General. The Master shall monitor intersections in the system, display status and operational state and provide traffic flow data from intersection vehicle detectors. The Master shall include all communications equipment and software necessary to provide reporting to a remote terminal as well as upload/download of all local intersection data and provide timing synchronization. Communications to local controllers from the Master and from the Master to the central-office computer facility shall be by FSK, 900 MHz Radio, Broadband Radio, Serial Fiber, Ethernet, Fiber, Cell Modem or Leased Line, as indicated in the plans. The Master shall be able to run on the same controller simultaneously operating the intersection, with the local signal control software, on any given controller unit.

907-632.02.6.2.2--System Configuration. The system architecture shall be designed to minimize

the effect of equipment failures on system operation and performance. The system consists of four (4) principal elements:

- Local System Intersection Controllers
- Communication (Telemetry Links)
- On-Street Master(s)
- Central-Office Computer Software

907-632.02.6.2.3--Local System Intersection Controller. The local system intersection controllers connected to the Master controller unit shall be capable of controlling a fully actuated two (2) to sixteen (16) phase intersection and shall meet or exceed NEMA TS 1-1989 and TS 2-2003 standards for fully actuated traffic control units. The local controller shall have internal communication capability with direct access to the data memory. The local system controller shall be capable of processing controller and detector data and provide all necessary intersection control functions. The local system intersection controller shall meet the requirements of the Traffic Actuated Controller Unit.

907-632.02.6.2.4--Communications (Telemetry) Links. The communications links for the "Closed-Loop" System shall perform the following functions:

- Provide the medium (radio/fiber/hardwire/etc.) for two-way communications between the On-Street Master and the local intersection controllers.
- Provide the medium for two-way communication between the On-Street Master and the central-office computer facility.
- Error checking shall be included in both mediums to assure transmission and reception of valid data.

907-632.02.6.2.5--On-Street Master. The On-Street Master may be located at an intersection and connected via the communication network to at least 32 local intersection controllers. The Master shall be capable of implementing Traffic Responsive Control, Time Base Control, Manual Control or Remote Control modes of operation.

Analysis of sampling sensor data from at least 64 system detectors and corresponding selection of the best Traffic Responsive timing pattern shall be provided by the On-Street Master during the Traffic Responsive mode of operation.

Automatic and continuous monitoring of system activity shall be provided by the On-Street Master to include both Master and intersection alarm conditions.

System parameter entry shall be provided via the On-Street Master including all Master and local intersection assignment and group parameters. Master parameters shall include:

- System coordination setup and pattern data entry by group
- System time base event scheduler
- System traffic responsive computational and pattern selection setup by group
- Intersection system group and detector assignments

The On-Street Master shall provide comprehensive system report generation including, as a minimum: system, intersection, detector and failure status and history reports in addition to system performance reporting.

A RS-232C interface shall be provided on the On-Street Master to allow for printing of reports or for interconnecting to a remote central site.

To enhance overall system operation and increase system management flexibility, the On- Street Master shall also support two-way dial-up communications to a central office computer for control, monitoring, data collection and for timing pattern updating purposes, all from a remote central office location. Continuous, seven (7) days/week - 24 hours/day, system monitoring shall be enhanced by the On-Street Master's capability to automatically dial-up the central office computer upon detection of user defined critical alarm conditions.

907-632.02.6.2.6--System Functional Requirements.

907-632.02.6.2.6.1--Operator Interface. In order to provide ease in programming and operation, the system shall provide a simplified user-friendly menu format at each local, master and central office facility. No special programming skills shall be required for the user to fully access and operate this control and monitoring system at any level.

All programming, both of the local intersection controllers and the On-Street Master(s) shall be via a front panel keyboard and display, driven by English Language menus. All data change entries will be automatically verified against established ranges prior to acceptance to prevent programming data errors. Data access shall be controlled by user- definable access controls.

907-632.02.6.2.6.2--System Traffic Control. The system shall have the capability of controlling a minimum of sixteen (16) vehicle phases and eight (8) pedestrian phases. The system shall have the capability of implementing a minimum of four (4) timing rings, fifteen (15) alternate sequences, and sixteen (16) offsets.

The system shall provide the capability of selecting any of the following operational modes on a group basis:

- Traffic Responsive
- Time Base (Time-of-Day/Day-of-Week)
- Remote (External Command)
- Manual (Operator Entry)

The system shall be capable of implementing system FLASH and system FREE operation. The system shall have the capability to command, on/off based on time, up to eight (8) independent special functions.

907-632.02.6.2.6.3--Detectors. The system shall have the capability of accepting and processing data from at least 632 system detectors for Traffic Responsive program selection.

907-632.02.6.2.6.4--Pattern Selection. In addition to providing Manual and Remote program selection capability, the Master shall provide for Traffic Responsive and Time Base modes of operation for timing pattern selection.

907-632.02.6.2.6.4.1--Traffic Responsive Mode. Traffic plan selection in the Traffic Responsive mode shall be user-enabled and supplied with the controller, per the plans and specifications. The pattern selection shall be based on sampling detector volume and occupancy analysis by the On-Street Master.

907-632.02.6.2.6.4.2--Time Base Mode. The system shall provide the capability of implementing time-of-day, day-of-week and week-of-year control for each of the two (2) groups using an internal time clock referenced to the 60-Hz AC power line frequency for its time base. The Time Base mode shall contain automatic adjustment for leap year and daylight savings time changes.

The system Time Base mode shall provide, as a minimum, 100 events each capable of requesting any of the 48 traffic control patterns along with Traffic Responsive override enable or auxiliary events consisting of enable/disable any of up to four (4) system-wide special functions and setting sample and log interval time periods.

907-632.02.6.2.6.5--System Control Priority. The system coordination control (program-in-effect) for each group shall be selected on a priority basis. The priority from highest to lowest shall be as follows:

- Manual Control Entry
- External Control (Remote Command)
- Time Base Control (Time-of-Day/Day-of-Week) (Traffic Responsive control will prevail whenever Traffic Responsive Override Enable is active and the selected cycle length is greater than that being commanded by Time Base)
- Traffic Responsive Control

907-632.02.6.2.6.6--Measures of Effectiveness. The system shall have the capability to report selected Measures of Effectiveness (MOE's) on an intersection basis. MOE calculations shall be made on all phases by the local system intersection controller and as a minimum shall include measures such as: volume, number of stops, delays and green utilization. These measures shall be calculated on the basis of the active timing plan. Alternate ways of reporting MOE'S may be approved on a case-by-case review.

907-632.02.6.2.6.7--Uploading and Downloading. The system shall provide, for any selected local system intersection controller, the capability of uploading and downloading any or all, new or modified local intersection parameters from the central-office computer and the Department Central Traffic Signal Management Software, and shall include, as a minimum, all: Phase Timing and Unit Data; Coordination Data, Time Base Data; Preemption Data, System Communication Parameters, System Traffic Responsive Data, and any other System Data residing at the intersection such as Detector Diagnostic Values, Report Parameters and Speed Parameters.

During either uploading or downloading operations, normal traffic control operations shall not be suspended. All data shall be continually accessible and may be displayed at the On- Street Master or the central office computer.

907-632.02.6.2.6.8--System Monitoring and Diagnostics. The system shall automatically and continually monitor system activity and log/report occurrences of Master and intersection alarm conditions. All alarm condition events shall include at the intersection, (Master and central-office computer) an alpha-numeric description of the event as well as the time and date of occurrence.

As a minimum, monitored master alarms conditions shall include:

- Insufficient or Improper Data
- Failed Computational Channels
- Failed System Detectors
- Intersection Communication Failure
- Failed Controllers
- Minimum of six (6) special user defined alarms for user application flexibility
- Monitored intersection alarms conditions shall include as a minimum:
- Cycle Faults and Failures
- Coordination Failures
- Voltage Monitor
- Conflict, Local and Remote Flash Conditions
- Preempt
- Local Free
- Minimum of six (6) special user defined alarms for additional user flexibility.

When the Master detects a critical alarm condition, as defined by the user, it shall automatically dial-up the central office computer and report the condition. On a BUSY or NO ANSWER, the system may be programmed, at user option, to alert a secondary computer.

The system shall also automatically and continually monitor, verify and attempt to correct Sync Pulse, Time Base Clock and Pattern-In-Effect. The system shall provide capabilities to perform diagnostics on system and local detectors, communications and intersection operations. When a fault has been detected, an indication shall be provided. It shall be possible to isolate the fault to the failed unit from controls and indicators available on the Master unit. Auxiliary equipment such as a data terminal or CRT shall not be required to identify the failure.

907-632.02.6.2.6.9--Real Time Display. The Master shall provide for any selected local system intersection controller, real-time status information on its front panel. Real-time intersection status information shall include simultaneous display of: vehicle and pedestrian signal and detector status by phase, overlap signal status and cars waiting count by phase. Real-time controller status information shall include simultaneous display of: two (2) Ring Active timers, On/Next, Call/Recall and Hold/Omit Status by phase, Coordination, Preempt and Stop Time Status.

907-632.02.6.2.6.10--System Management. The system, without hardware changes but with its

ability to directly modify Master and intersection parameters, shall provide the user system configuration and operational controls of the following functions: add/delete controllers and system detectors, enable Traffic Responsive mode, assign intersections to groups, assign system detectors to computational channels and channels to pattern select routines, and assign special and/or standard detectors as system detectors for use with computational channels or to track activity.

907-632.02.6.2.6.11--System Logging and Reports. The system shall automatically and continually process system data and log/report on occurrence of changes in intersection status, system detector status, communications status, controller status and local detector status in addition to system program changes, Traffic Responsive computations, measures of effectiveness and performance.

907-632.02.6.2.6.12--Security. The On-Street Master shall provide for a user-specified security code entry before any data may be altered. In order to view any parameter, security code entry shall not be required. Security access shall be automatically rescinded approximately ten (10) minutes after either access was gained or the last parameter change was entered. The Master and local controller shall have the ability via keyboard to disable security code requirements, allowing for perpetual access without requiring hardware changes.

907-632.02.6.2.7--Design Characteristics. The On-Street Master shall be designed to operate in either an office or field environment and shall be suitably housed in a separate enclosure or in a local intersection cabinet. The Master shall be designed to meet the following electrical and mechanical requirements:

907-632.02.6.2.7.1--Programming and Security. Operator programmable data entry shall be accomplished through panel keyboard(s). The Master shall prevent the alteration of keyboard set variables prior to the user having entered a specific access code through the keyboard. The Master shall maintain user-programmable variables in non-volatile memory with a battery-backed RAM to assure continued efficient system operation.

907-632.02.6.2.7.2--Test and Repair. To enhance maintenance and trouble-shooting activities, On-Street Masters shall include resident diagnostics as a standard. No extender- cards, special tools or PROMs shall be necessary to fully maintain these components. The Master unit design shall ensure that all printed circuit boards be readily accessible for maintenance testing purposes. All fuses, connectors and controls shall be accessible from the front of the Master unit.

907-632.02.6.2.8--Traffic Signal System Software. All Traffic Signal System Software shall be compatible with the latest version of the Department's existing Master and local controllers and existing Traffic Signal Management Software for the Department region.

907-632.02.6.2.8.1--Traffic Signal Closed Loop Software. The Traffic Signal Closed-Loop Software shall provide the ability to manage Master and local controller databases including the uploading and downloading of data parameters. The software shall provide status information and provide reporting capabilities for Master and local controller data, alarms and logs.

907-632.02.6.2.8.2--Traffic Signal System Workstation Software. The Traffic Signal System Workstation shall provide the ability to manage Master and local controller databases including the uploading and downloading of data parameters. The software shall provide status information and provide reporting capabilities for Master and local controller data, alarms and logs.

The Traffic Signal System Workstation Software shall also be capable of operating as a network-connected user workstation to existing centralized signal systems and their associated databases.

When disconnected from the centralized signal system, the software shall be capable of running as a standalone system similar to the Closed-Loop Software. Under this mode, the software shall provide management, report and status functions for Master and local controllers. Under Standalone Mode of operation the software shall allow for its own database(s) for data management without the need for connecting to a centralized signal system database.

907-632.02.6.2.9--Services. Technical services shall be provided, as required, to assist in installation and initial setup of the Closed-Loop Master System and its sub-components. Technical assistance with database migration and/or setup, as well as the development of graphics (such as master maps and local intersection depictions) and the assignment of associated attributes such as detectors, phasing, signals, etc., shall be provided as required. Additionally, training shall be provided on a basic or advanced target user level, as required.

907-632.02.6.3--Malfunction Management Unit (MMU2). The Malfunction Management Unit (MMU2) shall be a shelf-mountable, sixteen (16) channel, solid-state, IP addressable MMU. The MMU2 shall accomplish the detection of, and response to, improper and conflicting signals and improper operating voltages in a traffic signal controller assembly, including support for four (4) section Flashing Yellow Arrow (FYA) left turn displays. The MMU2 shall be capable of running a minimum of twelve (12) different modes of FYA operation.

The MMU2 shall meet or exceed Section 4 requirements of the NEMA Standards Publication No. TS 2-2003 including NEMA TS 2 Amendment #4-2012 and provide downward compatibility to NEMA Standards Publication No. TS 1-1989: Type 12 Operation, in addition to those specifications set forth in this document.

The MMU2 shall include a graphics based Liquid Crystal Display (LCD) to view the current monitor status and navigate the unit's menus. An RJ-45 Ethernet Port shall be provided for communications.

A built-in Diagnostic Wizard shall be provided that displays detailed diagnostic information regarding the fault being analyzed. This mode shall provide a concise view of the signal states involved in the fault, pinpoint faulty signal inputs and provide guidance on how the technician should isolate the cause of the malfunction. The Diagnostic Wizard shall be automatically invoked when the MMU2 is in the fault mode and the HELP button is pressed. It shall also be automatically invoked when the MMU2 is in the Previous Fail (PF) event log display and the HELP button is pressed.

A built-in Setup Mode shall be provided that automatically configures the Dual Indication Enable, Field Check Enable, Red Fail Enable and Minimum Yellow Plus Red Clearance Enable parameters from user input consisting only of channel assignment and class (vehicle, ped, pp-turn, FYA, etc.) responses.

The MMU2 shall be capable of operating in the Type 12 mode with SDLC communications enabled on Port 1. The Channel Status display shall operate in the Type 12 configuration and provide the Field Check function for up to four (4) Pedestrian Walk inputs.

In the interest of reliability and repair ability, printed circuit board mounted MS connectors shall not be acceptable. Internal MS harness wire shall be a minimum of nineteen (19) strand AWG 22 wire.

907-632.02.6.4--NEMA defined Card Rack and Power Supply. A minimum of one (1) NEMA compliant detector card rack with five (5) slot positions (first slot for power supply and four (4) available slots) shall be provided in each cabinet. The detector rack shall be installed on the bottom shelf of the cabinet. The power supply for the NEMA defined card slots shall be provided as a 175W minimum with four (4) independent regulated channels of 24 VDC each rated at 0.75 amps over the full NEMA operating temperature range of -30°F to +165°F. The output should be regulated to 24 VDC +/- 15%. Each of the four (4) outputs shall be independently fused, each with a separate LED for displaying output and fuse status for each of the four (4) outputs. Each of the four (4) outputs shall be protected against voltage transients by a minimum 1500 watt suppressor. All card racks shall be wired for the type detection shown in the plan sheets.

Card Guides shall be provided on the top and bottom of the card rack for each connector position.

907-632.02.6.5--In-Cabinet Network.

907-632.02.6.5.1--Communications Arrestor. The Controller Cabinet network shall consist of an SDLC connection between the Controller Unit and MMU2. Surge suppression for this network shall meet the requirements set forth in Subsection 722.12 and the following minimum requirements below:

- Operating Voltage: 5 VDC
- Clamping Voltage: 8 VDC
- Operating Current: 1.5 A
- Peak Surge Current: 47 A (10x1000 μs)
- Frequency Range: 0 to 20 MHz
- Insertion Loss: < 0.1 dB at 20 MHz
- SPD Technology: SAD
- Connection Type: DB-15
- Operating Temperature: -40°F to +185°F

907-632.02.6.6--System Communications.

907-632.02.6.6.1--Traffic Signal Ethernet Switch. When specified in the plans or contract

documents, a traffic signal Ethernet switch shall be installed in the cabinet assembly. It shall meet the requirements for the type specified in Section 907-663. Ethernet patch cables of sufficient length shall be provided for all supplied Ethernet ready cabinet components. The switch and all components shall be connected and configured.

907-632.02.6.6.2--Fiber Optic Patch Panel. When specified in the plans or contract documents, fiber optic attenuator patch cords shall be installed in the cabinet assembly as specified in Section 907-661.

907-632.02.6.6.3--Wireless Communications. When specified in the plans or contract documents, wireless communication components shall be installed in the cabinet assembly and shall be as specified in Section 907-662.

907-632.02.6.6.4--Serial Port Server or Terminal Server. When specified in the plans or contract documents, serial port servers shall be installed in the cabinet assembly and shall be as specified in Subsection 907-663.02.2.

907-632.02.6.6.5--GPS Clock. This work includes furnishing a Global Positioning System (GPS) Synchronization clock that can be used to sync the internal clocks in traffic signal controllers when coordination is desired, but communication is not necessary. The GPS Clock System shall provide GPS based time and date synchronization to provide coordination of traffic controllers to a common time base. The system shall process GPS Time data using a tamper/vandal resistant GPS antenna and correct for Time Zone, Daylight Savings Time, Leap Years, and GPS Leap Seconds. The processed time information shall be sent to the traffic controller in the native format for the respective controller. A contact closure synchronization pulse with variable pulse width shall be available for a once per day update. If the GPS antenna is blocked for up to one (1) hour prior to scheduled time of synchronization, the system shall synchronize the traffic controllers with less than 0.4 seconds variance from the accuracy provided under normal operation with GPS satellites in view.

- The GPS Clock shall also meet the following minimum specifications:
- Input Voltage: 9-24 VDC
- Current Draw: 150 mA (max) at 12 VDC: 125 mA (max) at 24 VDC
- Contact Closure: 750 mA at 30 VDC
- Temperature Rating: -29.4°F to +167°F

GPS unit shall be mounted to the traffic signal controller cabinet as per the manufacturer's recommendation. Any and all holes created in the cabinet for the purpose of mounting the GPS unit shall be sealed to the satisfaction of the Engineer at no direct pay.

907-632.02.6.6.6--Power-Over-Ethernet Arrestor. Surge suppression that meets the requirements set forth in Subsection 722.12 shall be provided. In addition, the following minimum specifications shall be supplied for loads that require Power-Over-Ethernet with isolated shielded or non-shielded cable:

- Operating Voltage: 48 VDC
- Clamping Voltage: 68 VDC
- Operating Current: 0.75 A per Pin Continuous
- Peak Surge Current: 10 kA
- Insertion Loss: < 0.1 dB
- SPD Technology: GDT, SAD, with series PTC
- Modes of Protection: All Lines (1-8) Protected (L-L) and (L-G): Signal High- Low; High-Ground; Low-Ground
- Transmission Speeds: 10BaseT; 100BaseT; 1000BaseT
- Connection Type: RJ-45
- Operating Temperature: -40°F to +185°F

907-632.02.7--Detector Panel. A vehicle detector harness shall be provided to connect the detector panel to the card rack. The detector panel shall accept the connection of sixteen (16) field loop inputs and four (4) pedestrian detector inputs.

907-632.02.7.1--Detector Input Arrestors. Field Loop and Pedestrian input arrestors shall meet the requirements set forth in Subsection 722.12. Field loop arrestors shall have differential and common mode protection and be provided with the following minimum specifications:

- Operating Voltage: 75 VDC
- Clamping Voltage: 130 VDC
- Peak Surge Current: 250 A
- SPD Technology: Silicon Break-Over
- Operating Temperature: -40°F to +185°F

Pedestrian input arrestors shall be a four (4) circuit device provided with the following minimum specifications:

- Operating Voltage: 30 VDC
- Clamping Voltage: 36 VDC
- Operating Current: 0.15 A
- Peak Surge Current: 10 kA (8 x 20 μs)
- Frequency Range: 0 to 20 MHz
- Insertion Loss: < 0.1 dB at 20 MHz
- SPD Technology: GDT, SAD, with Series PTC
- Connection Type: Terminal Block with compression lugs; Terminals accept up to
- 10 AWG
- Operating Temperature: -40°F to +185°F

907-632.02.8--System Detectors. The controller shall have the ability to receive input data from up to eight (8) special system detectors in addition to the normal actuated controller unit phase detectors. The user shall have the option to assign any of the phase detectors as "system detectors".

907-632.02.9--Preemption. The cabinet shall be completely wired to accept and service calls from preemption phase selector modules, associated optical detector units and GPS units. Optical detector units and GPS unit cabinet components shall be as specified in Section 639. Provision for two (2) standard card modules shall be accommodated in a separate card rack for preemption. The preemption card rack shall provide a minimum of eight (8) channels.

Provisions shall also be made in the cabinet to accommodate Railroad Preemption when specified in the plans or contract documents. Railroad Preemption shall meet the requirements set forth in Section 639. While it is not necessary that a Railroad Preemption interface board be provided with the cabinet, the cabinet and back panel shall be designed so that a Railroad Preemption interface panel that uses a relay to isolate the track switch from the controller cabinet circuitry can be installed. Preempt 1 and 2, in the case of gate down preemption, shall be reserved for Railroad Preemptions; all subsequent preemptions shall be reserved for Emergency Vehicle, Fire Station, or Police Preemption.

907-632.02.10--Uninterruptable Power Supply. When specified in the plans or contract documents an Uninterruptable Power Supply (UPS) System shall be installed in the cabinet assembly. The UPS shall be installed in the cabinet and meet the requirements set forth in Section 633.

907-632.02.11--Power Service Pedestal. A Power Service Pedestal shall be provided as described in Section 631.03.2.

907-632.03--Construction Requirements.

907-632.03.1--Mounting. Traffic Signal Cabinet Assemblies shall be wall or pole mounted, base mounted on a concrete cabinet pad, or base mounted using a composite enclosure as specified below and as shown in the plans.

Power Service Pedestal shall be base mounted on a concrete cabinet pad or on a composite enclosure as specified below and as shown in the plans.

907-632.03.1.1--Wall or Pole Mounted. Wall or pole mount hardware shall be provided for mounting cabinets in specific installations as indicated in the design plans. Wall or pole mounted cabinets shall be manufactured with rigid tabs, rigid brackets or other acceptable configuration for attachment of the cabinet to the wall or pole support. Rigid attachment devices must allow for field alignment of cabinet to the wall or pole support.

907-632.03.1.2--Concrete Cabinet Pad. Concrete foundations shall be constructed of Class B concrete in specific installations as indicated in the design plans.

Cabinets for installation on a concrete base shall be manufactured with rigid tabs, rigid brackets or other acceptable configuration for attachment of the cabinet bottom to its flat support structure. Rigid attachment devices must allow for field alignment of cabinet with the support base. Concrete base construction details shall be provided in the design plan drawings.

907-632.03.1.3--Composite Enclosure. Cabinets for installation on a composite enclosure base shall be manufactured with rigid tabs, rigid brackets or other acceptable configuration for attachment of the cabinet bottom to its' flat support structure. Rigid attachment devices must allow for field alignment of cabinet with the composite enclosure. Composite enclosure attachment details shall be provided as shown in the plans.

907-632.03.2--Documentation. Documentation packages shall be delivered for each unit at the same time as the equipment to which it pertains.

A minimum of two (2) sets of complete schematic drawings and equipment documentation shall be supplied with each cabinet. The first copy shall be placed in a clear re-sealable print pouch of sufficient size to accommodate one (1) complete set of folded cabinet prints and placed in the pull-out drawer of the cabinet and the second copy shall be provided to the Department. Comprehensive controller data shall be included as part of the cabinet documentation package and shall be placed in the cabinet drawer pouch. Digital copies of all cabinet documentation shall be provided to the Department before final acceptance.

The documentation packages shall contain a schematic wiring diagram of the controller cabinet assembly and all auxiliary equipment. The schematic wiring diagram, including a symbols legend, shall show in detail all integrated circuits, transistors, resistors, capacitors, inductors as well as switches and indicators. All parts shown shall be easily identified on both in the cabinet and on the schematic diagram. Model numbers shall be used on schematic diagram when available.

A complete physical description of the signal cabinet assembly shall be provided to include at least the physical dimensions of the unit, weight, temperature ratings, voltage requirements, power requirements, material of construction, and complete performance specifications.

A complete set of operation guides, user manuals, and performance specifications shall be provided.

Detailed programming instructions, preventative maintenance requirements, and troubleshooting procedures shall also be provided for the controllers. These documents shall fully cover all programming procedures and programmable options capable of being made to the controllers and associated traffic control equipment. Instructions for modifications within the range of the capabilities of the unit such as changes in phases or sequences and programming matrix boards shall be included.

An intersection diagram shall be provided on the cabinet door showing geometric configuration, lane use assignments, controller cabinet and signal pole locations, vehicle and pedestrian signal head locations, vehicle and pedestrian detector zone locations, ring-barrier phasing diagram, and detector channel assignments. The intersection diagram shall be labeled with, at a minimum, a North Arrow, main street name(s), side street name(s), signal pole numbers, vehicle and pedestrian head type(s), detector zone designations, volume density and phase recall requirements, flash sequence. All field wires within the cabinet shall be labeled to coincide with those shown on the intersection diagram.

907-632.04--Method of Measurement. Traffic Signal Cabinet Assembly will be measured as a unit per each.

Remove and Replace Existing Traffic Signal Cabinet Assembly will be measured as unit per each.

Modify Existing Traffic Signal Cabinet will be measured as a unit per each.

Solid State Traffic Actuated Controller, of the type specified in the project plans, will be measured as a unit per each.

Signal Software License, of the type specified in the project plans, will be measured as a unit per each.

Malfunction Management Unit, of the type specified in the project plans, will be measured as a unit per each.

Card Rack, of the type specified in the project plans, will be measured as a unit per each.

GPS Clock, as specified in the project plans, will be measured as a unit per each.

Power Service Pedestal, as specified in the project plans, will be measured as a unit per each.

All pay items shall be inclusive of all materials, work, system integration, testing and incidentals necessary for a complete and operable unit in place and accepted. All removal, turn on, and acceptance of equipment, devices, traffic signals, and traffic signal assemblies shall follow Section 631 - Traffic Signal Systems-General prior to payment.

907-632.05--Basis of Payment. Traffic Signal Cabinet Assembly, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for furnishing, installing, configuring, wiring, testing, and mounting foundation construction, cabinets, relays, terminals, circuit breakers, modules, coordination and time base control programs, connectors wiring, overlap equipment, load switches, power cables, power supplies, controller mechanism and housing, MMU2, mounting material, all other materials, and all equipment, labor, tools, and incidentals necessary to complete the work.

Remove and Replace Existing Traffic Signal Cabinet Assembly, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for furnishing, installing, configuring, wiring, testing, cabinets, relays, terminals, circuit breakers, modules, coordination and time base control programs, connectors wiring, overlap equipment, load switches, power cables, power supplies, controller mechanism and housing, MMU2, mounting material, all other materials, removal, disposal, transfer, storage, and/or resetting of components that are existing, all other components included in the traffic signal cabinet, and all equipment, labor, tools, and incidentals necessary to complete the work.

Modify Existing Traffic Signal Cabinet, measured as prescribed above, will be paid for at the

contract unit price per each, which price shall be full compensation for furnishing, installing, configuring, and mounting all components, wiring, and devices; rewiring, reconfiguring, removal, disposal, transfer, storage, and/or resetting of existing components and devices, installing or changing coordination and time base control programs in the traffic signal cabinet assemblies, testing, final cleanup, all equipment, labor, tools, and incidentals necessary to complete the work.

Solid State Traffic Actuated Controller, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for all labor, equipment, tools, materials inclusive of the controller mechanism(s) and housing(s), all power cables, power supplies, wiring, factory and manufacturing inspection, attachment hardware, testing, storage, packaging, shipping, warranty, and all work, equipment, and appurtenances, and all incidentals necessary to provide a fully functional traffic controller ready for use. It shall also include all documentation including operations and maintenance manuals and other material necessary to document the operation of the traffic controller.

Signal Software Licenses, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for all labor, equipment, tools, materials inclusive of furnishing, installing and configuring the Signal Software, all power cables, power supplies, wiring, factory and manufacturing inspection, testing, storage, packaging, shipping, warranty, appurtenances, and all incidentals necessary to provide fully functional Signal Software ready for use. It shall also include all documentation including operations and maintenance manuals and other material necessary to document the operation of the Signal Software.

Malfunction Management Unit, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for all labor, equipment, tools, materials inclusive of furnishing, installing and configuring the Malfunction Management Unit (MMU2), all power cables, power supplies, wiring, attachment hardware, factory and manufacturing inspection, testing, storage, packaging, shipping, warranty, and all work, equipment, and appurtenances, and all incidentals necessary to provide a fully functional Malfunction Management Unit (MMU2) ready for use. It shall also include all documentation including operations and maintenance manuals and other material necessary to document the operation of the Malfunction Management Unit (MMU2).

Card Rack, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for all labor, equipment, tools, materials inclusive of furnishing, installing and configuring the Card Rack, all power cables, power supplies, wiring, attachment hardware, factory and manufacturing inspection, testing, storage, packaging, shipping, warranty, and all work, equipment, and appurtenances, and all incidentals necessary to provide a fully functional Card Rack ready for use. It shall also include all documentation including operations and maintenance manuals and other material necessary to document the operation of the Card Rack.

GPS Clock, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for all labor, equipment, tools, materials inclusive of furnishing, installing and configuring the Global

Positioning System (GPS) Clock(s), all power cables, power supplies, wiring, attachment hardware, factory and manufacturing inspection, testing, storage, packaging, shipping, warranty, and all incidentals necessary to provide a fully functional GPS Clock ready for use. It shall also include all documentation including operations and maintenance manuals and other material necessary to document the operation of the GPS Clock.

Power Service Pedestal, measured as prescribed above, will be paid for at the contract unit price per each for each type(s) specified in the contract, which price shall be full compensation for furnishing, installing, configuring, wiring, testing, and mounting foundation construction, cabinets, circuit breakers, connectors wiring, mounting material, all other materials, and all equipment, labor, tools, and incidentals necessary to complete the work.

Payment will be made under:

907-632-A:	Solid State Traffic Signal Cabinet Assembly, Type __ Cabinet, Type __ Controller	- per each
907-632-B:	Remove and Replace Existing Traffic Signal Cabinet Assembly, Type __ Cabinet, Type __ Controller	- per each
907-632-C:	Modify Existing Traffic Signal Cabinet Assembly	- per each
907-632-D:	Solid State Traffic Actuated Controller, Type ____	- per each
907-632-E:	Single-user Workstation Signal Software License	- per each
907-632-F:	Single-user Server Signal Software License	- per each
907-632-G:	Malfunction Management Unit	- per each
907-632-H:	Card Rack, ___ Position	- per each
907-632-I:	GPS Clock	- per each
907-632-J:	Power Service Pedestal	- per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-634-4 **CODE: (IS)**

DATE: 05/25/2021

SUBJECT: Traffic Signal and ITS Equipment Poles

Section 634, Traffic Signal and ITS Equipment Poles, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-634.02--Materials.

907-634.02.1--Poles. Delete the bullet for Type X poles in Subsection 634.02.1 on page 542 and substitute the following.

- Type X -- Aluminum Pole for Detectors

After Type XI poles in Subsection 634.02.1 on page 542, add the following.

- Type XII -- ITS Extension Poles

907-634.02.1.1--Traffic Signal Poles. Delete the first, third, fourth, and fifth bullets in Subsection 634.02.1.1 on pages 542 and 543, and substitute the following.

- Self-supporting straight or upswept mast arm(s), in accordance with Plan details. Where possible, the mast arms shall match the adjacent signal poles in the area unless otherwise stated;
- Tag installed on shaft side opposite the mainline highway and located approximately 48 inches above the top of the Baseplate;
- Minimum nominal size of four (4) inches wide by 26 inches tall reinforced hand-hole with included terminal block(s);
- A ½-inch coarse thread grounding stud shall be located on the interior side of the pole hand-hole opening;

907-634.02.1.2--Galvanized Steel Poles for Cameras. Delete the second paragraph of Subsection 634.02.1.2 on page 543, and substitute the following.

Unless specified otherwise in the plans, poles shall be designed in accordance with the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals,* as specified in the plans, including all interims and updates. Design life shall be 50 years for all poles. The design wind speed for all parts of the structure shall meet the wind requirements set forth in the latest edition of the AASHTO Wind Map, as stated in Subsection 722.02.3. The pole shall meet the design wind loading with all equipment installed.

In the fifth sentence of the fifth paragraph of Subsection 634.02.1.2 on page 544, change "butt welded" to butt-welded" and change "radio graphically" to radio-graphically."

Delete the second bullet in Subsection 634.02.1.2 on page 544, and substitute the following.

- Consideration shall be given for all possible loading combinations including ice and wind loads.

After the fourth bullet in Subsection 634.02.1.2 on page 544, add the following.

- Top of pole deflection shall not exceed one (1) inch deflection from center due to 30 mph (non-gust) winds or the maximum deflection allowed by Subsection 722.02.3, whichever is more restrictive, for 80-foot poles.

In the first bullet in Subsection 634.02.1.2 at the bottom of page 544, change "cross sectional" to "cross-sectional."

In the second paragraph of Subsection 634.02.1.2.4 on page 545, change "butt weld" to "butt-weld."

907-634.02.1.3--Galvanized Steel Poles for Detectors. In the first paragraph of Subsection 634.02.1.3 on page 546, change "ground mounted" to "ground-mounted."

Delete the second paragraph of Subsection 634.02.1.3 on page 546, and substitute the following.

Unless specified otherwise in the plans, poles shall be designed in accordance with the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals*, as specified in the plans, including all interims and updates. Design life shall be 50 years for all poles. The design wind speed for all parts of the structure shall meet the wind requirements set forth in the latest edition of the AASHTO Wind Map, as stated in Subsection 722.02.3.

Delete the last two sentences of the fifth paragraph of Subsection 634.02.1.3 on page 546, and substitute the following.

Design wind loading shall be as indicated in Subsection 722.02.3 unless otherwise noted in the plans. The pole shall meet design wind loading with all equipment installed.

907-634.02.1.4--Aluminum Poles for Detectors. Delete the second paragraph of Subsection 634.02.1.4 on page 547, and substitute the following.

Unless specified otherwise in the plans, poles shall be designed in accordance with the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals*, as specified in the plans, including all interims and updates. Design life shall be 50 years for all poles. The design wind speed for all parts of the structure shall meet the wind requirements set forth in the latest edition of the AASHTO Wind Map, as stated in Subsection 722.02.3. The pole shall meet design wind loading with detector(s) installed.

907-634.02.1.5--Structure-Mounted ITS Equipment Poles. Delete the second paragraph of Subsection 634.02.1.5 on page 548, and substitute the following.

Unless specified otherwise in the plans, poles shall be designed in accordance with the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals*, as specified in the plans, including all interims and updates. Design life shall be 50 years for all poles. The design wind speed for all parts of the structure shall meet the wind requirements set forth in the latest edition of the AASHTO Wind Map, as stated in Subsection 722.02.3. For projects that are in areas with higher wind standards, the higher standard is required. The pole shall meet design wind loading with all equipment installed.

In the fifth sentence of the fifth paragraph of Subsection 634.02.1.5 on page 548, change "butt welded" to butt-welded" and change "radio graphically" to radio-graphically."

Delete the second bullet in Subsection 634.02.1.5 on page 548, and substitute the following.

- Consideration shall be given for all possible loading combinations including ice and wind loads, as stated in Subsection 722.02.

In the first bullet in Subsection 634.02.1.5 at the top of page 549, change "cross sectional" to "cross-sectional."

After Subsection 634.02.1.8 on page 549, add the following.

907-634.02.1.9--ITS Extension Poles. ITS extension poles are used to provide ITS devices a mounting location with a vertical or horizontal clearance away from an existing pole or structure to which they are to be attached. As such, extension poles and the mounting and attachment hardware shall be of a material that will not cause galvanic corrosion with existing or proposed equipment. If possible, the extension poles shall be similar in color to the base pole or structure, unless otherwise directed. They shall meet the requirements of the base pole, the plans, and Subsection 722.02. Design considerations shall be given to the additional loading being subjected to the base pole or structure.

907-634.02.2--Camera Lowering Device. The lowering device system shall be designed to support, raise, and lower a standard CCTV camera, lens, housing, PTZ mechanism, cabling, connectors, and other supporting field components. The camera connector box shall be cast ZA-12 (12% Al and 88% Zn) and have a minimum weight that ensures stability of the camera during raising and lowering operation. The camera connector box shall have fully gasketed doors to prevent water intrusion. The bottom of the camera connector box shall be equipped with a condensation/moisture exit system. The camera connector block shall be molded in thermoset, weather-resistant, synthetic rubber designed to handle harsh environments.

Electrical contacts must also be designed to handle harsh environments. There shall be a locking mechanism between the fixed and movable components. For the movable components, a latching mechanism shall be provided to hold the device in place (when latched all weight shall be removed

from the lowering cable) and to raise or lower the assembly using the lowering tool and lowering cable. The suspension contact unit housing shall be weatherproof with a gasket to isolate the interior from dust and moisture.

All pulleys shall have sealed, self-lubricated bearings, oil tight bronze bearings, or sintered bronze bushings. The lowering cable shall be a minimum 1/8-inch diameter stainless steel aircraft cable. Internal wireways shall prevent the stainless steel lifting cable from contacting power or video cabling. The only cable permitted to move is the lifting cable, all other cables must remain stable and secure during lowering and raising operations.

The lowering tool shall consist of a lightweight metal frame and winch assembly, a quick release cable connector, an adjustable safety clutch, and a variable speed industrial duty electric drill motor. This tool shall be able to access the lifting cable through a pole hand hole, shall support itself and the load during lowering, and shall provide a means to prevent freewheeling when loaded. This tool shall have a reduction gear to reduce the manual effort required during lifting operations. In addition, this tool shall be provided with an adapter for operating the lowering device with a portable drill using a clutch mechanism. The portable lowering tool shall be included as part of the installed system. The lowering device shall include customized adapter brackets to install cylindrical type PTZ CCTV cameras that have a mounting base below the camera assembly and is require to be installed in an upright position.

907-634.03--Construction Requirements.

907-634.03.1--Foundations. Delete the last sentence of the fourth paragraph of Subsection 632.03.1 on page 550, and substitute the following.

Where foundations are constructed in areas where the pavement edge elevation and shoulder edge elevation differ more than twelve (12) inches, taller foundations may be used but must be approved by the Engineer.

After Subsection 634.03.3 on page 552, add the following.

907-634.03.4--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements", along with the requirements in this specification, shall be met for all ITS components. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-634.03.5--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met for all ITS components. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-634.04--Method of Measurement. After the last sentence of the fourth paragraph of Subsection 634.04 on page 552, add the following.

Field conditions may require taller foundations than specified in the plans. In which case, the addition concrete will be paid for at the contract bid price per cubic yard for pole foundations.

After the sixth paragraph of Subsection 634.04 on page 553, add the following.

ITS extension poles of the type specified will be measured as a unit quantity per each.

Delete the last paragraph in Subsection 634.04 on page 553 and substitute the following.

Wooden poles will be measured as a unit quantity per each.

Camera lowering device will be measured as a unit quantity per each.

907-634.05--Basis of Payment. Delete the fourth paragraph of Subsection 634.05 on page 553, and substitute the following.

Camera pole with foundation and detector pole with foundation, 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, all documentation and submittals, for excavating, backfilling, replacing sod, and for all constructing, placing, curing, erecting, installing, connecting and testing; for foundations, poles, pole bases, conduit inside foundation as indicated on the plans, connections to support structures, caps, covers, ground wire, ground rods, hardware and for all equipment, tools, labor and incidentals necessary to complete the work and quality assurance, including remote and local control of the camera site complete in place and ready for use.

Camera lowering device and camera lowering tool, as described above, shall be paid for at the contract unit price per each. This price shall be full compensation for all materials, design, installation, equipment, tools, labor and incidentals associated with providing and installing the camera lowering device and the camera lowering tool.

Delete the sixth paragraph of Subsection 634.05 on page 553, and substitute the following.

Structure-mounted equipment pole, 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, all documentation and submittals, for all constructing, placing, erecting, installing, connecting and testing, for poles, conduit between structure attachment location as indicated in the plans; wiring between pole-mounted devices and field cabinet; all structure-mounting hardware indicated in the plans, caps, covers, ground wire, ground rods, hardware and for all equipment, tools, labor and incidentals necessary to complete the work and quality assurance, including remote and local control of the camera site complete in place and ready for use.

ITS extension poles, 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, all documentation and submittals, for installing the extension pole, mounting attachments as necessary, adjusting the pole to meet specific project needs, and for all equipment, tools, labor, and incidentals necessary to complete the work and quality assurance.

After the last paragraph of Subsection 634.05 on page 554, add the following.

Sizing poles and their appurtenances to field conditions is the Contractor's responsibility. No separate payment will be made for designing to meet project specifications and field conditions.

Delete the pay items listed on page 554, and substitute the following.

907-634-A:	Traffic Signal Equipment Pole, Type __, __' Shaft, __' Arm *	- per each
907-634-B:	Traffic Signal Equipment Pole Shaft Extension, ___' **	- per each
907-634-C:	Pole Foundations, Class ___ Concrete	- per cubic yard
907-634-D:	Slip Casing, ___" Diameter	- per linear foot
907-634-E:	Camera Pole with Foundation, ___' Pole	- per each
907-634-F:	Detector Pole with Foundation, ___' Pole	- per each
907-634-G:	Traffic Signal Equipment Pole Mast Arm Extension, ___' **	- per each
907-634-H:	ITS Equipment Pole, Structure Mounted, ___' Pole	- per each
907-634-I:	Wood Pole, Class ___ Height ____'	- per each
907-634-J	ITS Extension Pole, _____' **	- per each
907-634-K:	Camera Lowering Device	- per each

* Multiple Arms may be indicated
** Additional information may be indicated

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-636-3 **CODE: (IS)**

DATE: **05/25/2021**

SUBJECT: Electrical Cable

Section 636, Electrical Cable, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-636.01--Description. Delete the last sentence of the last paragraph in Subsection 636.01 on page 555 and substitute the following.

It shall include excavating, laying, placing tracer cable or tape, backfilling, replacing sod, aerial supports and/or pull-through conduits, as applicable; and transformer enclosures and/or terminal boxes when not placed under other items of the contract.

907-636.02--Materials. After the paragraph of Subsection 636.02 on page 555, add the following.

907-636.02.1--ITS Ground Mounted Meter Enclosure.

907-636.02.1.1--Meter Base. Meter bases shall be NEMA Type 3R with a minimum rating of 100 amps and shall meet the requirements of the local utility. The meter base shall be provided with ampere rating of meter sockets based on sockets being wired with insulated wire rated at least 167°F. The meter base shall be designed for underground service.

Meter bases shall be 4-terminal, 600 volt, single phase, 3-wire furnished with the following:

(a) Line, load and neutral terminals accepting #8 to 2/0 AWG copper/aluminum wire,
(b) Ringed or ringless type, with or without bypass,
(c) Made of galvanized steel,
(d) Listed as meeting UL Standard UL-414, and
(e) Underground service entrance as specified.

The meter bases shall have electrostatically applied dry powder paint finish, light gray in color, with a minimum thickness of 2.4 mils.

A 1-inch watertight hub for threaded rigid conduit shall be furnished with meter base.

907-636.02.1.2--Disconnect. External electrical service disconnects shall be furnished with a single pole 50-amp inverse time circuit breaker with at least 10,000 RMS symmetrical amperes short circuit current rating in a lockable in open or closed position in accordance with National Electric Code (NEC) and be a NEMA 3R Type enclosure. The disconnect shall be listed as meeting UL Standard UL-489 and marked as being suitable for use as service equipment.

The disconnect enclosure shall be fabricated from galvanized steel and electrostatically apply dry powder paint finish, light gray in color, to yield a minimum thickness of 2.4 mils. Ground bus and neutral bus shall be provided with at least four terminals with minimum wire capacity range of number 14 through number 4.

For 480V service, a local utility approved, lockable, non-fused disconnect switch on the supply side of the meter base shall be furnished, installed, and labeled as "Utility Disconnect". A separate load side disconnect with overcurrent protection shall be provided within two feet (2') of the meter.

907-636.02.1.3--Ground Mounted – Pedestal – Service Panel. The pedestal shall be of NEMA Type 3R rainproof construction and shall be UL Listed as "Enclosed Industrial Control Equipment" (UL 508A). External construction shall comply with UL50 requirements and shall be of G90 galvanized steel with light green #14672 Federal Specification 595 polyurethane industrial grade powder paint.

Hinges shall be stainless steel and of the continuous piano hinge type.

The pedestal mounting bolts shall not be externally accessible. The pedestal shall be able to be embedded in concrete or use anchor bolts for mounting on concrete base. Either pedestal mounting base or anchor bolt kit shall be used for installation.

The service pedestal should have three separate isolated sections for metering equipment, utility termination and customer equipment.

The metering section shall be pad-lockable and sealable and have a hinged swing hood with an integral hinged polycarbonate sealable window for access to demand meters. Meter socket type shall meet the requirements of the serving utility.

The utility termination section shall be pad-lockable and sealable and shall have a stainless steel handle provided on a lift-off cover. Sufficient clearance shall be provided for a 4-inch diameter conduit for utility cables entrance. Utility landing lugs shall be UL listed and shall accommodate conductor sizes between AWG #6 – 350 kcmil.

The customer compartment door shall be hinged on the left hand side. A stainless pad-lockable hasp shall be provided to secure customer compartment. A door keeper shall be provided to keep the door in an open position. A print pocket shall be provided on the inside of the door in a weatherproof sleeve. Required UL labeling shall be located on the inside of the customer door. Distribution and control equipment shall be behind an internal dead-front door with a quarter-turn securing latch and be hinged to open more than 90 degrees. The dead-front door shall be hinged on the same side as the customer section door. All distribution and control equipment shall be factory wired using 600-volt wire sized to NEC and UL requirements.

The service pedestal shall be rated for operation at 10K minimum amps interrupting capacity (AIC). The provided documentation shall list circuit breaker combinations and those to be used for de-rated operation for series ratings. Circuit breakers shall be permanently labeled with engraved name plates.

The serving utility shall be contacted for necessary requirements before ordering or installing equipment.

907-636.02.2--ITS Ground Mounted Transformer Enclosure.

907-636.02.2.1--Disconnect. The disconnect shall meet the requirements of Subsection 907-636.02.1.2.

907-636.02.2.2--Ground Mounted - Pedestal – Service Panel. The ground mounted - pedestal – service panel shall meet the requirements of Subsection 907-636.02.1.3. In addition, the transformer shall be rated to match the requirement of the primary service and the types of load served as specified in the plans. The transformer unit shall be installed inside the enclosure and meet all applicable codes. Each transformer shall be furnished as one complete unit and wiring of multiple transformers to meet the required ratings at each enclosure location is not allowed. Step-up and Step-down transformers shall be designed specifically for each application. Reverse feeding of step-up and step-down transformers is not allowed. All transformers shall be designed for outdoor installation and rated 600 VAC and below.

907-636.03--Construction Requirements.

907-636.03.1--Direct Buried Cable. After the fourth sentence of Subsection 636.03.1 on page 555, add the following.

Direct buried electric cable shall not be placed in the same trench as fiber optic cables.

907-636.04--Method of Measurement. Delete the first paragraph of Subsection 636.04 on page 557, and substitute the following.

Electric cable of the type specified, constructed as specified on the plans, will be measured by the linear foot. Measurement will be computed horizontally along the conduit, messenger cable or mast arm and vertically along the pole. Measurement in underground conduit is only in the horizontal plane and no additional quantity shall be added for conduit depth or change in elevation of the conduit. No extra length will be allowed for cable inside signal heads, drip loops, or sag in aerial supported cable. Tracer tape, when required in the plans, used with tracer cable will not be measured for separate payment but shall be included in the contract price for Tracer Cable. The terminals for the measurements of lengths will be considered specifically as the center of the pull boxes, poles, signal heads or controller cabinets.

After the first paragraph of Subsection 636.04 on page 557, add the following.

ITS Ground Mounted Enclosures, complete in place and accepted, will be measured as a unit quantity per each for a complete and operable unit in accordance with the contract provisions.

907-636.05--Basis of Payment. After the first paragraph of Subsection 636.05 on page 557, add the following.

ITS Ground mounted enclosures, measured as prescribed above, will be required wherever ground mounted meter enclosures or step-up or step-down transformers are noted as required in the plans. The enclosures shall be paid for at the contract unit price bid per each; which price shall be full compensation for any transformers (as described in the plans), foundation construction, cabinets, pedestals, meter bases, disconnects, relays, terminals, circuit breakers, sockets, hubs, buses, connectors, mounting material, all other materials for constructing, installing, connecting, testing and final cleanup; and for all equipment, labor, tools and incidentals necessary to complete the work in accordance with the contract documents.

In the first sentence of the second paragraph of Subsection 636.05 on page 557, change "relaid" to "re-laid".

Delete the list of pay items on pages 557 and 558, and substitute the following.

907-636-A:	Electric Cable, Direct Burial, Type, AWG ___, ___ Conductor	- per linear foot
907-636-B:	Electric Cable, Underground in Conduit, Type, AWG ___, ___ Conductor	- per linear foot
907-636-C:	Electric Cable, Aerial Supported, Type, AWG ___, ___ Conductor	- per linear foot
907-636-D:	Electric Cable, Aerial Supported in Conduit, Type, AWG ___, ___ Conductor	- per linear foot
907-636-E:	Electric Cable, Underground in Conduit, Tracer Cable	- per linear foot
907-636-F:	Electric Cable, Repair	- per linear foot
907-636-G:	Underground Cable and Conduit, Removed	- per linear foot
907-636-H:	Underground Cable and Conduit, Removed and Re-laid	- per linear foot
907-636-I:	ITS Ground Mounted _*_ Enclosure	- per each

* Indicate Meter or Transformer

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-637-3 **CODE: (IS)**

DATE: **05/25/2021**

SUBJECT: Traffic Signal Conduit and Pull Boxes

Section 637, Traffic Signal Conduit and Pull Boxes, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-637.02--Materials.

907-637.02.1--Pull Box / Enclosures. Delete the first sentence of the second paragraph of Subsection 637.02.1 on page 558, and substitute the following.

For grade level pull boxes and enclosures only, Tier 22 (22,500-pound design load, 33,750-pound test load) enclosures with minimum size dimensions as shown in the detail drawings on the plans shall be installed for use in traffic signal construction. Enclosure boxes shall be open bottom.

Delete the fourth sentence of the second paragraph of Subsection 637.02.1 on page 558.

907-637.03--Construction Requirements.

907-637.03.1--Pull box/Enclosures. Delete the sixth sentence of the first paragraph of Subsection 637.03.1 on page 559, and substitute the following.

Enclosures located in soil or sodded areas shall be installed with a supporting poured concrete collar or approved composite collar assembly, as shown by details on the plans.

907-637.03.2.1--Conduit Duct Bank. Delete the first sentence of subparagraph a) under Bored or drilled conduit in Subsection 637.03.2.1 on page 560, and substitute the following.

All conduits under railroad tracks shall be horizontal directional bored or drilled at a minimum of ten (10) feet below the railroad bed, or as required by the Railroad Company.

Delete Subsections 637.03.2.4 and 637.03.2.5 on pages 561 & 562, and substitute the following.

907-637.03.2.4--Blank.

907-637.03.2.5--Blank.

After Subsection 637.03.2.7 on page 563, add the following.

907-637.03.3--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met if the NTB is included as part of the Project Proposal

and Contract Documents. In all cases, submittals shall be thorough and timely. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-637.03.4--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met if the NTB is included as part of the Project Proposal and Contract Documents. In all cases, the Contractor shall conduct, maintain, and leave the worksite in a professional and organized manner. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-637.04--Method of Measurement. Delete subparagraphs a) and b) in Subsection 637.04 on page 563, and substitute the following.

a) From center to center of pull box and/or foundation.
b) Any above ground vertical conduit runs, as indicated in the plans. Measurement in underground conduit is only in the horizontal plane and no additional quantity shall be added for conduit depth or change in elevation of the conduit.

907-637.05--Basis of Payment. Delete the first, second, third, fourth and fifth paragraphs of Subsection 637.05 on page 564, and substitute the following.

Pull Box Enclosures, 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 including the cover, installing, crushed gravel underlayment, poured concrete collars, replacement of sod or existing grassing, final clean-up and for all equipment, all documentation and submittals, tools, labor and incidentals necessary to complete the work and quality assurance.

Conduit / Duct Bank, measured as prescribed above, will be paid for per linear feet, which price shall be full compensation for all materials, equipment, labor, trenching, installing, backfilling trench, plowing, directional boring, restoration, marking tape, pull tape, duct plugs, fittings, testing, bore logs, all documentation and submittals, and all other incidentals necessary for the installation and quality assurance of the conduit system.

Rigid Galvanized Steel, measured as prescribed above, will be paid for per linear feet, which price shall be full compensation for all materials, equipment, labor, all documentation and submittals, all related materials including but not limited to couplings, mounting straps, bonding to ground, etc., that is installed on sign structures, poles or between the pull boxes, and all other incidentals necessary for the installation and quality assurance of the conduit system.

Duct Plugs and Sealant will be included in the cost of the conduit and will not be measured separately.

Delete the pay items listed on page 564 and substitute the following.

907-637-A: Pull Box Enclosure, Type - per each

907-637-B:	Pull Box Enclosure, Structure Mounted, Type	- per each
907-637-C:	Traffic Signal Conduit, Underground, Type, Size	- per linear foot
907-637-D:	Traffic Signal Conduit, Underground Drilled or Jacked, Type, Size	- per linear foot
907-637-E:	Traffic Signal Conduit, Structural Conduit, Type, Size	- per linear foot
907-637-F:	Traffic Signal Conduit, Aerial Supported, Type, No, Size	- per linear foot
907-637-G:	Traffic Signal Conduit, Underground Encased in Concrete, Type, Size	- per linear foot
907-637-H:	Traffic Signal Conduit Bank, Underground, Type, No., Size	- per linear foot
907-637-I:	Traffic Signal Conduit Bank, Underground Drilled or Jacked, Type, No., Size	- per linear foot
907-637-J:	Traffic Signal Conduit Bank, Structural Conduit, Type, No., Size	- per linear foot
907-637-K:	Traffic Signal Conduit Bank, Aerial Supported, Type, Size and Number	- per linear foot

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-650-5 **CODE: (SP)**

DATE: **05/04/2023**

SUBJECT: **On-Street Video Equipment**

Section 907-650, On-Street Video Equipment, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-650 - ON-STREET VIDEO EQUIPMENT

907-650.01--Description. This work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, test, train, and operate CCTV Camera Systems. CCTV Camera System shall provide TMC personnel with live streaming video of the roadway network via CCTV Camera Systems including both fixed and PTZ cameras. PTZ Signal Monitoring Camera shall provide Traffic Engineering personnel with live streaming video of the roadway network via CCTV Camera Systems utilizing a PTZcamera.

907-650.02--Materials. All materials furnished, assembled, fabricated or installed shall be new, corrosion resistant.

Support equipment for the CCTV Camera Systems shall be provided in a Type B ITS Equipment Cabinet as described in Section 660. For PTZ Signal Monitoring Camera, support equipment shall be house in existing or new Traffic Signal Cabinet.

The CCTV Camera System shall comply with the following minimum materials specifications:

907-650.02.1--General Capabilities and Performance Requirements. Overall CCTV Camera System capabilities and performance requirements include the following:

1) CCTV PTZ Cameras shall be placed and installed at fixed locations to provide full coverage of the mainline travel lanes and shoulders.
2) CCTV Fixed Cameras shall be placed and installed at fixed locations to provide coverage of the mainline travel lanes. The cameras shall be provided with a varifocal lens which shall be adjusted by the Contractor for the desired view of the mainline. At major intersections fixed cameras shall also be adjusted to the desired view of the surface streets.
3) The CCTV Camera System components shall be compatible with each other and be of rugged design and suitable for reliable operation when mounted in their fixed locations.
4) All new PTZ and the Fixed cameras shall be provided as Ethernet IP-based or as indicated in project plan sheets or Notice to Bidders. If analog cameras are required, they shall conform to requirements detailed in Subsection 650.02.2, Analog Camera Unit.
5) The CCTV Camera System shall be capable of attended and unattended, continuous 24 hours per day operation at fixed sites.

6) The Contractor shall ensure that the installed equipment provides unobstructed video of the roadway, traffic, and other current conditions around a roadside CCTV field site; that it responds to camera control signals from an operator of the system; and that the video images can be transmitted to remote locations interfaced to the system for observation.
7) PTZ and IP based cameras shall be capable of being remotely controlled and programmed.
8) All PTZ enclosures shall be provided with the ability to be pressurized for environmental protection.
9) PTZ Dome type cameras shall be mounted together with the zoom lens and integrated into the pan and tilt device within the dome enclosure forming a totally integrated, easily removable assembly.
10) All cameras shall include a high quality integrated camera/lens combination.
11) The camera shall also be equipped with an auto-iris lens capability compatible with the zoom lens supplied.
12) Iris capability shall include a provision for manual override via software.
13) The PTZ camera shall be capable of auto-focus during zoom-in or zoom-out, with provisions for override via software.
14) Overexposure protection shall be provided - the camera shall not be degraded or damaged under normal reasonable operating conditions.
15) The capability for local control of pan, tilt and zoom functions shall be provided at the roadside cabinet using vendor-supplied software installed on a laptop computer.
16) All IP Based CCTV cameras shall support the NTCIP 1205 v1.08 or later version if backward compatible communication protocol.

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

1) The camera unit shall incorporate solid-state design and provide digital signal processing (DSP) capable of providing clear and low-bloom color video pictures during daylight hours and monochrome video at night when the roadway is illuminated with minimal roadway lighting.
2) The Analog Camera shall be fully compliant with all aspects of the National Television Standards Committee (NTSC) specification, and produce NTSC compatible video.
3) The Analog camera shall operate over wide dynamic light conditions ranging from low light/dusk to full sunlight having day (color)/night (monochrome) switchover and iris control, with user-selectable manual and automatic control capabilities.
4) The camera unit shall be equipped with a low light level sensor to automatically switch the camera to monochrome mode.
5) The camera unit shall be equipped with an override capability to allow the camera to be manually switched via software to turn off the automatic low light level sensor switch feature for Color or Monochrome operation.
6) Image sensor: 1/3 inch charge-coupled device (CCD) employing digital video signal processing (DSP) technology with a minimum Effective Picture Elements of 768 horizontal x 494 vertical pixels.
7) The camera unit shall include integrated image stabilization.
8) Sensitivity: The camera shall maintain usable video under both day and nighttime lighting conditions.
9) Video output synchronization shall be 2 to 1 interlace and will observe the NTSC (color) and EIA RS-170 (black and white) standards.

10) Resolution: 470 lines horizontal and 350 TV lines vertical, NTSC equivalent.
11) Signal-to-noise ratio: 48 dB, minimum with AGC off, un-weighted, and 4.5MHz filter.
12) Video Signal Format: National Television Standards Committee (NTSC) composite video output of 1 $Volt_{p-p}$ at 75 ohms, unbalanced.

907-650.02.3--Internet Protocol IP Camera Unit. IP cameras shall provide the same functionality as the analog camera units specified in subsection 907-650.02.2, in addition to the following minimum requirements:

1) Power over Ethernet or 24 VAC Power Input.
2) Open Architecture.
3) Shall utilize H.264 (Video Coding Experts Group (VCEG)/Moving Picture Experts Group)Video Compression Technology types as directed by the Intelligent Transportation Systems Program Manager
4) Standard Definition (SD) Units Shall be capable of 2 simultaneous H.264 video streams.
    a. The primary stream shall provide 480p at 30 fps and the ability to be reduced to D1 resolution at 30 fps.
    b. The secondary stream shall provide a minimum CIF resolution 30fps.
5) High Definition Units (HD) Shall be capable of 2 simultaneous H.264 video streams.
    a. The primary stream shall provide 720p at 30 fps at a minimum and the ability to be reduced to D1 resolution at 30 fps.
    b. The secondary stream shall provide a minimum CIF resolution 30fps.
6) Image sensor: 1/3 inch charge-coupled device (CCD)
7) Shall be capable to take video snapshots in JPEG format and transfer image via FTP.
8) IP encoded streams and Video Compression Technology shall be compatible with the existing video streaming servers and decoders for the www.mdottraffic.com WEB site or as approved by the Intelligent Transportation Systems Program Manager.
9) Internet Protocols: TCP, UDP (Unicast, Multicast IGMP V2), UPnP, DNS, DHCP, RTP, NTP
10) Support Real Time Streaming Protocol (RTSP)
11) Multilevel Password Protection.
12) EDR (Extended Dynamic Range).
13) C/CS Lens Mount.
14) Backlight Compensation.
15) Low Profile Top/Bottom Mount.
16) BNC Service Connector. Tap shall be installed inside cabinet.

907-650.02.4--PTZ Camera Lens. The minimum camera lens requirements include:

1) The camera lens shall have a minimum F-Stop of 1.4 to 1.6.
2) Optical and Digital Zoom:
    a. Shall provide an optical zoom of 35X for analog dome cameras.
    b. Shall provide a minimum optical zoom of 18X and a minimum digital zoom of 6X for IP PTZ cameras.
3) Zoom Control: The zoom magnification shall be fully controllable via the remote PTZ mechanism. The time to pass through the full range of movement of Iris, Zoom and Focus shall in no case exceed 10 seconds.

4) Iris and Focus: Support automatic iris and focus control with manual override capability. The iris shall be in a closed position when there is no power.
5) White or Color Balance: Support automatic or set to yield optical results under various outdoor lighting conditions.
6) Shutter Speed: Support automatic or set to yield optimal results under low lighting conditions without blooming or smearing, auto-iris on. Provide electronic shutter that is selectable in steps.
7) The lens shall be equipped for continuous remote control of zoom, focus and iris.
8) Mechanical or electrical means shall be provided to protect motors from overrunning in extreme positions.
9) The zoom lens shall be an integrated camera/lens combination.
10) Vibration or ambient temperature changes shall not affect the automatic iris function, focus mechanism and zoom mechanism.
11) The lens shall be optically clear, impact resistant and acrylic. The acrylic lens shall not yellow and shall not introduce appreciable light loss or geometric distortion over a 10-year service life when exposed to the environment.
12) The zoom mechanism shall be designed for maintenance-free operations. All gearing and bearings shall be self-lubricating with lubrication and gearing tolerances compatible with the environmental specifications contained herein.

907-650.02.5--Character Generator. The minimum character generator requirements include:

1) The capability of generating and superimposing lines of English language text on the video image/stream shall be provided.
2) A minimum of 20 characters per line that are between 10 and 30 horizontal TV lines in height shall be provided.
3) Control (enable, disable and edit) of this feature shall be available remotely and at the field site using a laptop computer.
4) The text messages shall be stored in non-volatile memory.
5) Characters shall be white with a black border to ensure legibility in varied scenes.
6) The following minimum text insertion requirements shall be provided with the ability to individually turn each one on or off:
   a. Camera ID
   b. Sector Message
   c. Alarm Messages
   d. Pan/Tilt Azimuth/Elevation
   e. Compass Direction in 8 discreet zones

907-650.02.6--PTZ Enclosure. The minimum PTZ enclosure requirements include:

1) Sealed, pressurized dome enclosure that provides complete protection for the camera and lens assembly from moisture and airborne contaminants.
2) Environmental resistant and tamper proof meeting NEMA 4X or IP-67 rating requirements.
3) The dome enclosure shall be constructed in such a way that unrestricted camera views can be obtained at all camera and lens positions.
4) Dome environmental control shall be provided by nitrogen pressurization with a Schrader Valve for pressurization and purging. The enclosure shall be designed to be pressurized to

the manufactures recommended level with dry nitrogen. The notation "CAUTION – PRESSURIZED" shall be printed on the rear plate of the enclosure and shall be clearly visible and readable.

5) An alarm shall be displayed under low-pressure conditions and displayed on the camera video. The low-pressure alarm shall be on/off selectable by the operator at the TMC.
6) The PTZ dome enclosure shall consist of a two-piece (upper and lower half) dome.
7) A harness and cables shall be provided with each enclosure to extend the video, power and data from the CCTV Camera System to the field cabinet. No harness shall be exposed. All entry points shall have gaskets to prevent moisture entry. A sealed connector shall be at the top of the dome.
8) The dome enclosure shall assist in preventing lens fogging and effectively reduce internal temperatures.
9) The enclosure shall minimize glare and provide overexposure protection for the camera when pointed directly at the sun.
10) The enclosure shall be equipped with a heater, a defroster and a thermostat.
11) The camera equipment inside the dome enclosure shall meet all its specified requirements when operating under the following conditions:
    a. Ambient Temperatures: From -40ºC to +65ºC (-40ºF to +149ºF). A heater/blower shall be used to maintain internal dome temperatures within the manufacturer required operating temperatures for their equipment.
    b. Relative Humidity: 5% and 95%, non-condensing.
12) Total weight of CCTV cameras (including the housing, sunshield, and all internal components shall be less than 18 pounds.
13) At a minimum, dome enclosures shall be secured with a mounting plate/attachment designed to withstand a 90mph sustained wind speed with a 30% gust factor. For projects that are in areas with higher wind standards, the higher standard is required.

907-650.02.7--Pan and Tilt Unit (PTU). The minimum pan and tilt unit requirements include:

1) The motorized, remotely controlled Pan/Tilt unit shall be mounted within the dome enclosure. The unit shall be integrated with the CCTV control system.
2) For dome enclosed units, the unit shall provide a minimum continuous tilt (vertical) movement of 90 degrees from horizontal and continuous pan (horizontal) movement of 360 degrees.Tilt speed shall be variable from zero up to 40 degrees per second, minimum, and the pan speed shall be variable from zero up to 80 degrees per second, minimum.
3) For separately housed tilt motor units (non-Dome Cameras), the unit shall provide a minimum continuous tilt (vertical) movement of +90° to -90° from horizontal and continuous pan (horizontal) movement of 360 degrees.Tilt speed shall be variable from zero up to 34 degrees per second, minimum, and the pan speed shall be variable from zero up to 80 degrees per second, minimum.
4) The unit shall be capable of simultaneous pan, tilt movements and zoom on one camera
5) Drive motors shall be capable of instantaneous reversing, be corrosion resistant, not require lubrication, and have overload protection.
6) Braking shall be provided in both pan and tilt movements to enable fast stop and reversal and to prevent drifting.
7) The viewing limits shall be set by a minimum of eight (8) discreet privacy zones that are software selectable.

907-650.02.8--Camera Control Receiver – Driver. The minimum camera control receiver-driver requirements include:

1) The camera control receiver shall provide a single point interface for control, power and video communications.
2) The camera control receiver-driver shall be included within the dome enclosure and control the camera, pan/tilt and lens functions at each CCTV site.
3) The unit shall provide alphanumeric generation for on-screen titles.
4) The unit shall provide the ability to display diagnostic information on the screen in response to user commands.
5) The diagnostic information shall include current pan, tilt, zoom and focus positions, and error codes for power, communication, position and memory problems.
6) The capability for programmed tours shall be provided.
7) The camera control receiver shall use non-volatile memory to store the required information for presets, camera ID and sector text.
8) Presets shall meet the following requirements:
   a. A minimum of 64 presets shall be supported. Each preset shall consist of pan, tilt, zoom and focus positions.
   b. The Contractor shall develop and install ten (10) presets for each camera. The Contractor shall submit the preset locations to the MDOT ITS Engineer for review and approval.
9) Protocols: CCTV cameras shall support at a minimum the Pelco D and the NTCIP 1205 v1.08 communication protocol. No camera control receiver-driver shall use non-published protocols. The Contractor shall provide protocol documentation.
10) Communications Interface: The communications interface shall support communications compliant with RS- 232,and/or 485 (user selectable), or shall provide a network interface port.
11) Serial communications interface shall be compatible with the Video Encoder serial port as defined in Section 907-665 .
12) Standard interface connectors shall be provided.
13) The local video input and output connections shall be the BNC type for analog cameras. IP Based Cameras should stream video over the Ethernet connection but include a BNC type connection for local testing, configuration, and calibration.
14) Connector(s) shall also be used for connecting the control outputs from the control receiver-driver unit to the camera, lens and pan/tilt mechanisms.

907-650.02.9--Fixed Camera Lens. The fixed camera lens shall meet the following minimum requirements.

1) Type ..... Varifocal
2) Format Size ..... 1/3 Inch
3) Mount Type ..... CS
4) Focal Length 5-50
5) Zoom Ratio ..... 1.4 -360
6) Relative Aperture (F) 1.6-360
7) Iris ..... Auto (Direct Drive)
8) Focus ..... Manual

9) Zoom ..... Manual
10) Minimum Object Distance ..... 0.5 m
11) Back Focal Length ..... 10.05 mm
12) The camera lens shall have a minimum F-Stop of 1.4 to 1.6.
13) Shall provide a varifocal zoom of 5-50 mm.
14) Iris: Support automatic iris control with manual override capability. The iris shall be in a closed position when there is no power.
15) White or Color Balance: Support automatic or set to yield optical results under various outdoor lighting conditions.
16) Shutter Speed: Support automatic or set to yield optimal results under low lighting conditions without blooming or smearing, auto-iris on. Provide electronic shutter that is selectable in steps.
17) Vibration or ambient temperature change shall not affect the automatic iris function, focus mechanism or zoom mechanism.
18) The lens shall be optically clear, impact resistant and acrylic. The acrylic lens shall not yellow and shall not introduce appreciable light loss or geometric distortion over a 10-year service life when exposed to the environment.

907-650.02.10--Fixed Camera Enclosure. The fixed camera lens shall meet the following minimum requirements.

1) Designed for Outdoor Applications
2) Maintenance access for servicing
3) Environmental resistant and tamper proof meeting NEMA 4X or IP-66 rating requirements.
4) A harness and cables shall be provided with each enclosure to extend the video, power and data from the CCTV Camera System to the field cabinet. No harness shall be exposed. All entry points shall have gaskets to prevent moisture
5) The enclosure shall minimize glare and provide overexposure protection for the camera when pointed directly at the sun.
6) The enclosure shall be equipped with a heater, a defroster and a thermostat.
7) The camera equipment inside the enclosure shall meet all its specified requirements when operating under the following conditions:
   a. Ambient Temperatures: -10ºC to +50ºC (14ºF to +122ºF). A heater/blower shall be used to maintain internal temperatures within the manufacturer required operating temperatures for their equipment.
   b. Relative Humidity: 5% and 95%, non-condensing.
8) Total weight of CCTV cameras (including the housing, sunshield, and all internal components shall be less than 18 pounds.
9) The enclosure shall be secured with a mounting plate/attachment designed to withstand a 90mph sustained wind speed with a 30% gust factor. For projects that are in areas with higher wind standards, the higher standard is required.

907-650.02.11--Electrical. The minimum electrical requirements include:

1) The CCTV Camera System shall be furnished with any and all equipment required for a fully functional system, including all appropriate power and communications cables as defined by the manufacturer.

2) The power cables shall be sized to meet the applicable National Electrical Code (NEC) requirements.
3) Total power consumption shall not exceed 125 watts.
4) All devices supplied as system components shall accept, as a primary power source, 120 volts of alternating current (VAC) at an input of 60 hertz. Any device that requires source input other than 120 VAC at 60 hertz, such as cameras, PTUs, receiver/drives and dome heaters/blowers that operate at 24 volts or other, shall be furnished with the appropriate means of conversion.
5) IP fixed cameras shall receive Power over Ethernet (POE) with appropriate cabling.

907-650.02.12--Coaxial Cabling. The minimum coaxial interconnect cable requirements include:

1) The coaxial cable from the CCTV Camera System to the equipment cabinet shall be double braided (95% coverage) coaxial cable.
2) RG 59/U, 20AWG, bare copper conductor, polyethylene insulation.
3) 98% tinned copper, double braid shield, black polyethylene jacket.
4) Characteristic Impedance: 75 ohms, nominal.
5) Capacitance (conductor to shield): 21pF/ft; Inductance: 0.131uH/ft, nominal.

907-650.02.13--Surge Protection. All CCTV Camera System electrical interconnects shall be protected from voltage surges caused by lightning and external electromagnetic fields. Surge protection devices shall meet the requirements of the Notice to Bidders entitled "ITS General Requirements" as well as the requirements stated below.

1) Surge protectors shall be furnished for all non-dielectric cable and conductors (video, data/signal and device/assembly power) between the CCTV Camera System and the equipment cabinet.
2) The surge protectors shall have leads that are kept to a minimum length as recommended by the surge device manufacturer.
3) All surge protection devices shall be designed to meet the temperature and humidity requirements expected in this type of outdoor application.
4) All Surge protectors shall be U.L. listed (UL 1449, UL 497, 497A, 497B, etc., as appropriate) and bonded to the same single-point ground point.
5) Coaxial Cable. Surge protectors for coaxial cable shall meet/provide the following functionality:
   a. Attenuation: 0.1dB @10 MHz, typical
   b. Input/Output Impedance: 75 ohms nominal
   c. Operating Voltage of the surge protector shall match characteristics of the ITS device/assembly
   d. Peak Surge Current: 5,000-amperes for an 8x20 microsecond waveform
   e. Response Time: 1 nanosecond or less
6) Low Voltage/Signal Cable. Surge protectors for data/signal/control cable shall meet/provide the following functionality:
   a. Peak Surge Current: 10,000-amperes for an 8x20 microsecond waveform
   b. Response Time: 1 nanosecond or less
   c. Life Expectancy: Capable of surviving at a minimum of 25 occurrences at 2000-amperes

7) CCTV Power. Surge protectors for power from equipment cabinet power distribution to the CCTV Camera System shall meet/provide the following functionality:
   a. Frequency: DC to 10MHz
   b. Clamping Voltage: < 30VAC (rms) or 42VDC
   c. Insertion Loss: < 0.2dB
   d. Input/Output Impedance: 75 ohms, typical
   e. Peak Surge Current: 3000-amperes
   f. Response Time: 1 nanosecond or less
8) Surge protection for the IP Fixed cameras shall include provisioning for the Power over ETHERNET (POE) cabling and voltages.

907-650.02.14--PTZ Signal Monitoring Camera. The PTZ Signal Monitoring Camera shall meet the following minimum requirements.

1) Single housing with a Fixed Camera and PTZ Camera that allows for tandem viewing from both camera lens
2) Designed for outdoor locations
3) Environmental resistant and tamper proof meeting NEMA 4X or IP-66 rating requirements
4) Sealed, pressurized dome enclosure and fixed camera enclosure that provides complete protection for the camera and lens assembly from moisture and airborne contaminants
5) The dome enclosure shall be constructed in such a way that unrestricted camera views can be obtained at all camera and lens positions.
6) Total weight of CCTV cameras (including the housing, sunshield, and all internal components shall be less than 14 pounds
7) High Quality 4 MP Resolution Imaging or better
8) Shall provide Low-Light performance with expansive night view for up to 400 ft IR distance
9) Minimum of 32x Optical Zoom and 16x Digital Zoom
10) Minimum 1/1.8" progressive scan CMOS sensor
11) Shall provide semi-auto, manual and auto focus
12) Shall support 24 VAC and Hi-PoE
13) The enclosure shall be equipped with a heater, a defroster and a thermostat
14) The Fixed Camera Lens shall have a minimum 79° Horizontal FOV and 42° Vertical FOV with a focal length of f/1.0.
15) The PTZ Camera Lens shall have a minimum 60° to 2.3° (wide-tele) Horizontal FOV with a focal length of f/1.5
16) Smart Features shall include:
    a) Motion Detection
    b) Alarm inputs and outputs
    c) Region Entrance and Exit Detection
    d) Manual and Panorama Tracking
    e) Minimum of 32 Presets with Patrol and Pattern Scan
17) Up to 20 Simultaneous Live Views and 32 Users/Hosts
18) Shall support Internet Explorer, Chrome, Firefox and Safari Web Browsers
19) The camera equipment inside the enclosure shall meet all its specified requirements when operating under the following conditions:
    a) Ambient Temperatures: -30ºC to +65ºC (-22ºF to +149ºF).
    b) Relative Humidity: 5% and 95%, non-condensing.

c) Maximum 42 W Power Consumption including heater and IR light

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

1) The Contractor shall provide the MDOT with a written inventory of items received and the condition in which they were received. Inventory shall be inclusive of make, model, and serial numbers, MAC address, and installation GPS coordinates. All equipment shall be installed according to the manufacturer's recommendations or as directed by the MDOT.
2) Materials and associated accessories/adapters shall not be applied contrary to the manufacturer's recommendations and standard practices.
3) Shall include all materials needed to permanently mount the CCTV camera to the support structure as indicated in the plans.
4) Furnish and install power, video, and data cables, and any and all ancillary equipment required to provide a complete and fully operational CCTV system site.
5) Verify all wiring meets NEC requirements where applicable.
6) All above requirements apply to both new CCTV sites as well as sites where an existing CCTV is being replaced.
7) Any new, additional or updated drivers required for the existing ATMS software to communicate and control new CCTV installed by the Contractor shall be the responsibility of the Contractor.

907-650.03.1--Testing. All equipment associated with the CCTV Camera Systems site shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-650.03.2--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-650.03.3--Quality Assurance. The quality assurance requirements defined in the Notice to Biddes entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-650.03.4--Warranty. At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the warranty requirements shall be included in the overall contract price.

907-650.03.5--Training. The minimum training requirements shall be as defined in the Notice to Bidders entitled "General ITS Requirements."

907-650.04--Method of Measurement. On-Street Video Equipment will be measured per each camera installation.

On-Street Video Equipment Training shall be measured as a lump sum which shall include all coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

907-650.05--Basis of Payment. On-Street Video Equipment, measured as prescribed above, will be paid for at the contract unit price bid per each, which price shall be full compensation for furnishing all materials inclusive of camera unit, housing, pan/tilt drive, receiver/driver, software driver, mounting hardware, any necessary enclosures, items necessary to mount the camera unit from a mast arm pole, steel strain pole, pole extension pipe, etc., for all installing, connecting, cutting, pulling and testing and for all equipment, tools, labor, all documentation and submittals, quality assurance, warranties, and incidentals necessary to complete the work and quality assurance.

Required cabinet facilities, including transformer and/or disconnects, will not be measured for separate payment.

Progress payments for the On-Street Video System will be paid as follows:

1) 50% of the contract unit price upon delivery of equipment and approval of any bench and/or pre-installation test results, as prescribed in Project Testing Program;

2) An additional 40% of the contract unit price upon approval of Stand Alone Acceptance Test results; and

3) Final 10% of the contract unit price upon Final Project Acceptance.

On-Street Video Equipment Training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

Payment will be made under:

907-650-A: On-Street Video Equipment Type _*_ - per each

907-650-B: On-Street Video Equipment Training - lump sum

* PTZ, Fixed, Analog, IP Based, PTZ Signal Monitoring, etc.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-656-2 **CODE: (SP)**

DATE: **09/06/2023**

SUBJECT: **Dynamic Message Sign**

Section 656, Dynamic Message Sign, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-656.02--Materials.

907-656.02.3--References. In the first sentence of the first paragraph of Subsection 656.02.3 on page 639, change "incorporate" to "incorporates."

In subparagraph 1), change "NEMA TS4-2004" to "NEMA TS-4, latest edition".

907-656.02.6--Mechanical Construction.

907-656.02.6.4--Sign Housing Construction. In subparagraph 10) in Subsection 656.02.6.4 on page 641, change "having" to "have."

907-656.02.9--Optical Components. Delete the second paragraph of Subsection 656.02.9 on page 642, and substitute the following.

DMS pixels shall be constructed with discrete LEDs manufactured by Broadcom (formerly Avago Technologies), Toshiba Corporation, Nichia Corporation, OSRAM, EOI, or a manufacturer submitted and approved in writing by the Department.

907-656.02.11--Electronics and Electrical.

907-656.02.11.3--NTCIP Protocol and Command Sets.

907-656.02.11.3.6--Information Level. In the fourth row of Table 1 in Subsection 656.02.11.3.6 on page 646, change "Shall be at least 1*" to "Shall be at least 1" in the "Project Requirement" column.

907-656.03--Installation Requirements.

Delete Subsection 656.03.2 on pages 651 thru 657, and substitute the following.

907-656.03.2--Testing. All equipment associated with the DMS site shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General

Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-656.03.2.1--Pre-Installation Test (PIT). In addition to the requirements set forth in the Notice to Bidders entitled "ITS General Requirements", the Contractor shall, at a minimum, test or inspect the following DMS components:

1) External or internal visible damage
2) DMS display damage
3) Verify all pixels are operational
4) Verify the ventilation system works
5) Verify all equipment is secured
6) Verify sign configurations

907-656.03.4--Warranty. Delete the paragraph in Subsection 656.03.4 on page 657, and substitute the following.

At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met.

Delete Subsection 656.03.5 on pages 657 and 656, and substitute the following.

907-656.03.5--Training. The minimum training requirements shall be as defined in the Notice to Bidders entitled "ITS General Requirements".

907-656.03.6--Maintenance and Technical Support. Delete the paragraph in Subsection 656.03.6 on page 658, and substitute the following.

The minimum maintenance and technical support requirements shall be as defined in the Notice to Bidders entitled "ITS General Requirements".

907-656.04--Method of Measurement. After the paragraph in Subsection 656.04 on page 658, add the following.

Dynamic Message Sign Training shall be measured as a lump sum, which shall include all coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

907-656.05--Basis of Payment. Delete the first paragraph in Subsection 656.05 on page 658, and substitute the following.

Dynamic Message Sign, measured as prescribed above, will be paid for at the contract unit price per each, which price shall be full compensation for furnishing, installing, system integration and testing of the complete dynamic message sign including the sign case, light sources, display apparatus, wiring, controller, roadside DMS cabinet, communications interface, wiring between the sign case and DMS cabinet, structure mounted conduit, fittings, and junction boxes, sign case

support connections to the sign support structure, satisfactory completion of testing requirements, warranties, all labor, tools, materials, equipment, appurtenances, and all incidentals necessary to complete the work for a complete and functional DMS including remote and local control of the sign.

After the last paragraph of Subsection 656.05 on page 658, add the following.

Dynamic Message Sign Training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

Delete the pay items listed on page 658 and substitute the following.

907-656-A: Dynamic Message Sign * - per each

907-656-B: Dynamic Message Sign Training - lump sum

* Type may be specified

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-659-5 **CODE: (IS)**

DATE: 05/25/2021

SUBJECT: Traffic Management Center (TMC) Modifications

Section 907-659, Traffic Management Center (TMC) Modifications, is hereby added to and becomes part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-659 -- TRAFFIC MANAGEMENT CENTER (TMC) MODIFICATIONS

907-659.01--Description. This work consists of modifying the MDOT Statewide Traffic Management Center (TMC) located in the Information Systems Division on the 2rd Floor, at 401 North West Street, Jackson, Mississippi, 39201. Regional and City Traffic Management Centers may be located statewide. The following is a list of existing/planned centers and their addresses:

Northwest Regional Combined TMC – 8791 Northwest Drive, Southaven, Mississippi (Police Department)
City of Ridgeland TOC – 100 West School Street , Ridgeland, Mississippi (City Hall)
Oxford Combined TMC – 715 Mollybarr Road, Oxford, Mississippi (Oxford Police Department)
Hattiesburg Regional TMC/EOC – 6356 Hwy 49N, Hattiesburg, Mississippi (MDOT District 6 Headquarters)
Batesville Regional TMC/EOC – 150 Hwy 51N, Batesville, Mississippi (MDOT District 2 Headquarters)
Natchez Combined TMC – 233 Devereaux Drive, Natchez, Mississippi (Police Department)
Gulf Regional TMC – 16499 Hwy 49, Saucier, Mississippi (MDOT Lyman Project Office)
Tupelo Regional TMC – 1909 N. Gloster Street, Tupelo, Mississippi (MDOT District 1 Headquarters)

Additional Traffic Management Centers may be added as needed.

907-659.02--Blank.

907-659.03--Construction and Operation Requirements.

907-659-03.1--TMC Modifications. The MDOT TMC modifications required to integrate and operate the traffic systems and devices shall be provided. These include, but are not limited to, expanding the central video management system, interconnecting the appropriate number of video interfaces to the TMC video management systems, expanding the MSTraffic backbone network through radio communications, wireless communications, T1 lines or fiber communications, expanding or configuring signals in the existing Central Traffic Signal software system, or upgrading existing signal systems, expanding the Automated Traffic Management System (ATMS), and integrating all the existing computing facilities. All TMC modifications must meet

U.S. Department of Transportation Intelligent Transportation System (ITS) Standards, Policies, and Architectures as well as MDOTs applicable Statewide or Regional Architecture.

907-659.03.1.1--TMC Modifications - Software. The Contractor shall initially use vendor supplied software to test all ITS systems installed, interfaced or configured on this project and demonstrate full compliance with the contract requirements. A minimum of two (2) licensed copies of each system of the vendor supplied software must be provided to MDOT upon completion of the testing for each component.

907-659.03.1.2--MDOT ATMS Software. The Contractor shall update the licenses and license keys for the existing MDOT ATMS software to include all ITS devices, existing and provided by the Contractor under this project, for which the existing ATMS has modules and device drivers. The Contractor is required to fully configure the existing ATMS software for operation, status monitoring, configuring, and control of the CCTV systems installed, interfaced or configured on this project. At a minimum, this shall include:

- Update and configure the existing map to show the locations of all ITS devices, existing and provided by the Contractor, for which the existing ATMS has modules and device drivers, including but not limited to CCTV systems, with dynamic icons.
- Install and configure all devices, existing and provided by the Contractor, for which the existing ATMS has modules and device drivers, including but not limited to CCTV systems, into the software's database.
- Configure the systems so the new devices shall send multiple bandwidth streams directly to the MDOT website and TMC video wall.

The Contractor is required to arrange for the ATMS vendor to be on-site to complete this configuration and provide the required testing to show that the software is fully functioning for each CCTV.

907-659.03.1.3--TMC Modifications - Video Systems. The Contractor shall provide, install, and integrate any needed video system equipment or video wall streaming servers for the existing video wall controller that shall be capable of displaying the video streams from the camera streams provided by the Contractor and displaying them as video windows on the existing video wall as controlled by the video wall controller through the ATMS software client or on the MDOT WEB page or VDMS system.

907-659.03.2--TMC Modifications - Monitor Systems. Roadway traffic monitor locations shall provide local control functions related to traffic slowdowns and other congestion monitors as defined by MDOT Traffic Engineering. Additionally, the traffic monitor systems shall provide on-line data for use by the existing MDOT ATMS for engineering, operations, planning, incident, and mdottraffic.com purposes. This data shall include, but is not limited to, per vehicle raw data which shall be transmitted to and stored and managed by the ATMS. The traffic monitor systems shall be capable of utilizing any combination of loop, microloop, radar, Bluetooth, DSRC, and/or video detection information. The system shall provide a consistent communication and management system regardless of detection methods used. All Traffic Monitoring Systems must meet U.S.

Department of Transportation Intelligent Transportation System (ITS) Standards, Policies, and Architectures as well as MDOT's applicable Statewide or Regional Architecture.

907-659.03.3--TMC Modifications – Installation Requirements. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

1) Any new, additional or updated drivers required for the existing ATMS software to communicate and control new devices installed by Contractor shall be the responsibility of the Contractor.
2) Installation of all equipment and software shall be included. The Contractor must provide the MDOT ITS Manager with an Installation Schedule. The Installation Schedule must be approved by the State Traffic Engineer.
3) All equipment and software must be fully functional and pass a Final Inspection by the ITS Manager and Project Engineer before being accepted by MDOT.

907-659.03.4--Testing. All equipment and software associated with the TMC modifications shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-659.03.5--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-659.03.6--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-659.03.7--Warranty. At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the warranty requirements shall be included in the overall contract price.

907-659.03.8--Training. The minimum training requirements shall be as defined in the Notice to Bidders entitled "ITS General Requirements" and shall cover the system architecture, operations, and maintenance of the TMC systems.

907-659.04--Method of Measurement. Traffic Management Center Modifications, Traffic Management Center Modifications – Monitor Systems, and Traffic Management Center Modifications – Software Only, and Traffic Management Center Modifications – Training, complete in place, tested and accepted, will be measured on a lump sum basis.

907-659.05--Basis of Payment. Traffic Management Center Modifications, and Traffic Management Center Modifications – Monitor Systems, measured as prescribed above, will be paid for at the contract lump sum price, which price shall be full compensation for furnishing all

materials, all documentation and submittals, warranties, installing, connecting, cutting, pulling and testing, all equipment, tools, labor, quality assurance, and all incidentals necessary to complete the work.

Traffic Management Center Modifications – Software Only, measured as prescribed above, will be paid for at the contract lump sum price, which price shall be full compensation for incorporating or adjusting all ITS systems installed, interfaced or configured on this project into the existing ATMS system, for furnishing all materials, all documentation and submittals, testing, warranties, quality assurance, and all incidentals necessary to complete the work.

Traffic Management Center Modifications – Training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

Payment will be made under:

907-659-A: Traffic Management Center Modifications	- lump sum
907-659-B: Traffic Management Center Modifications – Monitor Systems	- lump sum
907-659-C: Traffic Management Center Modifications – Training	- lump sum
907-659-D: Traffic Management Center Modifications – Software Only	- lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-660-1 **CODE: (IS)**

DATE: 05/25/2021

SUBJECT: ITS Equipment Cabinets

Section 660, ITS Equipment Cabinets, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-660.02--Materials.

907-660.02.2--Equipment and Materials. Delete the second paragraph of Subsection 660.02.2 on page 659, and substitute the following.

The cabinet enclosure shall be manufactured from 0.125-inch aluminum. The cabinet and integral materials shall be as recommended by the manufacturers for outside plant use and the intended application. This requirement shall include wiring and electrical materials and configurations (including connector pin-outs) that are wholly or partially related to the field device applications (CCTV, RDS, VDS, etc.).

907-660.02.4--Terminal Blocks and Component Terminals. Delete subparagraph 5) in Subsection 660.02.4 on page 659, and substitute the following.

5) Communications: orange

907-660.02.6--Labels.

907-660.02.6.1--Cabinet Labels. Delete the first paragraph of Subsection 660.02.6.1 on page 660, and substitute the following.

Labels shall be provided with agency name, project number, device name and ID labels on all cabinets.

Delete the fourth paragraph of Subsection 660.02.6.1 on page 660, and substitute the following.

The agency name labels shall be “MDOT ITS” in one continuous adhesive sheet.

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-“.

Delete the last paragraph of Subsection 660.02.6.1 on page 660, and substitute the following.

Labels shall be installed along the top of the cabinet with MDOT ITS label at the top and the device ID labels immediately underneath. Labels shall be visible from both directions of travel.

Additional labels may be required to meet visibility requirements. MDOT project number labels shall be installed on the inside of the cabinet door.

907-660.02.6.2--Voltage Labels. Delete the second paragraph of Subsection 660.02.6.2 on page 660, and substitute the following.

Labels shall be flat black lettering on a reflective yellow background. Lettering shall be a minimum of one inch (1") in height.

907-660.02.7--Type A Cabinet. Delete the third paragraph of Subsection 660.02.7 on page 660.

907-660.02.7.1--RDS Communication Wiring. Delete the first sentence of Subsection 660.02.7.1 on page 661, and substitute the following.

RDS communication wiring shall meet the following when using RS-485 communication cable:

In subparagraph 3) of Subsection 660.02.7.1 on page 661, change "RDS comm. Cables" to "RDS comm. cables."

907-660.02.8--Type B Cabinet. Delete the first paragraph of Subsection 660.02.8 on page 661.

All Type B cabinets, except those at solar power locations, shall be uniform in manufacture and assembly, capable of supporting the field equipment as shown on the plans. As a minimum, support is required for two (2) RDS units; one (1) network switch; two (2) radios/antennas; RDS comm. cable; and fiber drop panel terminations, regardless of the devices shown in the plans at a specific location.

907-660.02.8.2--Electrical Subsystems. Delete the second sentence of the first paragraph of Subsection 660.02.7.1 on page 662.

Delete subparagraph 7) of Subsection 660.02.7.2 on page 663, and substitute the following.

7) A singular electrical distribution bus bar for grounding and bonding conductors shall be 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 bus bar shall have a minimum terminating capability of two (2) - #6 AWG conductors and ten (10) - #10 to #18 AWG conductors. Grounding requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met unless otherwise specified in the plans. All cost associated with grounding shall be included in the overall contract price; no separate payment will be made for any grounding unless expressly noted in project documentation.

907-660.02.8.4--RDS Communications Subsystem. Delete the three paragraphs in Subsection 660.02.8.4 on pages 663 and 664, and substitute the following.

Where RDS are shown in the plans, DIN rail-mounted components shall have a 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 -13°F to +158°F. 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 1 inch (W) x 7 inches (H) x 7 inches (D). The power supply shall be connected to the EQUIP POWER distribution block for 120VAC input.

If a terminal server is used, interconnection wiring shall be provided between the RDS communications subsystem and the terminal server.

Where an RS-485 communication cable is installed, a surge suppressor for the RS-485 data signal, wired between the terminal server and the RDS units shall be provided. The surge suppressor shall protect the 4-wire RS-485 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 (4) 2-pair cables of #22 AWG conductors.

Delete Subsection 660.02.8.5 on page 664, and substitute the following.

907-660.02.8.5--Component Subsystem. The requirements listed for each component's subsystem shall be met by installing the required power, surge, etc. support equipment in the Type B Cabinet where that component is shown in the plans.

907-660.02.9--Type C Communication Hub Cabinet. Delete the fourth sentence of the second paragraph of Subsection 660.02.9 on page 664, and substitute the following.

The side panels shall be fabricated from 5052 sheet aluminum alloy with minimum dimensions of 50 inches (H) x 21 inches (W).

In the second sentence of the third paragraph of Subsection 660.02.9, change "grommetted" to "grommeted."

907-660.02.9.2--Electrical Systems. In subparagraph 9) of Subsection 660.02.9.2 on page 665, change "upper right side" to "upper, right-side."

907-660.02.9.3--Lighting Subsystem. In the second sentence of Subsection 660.02.9.3, change "cool white" to "cool-white."

907-660.03--Construction Requirements.

907-660.03.2--Type B and C. Delete the first paragraph of Subsection 660.03.2 on page 666, and substitute the following.

Equipment in the Type B and C cabinets shall be installed and configured in accordance with the requirements for that equipment, including RDS units, BDS units, VDS units, CCTV, network switches, radios/antennas, communication cables, and/or fiber distribution or drop panels.

Delete Subsection 660.03.3 on page 667, and substitute the following.

907-660.03.3--Cabinet Modifications. All cabinet modifications shall adhere to the requirements as listed in this specification and in the Notice to Bidders entitled "Cabinet Modifications."

907-660.03.4--Testing. All equipment associated with the ITS equipment cabinet shall undergo testing to verify conformance to requirements of the plans and special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-660.03.5--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-660.03.6--Quality Assurance. The quality assurance requirements defined below and in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

Installation or modification of the cabinets, hardware, and incidentals shall be done so in a good and workmanlike manner. All components and cables shall be placed in an organized fashion. Cables with excessive slack shall be zip-tied and/or placed so that they do not impede the access to any components. Any debris associated with the installation or modification shall be cleaned and removed. All power supplies, surge suppressors, and components with the ability to be DIN rail or panel mounted, should be.

907-660.05--Basis of Payment. Delete the first paragraph of Subsection 660.05 on page 668, and substitute the following.

Equipment Cabinet and Equipment Cabinet Modifications, measured as prescribed above, will be paid for at the contract unit price per each, which shall be full compensation for all labor, tools, materials, equipment, system integration, testing, system documentation and submittals, mounting hardware, foundations, fiber splicing, external conduit entrances including conduit bodies and nipples, electrical service, pole grounding, terminations, and all incidentals necessary to complete the work and quality assurance.

Delete the list of pay items on page 668, and add the following.

907-660-A: Equipment Cabinet, Type __ - per each

907-660-B: Cabinet Modifications - per each

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-661-6

DATE: 08/06/2024

SUBJECT: Fiber Optic Cable (OSP)

After Subsection 907-661.03.17 on page 18, add the following.

907-661.03.18--As-Builts. The Contractor shall collect survey data of the location of the fiber optic cables, (including fiber trunk lines and fiber drop lines) (including buried fiber and aerial fiber), ITS pull boxes, and ITS and traffic signal cabinets. The survey data shall be accurate within three feet (3') and shall include the type of fiber patch panel inside the cabinets and the number of strands terminated on each patch panel. The Contractor shall furnish to the Department survey data of the locations and other attributes in both KMZ and Shapefile (SHP) formats. Since the survey data submittal is considered a part of the pay item, and the pay item is not complete until the survey data submittal is received, contract time will not be suspended until such time the Contractor submits the survey data to the Department.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-661-6 **CODE: (IS)**

DATE: **05/25/2021**

SUBJECT: **Fiber Optic Cable (OSP)**

Section 907-661, Fiber Optic Cable, is hereby added to and becomes part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-661 -- FIBER OPTIC CABLE (OSP)

907-661.01--Description. The work shall consist of the construction of the infrastructure required to install, replace, or upgrade fiber optic cable. The infrastructure shall include all necessary conduits, pull boxes, pole line hardware, building entries, risers and fiber cable to make a complete system.

907-661.02--Materials.

907-661.02.1--Single Mode Fiber Optic Cable (FO Cable). The Contractor shall provide 72-count fiber optic cable, unless otherwise stated in the plans, that meets the following requirements:

- All-dielectric, outdoor hardened (outside plant – OSP), loose tube cable with central strength/anti-buckling member
- Dry water blocking materials and construction
- Reverse oscillating "SZ" stranded buffer tube construction
- High tensile strength yarn
- Medium density polyethylene outer jacket
- 72-fiber cable with six (6) active buffer tubes and 12 individual stranded fibers per buffer tube, unless otherwise stated in the plans
- Cable construction design that allows for no more than the number of active buffer tube positions
- Maximum diameter 0.48 inches
- Maximum weight 0.07 pounds per foot
- Attentuation shall not exceed 0.4 dB/km at 1310 nm and 0.3 dB/km at 1550 nm.

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" - "72F SM" (if applicable, replace 72 with the actual number of fibers)

The Contractor shall include in the outer jacket marking the cable sequential length in accordance with the following:

- In English units every two (2) feet
- Within -0/+1% of the actual length of the cable
- In contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- On any single length of cable on a reel, the sequential length markings do not run through "00000"

907-661.02.2--Single Mode Fiber Optic Cable Indoor/Outdoor Riser Rated. The Contractor shall provide fiber optic plenum rated cable that meets the following requirements when called for on the Plans:

- All-dielectric, inside plant, loose tube central core cable
- High tensile strength yarn surrounding the central tube core
- Dry water blocking materials and construction
- 72-fiber cable with six (6) active buffer tubes and 12 individual stranded fibers per buffer tube, unless otherwise stated on the plans
- Corning Freedm LST All-Dielectric, Pirelli CentraLink, OFS Allwave, or approved equivalent cables shall be provided. This cable shall be designated as the building entry cable.
- Attentuation shall not exceed 0.4 dB/km at 1310 nm and 0.3 dB/km at 1550 nm.

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" - "72F SM" (if applicable, replace 72 with the actual number of fibers)

The Contractor shall include in the outer jacket marking the cable sequential length in accordance with the following:

- English units every two (2) feet.
- Within -0/+1% of the actual length of the cable
- Contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- The sequential length markings do not run through "00000" on any single length of cable

on a reel

907-661.02.3--Single Mode Fiber Optic Drop Cable (FO Drop Cable). The Contractor shall provide 12-count Single Mode Fiber, Pre-Terminated Drop Cable Assemblies. These assemblies shall be employed when connecting a camera, traffic controller, DMS or other device to the main cable.

Assemblies shall be factory assembled and terminated on one end with ceramic ferrule, LC compatible, heat cured epoxy connectors with an operational temperature of -40°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 greater than 45 dB.

Each assembly shall be fully tested and those test results placed on a test tag for each assembly.

Each assembly shall be individually packaged within a box or reel, with the submitted manufacturer's part number marked on the outside of the package.

Individual 250-µm coated fibers shall be up-jacketed to 1/8-inch using fan-out tubing. This tubing shall contain a 900-µm Teflon inner tube, aramid yarn strength members and an outer jacket.

The fan-out tubing shall be secured to the cable in a hard epoxy plug transition. Length of the individual legs shall be a minimum of three feet with the length difference between the shortest and longest legs of the assembly being no more than two inches.

The 12-Fiber, Pre-terminated Drop Cable Assemblies provided shall meet the following minimum requirements:

- All-dielectric, outdoor hardened, 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 Freedm LST All-Dielectric, Pirelli CentraLink, OFS Allwave, 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

907-661.02.4--Multimode Fiber Optic Drop Cable (MM FO Drop Cable). The Contractor shall provide 12-count Multimode Fiber, Pre-Terminated Drop Cable Assemblies. These assemblies shall be employed when connecting a camera, traffic controller, DMS or other device to the main cable.

Cable Assembly shall be rated for outdoor environment and have operational temperature of -40°C to +70°C. Each connector shall have a minimum of a 1-inch strain relief boot. The Cable Assembly shall also be pre-terminated on one end.

Insertion loss for each connector shall not exceed 0.30 dB.

Attenuation shall not exceed 3 dB/km for 850 nm and 1dB/km for 1300 nm.

Each assembly shall be fully tested and those test results placed on a test tag for each assembly.

Each assembly shall be individually packaged within a box or reel, with the submitted manufacturer's part number marked on the outside of the package.

The fan-out tubing shall be secured to the cable in a hard epoxy plug transition. Length of the individual legs shall be a minimum of three feet with the length difference between the shortest and longest legs of the assembly being no more than two inches.

The 12-Fiber, Pre-terminated Drop Cable Assemblies provided shall meet the following minimum requirements:

- All-dielectric, outdoor hardened, 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 Freedm 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 MM"

The Contractor shall include in the outer jacket marking the cable sequential length in accordance with the following:

- English units every two (2) feet
- Within -0/+1% of the actual length of the cable
- Contrasting color to the cable jacket
- Marking font height no less than 0.10 inch
- The sequential length markings do not run through "00000" on any single length of cable on a reel

907-661.02.5--Plenum Rated Nonmetallic Corrugated Raceway. The Contractor shall provide plenum rated nonmetallic corrugated raceway inside buildings when cable is not in rigid conduit or when it is 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.

907-661.02.6--Fiber Optic Splices. All splices shall be created according to the latest version of the manufacturer's cable installation procedures unless otherwise noted in the plans or by the Project Engineer.

The Contractor shall utilize a Fiber Optic Fusion Splicer for the splicing of all fibers with a fully automatic, portable fusion splicer that provides consistent low loss (max 0.10 dB) splices. The 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.

907-661.02.7--Fiber Optic Connectors. The Contractor shall provide fiber optic connectors for all fiber optic infrastructures including but not limited to fiber optic termination cabinets, fiber optic drop panels, and fiber optic patch cords.

The Contractor shall provide only factory-installed keyed LC compatible connectors for all fiber optic infrastructures.

Field-installed connectors shall not be used.

Adapter couplers shall not be used to change connector types.

Ceramic ferule connectors, factory-installed, with a thermal-set heat-cured epoxy and machine polished mating face shall be used.

Connectors shall be installed as per manufacturer application and recommendations, including proper termination to the outer-tubing (900-micron tubing, 3-mm fan out tubing, etc.) required for the application.

Connectors rated for an operating temperature of -40°C to +75 °C shall be used.

Simplex connectors for all male LC connectors shall be used and a latching cover for two male connectors being used in a duplex configuration shall be provided. Female couplers may be duplex but must allow simplex mating connectors.

Dust caps shall be provided for all exposed male connectors and female couplers at all times until permanent connector installation.

907-661.02.8--Fiber Optic Termination Cabinet (FO Termination Cabinet). Fiber optic termination cabinets shall be provided in communications hubs, field junctions, and the MDOT Traffic Management Center (TMC) as shown in the Plans for termination of all fibers of the fiber optic cable(s).

The Contractor shall provide wall/shelf mount 12-fiber distribution cabinets equipped with fiber optic connector modules in a 12-fiber configuration. These will be used in field equipment and communication cabinet locations. Pre-terminated fiber distribution cabinets shall not be used without prior approval from Project Engineer.

Termination cabinets with cable management features included shall be provided.

The Contractor shall use termination cabinets that are fully compatible with all components of the fiber optic infrastructure as specified, including, but not limited to, fiber optic cable, fiber optic fusion splices and fiber optic connectors.

The Contractor shall provide rack-mount termination cabinets designed to fit standard 19-inch EIA equipment racks.

The Contractor shall provide all mounting hardware and supports to mount the termination cabinets in the locations shown in the Plans.

The Contractor shall provide fiber optic termination cabinets providing a minimum of 72-fiber connectors and capable of storing a minimum of 72 fusion splices in splice trays.

The Contractor shall provide termination cabinets that integrate the splice trays and connector modules into one compartment within one cabinet, or houses the splice trays and connector modules in separate compartments integrated into one cabinet.

The maximum dimensions of a complete termination cabinet shall be 7-rack units, 12¼ inches high by 16 inches deep.

Fiber optic termination cabinets shall be fully enclosed metallic construction with a protective hinged front cover for the connector ports.

The cabinet shall have cable access on all sides of the enclosed area behind the connector port panel.

The Contractor shall provide sufficient splice trays for storing a minimum of 72 fusion splices in 12 or 24-splice increments.

The Contractor shall provide termination cabinets with fiber optic connector modules in a 12 fiber configuration of six (6) rows of one (1) duplex connector couplers. Connector modules shall mount vertically in the termination cabinet front panel.

Connector modules shall include clearly legible and permanent labeling of each of the 12 fiber connector couplers, and shall be labeled and identified as shown in the Plans.

The Contractor shall provide factory-assembled 12-fiber termination interconnect cables (pigtail cables) to be fusion spliced to the outdoor hardened or indoor cable and connected to the rear of the connector modules.

Termination interconnect cables shall be all-dielectric, single jacketed cable with high tensile strength yarn surrounding 12 individual 900-micron fibers following EIA/TIA-598B color identification with factory-installed connectors.

The Contractor shall provide all incidental and ancillary materials including but not limited to grommets, cable strain relief and routing hardware, blank connector panels and labeling materials.

The cable shall be new (unused) and of current design and manufacture.

907-661.02.9--OSP Closures for Aerial, Pole Mount, Pedestal and Hand Hold Environments.
OSP closures for aerial, pole mount, pedestal and hand hole shall be capable of accepting up to eight cables. The closures shall be capable of storing up to eight 90-inch lengths of expressed buffer tubes and up to 96 splices.

Assembly shall be accomplished without power supplies, torches, drill kits or any special tools. Re-entry shall require no additional materials.

Sealing shall be accomplished by enclosing the splices in a polypropylene case that is clamped together with a stainless steel latch and sealed with an O-ring.

Closure shall be capable of strand mounting with the addition of a strand mounting bracket.

Splice case shall be non-filled, non-encapsulate to prevent water intrusion, and shall allow re-entry without any special tools.

The closure shall be capable of preventing a 10-foot water head from intruding into the splice compartment for a period of seven (7) days.

It is the responsibility of the Contractor to ensure that the water immersion test has been performed by the manufacturer or an independent testing laboratory, and the appropriate documentation has been submitted to the Engineer.

907-661.02.10--OSP Closures for Drop Cable Splice Points. OSP closures for aerial, pole mount, pedestal and hand hold shall be capable of accepting the trunk cable and two drop cables. The closures shall be capable of storing up to eight 90-inch lengths of expressed buffer tubes and up to 48 splices.

Assembly shall be accomplished without power supplies, torches, drill kits or any special tools. Re-entry shall require no additional materials.

Sealing shall be accomplished by enclosing the splices in a polypropylene case that is clamped together with a stainless steel latch and sealed with an O-ring.

Closure shall be capable of strand mounting with the addition of a strand mounting bracket.

Splice case shall be non-filled, non-encapsulate to prevent water intrusion, and shall allow re-entry without any special tools.

The closure shall be capable of preventing a 10-foot water head from intruding into the splice compartment for a period of seven days.

It is the responsibility of the Contractor to ensure that the water immersion test has been performed by the manufacturer or an independent testing laboratory, and the appropriate documentation has been submitted to the Engineer.

907-661.02.11--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 907-661-A and 907-661-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-µm buffered fiber, aramid yarn strength members and an outer jacket.

Patch cords may be simplex or duplex, depending on the application.

Attenuation shall be less than 1.0 dB/km @ 1310 nm, 0.75 dB/km @ 1550 and have a total attenuation of less than .5 dB.

The Contractor shall be responsible to determine and provide attenuators with the proper attenuation to not exceed the optical budgets of the equipment connected by patch cables.

907-661.02.12--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 outdoor hardened use including solvent resistance, abrasion resistance and water absorption
- Minimum size of 2.5 inches wide by 2.5 inches long
- Minimum thickness of 0.010 inches
- Orange label body with pre-printed text in bold black block-style font with minimum text height of 0.375 inches
- The Contractor shall pre-print the following text legibly on labels used for all fiber optic trunk cables:

  Caution Fiber Optic Cable Mississippi Department of Transportation (601) 359-1454

- The Contractor shall pre-print the following text legibly on labels used or all fiber optic drop cables (FO Drop Cable):

  Caution Fiber Optic Drop Cable Mississippi Department of Transportation (601) 359-1454

- On all cable labels, the Contractor shall print the text specified above twice on the label with the text of the second image inverted. The end result shall be text which "reads correctly" when the label is coiled onto a cable.

907-661.02.13--Cable Markers. The Contractor shall provide low profile soil cable markers which meet the following requirements:

- 3.5 inches in diameter
- UV stabilized for Maximum fade resistance
- Durable and abrasion resistant
- Lawn mower resistant
- Orange in color
- Printed Legend:

Fiber Optic Cable
Mississippi Department of Transportation
Traffic Engineering Division (601)359-1454

The Contractor shall install cable markers with a 13-inch nylon stake every 500 feet along the fiber run.

907-661.02.14--Tracer Cable. Tracer cable requirements as defined in Section 636, along with

the requirements in this specification, shall be met. Conduit detection wire shall be #10 AWG stranded copper, orange-insulated, THHN -THWN conductor.

907-661.02.15--Project Submittal Program Requirements. The Contractor shall provide project submittals for all fiber optic infrastructures. The project submittals for fiber optic infrastructure shall include all items in this provision and any additional requirements included in any Notice to Bidders.

The Contractor shall provide project submittals including manufacturer recommended operations, maintenance and calibration procedures for the following equipment:

- Fiber optic installation and testing tools
- Fusion splicers
- Cable pulling strain dynamometers and breakaway links
- Cable air jetting/blowing systems
- OTDRs
- Optical attenuation testers (light sources and power meters)

The Contractor shall submit documentation and proof of manufacturer recommended operator training and certification for the following equipment:

- Fusion splicers
- Cable air jetting/blowing systems
- OTDRs
- Optical attenuation testers (light sources and power meters)

907-661.03--Construction Requirements. All equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows.

907-661.03.1--General Requirements. Fiber optic cable shall meet the following general requirements.

a) The Contractor shall install all fiber optic infrastructures according to the manufacturer's recommended procedures and specifications.
b) The Contractor shall provide all necessary interconnections, services and adjustments required for a complete and operable data transmission system.
c) The Contractor shall ensure conduit is clean and undamaged prior to installing fiber optic cable.
d) The Contractor shall install all fiber trunk, drop, and patch cables such that attenuation shall be less than 1.0 dB/km @ 1310 nm, 0.75 dB/km @ 1550.
e) 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.
f) The cable shall be installed in continuous runs as indicated on the plans. Splices shall be allowed only at drop points or reel end points specified in the plans.
g) 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.

h) 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 typically two times the pole height plus 15 feet.
i) For aerial (not including aerial fiber in conduit attached to bridges) installations, the following minimum slack requirements shall apply:
   - For aerial slack storage at splice points, a radius controlling device 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 radius controlling devices 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.
j) Drop cable shall be routed to the controller cabinets via conduit risers as illustrated in the plans. The cable entrance shall be sealed with a duct plug designed for fiber optic cable to prevent water ingress.
k) The minimum requirement for fiber protection outside a fiber optic enclosure in ALL cases shall be 1/8-inch fan-out tubing, containing a hollow 900-µm tube, aramid strength members and an outer jacket, and shall be secured to the cable sheath.
l) The minimum requirement for fiber protection inside wall mount or rack mount fiber enclosure shall be 900-µm buffering, intrinsic to the cable in the case of tight buffered fibers, or in the case of 250-µm coated fibers, a fan-out body and 900-µm tubing secured to the buffer tube(s).
m) When high airspeed blowing (HASB) method or piston method is used, ensure that the volume of air passing through the conduit does not exceed the conduit manufacturer's recommendation.
n) The manufacturer's recommended maximum pulling tension shall not be exceeded. Pulling attachments shall be designed to not degrade the optical and mechanical characteristics of the fiber optic cable during installation.
o) During installation, even if the tension specifications for the cable are not exceeded the first ten feet shall be discarded.
p) Warning tape shall be placed 12 inches above the cable not to deviate ±18 inches from the centerline of the optical cable. Warning tape shall be at least two inches wide and colored orange.

907-661.03.2--Cable Shipping and Delivery. The cable shall be packaged on reels for shipment. Each package shall contain only one continuous length of cable. The packaging shall be constructed as to prevent damage to the cable during shipping and handling.

Both ends of the cable shall be sealed to prevent the ingress of moisture.

A weatherproof reel tag shall be attached to each reel identifying the reel and cable so that it can be used by the manufacturer to trace the manufacturing history of the cable and the fiber. A cable data sheet shall be included with each reel containing the following information:

- Manufacturer name
- Cable part number
- Factory order number
- Cable length.

- Factory measured attenuation of each fiber

The Contractor shall cover the cable with a protective and thermal wrap.

The outer end of the cable shall be securely fastened to the reel head so as to prevent the cable from becoming loose in transit. The inner end of the cable shall be projected a minimum of 6.5 feet into a slot in the side of the reel, or into housing on the inner slot of the drum, in such a manner as to make it available for testing.

Each reel shall be plainly marked to indicate the direction in which it is to be rolled to prevent loosening of the cable on the reel.

907-661.03.3--Cable Handling and Installation. The Contractor shall not exceed the maximum recommended pulling tension during installation as specified by the cable manufacturer.

The Contractor shall continuously monitor pulling tensions with calibrated measuring devices, such as a strain dynamometer.

The Contractor shall ensure that the minimum depth of the cable is a minimum of 36 inches unless shown otherwise in plans.

All pulled installations shall be protected with calibrated breakaway links.

The Contractor shall ensure that the minimum recommended bend radius is not exceeded during installation as specified by the cable manufacturer. Unless the manufacturer's recommendations are more stringent, the following guidelines shall be used for minimum bend radius:

- 20 X Cable Diameter Short Term - During Installation
- 10 X Cable Diameter Long Term - Installed

Before cable installation, the cable reels and reel stands shall be carefully inspected for imperfections or faults such as nails that might cause damage to the cable as it is unreeled.

All necessary precautions shall be taken to protect reeled cable from vandals or other sources of possible damage while unattended. Any damage to reeled cable or the reel itself shall necessitate replacement of the entire cable section at no additional cost to the State.

Whenever unreeled cable is placed on the pavement or surface above a pull box, the Contractor shall provide means of preventing vehicular or pedestrian traffic through the area in accordance with the safe maintenance of traffic provisions.

The cable shall be kept continuous throughout the pull. Cable breaks and reel end splices are permitted only in Type 5 pull boxes and occur at a minimum of 10,000 feet.

Where a cable ends in an underground fiber optic closure, all unused fibers and buffer tubes shall be secured and stored in splice trays in preparation for future reel end splicing and continuation.

907-661.03.4--Cable Storage. The Contractor shall properly store all cable to minimize susceptibility to damage. The proper bend radius shall be maintained, both short and long term, during cable storage.

Storage coils shall be neat in even length coils, with no cross over or tangling.

Storage coils of different cables shall be kept completely separate except when the cables terminate in the same splice closure.

Storage coils shall be secured to cable racking hardware with tie wraps, Velcro straps, or non-metallic cable straps with locking/buckling mechanism. No adhesive or self-adhering tapes, metal wires and straps, or rope/cord shall be used to secure coils.

Unless otherwise noted on the plans, the following are the requirements for cable storage for underground applications:

- Trunk cable in Type 4 pull box ..... 25 feet
- Trunk cable in Type 5 pull box ..... 200 feet
- Trunk cable in Surface Mounted pull box ..... 5 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 Surface Mounted pull box, not terminated in a splice closure .....5 feet
- Drop cable in Type 5 pull box, terminated in a splice closure with the trunk cable ..... 100 feet
- Drop cable in Surface Mounted pull box, terminated in a splice closure with the trunk cable ..... 5 feet
- Trunk cable end in Type 5 pull box ..... 200 feet
- Drop cable terminated in same splice closure as trunk cable end ..... 200 feet
- Trunk cable end in Surface Mounted pull box ..... 10 feet

The Contractor shall label each pull box with a numbered disk obtained from the Traffic Engineering Division. The disk shall be installed in accordance with the manufacturer's specification on the lid of each pull box. Numbers shall be noted on the As-Built plans for each pull box.

No slack cable shall be stored inside the communications hub building or Control Center.

907-661.03.5--Cable Labels. Cable labels shall be installed on all trunk and drop fiber optic cables. The installed cable shall be cleaned of all dirt and grease before applying any label.

The Contractor shall label all cables in or at every location where the cable is exposed outside of a conduit, innerduct or pole using the cable IDs for trunk cables or the device number for drop cables.

As a minimum, cable labels shall be installed in the following locations:

- Within 12 inches of every cable entry to a pull box, equipment cabinet, communications

hub, or the TMC
- Within 12 inches of the exterior entry point of every fiber optic splice closure, termination cabinet and drop panel
- Every 30 feet for the entire length of cable in any storage coil in pull boxes
- Within one (1) foot of every pole attachment
- On every riser
- On every splice enclosure

907-661.03.6--Tracer Cable. Tracer cable requirements as defined in Section 636 Electrical Cable, along with the requirements in this specification, shall be met. The Contractor shall install one tracer cable where one or more conduits are installed. Tracer cable is required for all installation methods, including trenching, directional boring, or plowing. Conduit or Fiber Optic Cable with preinstalled tracer cable shall not be used without prior approval from Project Engineer.

Only one tracer wire is required per installed conduit bank regardless of the number of conduits installed in that segment. Tracer cable shall be installed inside the conduit.

Tracer cable is not required for structure mounted conduit, except where underground segments of structure mounted conduit are greater than 20 feet in length.

The tracer cable 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 tracer cable shall be coiled and secured in each pull box or vault.

When two or more tracer cables are in any pull box, the Contractor shall mechanically splice all tracer cable together.

Tracer cable is required in drop cable conduits.

A tracer cable surge protection system shall be furnished and installed. Tracer cables shall be attached to surge protection systems designed to dissipate high transient voltages or other electrical surges. The tracer cable surge protection system shall be grounded to a driven rod within 10 feet of the system using AWG #6 single conductor wire as detailed in the plans. Grounding shall be done through a stand alone system not connected to power or ITS device grounding. The surge protection system shall normally allow signals generated by locate system to pass through the protection system without going to ground.

907-661.03.7--Splicing into Existing Fiber Optic Cable. At some locations, the Contractor may be required to splice new drop cable into existing fiber optic cable at existing pull boxes. The Contractor is responsible to protect all existing fiber during this work. No separate payment shall be made for splicing into the existing fiber. The cost for all fiber optic work and equipment shall be included in the bid price for pay items 907-661-A and 907-661-B.

The Contractor must notify the Project Engineer in writing no less than ten (10) days in advance of doing any work to existing fiber optic cable. Before any work can begin the Contractor must

have obtained approval from the Project Engineer.

907-661.03.8--Replace Fiber Optic Cable. In locations specified in the Plans, the Contractor shall be required to remove and replace existing fiber optic cable with new fiber optic cable. The new fiber optic cable shall be an equivalent cable having the same cable type, assembly, connectors, size, construction, buffer tube construction, temperature characteristics, tensile strength, and optical characteristics. The cable type and mode shall be the same unless specified as otherwise in the Plans or Notice to Bidders. The new cable shall be a compatible replacement having equivalent or improved link characteristics. The Contractor shall install the cable as per manufacturer application and recommendations and adhere to the Installation Requirements and Testing specifications as stated herein. No separate payment will be made for this work. The cost for pulling new fiber optic cable for cable replacement, and splicing/terminating all fibers shall be included in the cost of pay item 907-661-D.

907-661.03.9--Replace Fiber Optic Drop Cable. In locations specified in the Plans, the Contractor shall be required to remove and replace existing fiber optic drop cable with new fiber optic drop cable. The new fiber optic drop cable shall be an equivalent cable having the same cable type, assembly, connectors, size, construction, buffer tube construction, temperature characteristics, tensile strength, and optical characteristics. The cable type and mode shall be the same unless specified as otherwise in the Plans or Notice to Bidders. The new cable shall be a compatible replacement having equivalent or improved link characteristics. The Contractor is required to install the cable as per manufacturer application and recommendations and adhere to the Installation Requirements and Testing specifications as stated herein. No separate payment will be made for this work. The cost for pulling new fiber optic drop cable for cable replacement, and splicing/terminating all fibers shall be included in the cost of pay item 907-661-E.

907-661.03.10--Upgrade Fiber Optic Cable. In locations specified in the Plans, the Contractor shall be required to upgrade existing fiber optic cable to new cable that adheres to the respective cable specification and requirements. The cable type and mode shall be the same unless specified as otherwise in the Plans or Notice to Bidders. The cable upgrade shall be treated as a new cable installation and adhere to all corresponding specifications and requirements stated herein. No separate payment will be made for this work. The cost for pulling new fiber optic to upgrade existing cable, and splicing/terminating all fibers shall be included in the cost of pay item 907-661-G.

907-661.03.11--Fiber Optic Connections at Existing Communication Nodes. In some locations, the Contractor shall be required to pull new fiber optic cable into an existing communications hut. 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 907-661-A and 907-661-B.

907-661.03.12--Drop and Insert Applications. The signal from the TMC to local controllers, cameras, and/or dynamic message signs will be conveyed via the backbone and branch cables.

The appropriate closure (Subsection 907-661.02.8) shall be used.

A 12-port fiber distribution cabinet and appropriate jumper shall be installed within the cabinet at locations approved by the Engineer.

At each device, the applicable fibers will be routed in and out of the equipment cabinet using a pre-terminated drop cable.

Only fibers required for the drop and insert shall be cut, no other fibers in the cable shall be cut without the approval of the Engineer.

The fibers shall be connected to the transmission equipment via LC/LC fiber optic patch cables.

The drop cable shall be routed in a position that will allow access to all installed components without movement of the cable.

In traffic signal control boxes, the drop cable shall be routed up the left rear corner to a shelf mounted fiber optic termination cabinet.

In ITS equipment or communication cabinets the cable shall be routed neatly allowing for service of all installed components.

907-661.03.13--Testing. The fiber optic infrastructure shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-661.03.13.1--Pre-Installation Test (PIT). In addition to the requirements set forth in the Notice to Bidders entitled "ITS General Requirements", the Contractor shall, at a minimum, 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.

907-661.03.13.2--Standalone Acceptance Test (SAT). In addition to the requirements set forth in the Notice to Bidders entitled "ITS General Requirements", the Contractor shall, at a minimum, 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.

Tracer Cable shall undergo testing to verify conformance to requirements of the plans and these special provisions. A continuity or tone test shall be performed after installation to confirm that a continuous run of tracer cable was installed for the full length of the conduit runs.

The Traffic Engineering ITS Department may perform additional testing of any and all infrastructure using their own equipment. The Contractor may observe this testing.

The burn-in period cannot start until the Traffic Engineering ITS Department is satisfied with the installation.

907-661.03.14--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements", along with the requirements below and throughout this specification, shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-661.03.15--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-661.03.16--Warranty. At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met.

907-661.03.17--Training. The minimum training requirements shall be as defined in the Notice to Bidders entitled "ITS General Requirements."

907-661.04--Method of Measurement. Fiber optic cable of the type specified will be measured by the linear foot, and shall be obtained by accurate measurement of the runs including horizontally, vertically, aerially along the messenger cable, from the trunk line to the controller cabinet, and with liberal allowances made for slack in boxes, as indicated in the plans.

The cost for all fiber optic work, equipment and testing shall be included in the bid price for fiber optic cable.

All required cabinet facilities shall not be measured for separate payment. All standard or special fiber optic modems, fan out boxes, connectors, termination cabinets, patch cords, raceways, splicing devices, splicing, warning tape, above ground markers, backplane facilities, twisted pair communications cable interface devices, etc., and any other cabinet modifications required for the fiber optic system shall be included in the price bid for other items of work.

Fiber Optic Cable Training shall be measured as a lump sum which shall include all coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

907-661.05--Basis of Payment. Fiber optic cable, measured as prescribed above, will be paid for at the contract unit price bid per linear foot, which price shall be full compensation for documentation and submittals, warranties, furnishing all materials, for all installing, connecting, cutting, pulling and testing, all equipment, tools, labor, quality assurance, and all incidentals necessary to complete the work.

Fiber Optic Cable Training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

Payment will be made under:

907-661-A:	Fiber Optic Cable, *	- per linear foot
907-661-B:	Fiber Optic Drop Cable, *	- per linear foot
907-661-D:	Replace Fiber Optic Cable, *	- per linear foot
907-661-E:	Replace Fiber Optic Drop Cable, *	- per linear foot
907-661-G:	Upgrade Fiber Optic Cable, *	- per linear foot
907-661-H	Fiber Optic Cable Training	- lump sum

* Indicate the type of cable. Cable may be aerially supported as indicated in the plans.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-662-2 **CODE: (IS)**

DATE: **05/25/2021**

SUBJECT: **Radio Interconnect System**

Section 662, Radio Interconnect System, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-662.02--Materials.

907-662.02.1--General Requirements. Delete the first sentence of the fourth paragraph in Subsection 662.02.1 on page 669, and substitute the following.

The Contractor shall obtain and reserve necessary frequencies, and apply for all required licenses by the FCC.

Delete the first sentence of the seventh paragraph in Subsection 662.02.1 on page 669, and substitute the following.

The Mean Time Between Failures (MTBF) shall be at least 87,658 hours.

Delete subparagraph e. under Network Feature in Subsection 662.02.1 on page 670, and substitute the following.

e. The wireless radio shall be a Layer 2 device by operating similar to a switch or bridge device and meeting all requirements of a Layer 2 switch as specified in the MDOT Networking Equipment Special Provision No. 907-663. The wireless radio shall be capable of connecting to the MDOT Network via an RJ-45 port.

907-662.02.3--Radio Interconnect System, Broadband. Delete subparagraphs 4) and 5) in Subsection 662.02.3 on page 671, and substitute the following.

4) The short range and long range broadband radios shall provide a minimum data rate of 150 Mbps as tested by bandwidth speed test.
5) The short range and long range broadband radios shall provide reliable communication and sufficient bandwidth (i.e., greater than the cumulative minimum bandwidth of each device that will utilize the link) for all devices utilizing the wireless link(s).
6) Short range and long range broadband radios shall support 802.11 a/n wireless standards.
7) Short range and long range radios shall have 2 or more Gigabit Ethernet ports.
8) Short range and long range radios shall be capable of a TX power of 24 dBm or better.
9) The Contractor may propose the use of multiband (dual band, tri band, etc.) radios using licensed 4.9 GHz and unlicensed 5.8 GHz and 2.4 GHz bands if bandwidth requirements and path interference warrants the use of such radios and approved by the Project Engineer.

907-662.02.4--Radio Interconnect System, Television Broadcast Radio (TVBR).

907-662.02.4.1--Specific Requirements. Delete the first sentence of subparagraph 7) in Subsection 662.02.4.1 on page 672, and substitute the following.

The MTBF shall be at least 43,829 hours for Type Short Range TVBR and 87,658 hours for Type Long Range TVBR.

907-662.03--Construction Requirements.

Delete Subsections 662.03.2 and 662.03.3 on pages 673 thru 675, and substitute the following.

907-662.03.2--Testing. All equipment associated with the Radio Interconnect System at each site shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-662.03.2.1--Standalone Acceptance Test (SAT). In addition to the requirements set forth in the Notice to Bidders entitled "ITS General Requirements", successful communications shall demonstrate, at minimum, the ability of a wireless transceiver to send clear, uninterrupted video if the radio is intended to carry a video signal or an error-free data message of at least 200 KB if the radio will not carry video signals, to the receiving station and have it processed for viewing and confirmation. A minimum of 30 test transmissions .shall be attempted at each test site. If a failure occurs at the locations selected, it will be the responsibility of the Contractor to re-check the test area to determine if a problem exists. When problem(s) occur, it will be the Contractor's responsibility to perform additional tests as required to define the cause of the problem and confirm the final working functionality. If areas of non-performance represent more than the Contractor's predicted link reliability it will be the Contractor's responsibility to correct such problems at the sole expense of the Contractor. Additional costs associated with the repeated tests will be the sole responsibility of the Contractor.

The Contractor shall prepare and execute a detailed system acceptance test plan, including detailed system acceptance test procedures. The Contractor shall submit a copy of all system acceptance test plans and link reliability predictions to the Project Engineer through the standard Department submittal process, as noted in the Notice to Bidders entitled "ITS General Requirements."

907-662.03.3--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-662.03.4--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-662.03.5--Warranty. At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the warranty requirements shall be included in the overall contract price.

907-662.03.6--Training. The minimum training requirements shall be as defined in the Notice to Bidders entitled "ITS General Requirements."

907-662.04--Method of Measurement. In subparagraph 2) in Subsection 622.04 on page 675, change "Additional" to "additional."

At the end of Subsection 662.04 on page 675, add the following.

Radio Interconnect Training shall be measured as a lump sum which shall include all coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

907-662.05--Basis of Payment. Delete the first paragraph of Subsection 662.05 on pages 675 and 676, and substitute the following.

The radio interconnect system components, measured as prescribed above, will be paid for at the contract unit price per each, which price shall be full compensation for furnishing all labor, tools, equipment, warranties, connecting, testing, materials inclusive of radio, software, base stations, power supply, antennas, cables and connectors, lightning suppressors, mounting and grounding hardware, enclosures, receivers, and transceivers, all documentation, submittals, and system documentation including shop drawings, operations and maintenance manuals, wiring diagrams, and block diagrams, and all incidentals necessary to complete the work and quality assurance.

After the third paragraph of Subsection 662.05 on page 676, add the following.

Radio Interconnect Training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."Delete the list of pay items on page 676, and substitute the following.

907-662-A:	Radio Interconnect, Signal Control, Installed in New Controller Cabinet	- per each
907-662-B:	Radio Interconnect, Signal Control, Installed in Existing Controller Cabinet	- per each
907-662-C:	Radio Interconnect, Signal Control Repeater	- per each

907-662-D: Radio Interconnect, Broadband, * - per each

907-662-E: Radio Interconnect, TVBR, * - per each

907-662-F: Radio Interconnect, Spare Parts, Furnish Only - per each

907-662-G: Radio Interconnect Training - lump sum

* Type – Long Range or Short Range

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-663-6 **CODE: (IS)**

DATE: 12/15/2023

SUBJECT: Networking Equipment

Section 907-663, Networking Equipment, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-663 -- NETWORKING EQUIPMENT

907-663.01--Description. This section specifies the minimum requirements for providing networking communication equipment, including network switches, terminal servers, fiber optic modems, SD-WAN routers, and associated cabling, furnished and installed.

Network Switches are divided into three (3) categories; Layer 2 hardened, Layer 3 hardened, and Layer 3 non-hardened. There can be multiple types per category such as Type A, B, C etc. Types will be defined by options based on versions and numbers of ports, and/or additional modules such as built in fiber modems, wireless components, and terminal servers. The number of specific port versions will also be defined by plan requirements, NTBs, and Special Provisions.

Field and core hardened category switches shall be environmentally hardened devices.. These switches support Intelligent Transportation Elements deployed on arterial streets and the highway system where network switches are required for communications but HVAC systems are not available for environmental control. Elements include but are not limited to traffic signals, dynamic message signs, surveillance cameras, and vehicle detection systems. Field and core non-hardened category switches will support the Intelligent Transportation System and be installed in the Traffic Management Center and Communications Huts which are environmentally controlled.

This section also specifies the minimum requirements for standalone and network switch module terminal servers, standalone and network switch modules, SD-WAN Routers, and Ethernet Network cable. The terminal servers shall be hardened. The terminal server device, also commonly referred to as a port server device, will be used to communicate bi-directionally between IP-based Ethernet network systems and existing field devices that communicate or are controlled via a full-duplex serial interface. SD-WAN Routers shall be used to provide data network connectivity via a cellular network bi-directionally to remote sites such as portable traffic signal sites, portable CMS, smart work zones, ITS site locations, or devices that need serial or Ethernet communication that can be provided over cellular service.

The Ethernet network cable will be installed in conduit and cabinets between elements that are within 300 feet of each other to eliminate the need for two hardened switches. The work shall consist of providing all labor, materials, equipment, and incidentals necessary to furnish, install, and test the networking equipment.

907-663.02--Materials. Network switches, terminal servers, cell modems, and associated cabling will be placed in the field device cabinets and shall meet the following requirements.

907-663.02.1--Network Switch Requirements. All network switches shall adhere to the following minimum requirements.

1) Field switch optical ports shall meet the following:
   a. The minimum optical budget between transmit and received ports shall be 18dB.
   b. Shall include LC connector types.
   c. Optical receiver maximum input power level shall not be exceeded.
   d. Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657 of the Standard Specifications. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.
   e. The Contractor shall be required to measure the optical power on each optical port to ensure that power entering the receiver is within the acceptable power budget of the optical port.
   f. Optical interface equipment shall operate at 1310 nm.
2) Operate from 100 VAC to 200 VAC.
3) Meet the IEEE 802.3 (10Mbps Ethernet) standard.
4) Meet the IEEE 802.3u (Fast Ethernet 100 Mbps) standard.
5) Meet the IEEE 802.3x (Full Duplex with Flow Control) standard.
6) Meet the IEEE 802.1p (Priority Queuing) standard.
7) Meet the IEEE 802.1Q (VLAN) standard per port for up to four VLAN's.
8) Meet the IEEE 802.1w (Rapid Spanning Tree Protocol) standard.
9) Meet the IEEE 802.3ad (Port Trunking) standard for a minimum of two groups of four ports.
10) The field switches shall meet IEEE 802.3D (Spanning Tree Protocol) standard.
11) Capable of mirroring any port to any other port within the switch.
12) Password manageable through:
   a. SNMP
   b. Telnet/CLI
   c. HTTP (Embedded Web Server) with Secure Sockets Layer (SSL)
13) Full implementation of SNMPv1 and SNMPv2c.
14) Full implementation of GVRP (Generic VLAN Registration Protocol).
15) Full implementation of IGMP and IGMP snooping.
16) Minimum MTBF of 100,000 hrs using Bellcore TS-332 standard.
17) Full implementation of RFC 783 (TFTP) to allow remote firmware upgrades.
18) UL approved.
19) The field switch shall provide LED status indicators as follows:
   1) power on and off
   2) network status per port (transmit, receive, link, speed)
20) Unused ports (copper and optical) shall be covered with rubber or plastic dust caps/covers.
21) Switches Types that are required to be Environmentally Hardened shall meet the following environmental requirements:
   a. The field switches [this excludes Types C, E and F] shall operate between -34° to +74°C, including power supply.

b. The field switches [this excludes Types C, E and F] shall operate from 10% to 90% non-condensing humidity.

907-663.02.1.1–Layer 2 Network Switch. Layer 2 network switches shall be provided in locations where only Layer 2 network functionality is required. These locations will generally be field site locations. Layer 2 network switches shall adhere to the following minimum requirements.

1) Shall be environmental hardened
2) 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.
3) All power transformers provided shall be "fastening mechanism" type. No plug-in types shall be permitted. All corded transformers shall be mountable with the ability to neatly secure power cords.

907-663.02.1.1.1--Type A Network Switch. Type A network switches shall be a layer 2 network switch at minimum and shall be environmentally hardened. The Type A shall be provided in situations where a minimal number of interface ports are required. The Type A switch shall adhere to the following minimum requirements in addition to the Layer 2 network switch requirements.

1) Minimum of six 10/100/1000 Base-TX ports. Each port shall connect via RJ-45 connector.
2) Minimum of two 1000 Base Long Reach optical ports.

907-663.02.1.1.2--Type B Network Switch. Type B network switches shall be a Layer 2 network switch at minimum and shall be environmentally hardened. The Type B shall be provided in situation where minimal number of interface ports are required. The Type B switch shall adhere to the following minimum requirements in addition to the Layer 2 network switch requirements.

1) Minimum of twelve (12) 10/100/1000 Base-TX ports. Each port shall connect via RJ-45 connector.
2) Minimum of two (2) 1000 Base Long Reach optical ports.

907-663.02.1.2–Layer 3 Network Switch. Layer 3 network switches shall be provided in locations where Layer 2 and Layer 3 network functionality is required. These locations will generally be Environmental Controlled Field HUBs, TMC equipment rooms, and control rooms. Where Layer 3 Network Switching is required but Environmental Control is not available, Environmentally Hardened Type Layer 3 switches shall be provided. In addition to meeting the general network Requirements, Layer 3 Switches have the following additional Requirements:

1) Each switch shall provide Layer 2 and Layer 3 switching and routing services.
2) Each switch shall meet the IEEE 802.1d (Virtual Bridge) standard.
3) Each switch shall meet the IEEE 802.1x (authentication) standard.
4) Access Control Lists (ACLs)
5) IPv4 and IPv6 multicast
6) IP Service-Level Agreement (IP SLA)
7) Open Shortest Path First (OSPFv2 and OSPFv3)
8) Border Gateway Protocol (BGP)

9) Enhanced Interior Gateway Routing Protocol (EIGRP)

907-663.02.1.2.1--Type C Network Switch Requirements. The Type C network switch, which is a base core switch, will be installed in the communication hubs and shall meet the following requirements:

1) Each switch shall be populated with modules including the following features and capabilities:
   a. Minimum of 64Gbps/48Mpps module Bandwidth
   b. Minimum of 8-GE uplink ports available per network switch assembly. The Contractor shall provide an uplink SFP optical module compatible with the interface for the uplink as indicated in the Location & Configuration of Communication Nodes notice to bidders for each uplink
   c. In one (or more) modules: 24 Ethernet 10/100/1000 RJ-45 ports
2) Optical receiver maximum input power level shall not be exceeded.
3) Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657 of the Standard Specifications. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.
4) 19" rack mountable.
5) Supports 10 gigabit ethernet of SFP optics.
6) NEBS Level 3 compliant.
7) Meet the requirements of :
   a. IEEE 802.3z
   b. IEEE 802.3ab
   c. IEEE 802.1Q
   d. GR-20-CORE: Generic requirements for Optical Fiber and Optical Fiber Cable
   e. GR-326-CORE: Generic Requirements for Singlemode
8) Full implementation of BGPv4 protocol as outlined by RFCs: 4271, 6286, 6608, 6793, 7606, 7705, 8212
9) Full implementation of OSPF protocol as outlined by RFCs: 2178, 1583, 1587, 1745, 1765, 1850, 2154, 2328, 1850, 1997, 2385, 2439, 2842, 2918, 2370.
10) Capable of mirroring any port to any other port within the switch.
11) Password manageable through:
   a. SSH (Secure Shell)
12) Full implementation of MLD (Multicast Listener Discovery).
13) Full implementation of IGMPv2.
14) Full implementation of PIM-SM and PIM-DM.
15) Comply with FCC 47 CRF Part 15 Class A emissions.
16) Bandwidth flow rate limiting policing support per port.
17) Full security implementation of
   a. Support SSH, 802.1x (rel 2)
   b. Access Control Lists (ACL's)
   c. RADIUS authentication
   d. TACACS+ authentication
18) The power supply units shall be hot swappable.

907-663.02.1.2.1.1--Type C1 Network Switch Requirements. The Type C1 network switch will be installed in communication hubs where a maximum total of 4 pair/(8 strands) of fiber optic cable will be actively in use or in environmentally controlled wireless towers and shall meet the following requirements:

1) Each switch shall be populated with an 4-port SFP gigabit ethernet module and also include the following features and capabilities:
   a. Minimum of 88Gbps Switching Capacity and 480Gbps Stacking Bandwidth
   b. In one (or more) Fiber SFP-based module(s): a minimum of 8 1000Base-X (SFP-based) compatible access ports which may also be used as uplink ports. The Contractor shall provide whichever is greater between a minimum number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a minimum of eight (8) and shall meet the following minimum requirements:
      i. Optical budget of 18dB
      ii. Switch shall be stackable and contain dual power supplies
      iii. Same optical wavelength as Type A & B switches
      iv. Same optical transmitter power as Type A & B switches
2) Non-Chassis based switch
3) Operate from 23° to 113°F.
4) RIPng, OSPFv6, and EIGRPv6 support
5) Full implementation of GMRP (Generic Multicast Registration Protocol).
6) Have redundant power supplies installed.

907-663.02.1.2.1.2--Type C2 Network Switch Requirements. The Type C2 network switch will be installed in the Communication Hubs where a minimum total of 5 pair/ (10 strands) of fiber optic cable will be actively in use. This type switch may also be installed in environmentally controlled wireless towers if the minimum total of 5 pair/(10 strands) fiber optic cable in-use rule applies. This type switch shall also meet the following requirements:

1) Each switch shall be populated with three (3) modules including the following features and capabilities:
   a. In one (or more) Fiber SFP-based module(s): a minimum of 48 1000Base-X (SFP-based) compatible access ports and a minimum of 8 1000Base-X (SFP-based) uplink ports. The Contractor shall provide whichever is greater between a minimum number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a minimum of 14 and shall meet the following minimum requirements:
      i. Optical budget of 18dB
      ii. Hot-swappable network modules
      iii. Same optical wavelength as Type A & B switches
      iv. Same optical transmitter power as Type A & B switches
2) Operate from 10 to 90% non-condensing humidity
3) Operate from 32° to 104°F.
4) Designed as a chassis with easy to remove modules.
5) Chassis backplane shall be passive.
6) All modules shall be hot-swappable.
7) Must have installed redundant power supplies in which each supports a minimum of 4200 watts.

8) Switch assembly shall have a minimum of three (3) module slots.
9) Blank covers for all remaining slots.

907-663.02.1.2.1.3--Type C3 Network Switch Requirements. The Type C3 network switch will be installed in the communication hubs where a minimum total of 5 pair/(10 strands) of fiber optic cable will be actively in use. This type switch may also be installed in environmentally controlled wireless towers if the minimum total of 5 pair/(10 strands) fiber optic cable in-use rule applies. This type switch shall also meet the following requirements:

1) Each switch shall be populated with modules including the following features and capabilities:
    a. Redundant Layer 2/3 switching and routing services
    b. In one (or more) Fiber SFP-based module(s): a minimum of 48 1000Base-X (SFP-based) compatible access ports and a minimum of 8 1000Base-X (SFP-based) uplink ports. The Contractor shall provide whichever is greater between a minimum number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a minimum of 14 and shall meet the following minimum requirements:
        i. Optical budget of 18dB
        ii. Hot-swappable network modules
        iii. Same optical wavelength as Type A & B switches
        iv. Same optical transmitter power as Type A & B switches
2) Operate from 32° to 104°F.
3) Operate from 10 to 90% non-condensing humidity
4) Designed as a chassis with easy to remove modules.
5) Chassis backplane shall be passive.
6) All modules shall be hot-swappable.
7) Must have installed redundant power supplies in which each supports a minimum of 4200 watts.
8) Switch assembly shall have a minimum of 6 module slots.
9) Blank covers for all remaining slots.

907-663.02.1.2.1.4--Type C4 Network Switch Requirements. The Type C4 network switch will be installed in the communication hubs where no less than 21 pairs/(42 strands) of fiber optic cables will be active and in use and shall meet the following requirements:

1) Each switch shall be populated with modules including the following features and capabilities:
    a. Redundant Layer 2/3 switching and routing services
    b. The switch chassis shall be capable of accommodating up to 440 Gbps per slot.
    c. In one (or more) Fiber SFP-based module(s): a minimum of 48 1000Base-X (SFP-based) compatible access ports and a minimum of 8 1000Base-X (SFP-based) uplink ports. The Contractor shall provide whichever is greater between a minimum number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a minimum of 14 and shall meet the following minimum requirements:
        i. Optical budget of 18dB
        ii. Hot-swappable network modules
        iii. Same optical wavelength as Type A & B switches

iv. Same optical transmitter power as Type A & B switches

2) Operate from 32° to 104°F.
3) Supports relative humidity - Ambient (noncondensing) operating: 5% to 90%
4) Designed as a chassis with easy to remove modules.
5) Chassis backplane shall be passive.
6) All modules shall be hot-swappable.
7) Must have installed dual-redundant (4) power supplies in which each supports a minimum of 3000 watts.
8) Switch assembly shall have a minimum of seven (7) module slots.
9) Blank covers for all remaining slots.

907-663.02.1.2.2--Type D Network Switch Requirements. The Type D network switch shall be of chassis design. The switch shall be able to accept a minimum of four (4) different types of modular cards. The Type D network switch shall meet the minimum requirements specified below:

1) The switch shall be chassis designed with a minimum of four (4) module slots.
2) Each switch shall be able to accept the following type modules:
   a. Ethernet module:
      i. A minimum number of six (6) 10/100Base-TX compatible RJ45 ports.
      ii. The Contractor shall provide the minimum number of modules necessary to meet or exceed the required number of ports as indicated in the plans and NTBs.
      iii. Total required bandwidth per chassis shall not exceed 10 Gbps
   b. Fiber based modules:
      i. The module shall accept SFP type fiber modules.
      ii. The Contractor shall supply any necessary fiber modules that meet the requirements of speed, type of fiber, and link budget connection.
      iii. The Contractor shall provide the minimum number of modules necessary to meet or exceed the required number of ports as indicated in the plans and NTBs.
   c. WAN module:
      i. T1, DS3 or Metro Ethernet Interface (as per NTB or project plans)
         1) The Interface shall be T1, DS3 or Metro Ethernet
         2) The ports shall connect via RJ45 connector.
      ii. Cellular Interface
         1) Contractor shall provide information to the Project Engineer to enable activation of the modem.
         2) Contractor shall get prior approval from the Project Engineer on selection of cellular radio type (HSPA/EVDO)
   d. Terminal Server module:
      i. Module that meets terminal server requirements Subsection 663.02.6
   e. Power Supply module:
      i. The power module provided shall be "screw terminal block" type. No pluggable terminal block.
      ii. Input power: Same as Type A and Type B switches.
      iii. Power module shall be hot-swappable.
      iv. The Contractor shall supply the necessary amount of power supplies to meet power requirements for all cards installed and the chassis itself

3) Software license shall be provided to match functionality of installed modules.
4) Shall be DIN or Panel mountable.
5) Password manageable through:
    a. SSHv2 (Secure Shell)
6) Full implementation of VRRP.
7) Comply with FCC 47 CRF Part 15 Class A emissions.
8) Bandwidth flow rate limiting policing support per port.
9) Full security implementation of
    a. Support SSH2, 802.1x (rel 2)
    b. Access Control Lists (ACL's)
    c. RADIUS
10) Blank covers for all remaining slots.
11) Electronic surfaces shall be covered with conformal coating for additional environmental protection.

907-663.02.1.2.3--Type E Network Switch Requirements. The Type E network switch will be installed in locations where multiple backbone fibers converge or high concentration of ports are needed for a field location but need a hardened switch and shall meet the following requirements:

1) Each switch shall be populated with redundant switch fabric modules that meet the following minimum requirements:
    a. Minimum of 2-GE uplinks available per card with a minimum capability to expand to eight (8). The Contractor shall provide an uplink SFP optical module compatible with the interface for the uplink as indicated in the Notice to Bidders entitled "Location & Configuration of Communication Nodes" for each uplink.
2) The Contractor will need to determine port count configuration based on the project plans for the Type E switch. Optical interfaces shall include 1000 Base-X (SFP-based module(s)) with a minimum of four (4) ports. The Contractor shall provide whichever is greater between a minimum number of SFP optic modules to interface to the fiber as indicated in the plans and NTBs, or a minimum of six (6) and shall have a minimum Optical budget of 18dB and be the same optical wavelength as Type A & B switches.
    a. Optical receiver maximum input power level shall not be exceeded.
    b. Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657 of the Standard Specifications. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.
3) Include a minimum of eight (8) Ethernet 10/100/1000 ports
4) Include a minimum of four (4) SFP ports must support 1000-Base-X/10 gigabit-ethernet-optics.
5) 19" rack mountable.
6) Chassis backplane shall be passive.
7) Meet the requirements of :
    a. IEEE 802.3z
    b. IEEE 802.3ah
    c. IEEE 802.1Q
    d. GR-20-CORE: Generic requirements for Optical Fiber and Optical Fiber Cable
    e. GR-326-CORE: Generic Requirements for Singlemode

8) Full implementation of BGPv4 protocol as outlined by RFCs: 4271, 6286, 6608, 6793, 7606, 7705, 8212
9) Full implementation of OSPF protocol as outlined by RFCs: 2178, 1583, 1587, 1745, 1765, 1850, 2154, 2328, 1850, 1997, 2385, 2439, 2842, 2918, 2370.
10) Capable of mirroring any port to any other port within the switch.
11) Password manageable through:
    a. SSHv2 (Secure Shell)
12) Full implementation of GMRP (Generic Multicast Registration Protocol).
13) Full implementation of IGMPv2.
14) Full implementation of PIM-SM and PIM-DM.
15) Full implementation of DVMRPv3.
16) Full implementation of VRRP.
17) Comply with FCC 47 CRF Part 15 Class A emissions.
18) Bandwidth flow rate limiting policing support per port.
19) Full security implementation of
    a. Support SSH2, 802.1x (rel 2)
    b. Access Control Lists (ACL's)
    c. RADIUS
    d. TACACS
20) Have redundant power supplies installed.
21) Blank covers for all remaining slots.
22) Have options or modules to add a terminal server as specified in Subsection 663.02.2
23) Have options or modules to add a cellular interface as specified in Subsection 663.02.3

907-663.02.1.2.3.1--Type E1 Network Switch Requirements. The Type E1 network switch will be installed in locations where multiple backbone fibers converge or a high concentration of ports are needed for a field location and a hardened switch is required and shall meet the following requirements:

1) Each switch shall be populated with redundant switch fabric modules that meet the following minimum requirements:
    a. 56 to 64Gbps switching bandwidth/41.67 mpps with 64byte packets
2) Based from the project plans, the Contractor must determine the appropriate configuration of port types and count by selecting one of the options below:
    a. Include a minimum of 12 10/100/1000 ethernet ports and a minimum of 16 optical 1000Base-X(SFP-Based).
    b. Include a minimum of 24 10/100/1000 ethernet ports and a minimum of 4 optical 1000 base-X (SFP-Based).
3) Operate from -45° to +75°C.
4) Operate relative humidity of 5% to 95% noncondensing

907-663.02.1.2.3.2--Type E2 Network Switch Requirements. The Type E2 network switch will be installed in locations where multiple backbone fibers converge or a high concentration of ports are needed for a field location, a hardened switch and larger bandwidth are needed, and shall meet the following requirements:

1) Each switch shall be populated with redundant switch fabric modules that meet the following minimum requirements:
   a. 128Gbps switching bandwidth/41.67 mpps with 64byte forwarding rate
2) Based from the project plans, the Contractor must determine the appropriate configuration of port types and count by selecting one of the options below:
   A. Include a minimum of 12 10/100/1000 ethernet ports and a minimum of 12 optical 1000Base-X(SFP-Based).
   B. Include a minimum of 12 10/100/1000 ethernet ports and a minimum of 16 optical 1000 base-X (SFP-Based).
3) Supports 10 gigabit ethernet of SFP optics.
4) Operate from -40° to +85°C.
5) Operate relative humidity of 0% to 95% noncondensing

907-663.02.1.2.4--Type F Network Switch Requirements. The Type F network switch will be Layer 3 switches installed in field locations with wireless communications or access points and shall meet the following requirements:

1) Each switch shall be populated with switch modules that meet the following minimum requirements:

   a. 20Gbps Aggregate Bandwidth
   b. Minimum of 4-GE uplinks available per switch with a minimum of 2 being fiber ports. The Contractor shall provide an uplink SFP optical module compatible with the interface for the uplink as indicated in the Notice to Bidders entitled "Location & Configuration of Communication Nodes" for each uplink.
   c. SD flash port for swappable Management Card configuration
   d. Supports High Density Power over Ethernet (PoE) for up to 8 devices
   e. Supports Cisco Common Industrial Protocol (CIP)
   f. Support of SCADA (Supervisory Control And Data Acquisition) connectivity.
   g. Can be supported with IP services.

2) In addition to the uplink ports, interfaces ports shall include:
   a. 8 PoE 10/100/1000
   b. 4 SFP ports
      i. Optical receiver maximum input power level shall not be exceeded.
      ii. Optical attenuators shall be added as needed; fiber optic attenuator patch cords shall be in accordance with Section 657 of the Standard Specifications. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.
3) DIN Rail Mountable.
4) Operate from -40° to +70°C.
5) Operate from 5% to 95% non-condensing humidity
6) Supports IEEE 802.1AE MACsec, Security Group Access Control Lists (SGACL)
7) RIPng, OSPFv6, and EIGRPv6 support
8) Full implementation of IGMPv2.
9) Full implementation of PIM-SM and PIM-DM.
10) Supports Redundant DC input voltage

11) Power supplies with PoE support and 6' minimum power cord(s).

907-663.02.2--Terminal Server. Terminal server shall adhere to the following minimum requirements.

1) 10/100 Base-T Ethernet port connection
2) RJ-45/DB9 Serial port connection
3) RS-232/422/485 selectable serial connections
4) Baud rates up to 230 Kbps
5) Full Modem and hardware flow control
6) TCP/UDP Socket Services
7) UDP Multicast
8) Telnet and Reverse Telnet
9) Modem emulation
10) SNMP (Read/Write)
11) PPP
12) Port buffering
13) HTTP
14) Remote management
15) DHCP/RARP/ARP-Ping for IP address assignment
16) LED status for link and power
17) The terminal server shall support a minimum of four (4) bi-directional serial communications over Ethernet 10/100 Base-TX.
18) Each terminal server shall have a minimum of four (4) EIA-232/422/485 serial interface ports. These ports shall be individually and independently configurable, directly or over the network, to EIA-232/422/485 mode of operation as defined by the EIA for data format, data rate and data structure (e.g., the number of bits, parity, stop bits, etc.). Each serial port shall support up to 230 Kbps.
19) Each serial port shall support IP addressing and socket number selection.
20) The equipment shall provide the capability to establish an IP connection directly from a workstation to any encoder IP address and socket number transport serial data.
21) Each terminal server shall have an Ethernet Interface (10/100Base-TX protocol, Full/Half-Duplex, Auto Sense (802.3), RJ-45).

907-663.02.3--SD-WAN Router. The SD-WAN (Software Defined Wide Area Network) router supports next generation wide area networking leveraging multiple internet connection types. The SD-WAN router shall be the alternative selection instead of cellular modem communications to provide network communications to very small data networks to connect to the traffic management centers.

907-663.02.3.1--Functional Requirements. SD-WAN Router, antenna, wiring assemble, configuration software, and installation necessary shall be provided and furnished for a working cellular wireless communication connection in accordance with plans and specifications and compatible with the requirements of the MDOT system, and the wireless service carrier used by MDOT. Unless otherwise indicated on the plans, all items that are required to complete the installation and ensure an operational system shall be supplied by the Contractor whether listed above or not. Items required but not listed above shall be at no direct pay. All components supplied

by the Contractor are the responsibility of the Contractor. It shall be the responsibility of the Contractor to properly configure and deliver a working SD-WAN cellular communications system. It shall be the responsibility of the Contractor to determine the final configuration of all electrical connections. Cellular account setup shall be coordinated with MDOT Information Systems Division. Warranty and cellular carrier account shall be transferred into MDOT's name upon acceptance of the project.

907-663.02.3.2--SD-WAN Router System. The SD-WAN shall adhere to the following minimum requirements.

1) Each router shall meet the following minimum requirements:
   a. Layer 2/3 switching and routing services.
   b. Minimum of 250 Mbps bidirectional Throughput
   c. Minimum of Four 10/100BASE-T Fast Ethernet ports or better
   d. Minimum of 2 x GE RJ45 LAN ports
   e. Supports Cisco Common Industrial Protocol (CIP)
   f. Support of SCADA, DNP3, T101-104, Raw Socket TCP, and UDP.
   g. Provides LTE QoS with support for up to 8 concurrent bearers on each cellular WAN interface for traffic classification and prioritization.
   h. 1-year warranty, maintenance, and support.
   i. Dual active LTE backhaul with expansion module.
   j. Virtual Router Redundancy Protocol (VRRP) (RFC 2338)
   k. Hot Standby Router Protocol (HSRP)
   l. Dual SIM support on the LTE module for cellular failover
   m. IPv6 unicast and multicast forwarding.
   n. IPv6 ACLs
   o. IPv6 over cellular
   p. IPv6 routing

2) WAN Interfaces
   a. Combo 10/100/1000 Gigabit Ethernet port (RJ45 and SFP) on the base platform and additional 10/100/1000 Gigabit Ethernet SFP on the expansion module and include supported SFPs - *The Contractor shall provide an uplink SFP optical module compatible with the interface for the uplink as indicated in the Location & Configuration of communication Nodes notice to bidders for each uplink.*
   b. LTE: Modular with options for single and dual active LTE and LTE-Advanced
   c. LTE in United States supports 3 cellular companies AT&T, cSpire and Verizon.
   d. LTE bands 1-5, 7, 8, 12, 13, 20, 25, 26, 29, 30, and 41
   e. FDD LTE 700 MHz (band 12), 700 MHz (band 29), 800 MHz (band 20), 850 MHz (band 5 CLR), 850 MHz (band 26 Low), 900 MHz (band 8), 1800 MHz (band 3), 1900 MHz (band 2), 1900 MHz (PCS band 25), 1700 MHz and 2100 MHz (band 4 AWS), 2100 MHz (band 1), 2300 MHz (band 30), or 2600 MHz (band 7)
   f. TDD LTE 2500 MHz (band 41)
   g. Carrier aggregation band combinations: 1+8; 2+(2,5,12,13,29); 3+(7,20); 4+(4,5,12,13,29); 7+(7,20); 12+30, 5+30, and 41+41
   h. Theoretical download and upload speeds: 300 and 50 Mbps.

3) IPv4 and IPv6 services features
   a. Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2)
   b. Generic Routing Encapsulation (GRE) and Multipoint GRE (MGRE)
   c. Standard 802.1d Spanning Tree Protocol (STP)
   d. Network Address Translation (NAT)
   e. Dynamic Host Configuration Protocol (DHCP) server, relay, and client
   f. Dynamic DNS (DDNS)
   g. DNS proxy
   h. DNS spoofing
   i. Access Control Lists (ACLs)
   j. IPv4 and IPv6 multicast
   k. IP Service-Level Agreement (IP SLA)
   l. Open Shortest Path First (OSPFv2 and OSPFv3)
   m. Border Gateway Protocol (BGP)
   n. Enhanced Interior Gateway Routing Protocol (EIGRP)
   o. Virtual Route Forwarding (VRF) Lite
   p. Next-Hop Resolution Protocol (NHRP)
   q. Serial data encapsulation and relay
   r. L2TPv3 over sub-interfaces and VLAN

907-663.02.3.3--Environmental Characteristic. Environmental operating temperature ranges shall be as follows.

a. Operate from –40 to 140°F (–40 to 60°C) in a sealed NEMA cabinet with no airflow.
b. Operate from –40 to 158°F (–40 to 70°C) in a vented cabinet with 40 Linear Feet per Minute (LFM) of air
c. Operate from –40 to 167°F (–40 to 75°C) in a forced air enclosure with 200 LFM of air type tested at 85°C for 16 hours
d. Optical receiver maximum input power level shall not be exceeded.
e. Optical attenuators shall be added as needed.
f. 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

907-663.02.4--Ethernet Network Cable. Ethernet network cables shall adhere to the following minimum requirements.

1) 4 Pair #24 AWG STP Category 6, Category 5e, or other ethernet cable (generally meeting Category 6 Specifications, the applicable requirements of Subsection 722.03 and approved by MDOT) as per manufacturer's recommendations.
2) These items are paid for as ethernet network cable installed between cabinets and does not apply to other patch cords installed inside cabinets or huts.
3) Supplied ethernet network cable shall be suitable for use outdoors in ducts and as a minimum meet the following requirements:
   a. Fully water blocked
   b. Conforms to the National Electrical Code Article 800

c. UL 1581 certified
d. Voltage Rating 300 Volts or greater
e. Operating and installation temperature (-4°F to 140°F)
f. The allowable bend radius must be 10 times the Cable's Outside Diameter or smaller
g. Recommended for 1000Base-T applications for a distance of 100 meters.

907-663.02.4.1--Ethernet Patch Cords. The ethernet patch cords shall be furnished and installed as needed to connect the network switches with other equipment. Ethernet patch cords shall be considered an incidental component for this project and furnished and installed as needed to provide a functional system. Ethernet 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, Category 5e, or other Ethernet cable (generally meeting Category 6 Specifications and approved by MDOT) as required by the manufacturer.
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 (which ever is used).
5) Certified by the manufacturer for Category 5e or Category 6 performance criteria.
6) Length as needed. Excessive slack is not permitted.

907-663.02.5--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements", along with the requirements below and throughout this specification, shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

The Contractor shall provide project submittals for network switches including scheduling requirements. The project submittals for network switches, terminal servers, cellular modems, and fiber optic modems 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.

907-663.03--Construction Requirements. All networking equipment shall be installed according to the manufacturer's recommendations, the Plans and as follows:

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 Ethernet patch cords and fiber optic patch cords for a complete and functional installation.
5) Ethernet network cable installed in conduit shall be installed and terminated per the manufacturers recommended procedures. Slack Ethernet network cable shall be provided in pullboxes as indicated in the plans.
6) 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 663.03.4 of this document.
7) The Contractor shall provide the MDOT with a written inventory of items received and the condition in which they were received. Inventory shall be inclusive of make, model, and serial numbers, MAC address, and installation GPS coordinates. All equipment shall be installed according to the manufacturer's recommendations or as directed by the MDOT.
8) Any new, additional or updated drivers required for the existing ATMS software to communicate and control new networking equipment installed by the Contractor shall be the responsibility of the Contractor.

907-663.03.1--Switch Configuration Requirements. The Contractor shall configure network switches as follows:

1) All 100 Base-TX ports shall be configured as follows:
   a. RSTP/STP – Off.
   b. Unused TX ports shall be disabled.
   c. Operating TX ports shall be programmed to filter only for the MAC address of the connected device.
2) All 1000 Base-FX ports shall be configured as follows:
   a. RSTP/STP – On.
   b. IGMP Snooping – On.
3) The Type D switch configuration shall be as outline in the Project plans and details.
4) All network switches shall be installed and configured with the same firmware configuration. The optimum settings shall be used consistently system-wide. Any locations that require different settings for optimum performance shall be approved by the Engineer.
5) The Switches shall be configured to enable multicasting and turn on multicast protocols.
6) The Contractor may submit an alternate switch configuration to the ITS Engineer for review and approval. The ITS Engineer will review alternate switch configuration documentation. The goal of the switch configuration is to reduce the network delay, as well as provide network redundancy.
7) The Contractor shall submit an electronic copy of all final and approved configurations of all switches to the Project Engineer and to the ITS Engineer.

907-663.03.2--Testing. All networking equipment shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project

Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-663.03.3--Documentation. As-built Plans showing switch configuration and connections shall be provided to the Project Engineer and ITS Engineer in electronic format.

The Contractor shall submit documentation and proof of measured optical power budgets to all optical links of all type switches. All equipment and software must be fully functional and pass a Final Inspection by the ITS Manager and Project Engineer before being accepted by the MDOT

907-663.03.4--Warranty At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" or this specification, whichever is longer, shall be met. All costs associated with the warranty requirements shall be included in the overall contract price.

907-663.03.5--Training. The minimum training requirements shall be as defined in the Notice to Bidders entitled "ITS General Requirements."

907-663.03.6--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-663.04--Method of Measurement. Network switches of the type specified will be measured per each installation as specified in the Project plans. Such measurement shall be inclusive of 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, Ethernet patch cords and all incidental components, attachment hardware, mounting shelf and hardware, testing requirements, warranties and all work, equipment and appurtenances as required to provide a fully functional switch ready for use. Type C, Type D, and Type E network switch module cards shall be specified per Project plans or NTBs for each site location. It 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.

Terminal server will be measured per each installation. Such measurement shall be inclusive of furnishing, installing, system integration and testing of a Terminal Server including all incidental components, attachment hardware, mounting shelf and hardware, testing requirements, warranties, and all work, equipment and appurtenances as required to provide a fully functional Terminal Server ready for use.

SD-WAN Routers shall be measured per each and will include the, router, antenna, reset timers, cabling, factory and manufacturing inspection, testing, storage, packaging, shipping, warranty, and all work, equipment, and appurtenances as required to effect the full operation and control of the SD-WAN Router complete in place and ready for use.

Ethernet network cable, installed in conduit, will be measured by the linear foot, and shall be obtained by accurate measurement of the runs including horizontally, vertically, aerially along the messenger cable, from the device to the device cabinet, and with liberal allowances made for slack in boxes, as indicated in the plans.

Network equipment training shall be measured as a lump sum which shall include all coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

907-663.05--Basis of Payment. Network Switches, Terminal Servers, SD-WAN Routers and Fiber Optic Modems, measured as prescribed above, will be paid for at the contract unit price bid per each. The price shall be full compensation for documentation and submittals, warranties, testing, all labor, tools, materials, equipment, quality assurance, and all incidentals necessary to complete the work.

Ethernet network cable installed between cabinets will be paid for by linear foot measured horizontally.

Network equipment training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, submittals, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

Payment will be made under:

907-663-A:	Network Switch, Type __	- per each
907-663-B:	Terminal Server	- per each
907-663-C	SD-WAN Router	- per each
907-663-D:	Ethernet Network Cable, Installed in Conduit	- per linear foot
907-663-E:	Network Equipment Training	- lump sum

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-670-3 **CODE: (IS)**

DATE: **05/25/2021**

SUBJECT: Roadway Weather Information System

Section 907-670, Roadway Weather Information System, is hereby added to and made a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-670 - ROADWAY WEATHER INFORMATION SYSTEM

907-670.01--Description. Roadway Weather Information System consists of furnishing, installing and integrating a Roadway Weather Information System (RWIS). The work will be at the locations shown on the plans and will consist of providing all labor, materials, equipment and incidentals necessary to furnish, install, test, and make functional the RWIS. The sites for these systems will be at locations with known adverse weather conditions such as freezing, fog, flooding, high winds, etc. but may be placed at any location where system deployment for roadway weather information monitoring is deemed desirable by the Mississippi Department of Transportation.

The RWIS installations shall include all site preparation necessary for installation of the base station, communications/surveillance tower(s), cabinet bases, roadway sensors, temperature sensors, atmospheric sensors, pavement sensors, conduit and cable for remote sensor equipment, advance warning signs with flashers, system software installed at the TMC and all other equipment and related appurtenances to accomplish a complete and fully operational RWIS as described in this special provision and the details and plans developed for the specific sites.

907-670.02--Materials.

907-670.02.1--General. The Roadway Weather Information System (RWIS) shall include, but is not limited to, the equipment and materials included in this Special Provision. The Contractor is responsible for determining and providing any other equipment that is needed for safe and reliable operation of an RWIS.

In general, the system shall include a base station and a pole or structure mounted remote sensor unit. The base station will include an appropriate Remote Processing Unit (RPU) for communications to a central processing server site, communications/networking equipment, atmospheric weather sensors, power supplies, surge protection, power distribution, cabinets, tower(s), base(s) and mounting structures. The remote processing unit for the sensors will include nonintrusive pavement sensors, present weather and visibility sensor(s), an equipment cabinet, and communications system. Except where noted on the plans, the remote sensor unit(s) shall be AC/DC powered and communicate with the base station via an Ethernet/IP and/or wireless communications system. Solar power systems required by the plans shall meet the requirements in the Notice to Bidders entitled "ITS General Requirements." Wireless communications

subsystems shall utilize serial spread spectrum technology from the remote site to the master base unit site. The communications system shall connect the remote sensor unit(s) to the MDOT ITS network.

The RWIS Controller will be placed in a cabinet and the sensor cabinet shall be mounted as shown in the plans per manufacture recommendations.

907-670.02.2--Remote Processing Unit (RPU). The master Roadway Weather Information System (RWIS) RPU shall include a CPU, with flash memory, expansion slots, and interface ports including Ethernet, RS-232 serial, and RS-485 serial. These ports are for system maintenance and device interfaces. All RPU electronics shall provide stable operation over a temperature range of -40ºC to 60ºC and 0-90% RH non-condensing. The RPU will be capable of multi-tasking operations to optimize the data acquisition from all connected devices. RPU software configuration shall be performed by PC computer connection to the RPU Ethernet port or serial port.

907-670.02.3--Communications Equipment. The RWIS RPU shall communicate via Ethernet/IP with a central server and shall utilize Federal Standard NTCIP-ESS protocol, with some manufacturer-specific objects allowed. The server shall poll the RPU and shall be able to gather information and provide a communications interface via an Ethernet network connection to monitor weather conditions, traffic parameters as described in this specification and on the detailed plans prepared for the sites included in this project.

907-670.02.4--RWIS Data. The data collected by the RWIS will be processed and temporarily stored in the RPU until transmitted to a central processing server site. Updates shall be completed on intervals not longer than every two minutes. The RWIS data shall be stored and displayed on a central processing server site, and available for access by agency users and designated information users on any PC connected to the Internet running Internet Explorer web browser software. The RWIS user displays shall include all sensor data in a browser-based display format.

907-670.02.5--Cabinet. The RPU shall be enclosed inside at a minimum a NEMA 3R lockable aluminum enclosure that is resistant to damage by weather and vandals. All equipment, connectors, cables, power supplies, surge protection, grounding, power distribution, mountings, shelves, racks, fasteners, mounting, and base necessary to accommodate a fully operational RWIS shall be included as incidental to the cabinet and its installation.

The cabinet shall include a thermostatically controlled ventilation fan to adequately remove heat within the cabinet to prevent performance degradation and reduced reliability. Ventilation fan and filter louver shall be screened against the entrance of dust and foreign matter. A replaceable filter for incoming air shall be provided. The fan shall include a resistor-capacitor network noise suppressor installed across the fan motor power terminals

All cabinets shall be provided with agency name, project number, device name and ID labels. 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 inch (1") in height.
2. Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO Designation: 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.
5. The device ID shall be numerals corresponding to the location and shall be installed adjacent to the acronym sheet.
6. The device ID labels shall also include large 3-inch letters on the side of the cabinet that the ground plane is located that states "WARNING: UNDERGROUND WIRING - NO DIGGING"
7. Labels shall be installed along the top of the cabinet, with MDOT ITS label at the top and the device ID labels immediately underneath. Labels shall be visible from both directions of travel. Additional labels may be required to meet visibility requirements. Project number labels shall be installed on the inside of the cabinet door.

A voltage label shall be provided on all RWIS transmitter cabinets 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 one inch (1") in height.
2. Labels shall be manufactured from pre-coated adhesive backed reflective sheeting material meeting the minimum requirements of AASHTO Designation: M268, Type 1.
3. Labels shall include the voltages entering the cabinet and shall be one continuous adhesive sheet. Examples are "120VAC" or "120/240VAC".
4. Labels shall be installed on all cabinet doors.

Door locks shall be provided for all RWIS base and remote units cabinet doors all keyed to the Department standard #2 key type lock keyed to be operated with a traffic industry conventional #2 key made from heavy-duty blanks. Two keys shall be provided with each cabinet.

All cabinets shall include a lighting fixture appropriate for the power source used. 120 Volt, fluorescent fixtures will be a minimum 15 watts with a cool white lamp with shatter-proof cover and operated by a normal power factor UL listed ballast. The fixture will be mounted on the inside top portion of the cabinet. The light shall be door switch controlled.

907-670.02.6--Sensors. The Roadway Weather Information System shall include sensors which shall provide the following information:

Atmospheric Conditions. Sensors for the following conditions shall be provided and installed at the master RWIS site.

1) Air temperature
2) Relative humidity
3) Barometric pressure

Pavement Conditions. Sensors providing pavement conditions shall be installed at the location shown on the plans. It is the intent that the pavement sensors be positioned to measure data where the roadway surface conditions are representative of the overall surface. Pavement sensors mounted on the overpass will be AC/DC powered and communicate via manufacturer recommended cable with the RPU at the base station, unless otherwise specified in the plans.

1. Pavement temperature
2. Precipitation classification
3. Pavement water/snow depth

Visibility Conditions. Sensors providing visibility conditions shall detect conditions including rain, drizzle, snow, fog, mist, haze or clear; and Visibility with a measurement range of two (2) miles at a minimum with an accuracy of ±10%.

907-670.02.7--Power. The Contractor shall be responsible for locating power service points. Locations shown on the plans as service points are shown for information only.

907-670.02.8--RWIS Warning Sign with Flashing Beacons. The RWIS installation shall include the furnishing and installation of new advance warning signs at the location shown on the plans. Mounting of the signs will conform to the design as shown in the plans and will be a breakaway type mounting structure. The messaging of the sign will be as shown in the plans. When applicable, the standard MDOT sign as shown in the Manual on Uniform Traffic Control Devices (MUTCD)will be provided.

The sign shall be supplemented with a two 12-inch flashing warning beacon which are AC powered to provide continuous operation of the flashers, timers, communications, etc. The warning beacon shall be LED.

The beacons shall have a flash rate as specified in the Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD).

The supplemental flashing beacon shall be activated and deactivated from the RWIS central processing server site and the MDOT TMC via communication through the RWIS base station, unless otherwise shown on the plans. The activation and deactivation of the flashing beacons will be based on adjustable thresholds set at the RWIS base station and manual control in the TMC. Ethernet communications from the central processing server and MDOT TMC to the warning sign sites shall be via communication systems as shown on the plans. The sign sites shall include an adjustable automatic shutoff timer that will automatically turn off the flasher in a predetermined amount of time if activation is not renewed.

The Contractor may propose an alternative activation system for review and consideration by the Department.

All beacon control and power components shall be housed in, at a minimum, a NEMA 3R type aluminum cabinet/enclosure unless otherwise specified in the plans. The cabinet/enclosure shall be constructed from 0.125-inch thick Aluminum Alloy, Type 5052-1132. The cabinet/enclosure

door shall be lockable in accordance with previous sections in this Special Provision.

907-670.02.9--Standards. All materials, equipment, supplies, installations and testing shall comply with the project requirements, the latest editions of the following standards and industry practices as applicable, and all other standards, requirements and standard industry practices, and any state and local codes or ordinances that may apply.

Standards and industry practices shall include, but not be limited to the following.

1. Federal Communications Commission (FCC) regulations
2. National Electric Code (NEC)
3. Underwriters' Laboratories Inc. (UL)
4. National Electrical Manufacturer Association (NEMA)
5. Institute of Electrical and Electronic Engineers (IEEE)
6. American Society of Testing and Materials (ASTM)
7. American National Standards Institute (ANSI)
8. Lightning Protection Institute (LPI)
9. National Electrical Safety Code (NESC)
10. Occupational, Safety, and Health Act (OSHA)

All materials, equipment accessories and components that are not in accordance with the specific standards and requirements shall require approval by the Department. The Contractor shall bring any conflicts between referenced industry specifications and this Special Provision to the attention of the Department.

The Contractor shall use the latest version of referenced industry specifications, standards, and practices in force and in existence as of this project's advertisement date unless otherwise noted.

The Contractor shall acquire and use all applicable manuals, guidelines, and standards and practices that apply to the design, construction, and testing activities required to complete this project.

907-670.02.10--Submittals. The submittal requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with submittals shall be included in the overall contract price; no separate payment will be made for any documenting and submitting.

907-670.02.11--Quality Assurance. The quality assurance requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the quality assurance requirements shall be included in the overall contract price.

907-670.03--Construction Requirements. The Contractor shall be responsible for locating power and communications service points. Locations shown on the plans as service points are shown for information only.

The Contractor shall be responsible for providing all hardware, software and licenses to operate a

complete system.

The Contractor will be responsible for all integration of the data and information described in this special provision into the Mississippi DOT communications network, the MDOTTraffic.com web site, and the MDOT ATMS information system.

All equipment shall be installed according to the manufacturer's recommendations, the Plans, and as follows:

- Materials and associated accessories/adapters shall not be applied contrary to the manufacturer's recommendations and standard practices.
- The equipment shall be designed to prevent reversed assembly or improper installation of connectors, fasteners, etc. Each item of equipment shall be designed and installed to protect personnel from exposure to high voltage during equipment operation, adjustments, and maintenance.

The Contractor shall furnish and install all supports, clamps, cables, connections and other materials to secure the RWIS at the selected locations. The type of mounting poles to be supplied and the location of their installation shall be as specified herein and depicted in the Plans.

The Contractor shall be responsible for locating possible utility conflicts prior to excavating and installing the ground-plane system. In case of space limitations or structural modification constraints, the Department shall be informed prior to site construction.

The Contractor shall perform detailed pre-installation site surveys to determine the conditions at each site (e.g., power, grounding, communications, etc.) for the intended purpose and performance criteria.

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

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

907-670.03.1--Testing. All equipment associated with the RWIS site shall undergo testing to verify conformance to requirements of the plans and these special provisions. The Contractor shall conduct a Project Testing Program as required in the Notice to Bidders entitled "ITS General Requirements." All costs associated with the Project Testing Program shall be included in the overall contract price; no separate payment will be made for any testing.

907-670.03.2--Warranty. At a minimum, the warranty requirements defined in the Notice to Bidders entitled "ITS General Requirements" shall be met. All costs associated with the warranty requirements shall be included in the overall contract price.

907-670.03.3--Training. The minimum training requirements shall be as defined in the Notice

to Bidders entitled "ITS General Requirements."

907-670.03.4--Maintenance and Technical Support. The minimum Maintenance and Technical Support requirements shall be defined in the Notice to Bidders entitled "ITS General Requirements."

907-670.04--Method of Measurement. Roadway Weather Information System will be measured per each system used. Roadway Weather Information System shall be measured for payment as follows:

- 30% of the contract unit price upon approval of and Pre-Installation test results.
- 70% of the contract unit price upon approval of Stand Alone Site Test results.
- 90% of the contract unit price upon completion of the burn-in period.
- 100% of the contract unit price upon Final System Acceptance.

Warning Signs with Flashing Beacons will be measured per each sign assembly upon demonstration of successful activation, de-activation, and automatic turn-off.

Roadway Weather Information System Training shall be measured as a lump sum, which shall include all coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

907-670.05--Basis of Payment. Roadway Weather Information System, measured as prescribed above, will be paid for at the contract unit price per each, which price shall include furnishing, installing, licensing application, coordination and acquisition, communications activation and monthly billing costs, RWIS grounding design submittal, system integration, and testing of a complete RWIS and software including the RWIS equipment/components as specified herein including grounding, power distribution/supply, surge protection, the cabinet, all cabling, connections to support structures (includes all incidental components, attachment hardware, mounting brackets, bolts, straps, or any other items to mount the RWIS equipment / components as intended), all required software, satisfactory completion of testing requirements and all work, equipment and appurtenances as required to effect the full operation including remote and local control of RWIS sites complete in place and ready to use, system documentation and submittals (including shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other materials necessary to document the operation of the RWIS), warranties, all labor, tools, materials, equipment and incidentals necessary to complete the work and quality assurance.

The Warning Signs with Flashing Beacons, measured as prescribed above, will be paid for at the contract unit price per each, which price includes furnishing, installing, system integration, and testing of a complete warning sign with flashing beacons including the sign materials, sign supports, support foundations, flashing beacon, controller, communications equipment, cabling, connections, satisfactory completion of testing requirements, all work, equipment and appurtenances as required to effect the full operation including remote and local control of warning sign assembly with Flashing Beacons sites complete in place and ready to use, system documentation and submittals (including: shop drawings, operations and maintenance manuals, wiring diagrams, block diagrams and other materials necessary to document the operation of the

warning signs with flashing beacons), warranties, quality assurance, all labor, tools, materials, equipment, and all incidentals necessary to complete the work.

Roadway Weather Information System Training, measured as prescribed above, will be paid for at the contract unit lump sum price, which price shall be full compensation for all training costs including coordination, materials, labor, training location costs, and all incidentals required to complete the training as described in the Notice to Bidders entitled "ITS General Requirements."

Payment will be made under:

907-670-A: Roadway Weather Information System	- per each
907-670-B: Warning Sign * with Flashing Beacons	- per each
907-670-C: Roadway Weather Information System Training	- lump sum

* Type of Warning Sign may be indicated

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-700-2 **CODE: (IS)**

DATE: 10/01/2025

SUBJECT: Materials and Tests

Section 700, Materials and Tests, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete fourth, fifth, sixth, and seventh paragraph of Subsection 700.01 on page 713, and add the following.

907-700.01.1--Buy America Requirements.

Iron or Steel Products. Iron or steel or wire products (including prestressed cables and strands) are products that consist wholly or predominantly of iron or steel or a combination of both.

Predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of the iron and steel components.

Iron or steel or wire products, as described above, that are permanently incorporated into a construction project must be produced domestically. All manufacturing processes for iron or steel or wire products, from the initial melting stage through the application of coatings, that are permanently incorporated into a construction project, must occur domestically. However, pig iron and processed, pelletized, and reduced iron ore manufactured outside of the United States may be used in the domestic manufacturing process for iron and/or steel and/or wire products. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

Construction Materials. Construction materials are articles, materials, or supplies that consist of only one of the items listed (non-ferrous metals, plastic and polymer-based products, glass, fiber-optic cables (including drop cables), optical fibers, lumber, drywall, and engineered woods). Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material. All manufacturing processes for the listed construction materials, from the initial processes as described within 2 CFR 184.6 to the final processes as described within 2 CFR 184.6, that are permanently incorporated into a construction project, must occur domestically.

Manufactured Products. Manufactured products are articles, materials, or supplies that have been processed into a specific form or shape; or when combined with other articles, materials, or supplies create a product with different properties than the individual articles, materials, or supplies. An item that is classified as an iron or steel product, a construction material, or an excluded material is not a manufactured product. However, an article, material, or supply classified as a manufactured product

may include components that are iron or steel products, excluded materials, or other product categories as specified by law or in 2 CFR part 184. Mixtures of excluded materials delivered to a work site without final form for incorporation into a project are not a manufactured product. For construction projects obligated on or after October 1, 2025, the manufactured product must be manufactured domestically. For construction projects obligated on or after October 1, 2026, the manufactured product must be manufactured domestically and the cost of the components of the manufactured product that are mined, produced, or manufactured domestically is greater than 55 percent of the total cost of all components of the manufactured product.

Excluded Materials. Excluded materials, as listed in Section 70917(c) of the Build America, Buy America Act, are cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives. However, an article, material, or supply classified as a manufactured product may include components that are iron or steel products, excluded materials, or other product categories as specified by law or in 2 CFR part 184. Mixtures of excluded materials delivered to a work site without final form for incorporation into a project are not a manufactured product.

Domestically shall be understood to mean all States of the United States, District of Columbia, Puerto Rico, American Samoa, Guam, and Virgin Islands and any other place subject to the jurisdiction of the United States.

907-700.01.2—Certificate of Compliance Requirements. Prior to incorporation into the work, the Contractor shall furnish the Project Engineer with a Domestic Materials Self-Certification Form documenting conformance to the requirements of Subsection 907-106.14. Attached hereto is the Domestic Materials Self-Certification Form that shall be furnished by the Contractor to the Project Engineer.

Domestic Materials
Self-Certification Form

This certification is for a manufacturer/supplier to certify the below articles, materials, or supplies are in compliance with the applicable domestic material content procurement preferences found in the Buy America Act requirements (23 CFR 635.410) and the Build America, Buy America Act (BABA) requirements (2 CFR part 184). The individual completing this form takes full responsibility for the information included in the form. State agencies have the authority to request additional details related to the information provided in the form. All forms shall be submitted via AASHTO DataMine for delivery to authorized governmental users through the Industry Document Repository. The manufacturer/supplier is required to include updates to process changes within 10 days of the change occurring via uploading a revised form into DataMine.

PART 1: COMPANY CONTACT INFORMATION

Company/Producer/Manufacturer Name:

Supplier Representative Name:

Contact Email Address: Contact Phone Number:

Date Form is Being Submitted:

PART 2: DETAILS OF THE ARTICLE, MATERIAL, OR SUPPLY:

Using Table 1 below, provide the classification of the article, material, or supply as one of the following: (1) iron or steel product; (2) construction material (3) manufactured product; or (4) excluded materials including Section 70917(c) materials.

Classification	
Producer of the Article, Material, or Supply:	
Product/Model/Part/Material:	
Manufacturing Address:	
Manufacturing City:	
Manufacturing State:	
Manufacturing Zip Code:	
DataMine # (if applicable):	
Federal/State/Local Project number(s):	
Pay Code Number (PCN):	
Project Item code:	
Project Item Description:	
Quantity Certified:	

TABLE 1: Material Classifications

(1) Iron or Steel Product	
Wholly or predominantly Iron or Steel, or a combination of both (23 CFR 635.410(b)(1)(ii))	Certification requires predominantly of iron or steel or a combination of both means that the cost of the iron and steel content exceeds 50 percent of the total cost of all its components. The cost of iron and steel is the cost of the iron or steel mill products (such as bar, billet, slab, wire, plate, or sheet), castings, or forgings utilized in the manufacture of the product and a good faith estimate of the cost of iron or steel components.
(2) Construction Material	
Non-Ferrous Metals (2 CFR 184.6(a)(1))	Certification requires all manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.
Plastic and Polymer based products (including polyvinyl chloride, composite building materials, and polymers used in fiber optic cables) (2 CFR 184.6(a)(2))	Certification requires all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.
Glass (including optic glass) (2 CFR 184.6(a)(3))	Certification requires all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.
Fiber Optic Cable (including drop cable) (2 CFR 184.6(a)(4))	Certification requires all manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacking, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastics and polymer-based products, or any others.
Optical Fiber (2 CFR 184.6(a)(5))	Certification requires all manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States
Lumber (2 CFR 184.6(a)(6))	Certification requires all manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.
Drywall (2 CFR 184.6(a)(7))	Certification requires all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.
Engineered Wood (2 CFR 184.6(a)(8))	Certification requires all manufacturing processes, from initial combination of constituent materials until the wood product is in its final form, occurred in the United States.
(3) Manufactured Product	
Manufactured Products other than Precast Concrete Products and Intelligent Transportation Systems and Other Electronic Hardware Systems Installed on the Highway ROW or Other Real Property (23 CFR 635.410(c)(1)(vii)) and 23 CFR 635.410(c)(1)(iv)	• Certification requires for projects obligated before October 1, 2025, no certification is required (excludes EV chargers). • Certification requires for projects obligated on or after October 1, 2025, certification requires the final manufacturing process occurred in the United States (excludes EV chargers). • Certification requires for projects obligated on or after October 1, 2026, and all EV chargers , certification requires the final manufacturing process occurred in the United States and the cost of the components that are mined,

	produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.
Precast Concrete Products (23 CFR 635.410(c)(2)(i))	Classified as a manufactured product must comply with both the wholly or predominantly iron or steel or a combination of both product and manufactured product certification requirements as stated above.
Intelligent Transportation Systems and Other Electronic Hardware Systems Installed on the Highway ROW or Other Real Property (23 CFR 635.410(c)(2)(ii))	Classified as a manufactured product must comply with both the wholly or predominantly iron or steel or a combination of both product certification requirements for any iron or steel enclosures as well as the manufacturing certification requirements as stated above.
(4) Excluded Materials	
Excluded Materials Including Section 70917(c) Materials (23 CFR 635.410(c)(1)(ii))	No certification is required for excluded materials including Section 70917(c) materials. Section 70917(c) materials means cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

PART 3: DECLARATION OF SUBMITTAL

Do the articles, materials, or supplies submitted in this form comply with applicable domestic materials content procurement preferences found in the Buy America Act requirements (23 CFR 635.410) and the Build America, Buy America Act requirements (2 CFR part 184) (Y/N)? _____

PART 4: CERTIFICATION (Read and check all boxes before signing)
Note: State Departments of Transportation may have different language requirements for this section.

☐ I certify that the description above is a true and accurate description of the article, material, or supply provided, and that the undersigned is in a position to legally bind the Company/Organization represented in this form.

☐ I certify that the iron or steel product, construction material, or manufactured product complies with the applicable Buy America or BABA requirements.

Signature: Date:

Printed Name:
Title:
Company/Organization:
Company/Organization address:

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUPPLEMENT TO SPECIAL PROVISION NO. 907-701-4

DATE: 11/05/2024

SUBJECT: Hydraulic Cement

907-701.04--Blended Hydraulic Cement.

907-701.04.1--Types of Blended Hydraulic Cement. After the last paragraph of Subsection 907-701.04.1 on page 1, add the following.

Blended cement Types IL meeting the "HE" high early strength requirement listed in AASHTO M 240, Table 3 shall have the "(HE)" suffix added to the type designation.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-701-4 **CODE: (IS)**

DATE: 11/21/2023

SUBJECT: Hydraulic Cement

Section 701, Hydraulic Cement, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-701.01--General. In the first sentence of the second paragraph of Subsection 701.01 on page 718, change "mills" to "plants."

In the second sentence of the sixth paragraph of Subsection 701.01 on pages 718 and 719, change "shall" to "will."

907-701.02--Portland Cement.

907-701.02.1-General. Delete Subsections 701.02.1.1, 701.02.1.2, 701.02.2, 701.02.2.1, and 701.02.2.2 on pages 719 and 720, and substitute the following.

907-701.02.1.1--Types of Portland Cement. Portland cement shall be either Type I, Type II, or Type III conforming to AASHTO M85 or Type III (MS). Type III (MS) is defined as a Type III cement conforming to AASHTO M85 having a maximum tricalcium aluminate (C_3A) content of 8%.

907-701.02.2--Blank.

907-701.02.2.1--Blank.

907-701.02.2.2--Blank.

Delete Subsection 701.04 on pages 720 and 721, and substitute the following.

907-701.04--Blended Hydraulic Cement.

907-701.04.1--Types of Blended Hydraulic Cement. Blended hydraulic cements (blended cements) shall be of the following types and conform to AASHTO M 240:

Type IL – Portland-limestone cement
Type IP – Portland-pozzolan cement
Type IS – Portland blast-furnace slag cement

Blended cement Types IL, IP, and IS meeting the "MS" sulfate resistance requirement listed in AASHTO M 240, Table 3 shall have the "(MS)" suffix added to the type designation.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-702-4 **CODE: (IS)**

DATE: 09/11/2018

SUBJECT: Bituminous Materials

Section 702, Bituminous Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-702.04--Sampling. Delete the sentence in Subsection 702.04 on page 722, and substitute the following.

Sampling of bituminous materials shall be as set out in AASHTO R 66.

907-702.07--Emulsified Asphalt. Delete the last sentence in Subsection 702.07 on page 724, and substitute the following.

Asphalt for fog seal shall conform to the requirements of Subsection 907-702.12, Table V.

907-702.12--Tables. Delete Table V in Subsection 702.12 on page 729, and substitute the following.

TABLE V
SPECIFICATION FOR FOG SEAL

	LD-7		CHPF-1		
Test Requirements	**Min.**	**Max.**	**Min.**	**Max.**	**Test Method**
Viscosity, Saybolt Furol, @ 25°C, Sec.	10	100	-	100	AASHTO T 72
Storage Stability Test, 24 hr, %	-	1	-	1	AASHTO T 59
Settlement, 5 day, %	-	5	-	-	AASHTO T 59
Oil Distillate, %	-	1	-	-	AASHTO T 59
Sieve Test, % *	-	0.3	-	0.1	AASHTO T 59
Residue by Distillation, %	40	-	40	-	AASHTO T 59
Test on Residue from Distillation					
Penetration @ 25°C, 100g, 5 sec	-	20	40	90	AASHTO T 49
Softening Point, °C	65	-	-	-	ASTM D 36
Solubility in trichloroethylene, %	97.5	-	-	-	AASHTO T 44
Elastic Recovery @ 25°C, %	-	-	40	-	AASHTO T 301
Original DSR @ 82° (G*/Sinδ, 10 rad/sec)	1	-	-	-	AASHTO T 111

* The Sieve Test result is tested for reporting purposes only and may be waived if no application problems are present in the field.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-703-2 **CODE: (SP)**

DATE: **11/29/2022**

SUBJECT: **Gradation**

Section 703, Aggregates, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-703.03--Coarse Aggregates for Hydraulic Cement Concrete.

907-703.03.2--Detail Requirements.

907-703.03.2.4--Gradation. In the table in Subsection 703.03.2.4 on page 734, add 100 for the percent passing by weight on the 1½-inch sieve for Size No. 67 aggregates.

Delete Note 2 under the table in Subsection 703.03.2.4 on page 734, and substitute the following.

Note [2] – 100 percent shall pass the 1-inch sieve for Size 67 used in Class F and Class FX concrete.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-705-1 **CODE: (IS)**

DATE: 06/13/2018

SUBJECT: Stone Riprap

Section 705, Stone Blanket Protection and Filter Blanket Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-705.04--Stone Riprap. Delete the last sentence of the first paragraph of Subsection 705.04 on page 750, and substitute the following.

Quality requirements for rock to be furnished under these specifications will come from a pre-approved source and be visually approved prior to use.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-707-3 **CODE: (IS)**

DATE: **10/27/2021**

SUBJECT: **Joint Materials**

Section 707, Joint Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-707.02--Joint Filler.

907-707.02.2--Preformed Sponge, Rubber, Cork and Closed-Cell Polypropylene Foam Joint Fillers for concrete Paving and Structural Constructions. Delete the two paragraphs of Subsection 707.02.2 on page 755, and substitute the following.

Preformed joint filler shall conform to AASHTO M 153 for sponge, rubber, and cork and tested according to ASTM D545. The type required will be indicated on the plans.

Closed-cell polypropylene foam shall conform to the requirements in ASTM D8139 and tested in accordance with ASTM D545.

907-707.02.3--Wood. Delete paragraph (b) of Subsection 707.02.3 on page 755, and substitute the following:

(b) Dimensions shall be as shown on the plans Dimensions shown on the plans are "dressed" sizes in accordance with Table 3 of the American Softwood Lumber Standard, SP-20. At the discretion of the Engineer, a 3/4-inch dressed board may be used in lieu of a 1-inch dressed board. A tolerance of plus or minus 1/16 inch thickness and plus or minus 1/8 inch width will be permitted. For slip-form paving a tolerance of minus 1/4 inch on each end in length will be permitted.

907-707.06--Flexible Plastic Gasket for Joining Conduit. Delete the third paragraph of Subsection 707.06 on page 756, and substitute the following.

The Department may require the performance test described in ASTM C 990.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-711-2 **CODE: (IS)**

DATE: 09/11/2018

SUBJECT: Plain Steel Wire

Section 711, Reinforcement and Wire Rope, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-711.02--Deformed and Plain Carbon-Steel Bars for Concrete Reinforcing.

907-711.02.3--Steel Welded and Non-Welded Wire Reinforcement, Plain and Deformed, for Concrete.

907-711.02.3.1--Plain Steel Wire. Delete the sentence in Subsection 711.02.3.1 on pages 780 and 781, and substitute the following.

Plain steel wire and plain steel welded wire shall conform to the requirements of AASHTO M 336.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-712-1 **CODE: (SP)**

DATE: 12/07/2021

SUBJECT: Fence and Guardrail

Section 712, Fence and Guardrail, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-712.01--General. After the sentence in Subsection 712.01 on page 785, add the following.

All materials' inspection, testing, and certification will be performed in accordance with the requirements of the current version of the Department's *Materials Division Inspection, Testing, and Certification Manual*.

Delete Subsections 712.02 and 712.03 on page 785, and substitute the following.

907-712.02--Barbed Wire. Barbed wire shall conform to the requirements of AASHTO M 280. In the coastal counties of Hancock, Harrison, and Jackson, either Coating Type Z Class 3 or Coating Type A shall be furnished. In all other areas of the State, either Coating Type Z Class 1, Coating Type Z Class 3, Coating Type ZA Class 60, or Coating Type A shall be furnished.

907-712.03--Metallic-Coated, Steel Woven Wire Fence Fabric. Woven wire fencing (i.e., "hog wire") shall conform to the requirements of AASHTO M 279. In the coastal counties of Hancock, Harrison, and Jackson, either Coating Type Z Class 3 or Coating Type A shall be furnished. In all other areas of the State, either Coating Type Z Class 1, Coating Type Z Class 3, Coating Type ZA Class 60, or Coating Type A shall be furnished.

907-712.04--Chain Link Fence. Delete Subsections 712.04.1 thru 712.04.7 on pages 785 & 786, and substitute the following.

907-712.04.1--Fabric. In the coastal counties of Hancock, Harrison, and Jackson, either Type I Class D, Type II, Type III, or Type IV fabrics shall be furnished. In all other areas of the State, either Type I Class C, Type I Class D, Type II, Type III, or Type IV fabrics shall be furnished.

907-712.04.2--Tie Wire. Tie wire shall be of the same material as the fencing wire being used, shall be of good commercial quality, and shall meet the requirements of AASHTO M 181. Either Type I, Type II, Type III, or Type IV tie wire shall be furnished.

907-712.04.3--Tension Wire. Tension wire shall be of the same material as the fencing wire being used, shall be of good commercial quality, and shall meet the requirements of AASHTO M 181. In the coastal counties of Hancock, Harrison, and Jackson, either Type I Class 3, Type II, Type III, or Type IV tension shall be furnished. In all other areas of the State, either Type II, Type III, Type IV, or Type I Classes 1, 2, or 3 tension wires shall be furnished.

907-712.04.4--Posts Rails, Gate Frames, and Expansion Sleeves. Posts, rails, gate frames, and expansion sleeves shall conform to the requirements for posts in Subsection 712.05.2, unless otherwise designated in the contract.

907-712.04.5--Miscellaneous Fittings and Hardware. Miscellaneous fittings and hardware shall conform to the requirements of Subsection 712.16.

907-712.05--Fence Posts and Braces.

907-712.05.1--Treated Timber Posts and Braces.

907-712.05.1.1--General. Delete the third, fourth, fifth, and sixth paragraphs of Subsection 712.05.1.1 on page 787, and substitute the following.

All wood posts and braces shall be treated in accordance with Subsections 718.03 and 718.04.

907-712.05.1.2--Round Posts. Delete the last sentence of the last paragraph of Subsection 712.05.1.2 on page 788.

907-712.05.1.3--Sawed Posts. Delete the last sentence of the paragraph of Subsection 712.05.1.3 on page 788.

907-712.05.1.4--Sawed Braces. Delete the last sentence of the paragraph of Subsection 712.05.1.4 on page 788.

Delete Subsection 712.05.2 on page 788, and substitute the following.

907-712.05.2--Metal Posts.

907-712.05.2.1--Round Steel Pipe. Round steel pipe shall meet the requirements of AASHTO M 181, either Grade 1 (i.e., meeting the requirements in ASTM F 1083) or Grade 2 (i.e., meeting the requirements of ASTM F 1043).

Round steel pipe shall be sized in accordance with NPS (nominal pipe size) designations as shown on Plans, and not according to the outer or inner pipe diameter.

907-712.05.2.2--Steel Fence Post and Assemblies, Hot-Wrought. Steel posts with the following section shapes, Tee, channel or U, and Y-Bar shall meet the requirements of AASHTO M 281, galvanized in accordance with the requirements of AASHTO M 111, unless otherwise specified in the contract. Acceptance of these steel posts shall be by certification from the manufacturer, producer, supplier, or fabricator, as applicable.

907-712.05.2.3--Blank.

907-712.05.2.4--Steel H-Beam Posts. Steel H-Beam posts shall be produced from structural quality weldable steel having a minimum yield strength of 45,000 psi and shall be galvanized in accordance with ASTM A 123. Steel H-Beam line posts shall be 2.250 inches by 1.625 inches and shall weigh 3.43 pounds per foot. A tolerance of plus or minus 5.0 percent is allowed for

weight per foot. A tolerance of plus or minus 1.0 percent is allowed for dimensions.

907-712.05.2.5--Aluminum-Alloy Posts and Assemblies. Round aluminum-alloy posts shall meet the requirements of ASTM B 241, Alloy 6061, T6. Aluminum-Alloy H-Beam posts shall meet the requirements of ASTM B 221, Alloy 6061, T6.

907-712.05.2.6--Formed Steel Section Posts. Formed steel section posts, "C" sections, shall be formed from sheet steel conforming to ASTM A 1011, Grade 45, and shall be galvanized in accordance with ASTM A 123.

907-712.06--Guard and Guardrail Posts.

907-712.06.2--Treated Wood Posts.

907-712.06.2.1--Square Posts. Delete the paragraph in Subsection 712.06.2.1 on page 789, and substitute the following.

All square posts shall be inspected for conformance with Section 712.05, except that the posts may be rough and shall be within ±3/8" of the dimensions shown on the plans.

907-712.06.2.2--Round Posts. Delete the paragraph in Subsection 712.06.2.2 on page 789, and substitute the following.

All round posts shall be inspected for conformance with Section 712.05, except that the posts shall be of the shape and dimensions shown on the plans.

907-712.06.5--Treated Wood Blocks for Use with Metal Guardrail Posts. Delete the paragraphs of Subsection 712.06.5 on pages 789 & 790, and substitute the following.

Treated wood blocks for use with metal guardrail posts shall be within ±3/8" of the size and dimensions shown on the plans, except that a minus tolerance shall not be allowed for the slotted width in which the metal post must fit.

Delete Subsection 712.16 on page 791, and substitute the following.

907-712.16--Hardware. All ferrous metal hardware for fencing such as bolts, nuts, washers, and metal straps shall be as specified on the plans and galvanizing shall not be less than 1.0 ounce per square foot of uncoated area. Aluminum coated hardware shall be coated with aluminum meeting the requirements of AASHTO M 181 for aluminum coating and at the rate of not less than 0.4 ounces per square foot of uncoated area.

Aluminum alloy hardware shall conform to the requirements of ASTM B 221 for extruded aluminum alloy 6063, T6. The finished members shall be of uniform quality.

Aluminum-zinc coated hardware shall be coated with an aluminum-zinc alloy meeting the chemical requirements and weight of coating specified for aluminum-zinc alloy coated metal gates.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-714-4 **CODE: (SP)**

DATE: **07/28/2025**

SUBJECT: **Miscellaneous Materials**

Section 714, Miscellaneous Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-714.01--Water.

907-714.01.1--General. Delete the last sentence of the second paragraph in Subsection 714.01.1 on page 794.

907-714.01.2--Water for Use in Concrete. Delete Subsection 714.01.2 on page 794, and substitute the following:

Water from municipal sources is permitted be used as mixing water in concrete, mortar, and grout without Department testing. Water from non-municipal water sources used in mixing of concrete, mortar, and grout which does not meet the requirements in Subsection 714.01.1 shall be tested for conformance as required in AASHTO M157, Table 1 and Table 2.

907-714.01.3--Water for Use in Chemically Stabilized Based. Delete the first sentence of first paragraph in Subsection 714.01.3 on page 794, and substitute the following:

Water used in the construction of bases that contain cement, lime, or other chemical additive shall be as set out in Subsection 714.01.1. Water from municipal sources is permitted to be used without testing for conformance to the requirements below. If water is not from a municipal source, it shall not contain impurities in excess of the following limits:

Delete Subsection 714.01.6 on page 795, and substitute the following.

907-714.01.6--Blank.

907-714.05--Fly Ash.

907-714.05.1--General. Delete the first sentence of the fifth paragraph in Subsection 714.05.1 on page 797.

Delete Subsection 714.06 on page 798, and substitute the following.

907-714.06--Slag Cement.

907-714.06.1--General. The slag cement source must be approved for listing in the Department's

APL prior to use. The acceptance of slag cement 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 slag cement against dampness and contamination. Separate storage silos, bins, or containers shall be provided for slag cement. Slag cement that is 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 slag cement during production.

Slag 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 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 hydraulic cement when used with slag cement in the production of concrete. The replacement of hydraulic cement with slag cement shall be in accordance with the applicable replacement content specified in Subsection 701.02.2.

907-714.06.2--Specific Requirements. Slag cement shall meet the requirements of AASHTO M 302, Grade 100 or 120. Slag cement shall contain no chlorides.

907-714.13--Geotextiles.

907-714.13.11--Tables. Delete Table 1 in Subsection 714.13.11 on page 813, and substitute the following.

Table 1 - Geotextiles

Type Designation	I[1]	II[1]	III	IV	V	VI		VII		VIII	IX	
	Sediment Control		Drainage	Paving	Separation & Drainage	Separation, Stabilization & Reinforcement				High Strength		
Physical Property[2]						Woven	Non-Woven	Woven	Non-Woven			**Test Method**
Grab Strength (lb)	50	90	110	90	200	280	180	450	280	----	----	ASTM D 4632
Elongation (%)	----	50% max @ 45 lb	20% min	50% min @ break	50% min	50% max	50% Min	50% max	50% Min	----	----	ASTM D 4632
Seam Strength (lb)	----	----	70	----	180	240	160	400	240	----	----	ASTM D 4632
Puncture Strength (lb)	----	----	40	----	80	110	75	180	115	----	----	ASTM D 6241
Trapezoidal Tear (lb)	----	----	40	----	80	100	70	150	100	----	----	ASTM D 4533
Asphalt Retention (gal/yd^2)	----	----	----	0.2	----	----	----	----	----	----	----	ASTM D 6140
Permittivity (sec^{-1}) min	0.05	0.05	0.5	----	0.2	0.2	0.2	0.2	0.2	----	----	ASTM D 4491
AOS Woven (mm) max	0.60	0.60	0.6	----	0.6	0.43	----	0.43	----	----	----	ASTM D 4751
AOS Non-Woven (mm) max	0.84	0.84	0.43	----	0.43	----	0.43	----	0.43	----	----	
Tensile Strength after UV (% Retained)	70% @ 500 hr	70% @ 500 hr	50% @ 500 hr	----	50% @ 500 hr	50% @ 500 hr	50% @ 500 hr	50% @ 500 hr	50% @ 500 hr	----	----	ASTM D 4355
Melting Point °(F)	----	----	----	325	----	----	----	----	----	----	----	ASTM D 276
Minimum Ultimate Tensile Strength[3] (lb/in)	----	----	----	----	----	----	----	----	----	660	2000	ASTM D 4595

Notes: 1 - All property values, with the exception of apparent opening size (AOS), represent minimum average roll values in the weakest principal direction. Values for AOS represent the maximum average roll values, 2 - Values not identified in this table should meet manufacturer certification for the use and application, 3- Machine direction

Delete Subsec

907-714.15--Geogrids.

907-714.15.1–General. A geogrid is defined as a geosynthetic formed by a regular network of connected elements with apertures greater than 0.25 inch to allow interlocking with surrounding soil, rock, and other surrounding materials to function primarily as reinforcement.

Geogrid shall be manufactured from an expanded strain hardened monolithic polymer sheet composed of one or more synthetic polymers and shall be mildew resistant and inert to biological degradation and naturally encountered chemicals, alkalis and acids. The geogrid shall contain stabilizers and/or inhibitors, or a resistance finish or covering to make it resistant to deterioration from direct sunlight, ultraviolet rays, and heat.

Geogrid manufacturers shall participate in and be in compliance with the American Association of State Highway Transportation Officials (AASHTO) National Transportation Product Evaluation Program's (NTPEP) Geosynthetics audit program. Geogrid shall meet the requirements of Table II for the application and type shown on the plans and shall be selected from the Department's Approved Lists.

907-714.15.1.1--Geogrid for Retaining Walls and Reinforced Soil Slopes. Geogrid for retaining walls and reinforced soil slopes shall be creep tested in accordance with AASHTO R69 and meet Long Term Design Load, Minimum Ultimate Tensile Strength, and open area criteria listed in Table II. Manufacturers shall perform at least one long-term creep test for no less than 10,000 hours in accordance to ASTM D 5262 for each polymer or composition of polymers from which the geogrid is produced. The long-term design load that shall be reported for design use, shall be that load at which no more than 10% strain occurs over a 100-year design life of the geogrid, as calculated in accordance with AASHTO R69. Long-term design loads shall be reported unfactored, and the AASHTO strength reduction factors (Durability and Installation, and safety factors) will be considered by the Department's Geotechnical Branch on a site specific design basis.

907-714.15.1.2--Geogrid for Subgrade Stabilization. Geogrid for subgrade stabilization shall meet Minimum Ultimate Tensile Strength and open area criteria listed in Table II.

907-714.15.2--Marking, Shipment, and Storage. Each roll or container of geogrid shall be visibly labeled with the name of the manufacturer, trade name of the product, lot number, and quantity of material. In addition, each roll or container shall be clearly tagged to show the type designation that corresponds to that required by the plans. During shipment and storage the geogrid shall be protected from direct sunlight, and temperatures above 120°F or below 0°F. The geogrid shall either be wrapped and maintained in a heavy duty protective covering or stored in a safe enclosed area to protect from damage during prolonged storage.

907-714.15.3--Manufacturer Certification. The Contractor shall furnish the Engineer three copies of the manufacturer's certified test reports indicating that the geogrid furnished conforms to the requirements of the specifications and is of the same composition as the originally approved by the Department.

907-714.15.4--Acceptance Sampling and Testing. Final acceptance of each shipment will be

based upon results of tests performed by the Department on verification samples submitted from the project, as compared to the manufacturer's certified test reports. The Engineer will select one roll or container at random from each shipment for sampling. As sample extending full width of the randomly selected roll or container and being at least five (5) square yards in area will be obtained and submitted by the Engineer. All material samples shall be provided at no cost to the State.

TABLE II
GEOGRIDS

Physical Properties	Type Designation						Test Method
	I	II	III	IV	V	VI	
Long Term Design Load[1], pounds per foot, Machine Direction	250	500	750	1500	2500	3500	AASHTO R69, ASTM D5262
Minimum Ultimate Tensile Strength[2], pounds per foot, Machine Direction	500	1000	1500	3000	5000	7000	ASTM D6637
Open Area, percent	70	70	50	50	50	50	Direct Measurement

[1] Minimum design criteria requirement.
[2] Minimum Average Roll Value (MARV).

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-718-1 **CODE: (SP)**

DATE: 12/07/2021

SUBJECT: Timber and Dimension Lumber

Section 718, Timber and Dimension Lumber, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete the Subsections in Section 718 on pages 836 thru 838, and substitute the following.

907-718.01--General. All timber and dimension lumber shall be Southern pine and shall conform in all respects to applicable requirements of AASHTO M 168. The Department reserves the right to sample and to test all materials at any time; all inspection, testing, and certification of materials will be performed in accordance with the requirements of the current version of the Department's *Materials Division Inspection, Testing, and Certification Manual*.

Timber and dimension lumber shall be furnished in the sizes shown on the plans or as specified. Unless otherwise specified, timber and dimension lumber shall be No. 1, or better, graded according to the latest American Lumber Standards.

Only one type of preservative shall be used for the treatment of materials for any one class of construction on a project, unless otherwise specified.

Where treated timber and dimensional lumber is to be used in non-highway construction or use, such as decking, handrails in walking trails, or in any manner where general public exposure by touch is possible, the treatment requirements will be as per project plans and/or approved by the State Materials Engineer.

907-718.02--Untreated Timber and Dimension Lumber. Untreated timber and dimension lumber shall conform to the requirements of AASHTO M 168.

907-718.03--Treated Timber and Dimension Lumber. Timber and dimension lumber to be treated shall meet the requirements herein specified and shall be treated as specified. Treated timber or dimensional lumber will not be accepted for use unless it has been inspected by an authorized representative of the Department and found to be satisfactory after treatment.

907-718.03.1--Blank.

907-718.03.2--Treatment.

907-718.03.2.1--General. All materials shall be treated in accordance with AASHTO M 133 unless otherwise directed by the Environmental Protection Agency (EPA).

907-718.03.2.2--Blank.

907-718.03.2.3--Inspection. Treated timber and dimension lumber shall be inspected by an authorized representative of the Department before being incorporated into the work. Treatment reports shall be provided to the Department for each lot of material supplied.

907-718.03.3--Blank.

907-718.03.4--Storage of Treated Material. All material treated for stock shall be stacked as compactly as possible on a well-drained surface. Material shall be supported on sills spaced as necessary, not to exceed 10 foot intervals and shall have at least one foot of air space beneath the stacks.

All materials treated with preservatives for use in buildings and applications where painting is required shall be dried after treatment. The treated wood shall be dried in accordance with American Lumber Standards.

907-718.04--Preservative. Preservatives shall be as specified in AASHTO M 133 unless otherwise directed by the Environmental Protection Agency (EPA).

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-720-4 **CODE: (IS)**

DATE: **06/17/2025**

SUBJECT: **Pavement Marking Materials**

Section 720, Pavement Marking Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete Section 720 on pages 840 thru 854, and substitute the following.

SECTION 720 - PAVEMENT MARKING MATERIALS

907-720.01--General. The Department reserves the right to perform sampling and testing of any materials at any time. Upon request of the Engineer, samples of the material shall be furnished.

907-720.02--Color Requirements. All pavement markings except raised pavement markers are required to meet the color requirements of ASTM D6628.

907-720.03--Optics. Optics used in thermoplastic pavement markings shall consist of a double-drop system of glass beads or advanced optics.

907-720.03.1--Glass Beads. The manufacturer shall furnish the Engineer with a certified test report indicating that the glass beads meet AASHTO M 247. AASHTO Type 4 beads shall be applied to the newly placed stripe first, followed by the application of AASHTO Type 1 or Type 2 beads. Type 1, 2, and 4 glass beads shall be transparent, clean, colorless glass, smooth and spherically shaped, free from milkiness, pits, or excessive air bubbles. Type 1, 2, and 4 glass beads shall be coated with a bead coating that is compatible with the traffic marking material to which the glass beads will be applied and will provide adequate moisture proofing, increased adhesion, and optimum embedment of the glass beads.

907-720.03.1.1—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing will be in accordance with the Materials Division Inspection, Testing, and Certification Manual (Materials Manual).

907-720.03.2--Advanced Optics. Advanced optics are materials that do not meet the specific requirements of AASHTO M 247 but produce a final drop-on optics system that meets or exceeds the reflectivity requirements in Special Provision 907-626. Advanced optics shall be a double-

drop system that is pre-approved and listed on the Department's Approved Products List.

907-720.03.2.1—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing may be conducted at the request of the Engineer.

907-720.04--Thermoplastic Marking Material. Thermoplastic marking material shall meet the color requirements of Subsection 907-720.02.

There shall be no obvious change in the color of the material if held at its plastic temperature for a period of four (4) hours nor by reason of four (4) re-heatings to its plastic temperature.

The pavement markings shall maintain its original dimension and placement. The material shall not be slippery when wet and it shall not lift from the pavement in freezing weather.

907-720.04.1--Extruded Thermoplastic Material. Extruded thermoplastic pavement marking material shall meet the requirements of AASHTO M 249, and shall meet the requirements of 907-720.04 with the following exceptions:

- Blue - ADA thermoplastic marking material shall meet the requirements of Subsection 907-720.04.2 with the exception that the color shall be Blue – ADA, and the Contractor may use hot applied thermoplastic materials meeting the satisfaction of the Engineer.

907-720.04.2--Spray-Applied Thermoplastic Material. Spray-applied thermoplastic pavement marking material shall meet the requirements of AASHTO M 249 and shall meet the requirements of 907-720.04.

907-720.04.3--Pre-formed Thermoplastic Material. Heat-fused, pre-formed thermoplastic pavement marking material shall meet the color requirements of 907-720.02.

907-720.04.4—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

907-720.05--Pavement Marking Tape. Pavement marking tape shall be listed on the Department's Approved Lists.

907-720.05.1—Cold Plastic Pavement Markings (Permanent Pavement Marking Tape). Pavement marking tape for use in roadway applications shall be designated on the Department's Approved Lists as permanent.

The prefabricated markings described shall consist of white or yellow pigmented plastic films with reflective optics uniformly distributed throughout their entire cross-sectional area, and be capable of being affixed by either a pressure sensitive pre-coated adhesive or a liquid contact cement. The markings shall be provided complete in a form that will facilitate rapid application and protect the markings in shipment and storage. The manufacturer shall identify proper solvents and/or adhesives to be applied at the time of application, all equipment necessary for proper application, and recommendations for application that will assure an effective performance life.

Prefabricated legends and symbols shall conform to the applicable shapes and sizes as outlined in the current "Manual on Uniform Traffic Control Devices."

907-720.05.1.1--Specific Requirements. Unless otherwise indicated on the plans, the patterned material without adhesive shall have a minimum caliper of 0.065 inch at the thickest portion of the patterned cross-section and a minimum caliper of 0.020 inch at the thinnest portion of the cross-section. The material shall be a pliant polymer film with 50±15% of the surface are raised and presenting a near vertical face angle of 0° to 60° to traffic from any direction. The channels between the raised areas shall be substantially free of exposed optics or particles.

The size and quality of the optics will be such that performance requirements of Subsection 907-720.02 for the retroreflective pliant polymer film shall be met. The pigments shall be selected and blended to provide a marking film that is white or yellow conforming to the performance requirements of Subsection 907-720.02 through the expected life of the film.

907-720.05.1.2--Conformability and Resealing. The marking shall be capable of conforming to pavement contours, breaks, faults, etc. through the action of traffic at normal pavement temperatures.

The marking shall have resealing characteristics that allows it to be capable of fusing with itself and previously applied marking of the same composition under normal conditions of use. The marking shall be capable of use for patching worn areas of the same type in accordance with manufacturer's instructions.

907-720.05.1.3--Tensile Strength and Elongation. The material shall have a minimum tensile strength of 40 pounds per square inch of cross section when tested according to ASTM D 638. A 6-inch x 1-inch x 0.06-inch sample shall be tested at a temperature between 70°F and 80°F using a jaw speed of 12 inches per minute.

The material shall have a minimum elongation of 75% at break when tested according to ASTM D 638 using a jaw speed of 12 inches per minute.

907-720.05.1.4--Skid Resistance. The surface of the material shall provide a minimum skid resistance value of 45 BPN when tested according to ASTM E 303 except values will be taken at

downweb and at a 45-degree angle from downweb. These two values will then be averaged to find the skid resistance of the patterned surface.

907-720.05.1.5--Effective Performance Life and Warranty. When applied according to the recommendations of the manufacturer the pavement marking tape shall provide a neat and durable marking that will not flow or distort due to temperature if the pavement surface remains stable. The film shall be weather resistant and through normal traffic wear shall show no appreciable fading, lifting, or shrinkage throughout the useful life of the marking, nor shall it show significant tearing, roll back, or other signs of poor adhesion.

All manufacturer's standard warranties and guarantees on pavement marking tape, which are provided as customary trade practice, shall be delivered to the Engineer at the final inspection. All warranties and guarantees shall be made out to the Department.

907-720.05.1.6—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing will be in accordance with the Materials Division Inspection, Testing, and Certification Manual (Materials Manual). Samples of the material shall be furnished and shall be provided at no cost to the State.

907-720.05.2--Preformed Pavement Markings for Construction Zones. Preformed pavement markings for construction zones shall be designated Department's Approved Lists as temporary. Retroreflective preformed pavement markings for construction zones shall be as specified on the plans or in the contract documents.

The markings shall be provided in specified widths and shapes. Preformed words and symbols shall conform to the applicable shapes and sizes as outlined in the current "Manual on Uniform Traffic Control Devices for Streets and Highways," or as modified.

The materials shall be packaged in accordance with accepted commercial standards and when stored indoors in a cool dry place, shall be suitable for use one year after date of purchase.

907-720.05.2.1--Specific Requirements. Preformed markings shall consist of retroreflective materials on a conformable backing and shall meet the performance requirements of Subsection 907-720.02. The markings shall consist of a mixture of high-quality polymeric materials, pigments, and optics with a reflective layer of optics bonded to the top surface. The markings shall be pre-coated with a pressure sensitive adhesive capable of adhering to pavement in accordance with the manufacturer's instructions without the use of heat, solvents, or other additional adhesives. The markings and/or adhesive shall not require any curing time after application. A coated non-metallic medium shall be incorporated with the pressure sensitive adhesive to facilitate removal.

907-720.05.2.2—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

907-720.06--Raised Pavement Markers. Pavement markers shall be listed on the Department's Approved Lists and shall conform to ASTM D 4280.

907-720.06.1--Packaging. Shipments shall be made in containers acceptable to common carriers and packaged in such a manner as to ensure delivery in perfect condition. All damaged shipments shall be replaced by the Contractor. Each package shall be clearly marked as to the name of the manufacturer, type, quantity enclosed, lot number, and date of manufacture.

907-720.06.2--Non-Reflective Pavement Markers. Non-reflective pavement markers are occasionally referred to as "jiggle markers". Non-reflective markers consisting of a heat-fired, vitreous, ceramic base, and a heat-fired, opaque, glazed surface are permitted for use; the bottom of the marker shall not be glazed. Ceramic markers shall be produced from any suitable combination of intimately mixed clays, shales, talcs, flints, feldspars, or other inorganic material. Ceramic markers shall be thoroughly and evenly matured, and all non-reflective pavement markers shall be free from defects which affect appearance or serviceability.

Ceramic non-reflective markers shall conform to the following finish and testing requirements in Table 2 below.

Table 2

Ceramic Non-Reflective Marker Requirements	
Glaze Thickness	0.005 inch, minimum
Mohs Hardness	6, minimum
Autoclave	Glaze shall not spall, craze, or peel.
Compressive Strength	750 psi, minimum
Water Absorption	2.0%, maximum

907-720.06.3—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

907-720.07--Adhesive for Pavement Markers. The adhesive shall be listed on the Department's Approved Lists and shall be an asphaltic material suitable for bonding pavement markers to surfaces when the road surface and marker temperatures are in the range of 50°F to 160°F. The composition of the adhesive must be such that its properties will not deteriorate when heated to and applied at temperatures up to 425°F. Samples may be submitted in the form of an adhesive

testing package from each batch or material obtained from a package shipped to the project.

907-720.07.1--Packaging and Labeling. The adhesive shall be packaged in self-releasing cardboard containers that will stack properly. The label shall show the manufacturer, quantity, and lot or batch number. "Adhesive for Pavement Markers" or "Adhesive for Traffic Markers" shall be printed in bold lettering on the label.

907-720.07.2--Bituminous Adhesive. The asphaltic adhesive material shall be flexible type.

907-720.07.2.1--Flexible Bituminous Adhesive. Flexible bituminous adhesive shall be designated on the Department's Approved Lists as flexible and shall comply with requirements of Table 3 below.

Table 3

Flexible Bituminous Adhesive Properties			
	Min	Max	Test Method
Penetration @ 77°F	-	25	ASTM D 5
Softening Point, °F	200	-	ASTM D 36
Brookfield Viscosity @ 400°F, cp.	-	10,000	ASTM D 3236
Ductility @ 77°F, 5 cm/min	15	-	ASTM D 113
Ductility @ 39.2°F, 1 cm/min	5	-	ASTM D 113
Asphalt Compatibility	Pass		ASTM D 5329
Flexibility @ 20°F	Pass		Per Subsection

907-720.07.3—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing will be in accordance with the Materials Division Inspection, Testing, and Certification Manual (Materials Manual). Samples of the material shall be furnished and shall be provided at no cost to the State.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-721-4 **CODE: (IS)**

DATE: **04/19/2022**

SUBJECT: **Materials for Signing**

Section 721, Materials for Signing, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-721.06--Reflective Sheeting.

907-721.06.2--Performance Requirements. Delete Table 4 and Table 5 in Subsection 721.06.2 on pages 860 & 861, and substitute the following.

MINIMUM COEFFICIENTS OF RETROREFLECTION
Candela per foot candle per square foot (cd/fc/ft^2)
Per ASTM Designation D4956

TABLE 4
Type IX Sheeting

Observation Angle	Entrance Angle	White	Yellow	Green	Red	Blue	Fluorescent Yellow/Green	Fluorescent Yellow	Fluorescent Orange
0.2°	-4.0°	380	285	38	76	17	300	230	115
0.2°	+30.0°	215	162	22	43	10	170	130	65
0.5°	-4.0°	240	180	24	48	11	190	145	72
0.5°	+30.0°	135	100	14	27	6.0	110	81	41
1.0°	-4.0°	80	60	8.0	16	3.6	64	48	24
1.0°	+30.0°	45	34	4.5	9.0	2.0	36	27	14

TABLE 5
Type XI Sheeting

Observation Angle	Entrance Angle	White	Yellow	Green	Red	Blue	Brown	Fluorescent Yellow/Green	Fluorescent Yellow	Fluorescent Orange
0.2°	-4.0°	580	435	58	87	26	17	460	350	175
0.2°	+30.0°	220	165	22	33	10	7.0	180	130	66
0.5°	-4.0°	420	315	42	63	19	13	340	250	125
0.5°	+30.0°	150	110	15	23	7.0	5.0	120	90	45
1.0°	-4.0°	120	90	12	18	5.0	4.0	96	72	36
1.0°	+30.0°	45	34	5.0	7.0	2.0	1.0	36	27	14

After Subsection 721.10 on page 864, add the following.

907-721.11--Digital Applied Printing. The following addresses the requirements for digitally printed finished retroreflective traffic control signs on flat sheet aluminum and digitally printed traffic sign faces intended to be applied to a sign substrate.

907-721.11.1--Digitally Printed Ink Systems. Traffic signs must be produced using components, and processes that comply with the retroreflective sheeting manufacturer's recommendations.

Digital printed ink systems used to print traffic signs must meet and comply with daytime and nighttime chromaticity (color standards) as recognized in ASTM D4956 "Standard Specification for Retroreflective Sheeting for Traffic Control."

Digital printed ink systems must meet 70% of the initial retroreflectivity specifications of each respective reflective film color as found in ASTM D4956 "Standard Specification for Retroreflective Sheeting for Traffic Control."

Prior to fabrication and preferably at the preconstruction meeting, the Contractor shall advise the Project Engineer in writing as to which signs on the project will be digitally printed and which ones will be screen printed. The Contractor shall submit to the Project Engineer certifications for all digitally printed signs, which will be forwarded to the State Traffic Engineer for review.

907-721.11.2--Protective Overlay Film. Permanent traffic signs printed with digital ink systems will be fabricated with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. The overlaminate shall comply with the retroreflective sheeting manufacturer's recommendations to ensure proper adhesion and transparency and will also meet the reflective film durability as identified in Table 1.

Table 1
Retroreflective Film Minimum Durability Requirements

ASTM D4956 Type	Full Sign Replacement Term (years)	Sheeting Replacement Term (years)
IV	7	10
VIII	7	10
IX	7	12
XI	7	12

Temporary signs used in work zones printed with black ink only will not require a protective overlay film as long as the finished sign is warranted for a minimum outdoor durability of three years by the sheeting manufacturer.

907-721.11.3--Inspection. During fabrication, the Contractor shall provide sufficient testing and quality control throughout fabrication to insure good workmanship. Once the material has been received, it may be subject to random testing to ensure compliance with all requirements. If any test samples do not conform to the requirements, the entire order may be returned at the vendor's expense.

907-721.11.4--Traffic Sign Performance Warranty Provisions. Based on the ASTM Type of sheeting specified, traffic control signs shall be warranted for the duration shown in Table 1. The Contractor shall supply a copy of the warranty document with complete details of terms and conditions upon request of the Department.

907-721.11.5--Certified Digital Sign Fabricator. Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.

Certified sign fabricators must undergo an audit process by the sheeting manufacturer to ensure they have the proper equipment, manufacturing capabilities, manufacturing application processes and the materials required to fulfill the sheeting manufacturer's warranty obligations. Sign fabricators must recertify annually with reflective sheeting manufacturers or utilize a 3rd party certifier approved by the reflective sheeting manufacturer.

The Contractor shall submit proof of Sign Fabricator Certification as issued by the retroreflective sign sheeting manufacturer to the Project Engineer upon delivery of the signs, or with the Shop Drawings.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-722-1 **CODE: (IS)**

DATE: 11/15/2017

SUBJECT: Materials for Traffic Signal Installation

Section 722, Materials for Traffic Signal Installation, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follow.

907-722.02.3--Design Strength Requirements. Delete Subsection 722.02.3 on pages 864 thru 866, and substitute the following.

Unless specified otherwise in the plans, poles shall meet the requirements of the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,* as specified in the plans with all interim supplements. All components of the assemblies shall be designed to the following:

- Importance Factor: 1.0; 50 year mean recurrence interval
- Basic Wind Speed (3 second gust): As shown on the project plans
- Minimum Gust Effect Factor: 1.14
- Fatigue Category: II
- Ice Loading: As shown on the project plans
- Natural Wind Gust Pressure Loads: Included
- Truck Induced Gust Pressure Loads: Not included
- Galloping: Not included

907-722.02.5--Mast Arms for Traffic Signal and Equipment Poles. Delete the first four sentences of the third paragraph of Subsection 722.02.5 on page 867, and substitute the following.

Anchor base plates must meet the minimum requirements of ASTM A36 or ASTM A709 Grade 36 or ASTM A572 Grade 50 and must be welded to the shaft by either telescoped with two continuous arc welds or by back up ring using full penetration welds.. Flange plate shall telescope the large end of the arm and be welded by either two (2) continuous arc welds, one (1) being on the outside of the plate, adjacent to the shaft, and the other one (1) on the inside at the end of the tubular cross section or by back up ring using full penetration welds. The thru-bolt flange plate or tapped flange plate supporting the mast arm shall be welded to the pole near the top and supported side plate tangent to the pole and gusset plates both top and bottom. The thru-bolt or tapped flange plate must be sufficient to develop the full capacity of the connecting bolts.

907-722.03--Electric Cable. Delete the paragraphs for Loop Detector Wire and Loop Detector Lead-in Cable in Subsection 722.03 on page 869.

Delete the first sentence of "Communication Cable" in Subsection 722.03 on page 870, and substitute the following.

Communication cables shall be as per the manufacturer's recommendation.

907-722.05.4--Type III or Type IV Rigid Non-Metallic Conduit. After the last sentence of Subsection 722.05.4 on page 871, add the following.

Schedule 40 conduit shall be used unless otherwise noted in the plans.

Delete the title of Subsection 722.13.3 on page 876, and substitute the following.

907-722.13.3--Power Service Pedestal.

Delete the first paragraph of Subsection 722.13.3 on page 876, and substitute the following.

The pedestal shall be of NEMA Type 3R rainproof construction and shall be UL Listed as "Enclosed Industrial Control Equipment" (UL 508A). External construction shall comply with UL50 requirements and shall be unpainted aluminum.

Nominal size of the pedestal shall be 48"H x 16"W x 16"D.

Pedestal shall have a voltage rating or 120v/240v single phase with an Amperage rating of 800A.

After the first sentence of the seventh paragraph of Subsection 722.13.3 on page 876, add the following.

An outdoor rated heavy duty combination lock shall be provided to lock the customer compartment door.

907-722.14.1.3--Optical System. Delete the sixteenth paragraph of Subsection 722.14.1.3 on page 879, and substitute the following.

The signal module on-board circuitry shall include voltage surge protection to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.6, NEMA Standard TS 2, 1992.

Delete the last sentence of the seventeenth paragraph of Subsection 722.14.1.3 on page 879, and substitute the following.

Load switches shall be compatible with NEMA TS 1 or later, or Model 170-1989 or later.

Delete Subsection 722.14.5 on page 882, and substitute the following.

907-722.14.5--Blank.

Delete Subsections 722.14.7 and 722.14.8 on page 882.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-804-14 **CODE: (IS)**

DATE: 11/21/2023

SUBJECT: Bridge Deck Overlay

Section 804, Concrete Bridges and Structures, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as modified by this special provision is applicable to Bridge Deck Overlays Only.

907-804.01--General. This work consists of placing a concrete overlay over an existing bridge deck or a bridge deck that has been partially removed by hydrodemolition, or other methods of removal, to the line, grade and cross-section shown on the plans or as directed by the Engineer.

907-804.02--Materials.

907-804.02.1--General. Concrete produced and controlled from this specification will be accepted upon proper certification of concrete production through verification by job site acceptance criteria performed by Department personnel.

The materials for partial depth repair of concrete, when sampled and tested in accordance with Subsection 700.03, shall meet the requirements of the following Subsections:

Portland Cement	701.01 and 701.02
Blended Cement	701.01 and 701.04
Fine Aggregate	703.02
Coarse Aggregate	703.03
Joint Material	707.01, 707.02, and 707.07
Reinforcing Steel	711.02
Structural Synthetic Fibers	711.04
Liquid Membrane Compound	713.01.02
Admixtures	713.02
Fly Ash	714.05
Water	714.01.1 and 714.01.2

907-804.02.2--Hydraulic Cement Concrete Mixture. The hydraulic cement concrete mixture design shall meet the requirements for Class BDO in Section 907-799.

907-804.02.3--Sampling & Testing. Sampling and testing of plastic concrete will be performed by Department personnel having the applicable certifications in Table 2 in Section 804 and in accordance with the applicable test methods listed in Table 1 in Section 804 at the following sampling and testing frequency.

The slump, temperature, and total air content will be determined on the first batch each production day and other subsequent batches until requirements for these plastic properties are met. Slump, temperature, and total air content shall be determined at a minimum frequency of one (1) per each

50 cubic yards of concrete repair, or fraction thereof, but more often if the slump, temperature, or total air content are in question on subsequent batches. Once a batch has been determined to meet the requirements for slump, temperature, and total air content, additional testing on the batch is not required.

At least three concrete test cylinders for acceptance will be cast per day per section of lane for which an individual lane closure is affected and concrete is replaced. The slump, temperature, total air content, and unit weight will be determined for the concrete test cylinders. The concrete test cylinders will be made from approximately the last batch of concrete produced each day.

Compressive strength cylinders for opening to traffic shall be cast and tested by the Contractor in accordance with Subsection 907-804.03.

907-804.02.4--Basis of Acceptance. The slump of plastic concrete mixture shall meet the requirements of Subsection 907-804.02.2 with the minus slump limits of AASHTO M157.

Sampling will meet the requirements of AASHTO T141. For additional information concerning sampling concrete, see the Department's *Concrete Field Manual*.

The total air content of the plastic concrete mixture shall meet the requirements of Subsection 907-804.02.2.

The maximum plastic concrete acceptance temperature shall be 90°F. Plastic concrete with a temperature exceeding 90°F will be rejected and not used in Department work. The minimum acceptance temperature shall meet the requirements of Subsection 804.03.16.1 for Cold Weather Concreting.

A check test will be made on another portion of the obtained sample before rejection of any batch.

The compressive strength shall meet the requirements of Subsection 907-804.02.3.

907-804.03--Construction Requirements. When the overlay is to be placed on a bridge deck that has been partially removed, the bridge deck overlay shall begin as soon as practical following the deck removal and cleaning of the bridge deck. Any bridge deck repairs shall be performed prior to or concurrent with the placement of the overlay. Any damage to the reinforcing steel as a result of the Contractor's operations shall be corrected to the satisfaction of the Engineer at no additional costs to the State.

During placement of the overlay, the concrete shall be thoroughly consolidated by internal vibration. Finishing may be performed by either machine or hand methods. The concrete shall be screeded longitudinally unless otherwise permitted by the Engineer. The screed shall be metal of a type normally used on bridge deck pours. The overlay shall be checked longitudinally and transversely in order to meet a 1/8-inch in 10 feet smoothness requirement.

After the screeding and floating has been completed and while the concrete is still plastic, the surface of the concrete shall be tested with a 10-foot straightedge. For this purpose the Contractor shall furnish and use an accurate 10-foot straightedge swung from handles three feet longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in

successive positions parallel to the road centerline and the whole area gone over from one side of the slab to the other as necessary. Advance along the road shall be in successive stages of not more than one-half the length of the straightedge. All depressions found shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets any requirements for smoothness. Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge, and the slab conforms to the required grade and cross section.

The concrete surface shall be protected from premature drying by covering as soon as possible with wetted burlap. It shall be cured with Class 3 burlap, or its equivalent, covered with plastic sheeting. The burlap shall be kept continuously and thoroughly wet. Careful attention shall be given to the proper curing and protection of the concrete, and curing shall continue until the 2,500 psi strength is attained. Twelve (12) test cylinders for verifying strength requirements shall be made and cured under the same conditions as the bridge deck. Three (3) test cylinders shall be tested and the results averaged to represent a test break. Traffic shall not be allowed on the concrete overlay until the required 2,500 psi strength is attained.

907-804.04--Method of Measurement. Bridge deck overlay concrete, complete and accepted, will be measured by the cubic yard, determined by calculating the theoretical volume of bridge deck overlay plus any additional concrete placed. Additional concrete placed with the overlay will be calculated by subtracting the theoretical volume of bridge deck overlay from the total ticketed volume of concrete delivered minus the volume estimated by the Engineer of any wasted concrete.

907-804.05--Basis of Payment. Bridge deck overlay concrete, measured as prescribed above, will be paid for at the contract unit price per cubic yard, which price shall be full compensation for all materials, tools, equipment, labor, and incidentals necessary to complete the work.

Payment will be made under:

907-804-O: Bridge Deck Overlay Concrete - per cubic yard

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-808-1 **CODE: (IS)**

DATE: 11/01/2018

SUBJECT: Joint Repair

Section 808, Joint Repair, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

907-808.04--Method of Measurement. Delete the paragraph in Subsection 808.04 on page 1009, and substitute the following.

When a pay item is included in the plans, joint repair will be measured by the linear foot and mortar mix will be measured by the gallon. The volume of measurement for the epoxy/sand mortar mix will be determined from the summation of the volumes of the epoxy components and the volume of sand will not be measured for payment.

907-808.05--Basis of Payment. Delete the paragraph in Subsection 808.05 on page 1009, and substitute the following.

When a pay item is included in the plans, joint repair, measured as prescribed above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for furnishing and placing all materials, labor, tools, equipment, and all incidentals necessary to complete the work.

When a pay item is included in the plans, mortar mix, measured as prescribed above, will be paid for at the contract unit price per gallon, which price shall be full compensation for furnishing all materials including sand and forming materials, and all incidentals necessary to complete the work. No payment will be made for the sand used in the epoxy mortar mix.

The price bid for each item of work shall include the cost of continuous maintenance of traffic and protective services as required by the Department's Traffic Control Plan. This shall include all required individual traffic control devices.

Payment will be made under:

907-808-A: Joint Repair - per linear foot

907-808-B: Mortar Mix - per gallon

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS NO. 907-823-8 **CODE: (SP)**

DATE: 08/06/2024

SUBJECT: Preformed Joint Seal

Section 907-823, Preformed Joint Seal, is hereby added to and becomes a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-823--PREFORMED JOINT SEAL

907-823.01--Description. This work consists of furnishing and installing preformed joint seals in accordance with these specifications and the details shown in the Plans or drawings provided.

907-823.02--Materials. The Contractor shall furnish a manufacturer's certification stating that the material used meets the requirements of this specification.

The preformed joint seal shall be one of the following, or an approved equal. The size of the seal, Type I, Type II, or Type III shall be determined based on the size of the joint opening, as detailed in the Plans or drawings provided. It is the Contractor's responsibility to ensure that the size selected is appropriate for the width of the joint. Type I shall be used for joint openings less than two inches (2"). Type II shall be used for joint openings greater than two inches (2"), with the maximum joint opening being two and one-half inches (2½"). Type III shall be used for joint openings greater than two and one-half inch (2½"), with the maximum joint opening being three and one-half inch (3½"). In cases where the joint opening (design width "A" plus seat widths on both sides of the joint opening) is greater than four inches (4"), another type of expansion material shall be required as directed by the Director of Structures, State Bridge Engineer.

1. Silicoflex Joint Sealing System
   Manufactured by R.J. Watson, Inc. in Alden, NY
   www.rjwatson.com

2. Wabo®SPS Joint System
   Manufactured by Watson Bowman Acme Corporation in Amherst, NY
   www.wbacorp.com

3. Silspec SSS Silicone Strip Seal
   Manufactured by SSI Commercial & Highway Construction Materials in Tulsa, OK
   www.ssicm.com

907-823.03--Construction Methods. Preformed joint seals shall be installed in accordance with the manufacturer's recommendations. The material shall seal the deck surface, gutters, and curbs to prevent moisture or other contaminants from leaking through the joints. The joint seal shall be installed in such a manner that the top surface of the material is within the minimum and maximum depths below the roadway or bridge surface recommended by the manufacturer.

Saw cutting for the joint repair shall be accomplished by sawing at the locations and depth shown on the joint repair detail sheets in the plans or in the contract documents. Saw cuts shall be as near vertical as possible at the saw line of the repair area. The saw cut depth shall be equivalent to the installation depth required by the manufacturer's specifications, and the type specified shall be the same as the type specified for preformed joint seal.

907-823.04--Method of Measurement. Preformed joint seal of the type specified will be measured in linear feet along the length of the centerline joint.

Saw cuts of the type specified will be measured by the linear foot along the length of the bridge deck on each side of the centerline joint.

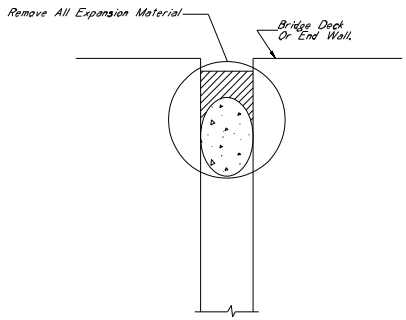
907-823.05--Basis of Payment. Preformed joint seal, measured as prescribed above, will be paid for at the contract unit price per linear foot, which shall be full compensation for furnishing all labor, equipment, tools, materials, and incidentals necessary to complete the work.

Saw cuts, measured as prescribed above, will be paid for at the contract unit price per linear foot, which shall be full compensation for furnishing all labor, equipment, tools, materials, and incidentals necessary to complete the work.

Payment will be made under:

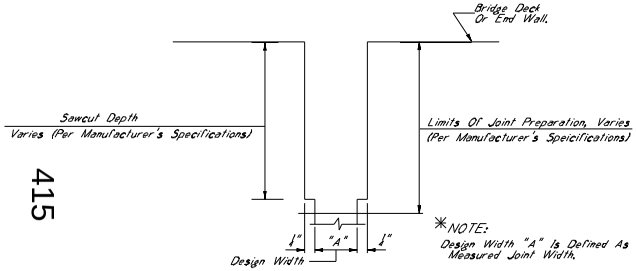
907-823-A: Preformed Joint Seal, Type ___ - per linear foot

907-823-B: Saw Cut, Type _____ - per linear foot



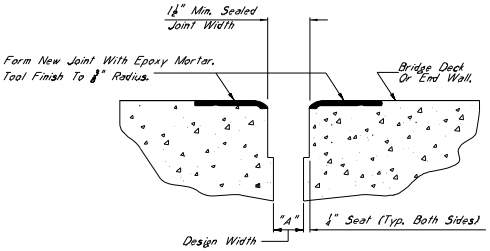
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Materials To Be Removed And Replaced With Preformed Joint Seal



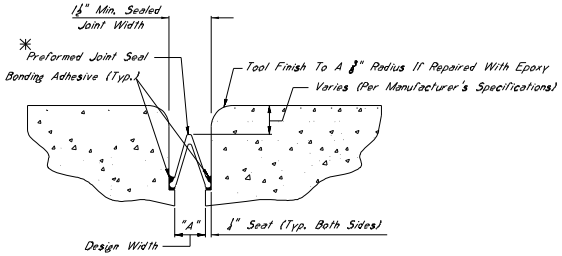
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL AND SAWCUT

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials And Sawcut



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

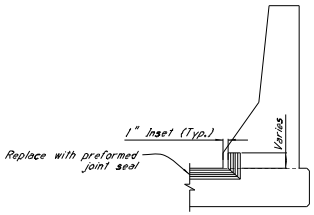
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec S55 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". Type III Shall Be Used For Design Width Greater Than 2½", With The Maximum Design Width Being 3½". In Cases Where Design Widths Are Greater Than 3½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



ELEVATION AT END OF SPAN

*NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3".
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

NOTES ON ASSOCIATED ITEMS OF WORK:

907-808-A002 JOINT REPAIR

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. Removal Of Joint Materials And Any Trash And Debris (Including But Not Limited to Compacted Dirt, Vegetation and Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-808-A003 JOINT REPAIR WITHOUT EPOXY

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Shall Be Included Under This Item Of Work. Removal Of Joint Materials And Any Trash And Debris (Including But Not Limited to Compacted Dirt, Vegetation and Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck, On Each Side Of The Centerline Joint. It Is The Contractor's Responsibility To Ensure That The Proper Depth Is Selected Based On The Manufacturer's Recomendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

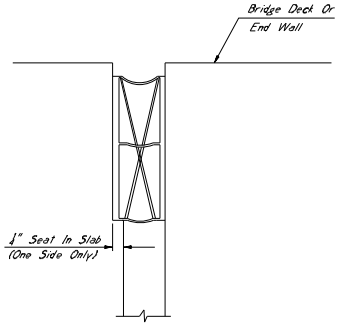
Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

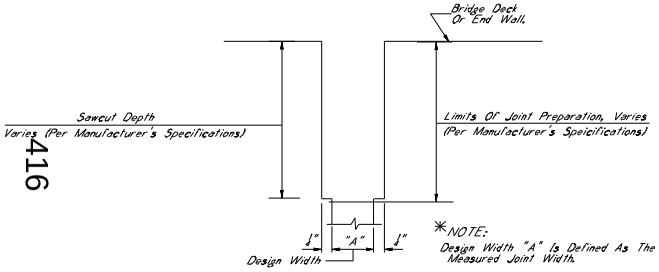
GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.



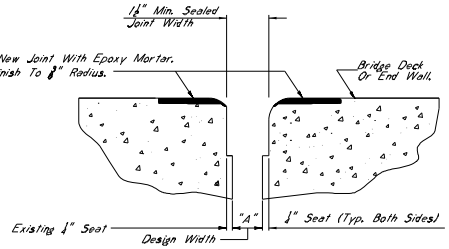
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



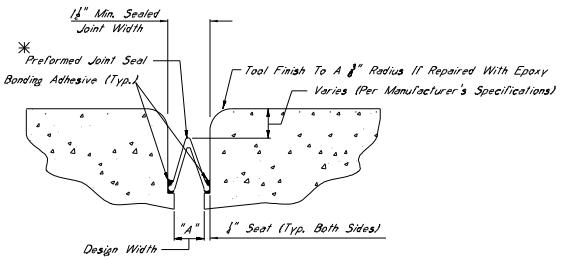
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL AND SAWCUT

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials And Sawcut



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

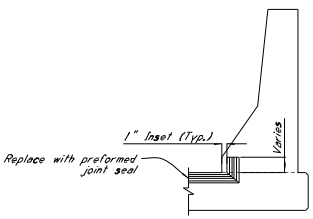
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". Type III Shall Be Used For Design Width Greater Than 2½", With The Maximum Design Width Being 3½". In Cases Where Design Widths Are Greater Than 3½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



*NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3".
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

907-808-A002 JOINT REPAIR

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Removal Of Joint Materials And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation and Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-808-A003 JOINT REPAIR WITHOUT EPOXY

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Shall Be Included Under This Item Of Work. Removal Of Joint Materials And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation and Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 SAW CUT, TYPE I
907-823-A002 SAW CUT, TYPE II
907-823-A003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint. It Is The Contractor's Responsibility To Ensure That The Proper Depth Is Selected Based On The Manufacturer's Recomendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

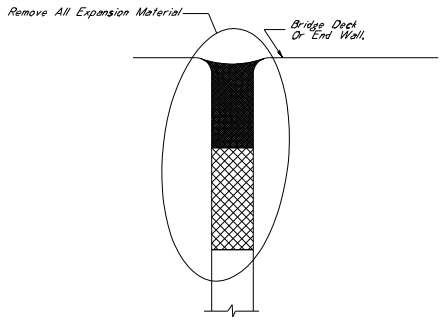
Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

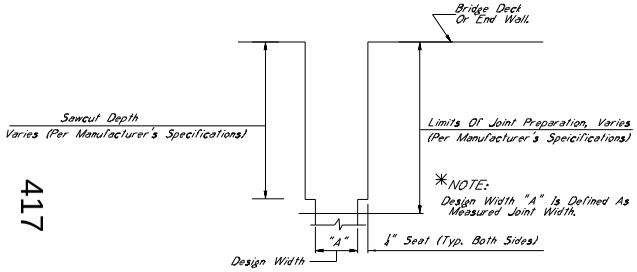
GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.



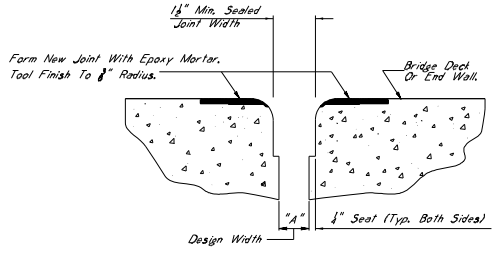
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Material To Be Removed And Replaced With Preformed Joint Seal



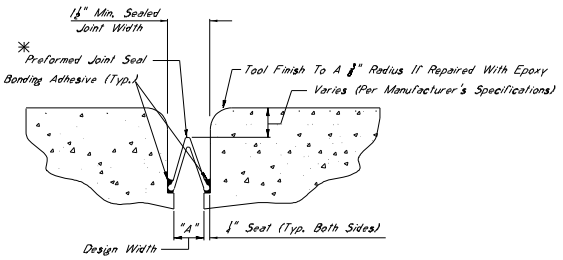
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL AND SAWCUT

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials And Sawcut



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut, With Epoxy Mortar Or Approved Equivalent



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Epoxy Mortar

✳NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

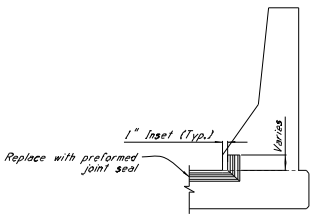
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec 555 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ¼" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". Type III Shall Be Used For Design Width Greater Than 2½" With The Maximum Design Width Being 3". In Cases Where Design Widths Are Greater Than 3", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



✳NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3". For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

907-808-A002 JOINT REPAIR

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Epoxy Mortar Shall Also Be Included Under This Item Of Work. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. Removal Of Joint Materials And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation and Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-808-A003 JOINT REPAIR WITHOUT EPOXY

Description: Shall Include The Work Necessary To Repair Joints In Preparation For The Placement Of New Expansion Material, As Designated In The Detail Drawings Provided. Removal Of Existing Silicone Sealed, Compression, And AC Sealed Joint Materials Will Not Be Paid For Directly And Shall Be Considered As Absorbed Under This Item Of Work. Removal Of Joint Materials And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation And Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work. All Other Requirements Shall Be In Accordance With The Applicable Provisions Of Section 808 Of The Specifications And Any Other Sections Specified Therein.

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint. It Is The Contractor's Responsibility To Ensure That The Proper Depth Is Selected Based On The Manufacturer's Recomendations.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

EPOXY MORTAR AND POLYMER CONCRETE NOTES:

Either Epoxy Mortar Or Polymer Concrete May Be Used. Guidelines For Selection Of Materials Can Be Found In Section 808 of the Specifications.

GENERAL NOTES:

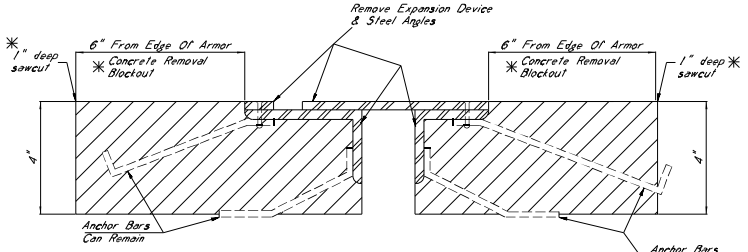
1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

✳1" SAWCUT NOTES:

All 1" Sawcuts Shall Be Considered An Absorbed Item of Work. The Contractor Shall Verify Depth Of Reinforcing Steel Before Making Any Sawcuts. The Depth Of The Sawcut Shall Be No More Than The Depth Of The Reinforcing Steel. Any Damage To Reinforcing Steel Shall Be Repaired To The Satisfaction Of The Engineer At No Cost To The State.

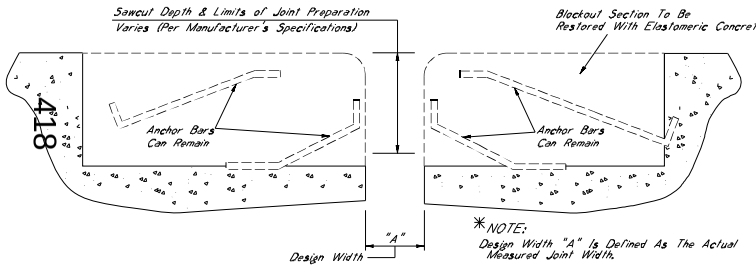
✳CONCRETE REMOVAL BLOCKOUT NOTES

Removal Of The Concrete Blockout Area Shall Be Considered An Absorbed Item Of Work Under Pay Item 202-B169. The Contractor Shall Use A Hammer No Larger Than 30 LBs To Complete This Work.



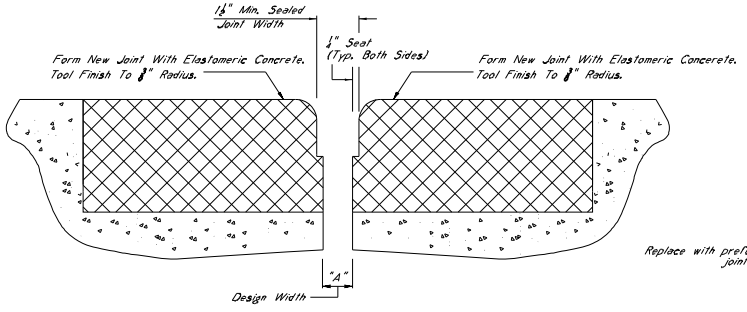
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



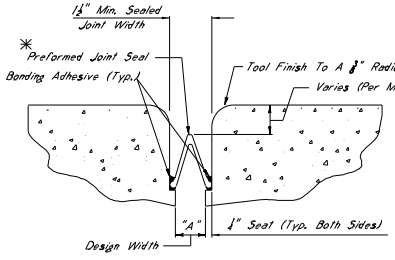
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Elastomeric Concrete



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Elastomeric Concrete

✳NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

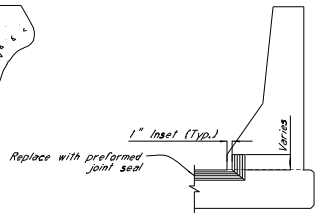
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec 555 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ¼" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". Type III Shall Be Used For Design Width Greater Than 2½" With The Maximum Design Width Being 3½". In Cases Where Design Widths Are Greater Than 3½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



✳NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3".
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B169 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Removal of The Concrete Blockout Area Shall Be Absorbed Under This Item Of Work. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer. Removal of Joint Material And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation And Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

ELASTOMERIC CONCRETE NOTES

907-824-PP007 BRIDGE REPAIR, ELASTOMERIC CONCRETE

Description: Elastomeric Concrete Shall Be One Of The Following Products, Installed According To The Manufacturer's Specifications:

A. Poly-Tron Elastomeric Concrete
Manufactured By R.J. Watson, Inc. In Alden, NY
www.rjwatson.com

B. WaboCrete II
Manufactured By Watson Bowman Acme Corporation In Amherst, NY
www.wbacorp.com

C. Delcrete Elastomeric Concrete
Manufactured By The D.S. Brown Company In North Baltimore, OH
www.dsbrown.com

Basis of Payment: The Accepted Quantities Will Be Paid For In Cubic Yards At The Contract Unit Price.

GENERAL NOTES:

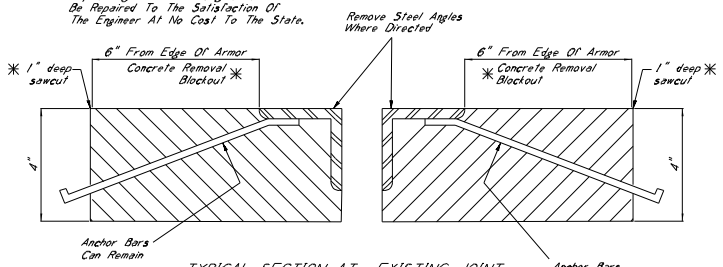
1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

✳1" SAWCUT NOTES:

All 1" Sawcuts Shall Be Considered An Absorbed Item of Work. The Contractor Shall Verify Depth Of Reinforcing Steel Before Making Any Sawcuts. The Depth Of The Sawcut Shall Be No More Than The Depth Of The Reinforcing Steel. Any Damage To Reinforcing Steel Shall Be Repaired To The Satisfaction Of The Engineer At No Cost To The State.

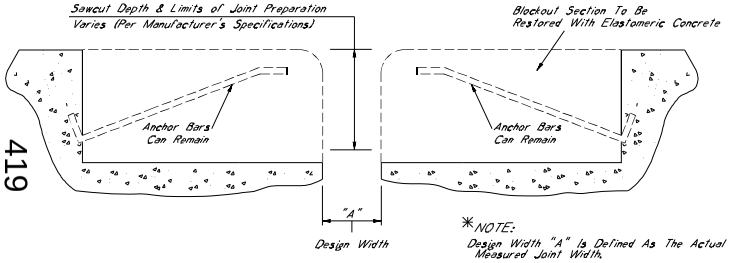
✳CONCRETE REMOVAL BLOCKOUT NOTES

Removal Of The Concrete Blockout Area Shall Be Considered An Absorbed Item Of Work Under Pay Item 202-B169. The Contractor Shall Use A Hammer No Larger Than 30 LBs To Complete This Work.



TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal

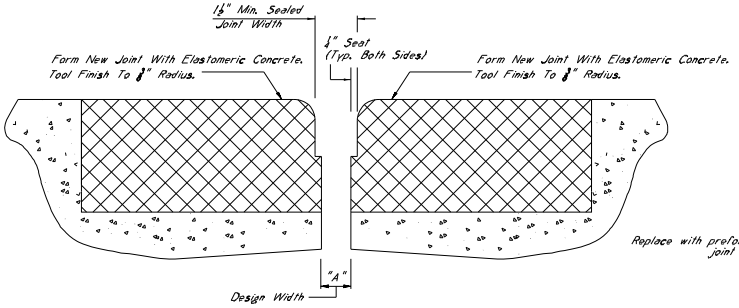


✳NOTE:

Design Width "A" Is Defined As The Actual Measured Joint Width.

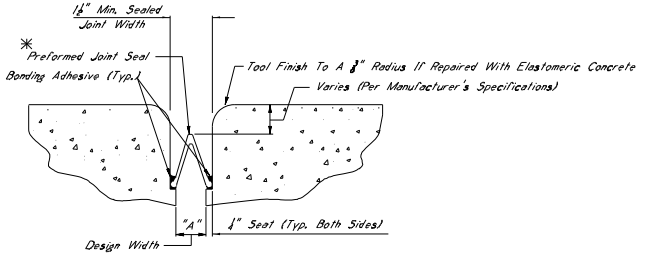
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Elastomeric Concrete



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Elastomeric Concrete

✳NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

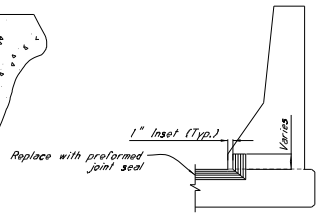
   A. Silicoflex Joint Sealing System
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   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The R.J. Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2½". Type III Shall Be Used For Design Width Greater Than 2½", With The Maximum Design Width Being 3¼". In Cases Where Design Widths Are Greater Than 3¼", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



✳NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3".
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B169 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Removal of The Concrete Blockout Area Shall Be Absorbed Under This Item Of Work. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer. Removal of Joint Material And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation And Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

ELASTOMERIC CONCRETE NOTES

907-824-PP007 BRIDGE REPAIR, ELASTOMERIC CONCRETE

Description: Elastomeric Concrete Shall Be One Of The Following Products, Installed According To The Manufacturer's Specifications:

A. Poly-Tron Elastomeric Concrete
Manufactured By R.J. Watson, Inc. In Alden, NY
www.rjwatson.com

B. WaboCrete II
Manufactured By Watson Bowman Acme Corporation In Amherst, NY
www.wbacorp.com

C. Delcrete Elastomeric Concrete
Manufactured By The D.S. Brown Company In North Baltimore, OH
www.dsbrown.com

Basis of Payment: The Accepted Quantities Will Be Paid For In Cubic Yards At The Contract Unit Price.

GENERAL NOTES:

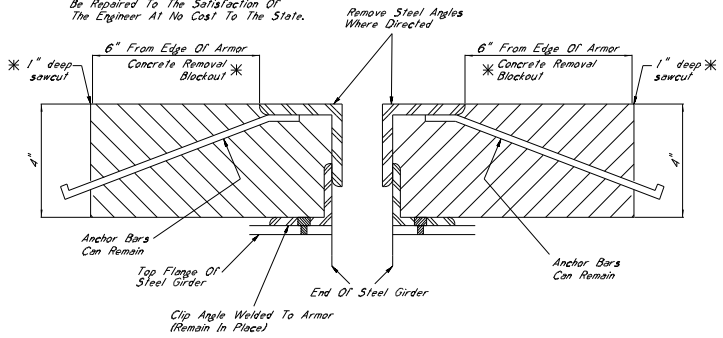
1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

✳1" SAWCUT NOTES:

All 1" Sawcuts Shall Be Considered An Absorbed Item of Work. The Contractor Shall Verify Depth Of Reinforcing Steel Before Making Any Sawcuts. The Depth Of The Sawcut Shall Be No More Than The Depth Of The Reinforcing Steel. Any Damage To Reinforcing Steel Shall Be Repaired To The Satisfaction Of The Engineer At No Cost To The State.

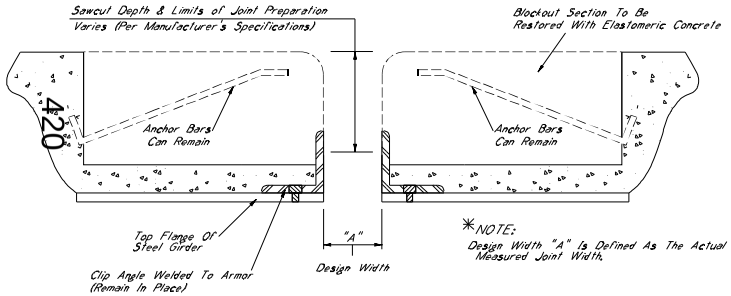
✳CONCRETE REMOVAL BLOCKOUT NOTES

Removal Of The Concrete Blockout Area Shall Be Considered An Absorbed Item Of Work Under Pay Item 202-B169. The Contractor Shall Use A Hammer No Larger Than 30 LBs To Complete This Work.



TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal

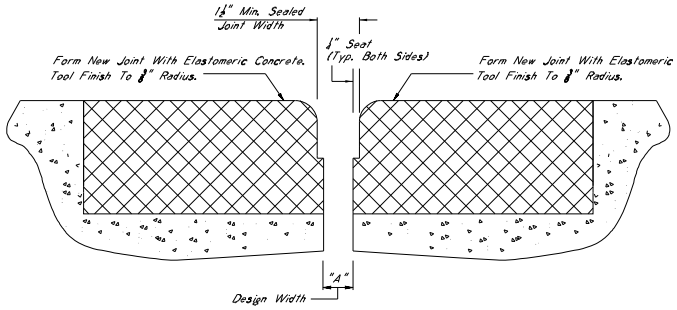


✳NOTE:

Design Width "A" Is Defined As The Actual Measured Joint Width.

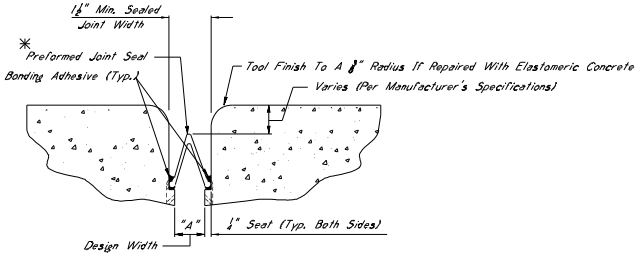
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Elastomeric Concrete



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Elastomeric Concrete

✳NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

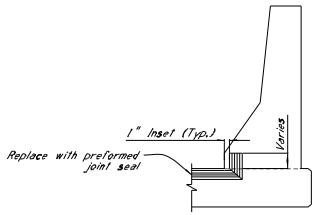
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec 555 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The 1" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2" With The Maximum Design Width Being 2½". Type III Shall Be Used For Design Width Greater Than 2½". With The Maximum Design Width Being 3½". In Cases Where Design Widths Are Greater Than 3½", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



✳NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3".
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B169 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Removal of The Concrete Blockout Area Shall Be Absorbed Under This Item Of Work. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer. Removal of Joint Material And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation And Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

ELASTOMERIC CONCRETE NOTES

907-824-PP007 BRIDGE REPAIR, ELASTOMERIC CONCRETE

Description: Elastomeric Concrete Shall Be One Of The Following Products, Installed According To The Manufacturer's Specifications:

A. Poly-Tron Elastomeric Concrete
Manufactured By R.J. Watson, Inc. In Alden, NY
www.rjwatson.com

B. WaboCrete II
Manufactured By Watson Bowman Acme Corporation In Amherst, NY
www.wbacorp.com

C. Delcrete Elastomeric Concrete
Manufactured By The D.S. Brown Company In North Baltimore, OH
www.dsbrown.com

Basis of Payment: The Accepted Quantities Will Be Paid For In Cubic Yards At The Contract Unit Price.

GENERAL NOTES:

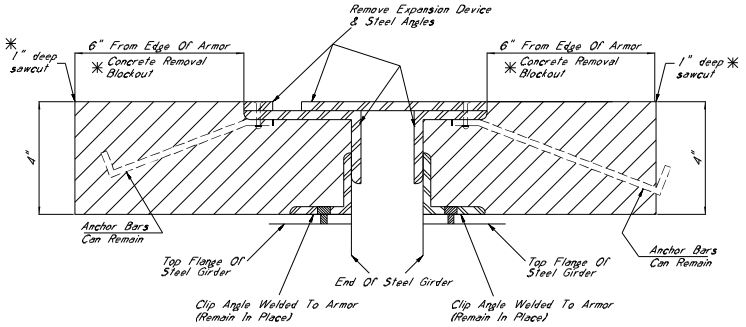
1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

✳1" SAWCUT NOTES:

All 1" Sawcuts Shall Be Considered An Absorbed Item of Work. The Contractor Shall Verify Depth Of Reinforcing Steel Before Making Any Sawcuts. The Depth Of The Sawcut Shall Be No More Than The Depth Of The Reinforcing Steel. Any Damage To Reinforcing Steel Shall Be Repaired To The Satisfaction Of The Engineer At No Cost To The State.

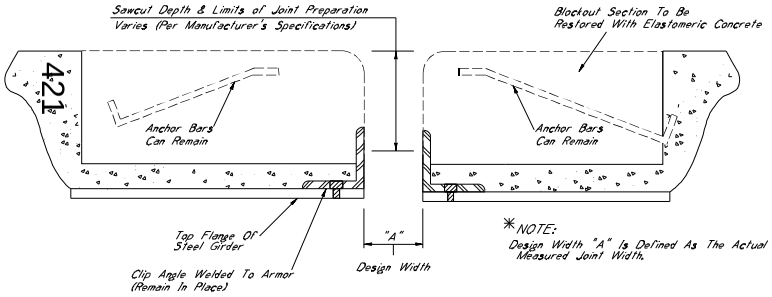
✳CONCRETE REMOVAL BLOCKOUT NOTES

Removal Of The Concrete Blockout Area Shall Be Considered An Absorbed Item Of Work Under Pay Item 202-B169. The Contractor Shall Use A Hammer No Larger Than 30 LBs To Complete This Work.



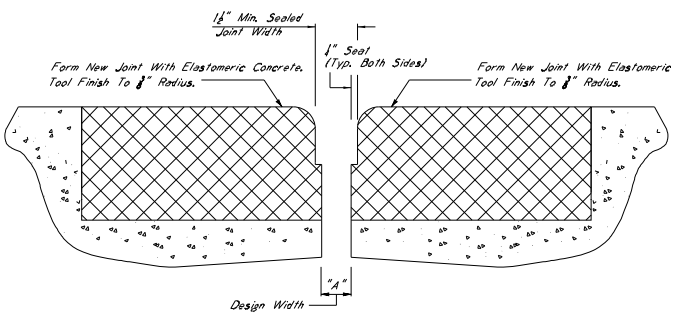
TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



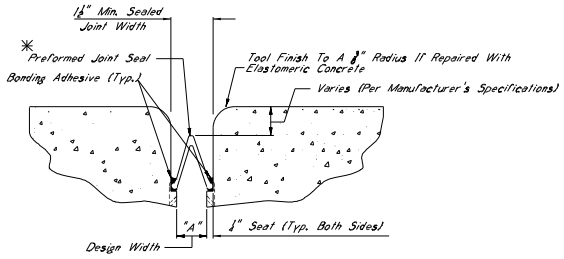
TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials



TYPICAL SECTION AT SAWCUT & JOINT REPAIR

Showing Area Where Repairs Are Made After Sawcut With Elastomeric Concrete



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Elastomeric Concrete

✳NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

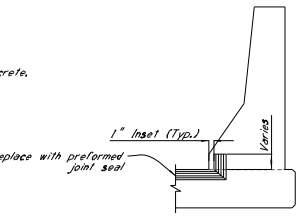
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec 555 Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The 1" Seal Required On Both Sides Of The Joint. Preformed Joint Seal Type I Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal Type II Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2". Type III Shall Be Used For Design Width Greater Than 2", With The Maximum Design Width Being 3". In Cases Where Design Widths Are Greater Than 3", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



✳NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3". For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B169 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Removal of The Concrete Blockout Area Shall Be Absorbed Under This Item Of Work. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer. Removal of Joint Material And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation And Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

ELASTOMERIC CONCRETE NOTES

907-824-PP007 BRIDGE REPAIR, ELASTOMERIC CONCRETE

Description: Elastomeric Concrete Shall Be One Of The Following Products, Installed According To The Manufacturer's Specifications:

A. Poly-Tron Elastomeric Concrete
Manufactured By R.J. Watson, Inc. In Alden, NY
www.rjwatson.com

B. WaboCrete II
Manufactured By Watson Bowman Acme Corporation In Amherst, NY
www.wbacorp.com

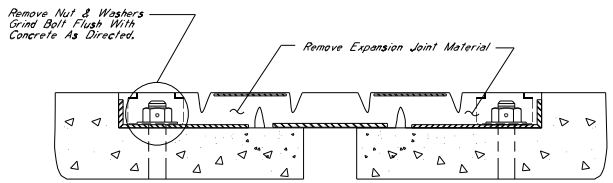
C. Delcrete Elastomeric Concrete
Manufactured By The D.S. Brown Company In North Baltimore, OH
www.dsbrown.com

Basis of Payment: The Accepted Quantities Will Be Paid For In Cubic Yards At The Contract Unit Price.

GENERAL NOTES:

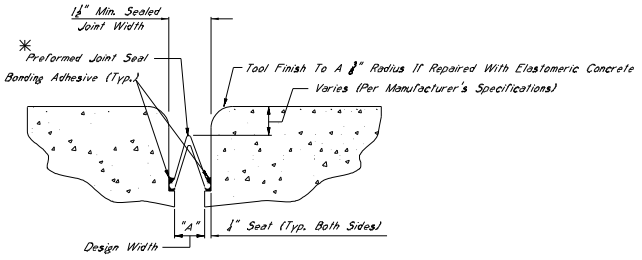
1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

S.P. No. 907-823-8 -- Cont'd.



TYPICAL SECTION AT EXISTING JOINT

Showing Existing Expansion Device To Be Removed And Replaced With Preformed Joint Seal



TYPICAL SECTION AT SAWCUT & SEALED JOINT

Showing Sealed Joint After Sawcut And Repair With Elastomeric Concrete

✳NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

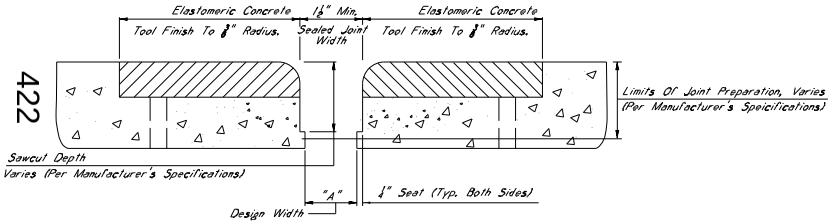
   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc. In Alden, NY
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation In Amherst, NY
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

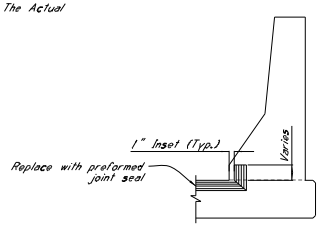
3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The ½" Seat Required On Both Sides Of The Joint. Preformed Joint Seal, Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 2". Type III Shall Be Used For Design Width Greater Than 2", With The Maximum Design Width Being 3". In Cases Where Design Widths Are Greater Than 3", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.



TYPICAL SECTION AT JOINT AFTER REMOVAL OF EXISTING SEAL

Showing Limits Of Joint Preparation For Application Of New Joint Seal Materials

✳NOTE:
Design Width "A" Is Defined As The Actual Measured Joint Width.



✳NOTES:

For Jersey Shape Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier Is 3".
For Post And Beam Barriers, The Minimum Required Vertical Joint Seal Dimension Within The Barrier is 6".

ELEVATION AT END OF SPAN

NOTES ON ASSOCIATED ITEMS OF WORK:

202-B169 REMOVAL OF EXISTING JOINT MATERIAL

Description: Shall Include The Removal Of Material Associated With Armor, Sliding Plate, And Neoprene Expansion Joints, As Designated In The Detail Drawings Provided. Other Joint Types Shall Not Be Included Under This Item Of Work Unless Otherwise Directed By The Engineer. Removal of Joint Material And Any Trash And Debris (Including But Not Limited To Compacted Dirt, Vegetation And Trash) Located At Any Depth Within The Joint Shall Be Included Under This Item Of Work.

Basis Of Payment: Removal of Armor And Sliding Plate Joint Material Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint, While Removal Of Neoprene Joint Material Will Only Be Paid For As The Length Along The Centerline Of The Joint.

907-823-B001 SAW CUT, TYPE I
907-823-B002 SAW CUT, TYPE II
907-823-B003 SAW CUT, TYPE III

Description: The Saw Cut Depth Shall Be Equivalent To The Installation Depth Required By The Manufacturer's Specifications. The Saw Cut Type Shall Be The Same As The Preformed Joint Seal Selected.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Bridge Deck On Each Side Of The Centerline Joint.

907-823-A001 PREFORMED JOINT SEAL, TYPE I
907-823-A002 PREFORMED JOINT SEAL, TYPE II
907-823-A003 PREFORMED JOINT SEAL, TYPE III

Description: Shall Include The Manufacturer's Required Joint Preparation Including Sandblasting Both Sides Of The Joint And Blowing The Joint Free Of Debris With Compressed Air And Placement Of The New Preformed Joint Seal

Basis Of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Length Of The Centerline Joint.

ELASTOMERIC CONCRETE NOTES

907-824-PP007 BRIDGE REPAIR, ELASTOMERIC CONCRETE

Description: Elastomeric Concrete Shall Be One Of The Following Products, Installed According To The Manufacturer's Specifications:

A. Poly-Tron Elastomeric Concrete
Manufactured By R.J. Watson, Inc. In Alden, NY
www.rjwatson.com

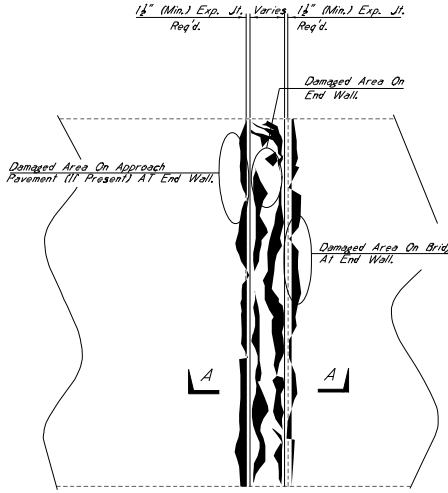
B. WaboCrete II
Manufactured By Watson Bowman Acme Corporation In Amherst, NY
www.wbacorp.com

C. Delcrete Elastomeric Concrete
Manufactured By The D.S. Brown Company In North Baltimore, OH
www.dsbrown.com

Basis of Payment: The Accepted Quantities Will Be Paid For In Cubic Yards At The Contract Unit Price.

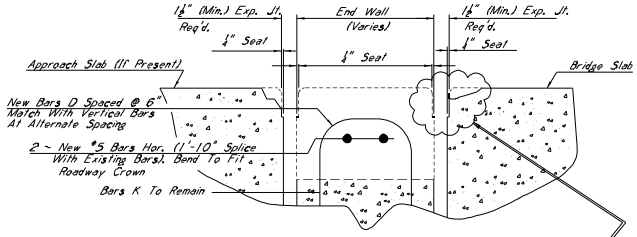
GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2017.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.



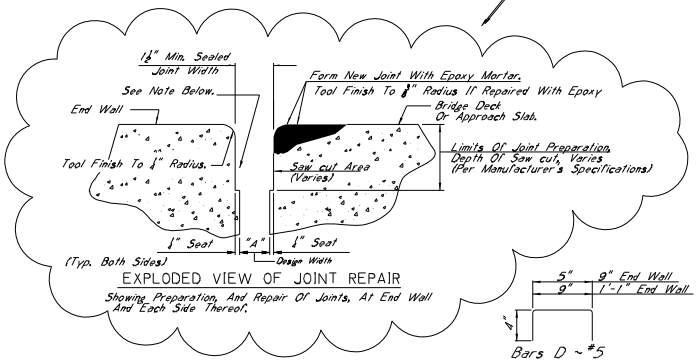
PLAN VIEW

Showing Existing Damaged Areas On And Around End Wall.



DETAIL "D"

Showing Repair Details Of End Wall, Reinforcing Steel, And Expansion Joint Formation.

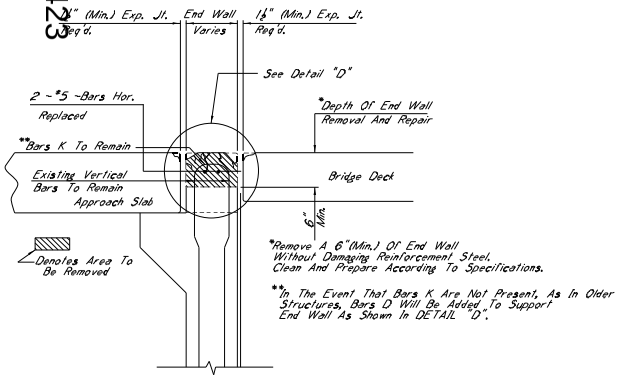


EXPLODED VIEW OF JOINT REPAIR

Showing Preparation, And Repair Of Joints, At End Wall And Each Side Thereof.

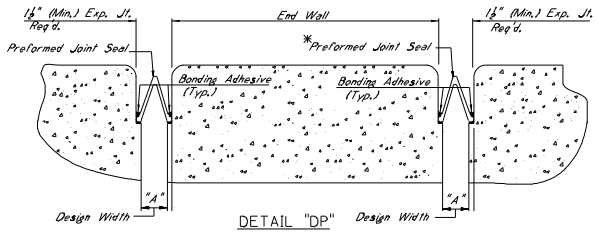
*NOTE:
Form Vertical Faces Of End Wall To Include ¼" Seat Such That The Preformed Joint Seal May Be Applied Per Manufacturers's Specification. See Detail "DP" On This Sheet.

*NOTE:
Design Width "A" Is Defined As The Actual Measured Joint Width.



ELEVATION (SECTION A-A)

Showing Details Of Removal Of Damaged End Wall.



DETAIL "DP"

Showing Sealed Joint After Saw cut And Repair With Epoxy Mortar

*NOTES:

1. The Preformed Joint Seal Shall Be One Of The Following, Installed According To The Manufacturer's Specifications:

   A. Silicoflex Joint Sealing System
   Manufactured By R.J. Watson, Inc.
   www.rjwatson.com

   B. Wabo SPS Joint System
   Manufactured By Watson Bowman Acme Corporation
   www.wbacorp.com

   C. Silspec SSS Silicone Strip Seal
   Manufactured By SSI Commercial & Highway Construction Materials
   www.ssicm.com

2. For Estimating Purposes, The RJ Watson Silicoflex Joint Sealing System Was Selected. However, Should Another Supplier Be Chosen, It Is The Contractor's Responsibility To Ensure That The Manufacturer's Recommendations Are Followed For Joint Preparation, Installation Depths And Widths, Adhesive Setting Times, And Any Other Variances Between The Specifications Provided By The Manufacturers. A Manufacturer Representative Shall Be Present At The Time Joint Sealing Begins To Ensure That The Contractor Is Properly Schooled In Installation Of The Joint Material.

3. Joints Shall Be Sealed At Their Design Widths, Dimension "A", Which Is Defined As The Actual Width Of The Joint Opening. This Width Does Not Account For The Seat Required On Both Sides Of The Joint. Preformed Joint Strip Type I, Shall Be Used For Design Widths Less Than 2". Preformed Joint Seal, Type II, Shall Be Used For Design Widths Greater Than or Equal To 2", With The Maximum Design Width Being 4". Type III Shall Be Used For Design Width Greater Than 4", With The Maximum Design Width Being 8". In Cases Where Design Widths Are Greater Than 8", Another Type Of Expansion Material Shall Be Required As Directed By The Director Of Structures, State Bridge Engineer. It Is The Contractor's Responsibility To Ensure That The Size Selected Is Appropriate For The Width Of The Joint.

NOTES ON ASSOCIATED ITEMS OF WORK:

907-824-PP008 BRIDGE REPAIR, ENDWALL REPAIR

Description: Shall Include The Work Necessary To Remove And Replace The Damaged Endwall, As Designated In The Detail Drawings Provided. Instead Of Limiting The Repair To The Damaged Section, The Specified Depth Of Endwall Shall Be Removed Along The Entire Width Of The Bridge Deck.

Basis of Payment: The Accepted Quantities Will Be Paid For In Linear Feet At The Contract Unit Price Along The Width Of The Bridge Deck.

Damage Caused To Other Elements Of The Structure Or Roadway While Completeing This Item Of Work Shall Be Repaired By The Contractor At No Cost To The Department.

Prior to Placing New Concrete, All Concrete Surfaces That Will Be In Contact With The New Concrete Shall Be Painted With An Approved Epoxy Binder Designed To Bond New Concrete To Old.

New Concrete Shall Be High Early Strength Bridge Concrete, As Follows:

The concrete mixture design shall be furnished by the Contractor for approval by the Materials Division. Mixture design parameters are as follows:

Required Strength:	2500 psi prior to releasing to traffic
Total Air Content:	3-6 %
Maximum Slump:	6 inches

Non-chloride based accelerator may be used if the ambient temperature is 50°F or less, but shall not be used if the ambient temperature is greater than 50°F.

Synthetic structural fibers shall be used. The Contractor shall select a manufacturer from MDOT's Approved Products List, and the manufacturer's recommendations shall be followed for the dosage rate.

Curing is to be continuous until 2500 psi is attained. Traffic is to be diverted from the repair area until this value is reached. The Contractor may use the Maturity Method per Section 907-804 to estimate the concrete compressive strength for the purposes of releasing the repair area to traffic. However, final acceptance of the in-place concrete shall be determined using eight concrete test cylinders, which shall be cured in a container next to the concrete placement. Two cylinders are to be tested at 9, 16, and 24 hour intervals. The two remaining cylinders shall be used to determine the 28-day compressive strength of the concrete.

The Removal Of Existing Expansion Material May Require Any Number Of The Pay Items Listed Below. Once The Expansion Device Is Identified, Refer To The Corresponding Joint Repair Detail Sheet For Additional Details On The Associated Items Of Work.

202-B169	REMOVAL OF EXISTING JOINT MATERIAL
907-808-A002	JOINT REPAIR
907-808-A003	JOINT REPAIR WITHOUT EPOXY
907-823-B001	SAW CUT, TYPE I
907-823-B002	SAW CUT, TYPE II
907-823-B003	SAW CUT, TYPE III
907-823-A001	PREFORMED JOINT SEAL, TYPE I
907-823-A002	PREFORMED JOINT SEAL, TYPE II
907-823-A003	PREFORMED JOINT SEAL, TYPE III

GENERAL NOTES:

1. Specifications: Mississippi Standard Specifications For Road And Bridge Construction, 2012.
2. No Change Of Plans Will Be Permitted Except By Written Approval Of The Director Of Structures, State Bridge Engineer. Minor Changes To Detail Of Design Or Construction Procedure May Be Authorized By The Bridge Engineer Provided Such Changes Will Not Be Cause For Contract Price Adjustment.
3. Work For Which No Pay Item Is Provided In The Proposal Will Not Be Paid For Directly And Shall Therefore Be Considered An Absorbed Item of Work.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-824-4 **CODE: (SP)**

DATE: **09/09/2025**

SUBJECT: **Routine Bridge Repair**

Section 907-824, Routine Bridge Repair, is hereby added to and made a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-824 – ROUTINE BRIDGE REPAIR

907-824.01--Description. This work shall consist of constructing and installing routine bridge repair items including General Epoxy Repair, Bi-directional or Uni-directional Fiber Reinforced Polymer (FRP) Wrap, Cap Cleaning, Bearing Replacements, Epoxy Injection, and Encapsulated Field Painting in accordance with the details on the plans, and the requirements set out herein.

Minor changes in detail of design or construction procedure may be authorized by the Director of Structures, State Bridge Engineer provided such changes will not be cause for contract price adjustment.

It shall be the responsibility of the Contractor to protect the existing structure from damage which might occur during construction. The Contractor shall replace or repair, as directed by the Engineer, any structures damaged by the Contractor during the life of the contract. No payment will be made for replacement or repair of damaged items.

All details are based on the dimensions shown on the original plans for the existing structure. The Contractor shall be responsible for adjusting the elements of the new construction to ensure a proper fit with the existing structure. The Contractor shall verify all dimensions of the existing structure prior to beginning work.

During construction, care shall be exercised to ensure that no debris falls into the crossing below the structure. All debris, including any material that has accumulated on the bridge deck or caps, shall become the property of the Contractor and shall be removed from the construction site and disposed of properly.

For additional information and details, see work related items below and on the standard drawings. At the Contractor's request, Bridge Division will provide a complete set of As-Built plans for the existing bridge.

907-824.02--Materials.

907-824.02.1--General Epoxy Repair. Materials for general epoxy repair shall be as follows or a material approved by the Director of Structures, State Bridge Engineer.

Epoxy Resin. Resin shall be selected from the MDOT Approved Products List and meet the requirements of ASTM C881, Type I, Grade 2, Class C.

Silica Sand. The materials shall be bagged general purpose cleaning sand.

Epoxy Mortar Mix. The epoxy mortar mix shall consist of part liquid epoxy and part clean dry sand mixed in the ratio recommended by the Manufacturer.

907-824.02.2--FRP Wrap. FRP wrap shall be one of the following products, or an approved equal, and shall be applied according to the Manufacturer's recommendations:

- "FRP Wrap" as manufactured by Fyfe Co. LLC, www.aegion.com/about/our-brands/fyfe
- "FRP Wrap" as manufactured by BASF Building Systems LLC, www.master-builders-solutions.basf.us
- "FRP Wrap" as manufactured by Sikawrap Inc. www.usa.sika.com
- "FRP Wrap" as manufactured by MAPEI Corp., www.mapei.com/us/en-us/

907-824.03--Construction Requirements.

907-824.03.1--General Epoxy Repair. Epoxy repair under this pay item is for general concrete spall repairs, and shall be bid such that the item may be increased, decreased or eliminated as directed by the Project Engineer. All epoxy repairs shall be performed in accordance with the details shown on the Drawings and in accordance with the notes herein. Repair concrete spalled areas on the bridge as directed by the Project Engineer and the locations listed in the plans using epoxy mortar. The Contractor shall determine the depth of reinforcement prior to any saw cutting. Spalled areas where pack rust has developed around or on reinforcement shall be blasted clean prior to repairing the spalled location. All areas of the bridge repaired with epoxy mortar shall be restored to the original dimensions as shown in the information plans, unless noted otherwise.

A Representative of the epoxy manufacturer must be present for sufficient time to ensure that the Contractor is properly schooled in the use of the epoxy material.

Prior to placement of the mortar mix, the prepared surface shall be lightly primed with neat epoxy.

Acetone alcohol may be used to clean and lubricate trowels.

Curing time shall be in accordance with the Manufacturer's recommendations.

907-824.03.2--FRP Wrap. After all spalled locations on the bent caps, beams or piling are repaired, the repair locations on all bent caps shall be wrapped with FRP wrap in accordance with the notes below and the drawings.

FRP wrap shall be applied to bent caps, beams or piling as designated in the plans. FRP wrap shall be either bi-directional or uni-directional.

The Contractor shall furnish all submittals indicating the materials, tools, equipment, transportation, necessary storage, labor, installation plan and supervision required for the application of the composite or polymer system to the Director of Structures, State Bridge Engineer through the Project Engineer prior to construction. Products shall be stored according the manufacturer's requirements and shall avoid contact with moisture, dust and chemical exposure. All FRP composite systems shall be proprietary systems consisting of all associated fiber reinforcement and polymer adhesives/resins. FRP composites consisting of fiber reinforcement and polymers provided by more than one manufacturer are not allowed. The FRP composite system shall utilize carbon fiber reinforcement as the primary fiber material (primary structural component). The FRP system shall be top coated with a coating approved by the FRP system supplier. The coating color shall be selected by the Project Engineer.

FRP wraps shall not be installed when the ambient temperature is below 40°F or above 130°F. In cold conditions, auxiliary heat may be applied to raise the ambient temperature to a suitable level. Clean heat sources shall be utilized for this purpose (e.g., electric or propane) that do not contaminate the substrate with carbonation.

FRP wraps shall not be installed when surface moisture is present on the substrate or when rainfall or condensation is anticipated in the work areas. If water leakage exists through cracks or concrete joints, water flow shall be stopped prior to FRP installation. Resins (including primers and fillers) shall be mixed according to the FRP system manufacturer's installation instructions. All resin components shall be at a proper temperature and mixed in the manufacturer's prescribed mix ratio until there is a uniform and complete mixing of components.

Resin components are often contrasting colors, so full mixing is achieved when color streaks are eliminated. Resins should be mixed for the Manufacturer's prescribed mixing time and visually inspected for uniformity of color. A representative of the FRP wrap manufacturer must be present for sufficient time to assure that the Contractor is properly schooled in the installation of FRP wrap. Prior to installation of FRP wraps, the Contractor shall repair concrete spall areas in accordance with general epoxy repair notes herein and the details in the plans. The fibrous reinforcement system shall have a minimum tensile force as shown in the plan details. The direction of the fiber wrap shall be in the direction shown on the Contract Plans.

In addition to the Manufacturer's requirements, the Contractor shall ensure the structural and durability of the reinforced fiber wrap system by meeting the following acceptance guidelines:

Small delaminations, less than two inches (2") each, are permissible as long as the delaminated area is less than 5% of the total laminate area and there are no more than 10 such delamination per 10 feet.

Large delaminations, greater than 25 inches, can affect the performance of the installed system and shall be repaired by selectively cutting away the affected sheet and applying an overlapping sheet patch of equivalent piles. Delaminations less than 25 inches may be repaired by ply replacement.

The Contractor shall submit an FRP repair procedure to the Project Engineer for review and approval by the Director of Structures, State Bridge Engineer. This must be performed prior to repairing and delaminated areas.

907-824.03.3--Cap Cleaning. The caps at every bent shall be cleaned to the satisfaction of the Project Engineer after all other work has been done. All large debris shall be removed by hand while other debris, including but not limited to dirt and rust, shall be removed by pressure washing the bent caps. The pressure washer shall be able to maintain 3,500 psi of pressure. Prior to construction, the Contractor shall submit a proposed containment plan to the Project Engineer for approval by the Director of Structures, State Bridge Engineer.

907-824.03.4--Bearing Replacements. All bearings should be removed and replaced according to Bearing Assembly Details. All structural steel shall conform to ASTM A709, Grade 50. All steel shall be new. Extreme care shall be exercised in removing the existing bearing plates that are welded to the anchor plates embedded in the prestressed beams. Existing anchor bolts shall be ground to ¼" below the concrete surface and grouted with epoxy mortar.

The bottom of the existing anchor plates shall be finished smooth to accommodate the new steel plates and painted with approved encapsulating paint. All pack rust and scale within the designated areas shall be removed by using small hand tools, mechanical process, or needle gun. All areas required to be painted containing grease films after the initial cleaning shall be cleaned with a biodegradable solvent. All debris removed from the existing structure shall become property of the Contractor and shall be disposed of properly. The Contractor shall provide technical data for the proposed encapsulating paint to be used on this project to the Project Engineer for approval by the Director of Structures, State Bridge Engineer. New paint shall be applied by hand, with either a brush or roller.

The new steel plates shall be cleaned and then painted with one shop coat of inorganic zinc, one field intermediate coat of acrylic latex, and one field top coat of acrylic latex per Section 814 of the Standard Specifications. Painting of new steel plates and existing anchor plates shall not be measured for separate pay and all costs shall be included in the price bid for Bearing Replacement.

Prior to any construction or fabrication, the Contractor shall comply with the submittal requirements listed in the bearing replacement details. The Contractor shall be responsible for adjusting the elements of the new construction to ensure a proper fit with the existing structure.

The Contractor shall provide adequate bracing and jacking arrangements as required to replace the existing bearings. The beam end shall only be raised to ¼" from its original position. Traffic shall be maintained on the bridge during the duration of the repair.

The Contractor shall employ the service of a Mississippi Registered Professional Engineer who is knowledgeable in the field of Bridge Design. A complete set of bracing and jacking arrangement plans along with design calculations shall be submitted to the Director of Structures, State Bridge Engineer through the Project Engineer for review prior to construction and shall bear the design Engineer's seal.

Jacks shall be coupled to a common manifold. Jacking point shall be under the bottom flange of the beam at the bent and no jacking points will be allowed under any diaphragm or bay. After the beam is raised into position, temporary blocking shall be provided to secure the beam in this position while work is being performed. Temporary blocking points shall be under the bottom flange of the beam at the bent and no temporary blocking will be allowed under any diaphragm or bay.

Any damage to the bridge resulting from uneven or improper jacking shall be repaired by the Contractor at no additional cost to the State.

907-824.03.5--Epoxy Injection. All cracks greater than 1/32" shall be injected with an approved epoxy resin adhesive of the gel type. Prior to injecting any cracks, the crack shall be cleaned with a high velocity filtered air jet.

A representative of the epoxy manufacturer shall be present for sufficient time to ensure that the Contractor is properly schooled in the use of the epoxy material. Epoxy resin adhesive shall be installed in strict accordance with the manufacturer recommendations. Curing time shall be in accordance with manufacturer's recommendations. After epoxy injection is complete, all injection ports shall be removed.

907-824.03.6--Encapsulating Field Painting. The Contractor should be aware that the existing paint on the steel structure may contain lead.

Prior to construction, the Contractor shall submit a Temporary Containment Plan for the removal of the existing paint and rust from the designated repair areas to the Project Engineer for approval by the Director of Structures, State Bridge Engineer. Also, the Contractor shall submit a Temporary Containment Plan for painting the designated repair areas.

All pack rust and scale within the designated areas shall be removed by using small hand tools, mechanical process, or needle gun. All areas required to be painted containing grease films after the initial cleaning shall be cleaned with a biodegradable solvent. Existing paint shall be roughened to ensure the new paint will adhere to the existing painted surface. All debris and paint removed from the existing structure shall become the property of the Contractor and shall be disposed of properly.

All exposed steel surfaces in the repair areas shall be painted with an encapsulating paint designed to encapsulate lead-based paints, and applied according to the manufacturer's recommendations. This will include but is not limited to: existing bearings, beams, and diaphragm assemblies, etc.

The Contractor shall provide technical data for the proposed encapsulating paint to be used on this project to the Project Engineer for approval by the Director of Structures, State Bridge Engineer.

New paint shall be applied by hand with brush or roller.

907-824.04--Method of Measurement. Epoxy Repair, completed in accordance with the plans and specifications, will be measured per square foot. All items of work related to epoxy repair shall be included in the square foot unit price.

FRP Wrap, Bi-directional and Uni-directional, completed in accordance with the plans and specifications, will be measured per linear foot or square foot.

Cap Cleaning, completed in accordance with the plans and specifications, will be measured per each.

Bearing Replacements, completed in accordance with the plans and specifications, will be measured per each.

Epoxy injection, complete in accordance with the plans and specifications, will be measured by the linear foot.

Encapsulating Field Painting, complete in accordance with the plans and specifications, will be measured by the square foot.

907-824.05--Basis of Payment. Epoxy Repair, measured as prescribed above, will be paid for at the contract unit price per square foot, which price shall be full compensation for materials, labor, equipment, and incidentals necessary to complete the work.

FRP Wrap, Bi-directional and Uni-directional, measured as prescribed above, will be paid for at the contract unit price per linear foot or square foot, which price shall be full compensation for all labor, materials, surface preparation, and incidentals associated with the installation of FRP wraps, including epoxy mortar repairs, necessary to complete the work.

Cap Cleaning, measured as prescribed above, will be paid for at the contract unit price per each, which price shall be full compensation for all materials, labor, equipment and incidentals necessary to complete the work.

Bearing Replacements, measured as prescribed above, will be paid for at the contract unit price per each, which price shall be full compensation for all materials, labor, equipment and incidentals necessary to complete the work.

Epoxy Injection, measured as prescribed above, will be paid for at the contract unit price per linear foot, which price shall be full compensation for all materials, labor, equipment and incidentals necessary to complete the work.

Encapsulating Field Painting, measured as prescribed above, will be paid for at the contract unit price per square foot, which price shall be full compensation for all materials, labor, equipment, cleaning, and incidentals necessary to complete the work.

Payment will made under:

907-824-A:	General Epoxy Repair	- per square foot
907-824-B:	FRP Wrap, *	- per linear foot or square foot
907-824-C:	Cap Cleaning	- per each
907-824-D:	Bearing Replacements **	- per each
907-824-E:	Epoxy Injection	- per linear foot
907-824-F:	Encapsulating Field Painting	- per square foot

* Indicate Bi-directional, Uni-directional, etc.

** Type of Bearing (Prestressed Concrete Girder, Concrete Box Girder or Steel Girder) may be specified.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-828-6 **CODE: (SP)**

DATE: 10/14/2025

SUBJECT: Hybrid Polymer Concrete Overlay

Sections 907-828, Hybrid Polymer Concrete Overlay, is hereby added to and made a part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows.

SECTION 907-828 -- HYBRID POLYMER CONCRETE OVERLAY

907-828.01--General. This work consists of placing a hybrid polymer concrete overlay system over a concrete surface / bridge deck as indicated on the Plans.

The Contractor shall furnish all submittals indicating the materials, equipment, installation plan and supervision required for the application of the hybrid polymer concrete overlay system to the Director of Structures, State Bridge Engineer through the Project Engineer prior to construction.

907-828.02--Materials. The material used for the overlay shall be the following.

Hybrid Polymer CE700
Manufactured by FasTrac Construction Products
www.fastracproducts.com

907-828.03--Construction Requirements. The hybrid polymer concrete (HPC) overlay shall be placed at a thickness such that the original grade of the bridge deck shall be raised by the thickness indicated on the Contract Plans. It shall be the Contractor's responsibility to adjust equipment during placement to ensure that the grade requirements are maintained Hybrid polymer concrete shall not be used for full depth repairs. Hybrid polymer concrete shall not be placed at a thickness greater than three inches (3").

A Manufacturer's representative shall be present for sufficient time to ensure that the Contractor is properly schooled in surface preparation and placement requirements for the overlay.

The hybrid polymer concrete overlay shall have a calcined bauxite topping such that will meet the requirements of Table 1. The calcined bauxite shall be applied by a fully-automated continuous process.

Table 1 Friction Testing Requirements			
Test Measurement	**Requirement**	**Frequency/Application Area**	**Test Method**
Skid Resistance Using Dynamic Friction Tester (12 mph/20 kmh)	min 0.65	1 per 200 lane-feet	ASTM E 1911

Friction test shall be performed in the presence of the Engineer. The Engineer shall be notified at least 48 hours before friction testing and shall occur within 30 days after installation.

907-828.03.1--Preparation.

907-828.03.1.1--Bridge Expansion Joints. All bridge expansion joints shall be protected from being contaminated with the HPC components of epoxy resin binder and calcined bauxite aggregate. The bridge expansion joints shall be sealed with taped during the application of the HPC. Any materials entering the bridge expansion joints during the application of the HPC will be removed by the Contractor prior to opening the bridge to traffic.

907-828.03.1.2--Special Bridge Deck Preparation Adjacent to the Expansion Joints. In preparation for the installation of the HPC, the bridge deck area adjacent to the bridge expansion joint steel headers shall be recessed to a depth range of ½" to ¾" below the surface of the expansion joint. This bridge deck area shall be ground the entire length along the expansion joints and a width necessary to achieve the bridge deck smoothness requirements of section 804.03.19.7.4 on both sides of the expansion joints. A lightweight non-impacting drum grinder or similar approved apparatus shall be used to achieve the desired recessed profile. Prior to grinding the contractor shall field verify the depth of the reinforcing steel. All damage to the reinforcing steel resulting from the Contractor's operation shall be repaired or replaced at the Contractor's expense as directed by the Engineer.

907-828.03.1.3--Surface Preparation. Any concrete surface to be treated with HPC shall be shot blasted to remove all visible containments and excess cement paste, yield an open pore structure and expose some aggregate within the concrete. Sand blasting is acceptable for patches, headers, vertical surfaces, and corners inaccessible to the shot blaster. All dirt, slurry, curing compound, laitance, and any other debonding material shall be removed from the surface of the concrete. Vehicular traffic shall be kept from the shot blasted surface unless required by the overlay operation and approved by the Engineer. Concrete substrates that have contaminates that may interfere with the bonding or curing of the overlay shall be cleaned prior to placing the overlay, at no additional cost to the Department. Primer and overlay shall only be applied to clean and dry concrete substrate.

907-828.04--Method of Measurement. Hybrid polymer concrete overlay, complete and accepted, will be measured by the cubic yard, determined by calculating the theoretical volume of the overlay plus any additional hybrid polymer concrete placed. Additional hybrid polymer concrete placed with the overlay will be calculated by subtracting the theoretical volume of hybrid polymer concrete overlay from the total ticketed volume of hybrid polymer concrete delivered minus the volume estimated by the Engineer of any wasted hybrid polymer concrete.

907-828.05--Basis of Payment. Hybrid polymer concrete overlay, measured as prescribed above, will be paid for at the contract unit price per cubic yard, which price shall be full compensation for all materials, tools, equipment, labor, and incidentals necessary to complete the work.

Payment will be made under:

907-828-A: Hybrid Polymer Concrete Overlay - per cubic yard

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-899-1 **CODE: (SP)**

DATE: 01/17/2017

SUBJECT: Railway-Highway Provisions

Section 907-899, Railway-Highway Provisions, is hereby added to and made part of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction as follows:

SECTION 907-899--RAILWAY-HIGHWAY PROVISIONS

907-899.01--Description. This special provision addresses the Contractor's involvement with railroad flagging, Contractor Safety Orientation, Contractor Background Investigation, Contractor Roadway Worker on Track Safety Program and Safety Action Plan, and any other requirements set forth by the Railroad and any attached Exhibits.

Prior to bidding, the Contractor shall read and comply with the requirements of the Railroad and any attached Exhibits. The Contractor shall contact the Railroad concerning insurance coverage requirements, Railroad flagging costs, Contractor Safety Orientation, Contractor Background Investigation, Contractor Roadway Worker on Track Safety Program and Safety Action Plan, and any other requirements set forth by the Railroad and any attached Exhibits. In case the railroad requires coverage over and above that required by the Standard Specifications, the railroad requirements shall be met.

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

It will be the Contractor's responsibility to pay all bills associated with the Railroad requirements and any attached Exhibits.

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

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

The Contractor shall complete and process any required forms addressed by the Railroad or any attached Exhibits. The Contractor shall not commence or carry on any form of work on, under, above or within the designated distance from the Railroad track prior to getting approval from the Railroad.

907-899.02--Blank.

907-899.03--Construction Requirements. The Contractor shall read and comply with the requirements of the Railroad and any attached Exhibits.

907-899.04--Method of Measurement. Railway-highway provisions will be measured as a unit lump sum quantity. Measurement for payment will be in accordance with the following schedule:

a) On the first estimate, twenty five percent (25%) of the amount bid for Railway Highway Provision will be paid.
b) When twenty five percent (25%) of the original contract amount is earned from all direct pay items, fifty percent (50%) of the amount bid for Railway Highway Provision will be paid.
c) When fifty percent (50%) of the original contract amount is earned from all direct pay items, one hundred percent (100%) of the amount bid for Railway Highway Provision will be paid.

907-899.05--Basis of Payment. Railway-highway provisions, measured a prescribed above, will be paid for at the contract lump sum price, which price shall be payment in full for all insurance coverage requirements, railroad flagging costs, Contractor safety orientation, Contractor background investigation, Contractor safety programs and plans, and any other requirements set forth by the Railroad and any attached Exhibits, and other incidentals necessary to complete the requirements of this work.

Payment will be made under:

907-899-A: Railway-Highway Provisions - lump sum

SPECIAL PROVISION NO. 906-9

Training Special Provision

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," (Attachment 1), and is in implementation of 23 U.S.C. 140(a). Additional information regarding On the Job Training (OJT), Forms, and *Exhibits* are available at the following website.

http://www.gomdot.com/Divisions/CivilRights/Resources.aspx

As part of the Contractor's equal employment opportunity affirmative action program training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journeymen in the type of trade or job classification involved.

The number of trainee hours to be trained under this special provision will be as indicated in the bid schedule of the contract.

In the event that a Contractor subcontracts a portion of the contract work, the Contractor shall determine how many, if any, of the trainee hours are to be trained by the Subcontractor, provided, however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also ensure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the State transportation agency for approval an OJT Trainee Schedule Form indicating the number of trainees to be trained in each selected classification, training program to be used and start date of training for each classification. Furthermore, the Contractor shall provide a Trainee Enrollment Form for each trainee enrolled. The Contractor will be credited for each trainee employed on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities, women, and disadvantaged individuals toward journeymen status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority, women, and disadvantaged individuals (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that they take in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he/she has successfully completed a training course leading to journeyman status or in which he/she has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the State highway agency and the

Federal Highway Administration. The State transportation agency and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions.

Except as otherwise noted below, the Contractor will be reimbursed $5.00 per hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. 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 failure to provide the required training is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or until the trainee has completed the training program. It is not required that all trainees be on board for the entire length of the contract. A Contractor's responsibility will have been fulfilled under this Training Special Provision if the Contractor has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program being followed in providing the training. The Contractor shall provide each trainee with a certificate showing the type and length of training satisfactorily completed.

The Contractor will provide for the maintenance of records and furnish periodic reports to include an OJT Trainee Monthly Report form and an OJT Trainee Termination Report form when appropriately documenting performance under this Training Special Provision.

Contractor Responsibilities:

1. Provide On-the-Job Training aimed at developing full journey level in the type of trade or job classification involved. Although training under this contract is not limited to minorities, females, and disadvantaged individuals, contractors should be aware that one of the primary objectives of the training program is to increase the participation and skills of minorities, females, and disadvantaged individuals in highway construction.

   A disadvantaged individual would be considered individuals that fall at or below the Federal Poverty Line; a one-person household income of $15,060, two-person household income of $20,440, three-person household income of $25,820 and a four-person household income of $31,200. Individuals who qualify for TANF or SNAP benefits would also be considered disadvantaged.

2. Contractors must exert good faith efforts to comply with the Equal Employment Opportunity contract requirements governing recruitment and upgrading when seeking to fill vacancies in the work force and select candidates for the training program. Accordingly, the contractor shall make every effort to enroll minority trainees, women, and disadvantaged individuals (e.g., conducting systematic and direct recruitment through public and private sources likely to yield minority, women, and disadvantaged trainees) to the extent that such persons are available within a reasonable area of recruitment. Adequate documentation of good faith efforts should be maintained and submitted to the Civil Rights Division, Contract Compliance/OJT Coordinator when requested.

3. No employee shall be employed/assigned as a trainee in any classification in which he/she has successfully completed a training course leading to journey level status or in which he/she has been employed as a journey person. The contractor shall satisfy this requirement by completing the OJT Trainee Enrollment Form for each potential trainee. The completed form shall be submitted to the Office of Civil Rights for review and approval.

4. Contractors are expected to fulfill their obligations under the Training Special Provisions. Those obligations will be considered fulfilled if contractors have provided acceptable training to the number of trainees specified in the OJT Plan.

5. Upon deciding to sub-contract out a portion of the contract work, determine how many, if any, of the trainees are to be trained by the sub-contractor. The contractor, however, shall retain the primary responsibility for meeting the training requirements imposed by the special provision. Additionally, the contractor will ensure that the Training Special Provision is made applicable to such sub-contract. Training and upgrading of minorities, women and disadvantaged individuals toward journey level status is a primary objective of the Training Special Provision.

6. Prior to commencing construction (no more than 60 days from the date of notice to proceed), the contractor shall submit to the State Transportation Agency (MDOT) for approval the Trainee Schedule Form indicating the number of trainees to be trained in each selected classification and any appropriate attachments representing their training program

or OJT Plan (See Exhibit 1) to be used. The contractor shall also submit Trainee Enrollment Forms for each trainee to be trained (See Exhibit 2). Contractors should submit the above-mentioned forms as their OJT Plan to the Project Engineer who will in turn forward on to the Office of Civil Rights for Approval.

7. Designate and make known at the preconstruction conference to the Office of Civil Rights and the Project Engineer the name of the company Equal Employment Officer (EEO Officer)/Designated Representative who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of equal employment opportunity and who must be assigned adequate authority and responsibility to do so. These individuals should have the authority to sign monthly trainee enrollment/time reports.

8. Implement the EEO policy and contractual responsibilities to provide equal employment opportunity in each grade and classification of employment. To assure that the preceding policy is adhered to, the following actions will be taken as a minimum:

   a) Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six (6) months.

   b) Ensure that supervisors brief all employees, which includes trainees, on company EEO Policies.

9. Utilize the following procedures to request additional training classifications not presently approved by the STA or Department of Labor Office of Apprenticeship for assignment to the OJT for training.

   a) Initially, for a "trainee" to be trained, there must be a "journeyman" on the project site to train the employee. The "trainer" can be a supervisor, foreman or another employee in the "trainee classification" who already is a "journeyman".

   b) If a classification is not on the "Wage Determination" included in the contract, a written request for an additional classification should be submitted by the contractor to the Project Engineer.

   c) Preferably, the request (written) should originate in the Project Office so that they will know that the contractor has applied for the needed classification and that payrolls will not be delayed. The Project Office will ensure that they have been given the project number, contractor, subcontractor, craft, and rate and will submit it to the Office of Civil Rights.

      For documentation purposes it is recommended to the contractor that the request for additional classifications should be written and addressed to the Office of Civil Rights that states in concise manner the need for the new classification in lieu of using an existing classification within the OJT Manual. In addition, the training program with required hours and job description similar to the OJT Manual.

d) After receipt of the Request for Additional Classification, the OJT Coordinator will:

1. Review for preliminary approval and submit a new Trainee Schedule Form to the contractor for signature.

2. Upon receipt of the signed form from the Project Office/Contractor, a cover letter is attached to the appropriate documentation. The cover letter and documentation are transmitted to the Department of Labor (DOL) in Washington D.C. requesting concurrence of the new classification.

e) If an individual is hired for the requested classification during the time frame when the STA (OJT Coordinator) is awaiting approval, the individual will be paid at the proposed wage rate.

f) If the DOL does not agree with the proposed classification and wage rate, the DOL will decide on the appropriate wage rate for the classification. The OJT Coordinator will make a copy of the letter and attach a cover letter which cites the recommendation and rationale for the disapproval.

g) If the DOL approves the request, a letter will be sent to the STA (OJT Coordinator) citing approval and the accompanying wage rate. The OJT Coordinator will make a copy of the approval letter and attach a cover letter which cites the approval of the classification and wage rate. This letter is sent to the Contractor and all "paper copies" listed at the end of the cover letter.

10. Begin training as soon as possible after the start date indicated on the Trainee Schedule Form for work utilizing the skill involved. In addition, if training does not begin at the preceding time, a written explanation will be given to the Project Engineer citing the rationale and time frame when training will commence on the project. The trainee should be briefed (furnished a copy) at this juncture on the training program for which he/she has started to ensure understanding of the phases of work and wage rates within each section of the program.

11. After commencement of work at the project site, the Contractor shall implement the following Trainee Wage Rates according to the Davis Bacon rules:

a) Normally, trainees are paid a percentage of journeyman's wages (Davis Bacon rates). The following payment plan is required in the FHWA Training Special Provision:

b) Sixty percent (60%) of the journeyman's wages for the first half of the training period;

c) Seventy-five percent (75%) of the journeyman's wages for the third quarter of the training period; and

d) Ninety percent (90%) of the journeyman's wages for the last quarter of the training period.

The wage rates above apply 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 Department 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 these supplemental specifications.

12. Indicate on the payroll records the trainee i.e., roller operator trainer for a given classification.

13. Recruit a replacement for the trainee when training obligations have not been met on a project provided that there are enough work hours remaining on the project as well as time within the work phase to complete training. Contractors will document in writing all Good Faith Efforts (GFE) in accordance with FHWA Form 1273 Section II 4a- 4e Recruitment and 6a-6d Training and Promotions) (See Exhibit 9). The contractor must submit to Project Engineer documentation of his GFE efforts made to hire replacements for trainees who terminated their training program. The GFE will be compiled into a letter which is attached to the MDOT Monthly Training Report and submitted to them along with an MDOT Termination Report (See Exhibit 4) that includes the names/reasons of individuals who separated from the company during the respective reporting period. The GFE will be evaluated to determine if it is sufficient or insufficient. If the GFE is deemed insufficient a contract compliance review will be scheduled to determine the contractor's compliance with the Training Special Provision. The Project Engineer will forward documentation to the Office of Civil Rights with five (5) days of receipt.

14. Transferring trainees from one federal-aid project to another:

a) Contractors are to make written requests for transferring trainees from one federal-aid project to another federal aid project and submit them to the Project Engineer to be forwarded to the Office of Civil Rights for review and approval.

b) In addition, if trainees are approved for transfer, the gaining project must have the same training classification approved for that project. The contractor must provide documentation, i.e., written letter that the gaining project will have sufficient work time to complete training requirements.

c) All hours trained by employees on a project other than their originally assigned project without the proper transfer approval will not be counted towards the OJT obligation for that project. If the OJT obligation is not met, the prime contractor will have to show good faith efforts in fulfilling this portion of the contract requirement.

15. Utilize and submit monthly trainee reports (See Exhibit 3) to document training activities to the respective project engineer. Monthly training reports should be accurate, concise and include the following items:

a) Report Period (month) – the date at the top of the training report reflects the month and year the trainee received the training (not the date the report was completed by the contractor)

b) Project Number – project number on the certified payroll and training report should match.

c) Contractor Name

d) County – self explanatory

e) Trainee Name

f) Job Classification/Hours Required – obtained from OJT Manual- certified payrolls and training reports should match.

g) Hours required – obtained from OJT Manual should match the Job Classification

h) Date Training Started/Terminated – inserted by the contractor.

i) Hours trained for the month – training performed this month on federal aid projects and inserted by a respective week ending date i.e., Sunday.

j) Hours to date – all training annotated on report for previous and current month.

k) Hours of training remaining – subtraction of total training hours to date from training hours required.

l) Trainee wage rate – contractor cites the appropriate wage rate for phase of training.

m) Original signatures and dates for respective training period citing trainee, trainer, and Company EEO Officer/Designated Representative

n) Every applicable field on the training report is completed.

16. Monthly training reports intended for submission to the MDOT Central Office should cite activities illustrated in the individual training forms received from project personnel. Monthly Training Reports should be submitted to the Project Engineer within fifteen (15) days of the current month with data covering the previous month's activities. However, if monthly training reports are not submitted within this time frame, the Contractor will provide a written explanation to the project engineer citing the reason for the delay. In addition, a copy of this documentation will be provided to the MDOT Office of Civil Rights within ten (10) days of receipt by the Project Engineer.

17. Retain all EEO records i.e., employment breakdown by race and craft on a project,

recruitment and hiring of minority and females for a period of three (3) years following the completion of contract work and shall be available at reasonable times and places for inspection by authorized representatives of the STA and the FHWA.

18. Submit an annual report to the STA each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form PR 1391 (See Exhibit 8). Contractors are provided with an annual notice for this reporting requirement.

19. Periodically evaluate the effectiveness of their OJT Programs and trainees' progress within the training program. Based on these evaluations, forward comments/ recommendations through the Project Engineer to Office of Civil Rights for improving or correcting deficiencies in the training program.

S E C T I O N 9 0 5 - P R O P O S A L

Date _____

Mississippi Transportation Commission
Jackson, Mississippi

Sirs: The following proposal is made on behalf of _____
_____ of _____
_____
for constructing the following designated project(s) within the time(s) hereinafter specified.

The plans are composed of drawings and blue prints on file in the offices of the Mississippi Department of Transportation, Jackson, Mississippi.

The Specifications are the current Standard Specifications of the Mississippi Department of Transportation approved by the Federal Highway Administration, except where superseded or amended by the plans, Special Provisions and Notice(s) to Bidders attached hereto and made a part thereof.

I (We) certify that I (we) possess a copy of said Standard and any Supplemental Specifications.

Evidence of my (our) authority to submit the Proposal is hereby furnished. The proposal is made without collusion on the part of any person, firm or corporation. I (We) certify that I (we) have carefully examined the Plans, the Specifications, including the Special Provisions and Notice(s) to Bidders, herein, and have personally examined the site of the work. On the basis of the Specifications, Special Provisions, Notice(s) to Bidders, and Plans, I (we) propose to furnish all necessary machinery, tools, apparatus and other means of construction and do all the work and furnish all the materials in the manner specified. I (We) understand that the quantities mentioned herein are approximate only and are subject to either increase or decrease, and hereby propose to perform any increased or decreased quantities of work at the unit prices bid, in accordance with the above.

I (We) acknowledge that this proposal will be found irregular and/or non-responsive unless a certified check, cashier's check, or Proposal Guaranty Bond in the amount as required in the Advertisement (or, by law) is submitted electronically with the proposal or is delivered to the Contract Administration Engineer prior to the bid opening time specified in the advertisement.

INSTRUCTION TO BIDDERS: Alternate and Optional Items on Bid Schedule.

1. Two or more items entered opposite a single unit quantity WITHOUT DEFINITE DESIGNATION AS "ALTERNATE ITEMS" are considered as "OPTIONAL ITEMS". Bidders may or may not indicate on bids the Optional Item proposed to be furnished or performed WITHOUT PREJUDICE IN REGARD TO IRREGULARITY OF BIDS.
2. Items classified on the bid schedule as "ALTERNATE ITEMS" and/or "ALTERNATE TYPES OF CONSTRUCTION" must be preselected and indicated on bids. However, "Alternate Types of Construction" may include Optional Items to be treated as set out in Paragraph 1, above.
3. Optional items not preselected and indicated on the bid schedule MUST be designated in accordance with Subsection 102.06 prior to or at the time of execution of the contract.
4. Optional and Alternate items designated must be used throughout the project.

I (We) further propose to perform all "force account or extra work" that may be required of me (us) on the basis provided in the Specifications and to give such work my (our) personal attention in order to see that it is economically performed.

I (We) further propose to execute the attached contract agreement (Section 902) as soon as the work is awarded to me (us), and to begin and complete the work within the time limit(s) provided for in the Specifications and Advertisement. I (We) also propose to execute the attached contract bond (Section 903) in an amount not less than one hundred (100) percent of the total of my (our) part, but also to guarantee the excellence of both workmanship and materials until the work is finally accepted.

I (We) shall submit electronically with our proposal or deliver prior to the bid opening time a certified check, cashier's check or bid bond for **five percent (5%) of total bid** and hereby agree that in case of my (our) failure to execute the contract and furnish bond within Ten (10) days after notice of award, the amount of this check (bid bond) will be forfeited to the State of Mississippi as liquidated damages arising out of my (our) failure to execute the contract as proposed. It is understood that in case I am (we are) not awarded the work, the check will be returned as provided in the Specifications.

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SECTION 905 -- PROPOSAL (CONTINUED)

I (We) hereby certify by digital signature and electronic submission via Bid Express of the Section 905 proposal below, that all certifications, disclosures and affidavits incorporated herein are deemed to be duly executed in the aggregate, fully enforceable and binding upon delivery of the bid proposal. I (We) further acknowledge that this certification shall not extend to the bid bond or alternate security which must be separately executed for the benefit of the Commission. This signature does not cure deficiencies in any required certifications, disclosures and/or affidavits. I (We) also acknowledge the right of the Commission to require full and final execution on any certification, disclosure or affidavit contained in the proposal at the Commission's election upon award. Failure to so execute at the Commission's request within the time allowed in the Standard Specifications for execution of all contract documents will result in forfeiture of the bid bond or alternate security.

Respectfully Submitted,

DATE _____

_____
Contractor

BY _____
Signature

TITLE _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE _____

FAX _____

E-MAIL _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

_____
President Address

_____
Secretary Address

_____
Treasurer Address

The following is my (our) itemized proposal.

For Informational Purposes Only

Pavement Restoration on US 49 from Madison County Line to 0.8 miles North of Old Highway 49, known as Federal Aid Project No. NHPP-0008-04(085) / 108150304 in Yazoo County.

Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
				Roadway Items	
0010	201-D001		55	Station	Random Clearing
0020	202-B007		2,860	Square Yard	Removal of Asphalt Pavement, All Depths
0030	202-B073		400	Square Yard	Removal of Concrete Pavement, All Depths
0040	202-B158		2,000	Linear Feet	Removal of Guard Rail, Including Rails, Posts and Terminal Ends
0050	202-B215		166	Each	Removal of Sign Including Post & Footing
0060	202-B240		4,500	Linear Feet	Removal of Traffic Stripe
0070	203-EX041	(E)	240	Cubic Yard	Borrow Excavation, AH, LVM, Class B9-6
0080	203-G002	(E)	6,000	Cubic Yard	Excess Excavation, LVM, AH
0090	209-A005		700	Square Yard	Geotextile Stabilization, Type V, Non-Woven
0100	237-A002		840	Linear Feet	Wattles, 20"
0110	304-D002	(GT)	8,000	Ton	Granular Material, Crushed Stone
0120	406-D001		200,500	Square Yard	Fine Milling of Bituminous Pavement, All Depths
0130	423-A001		20	Mile	Rumble Strips, Ground In
0140	503-C010		3,150	Linear Feet	Saw Cut, Full Depth
0150	606-B001		2,420	Linear Feet	Guard Rail, Class A, Type 1
0160	606-C003		2	Each	Guard Rail, Cable Anchor, Type 1
0170	606-D019		10	Each	Guard Rail, Bridge End Section, Type H
0180	606-E005		12	Each	Guard Rail, Terminal End Section, Flared
0190	615-B001	(S)	500	Linear Feet	Precast Concrete Median Barrier
0200	618-B001		1	Square Feet	Additional Construction Signs ($10.00)
0210	619-A1001		33	Mile	Temporary Traffic Stripe, Continuous White
0220	619-A2001		33	Mile	Temporary Traffic Stripe, Continuous Yellow
0230	619-A3001		33	Mile	Temporary Traffic Stripe, Skip White
0240	619-A5001		1,000	Linear Feet	Temporary Traffic Stripe, Detail
0250	619-A6001		1,000	Square Feet	Temporary Traffic Stripe, Legend
0260	619-A6002		8,035	Linear Feet	Temporary Traffic Stripe, Legend
0270	619-J1004		1	Each	Impact Attenuator, 60 MPH
0280	619-J2004		1	Each	Impact Attenuator, 60 MPH, Replacement Package
0290	620-A001		1	Lump Sum	Mobilization
0300	630-A001		720	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.080" Thickness
0310	630-A003		160	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.125" Thickness
0320	630-A005		305	Square Feet	Standard Roadside Signs, Sheet Aluminum, 0.1" Thickness
0330	630-C001		323	Linear Feet	Square Tube Posts, 4.0 lb/ft
0340	630-C005		1,315	Linear Feet	Square Tube Posts, 2.0 lb/ft
0350	630-E002		785	Pounds	Structural Steel Angles & Bars, 3" x 3" x 1/4" Angles

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Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
0360	630-E004		209	Pounds	Structural Steel Angles & Bars, 7/16" x 2 1/2" Flat Bar
0370	630-F006		35	Each	Delineators, Guard Rail, White
0380	630-F007		35	Each	Delineators, Guard Rail, Yellow
0390	630-G005		22	Each	Type 3 Object Markers, OM-3R or OM-3L, Post Mounted
0400	907-403-A003	(BA1)	11,090	Ton	12.5-mm, ST, Asphalt Pavement
0410	907-403-A015	(BA1)	7,060	Ton	9.5-mm, ST, Asphalt Pavement
0420	907-403-B006	(BA1)	325	Ton	19-mm, ST, Asphalt Pavement, Leveling
0430	907-403-B010	(BA1)	8,500	Ton	9.5-mm, HT, Asphalt Pavement, Leveling
0440	907-405-A001	(BA1)	14,000	Ton	Stone Matrix Asphalt, 9.5 mm Mixture
0450	907-407-A001	(A2)	15,550	Gallon	Asphalt for Tack Coat
0460	907-413-E001		9,000	Linear Feet	Sawing and Sealing Transverse Joints in Asphalt Pavement
0470	907-420-A001		10,000	Pounds	Undersealing
0480	907-618-A001		1	Lump Sum	Maintenance of Traffic
0490	907-619-E3001		2	Each	Changeable Message Sign
0500	907-626-A010		11	Mile	6" Thermoplastic Traffic Stripe, Skip White
0510	907-626-B006		11	Mile	6" Thermoplastic Traffic Stripe, Continuous White
0520	907-626-E005		11	Mile	6" Thermoplastic Traffic Stripe, Continuous Yellow
0530	907-626-G004		8,035	Linear Feet	Thermoplastic Detail Stripe, White
0540	907-626-G005		1,000	Linear Feet	Thermoplastic Detail Stripe, Yellow
0550	907-626-H009		500	Square Feet	Thermoplastic Legend, White
0560	907-626-H010		1,000	Linear Feet	Thermoplastic Legend, White
0570	907-627-K001		900	Each	Red-Clear Reflective High Performance Raised Markers
0580	907-630-L001		1	Lump Sum	Pedestal Sign Support, Assembly No 1, Contractor Designed
0590	907-630-L002		1	Lump Sum	Pedestal Sign Support, Assembly No 2, Contractor Designed
0600	907-632-C001		1	Each	Modify Existing Traffic Signal Cabinet Assembly
0610	907-634-E001		4	Each	Camera Pole with Foundation, 50' Pole
0620	907-634-F002		5	Each	Detector Pole with Foundation, 35' Pole
0630	907-634-I001		9	Each	Wood Pole, Class II Height 40'
0640	907-636-B053		2,050	Linear Feet	Electric Cable, Underground in Conduit, THHN, AWG #6, 3 Conductor
0650	907-636-E001		1,200	Linear Feet	Electric Cable, Underground in Conduit, Tracer Cable
0660	907-637-A002		10	Each	Pullbox Enclosure, Type 2
0670	907-637-A004		81	Each	Pullbox Enclosure, Type 4
0680	907-637-A005		17	Each	Pullbox Enclosure, Type 5
0690	907-637-H001		88,100	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2 @ 2"
0700	907-637-H002		980	Linear Feet	Traffic Signal Conduit Bank, Underground, Rolled Pipe, 2"
0710	907-637-K001		260	Linear Feet	Traffic Signal Conduit Bank, Aerial Supported, Type 1, 2 @ 2"
0720	907-650-A002		8	Each	On Street Video Equipment, Fixed Type

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Line no.	Item Code	Adj Code	Quantity	Units	Description[Fixed Unit Price]
0730	907-650-A003		6	Each	On Street Video Equipment, PTZ Type
0740	907-656-A002		2	Each	Dynamic Message Sign, Type 2
0750	907-659-A001		1	Lump Sum	Traffic Management Center Modifications
0760	907-660-A002		9	Each	Equipment Cabinet, Type B
0770	907-660-A003		1	Each	Equipment Cabinet, Type C
0780	907-661-A004		93,150	Linear Feet	Fiber Optic Cable, 72 SM
0790	907-661-A006		260	Linear Feet	Fiber Optic Cable, Aerial, 72 SM
0800	907-661-B002		840	Linear Feet	Fiber Optic Drop Cable, 12 SM
0810	907-662-A002		3	Each	Radio Interconnect, Signal Control, Installed in New Controller Cabinet
0820	907-662-D002		2	Each	Radio Interconnect, Broadband, Short Range
0830	907-663-A001		9	Each	Network Switch, Type A
0840	907-663-A005		1	Each	Network Switch, Type E
0850	907-663-D001		1,500	Linear Feet	Category 6 Cable, Installed in Conduit
0860	907-670-A001		1	Each	Roadway Weather Information System
0870	907-670-B002		2	Each	Warning Sign with Flashing Beacon
0880	907-899-A001		1	Lump Sum	Railway-Highway Provisions
0890	907-906001		520	Hours	Trainees ($5.00)
				ALTERNATE GROUP AA NUMBER 1	
0900	304-H001	(GY)	150	Cubic Yard	3/4" and Down Crushed Stone Base, LVM
				ALTERNATE GROUP AA NUMBER 2	
0910	304-H002	(GY)	150	Cubic Yard	Size 610 Crushed Stone Base, LVM
				ALTERNATE GROUP AA NUMBER 3	
0920	304-H003	(GY)	150	Cubic Yard	Size 825B Crushed Stone Base, LVM
				Bridge Items	
0930	815-A007	(S)	550	Ton	Loose Riprap, Size 300
0940	815-E001	(S)	1,000	Square Yard	Geotextile under Riprap
0950	907-202-B001		845	Square Yard	Removal of Bridge Deck, Hydrodemolition
0960	907-804-O001	(S)	47	Cubic Yard	Bridge Deck Overlay Concrete
0970	907-808-A002	(S)	1,700	Linear Feet	Joint Repair
0980	907-823-A002		871	Linear Feet	Preformed Joint Seal, Type II
0990	907-823-B001		1,700	Linear Feet	Saw Cut, Type I
1000	907-824-A003		10	Square Feet	General Epoxy Repair
1010	907-824-C001		18	Each	Cap Cleaning
1020	907-824-PP008		1,540	Linear Feet	Bridge Repair, Class 2 Spray Finish, Per Plans
1030	907-828-A001	(S)	36	Cubic Yard	Hybrid Polymer Concrete Overlay

For Informational Purposes Only

CONDITIONS FOR COMBINATION BID

If a bidder elects to submit a combined bid for two or more of the contracts listed for this month's letting, the bidder must complete and execute these sheets of the proposal in each of the individual proposals to constitute a combination bid. In addition to this requirement, each individual contract shall be completed, executed and submitted in the usual specified manner.

Failure to execute this Combination Bid Proposal in each of the contracts combined will be just cause for each proposal to be received and evaluated as a separate bid.

It is understood that the Mississippi Transportation Commission not only reserves the right to reject any and all proposals, but also the right to award contracts upon the basis of lowest separate bids or combination bids most advantageous to the State.

It is further understood and agreed that the Combination Bid Proposal is for comparison of bids only and that each contract shall operate in every respect as a separate contract in accordance with its proposal and contract documents.

I (We) agree to complete each contract on or before its specified completion date.

* * * *

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. _____	_____	_____	_____	_____	

For Informational Purposes Only

Project Number	Pay Item Number	Unit	Unit Price Reduction	Total Item Reduction	Total Contract Reduction
9. _____	_____ _____	_____ _____	_____ _____	_____ _____	
10. _____	_____ _____	_____ _____	_____ _____	_____ _____	

(c) If Combination C has been selected, then initial and complete ONE of the following.

_____ I (We) desire to be awarded work not to exceed a total monetary value of $ _____.

_____ I (We) desire to be awarded work not to exceed _____ number of contracts.

For Informational Purposes Only

Certification with regard to the Performance of Previous Contracts or Subcontracts subject to the Equal Opportunity Clause and the filing of Required Reports

The Bidder hereby certifies that he has ____, has not ____, participated in a previous contract or subcontract subject to the Equal Opportunity Clause, as required by Executive Orders 10925, 11114, or 11246, and that he has ____, has not ____, filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

_____
(COMPANY)

DATE: _____

NOTE: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7 (b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the Equal Opportunity Clause. Contracts and Subcontracts which are exempt from the Equal Opportunity Clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime Contractors and Subcontractors who have participated in a previous contract or subcontract subject to the Executive orders and have not filed the required reports should note that 41 CFR 60-1.7 (b) (1) prevents the award of contracts and subcontracts unless such Contractors submit a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U. S. Department of Labor.

For Informational Purposes Only

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

CERTIFICATION

I,_____,
(Name of person signing bid)

individually, and in my capacity as_____ of
(Title of person signing bid)

_____do hereby certify under
(Name of Firm, partnership, or Corporation)

penalty of perjury under the laws of the United States and the State of Mississippi that_____

_____, Bidder
(Name of Firm, Partnership, or Corporation)

on Project No. **NHPP-0008-04(085)/ 108150304000**

in **Yazoo** County(ies), Mississippi, has not either

directly or indirectly entered into any agreement, participated in any collusion; or otherwise taken any action in restraint of free competitive bidding in connection with this contract; nor have any of its corporate officers or principal owners.

Except as noted hereafter, it is further certified that said legal entity and its corporate officers, principal owners, managers, auditors and others in a position of administering federal funds:

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

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

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in (b) above; and

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

Do exceptions exist and are made a part thereof? Yes / No

Any exceptions shall address to whom it applies, initiating agency and dates of such action.

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Note: Exceptions will not necessarily result in denial of award but will be considered in determining bidder responsibility. Providing false information may result in criminal prosecution or administrative sanctions.

The bidder further certifies that the certification requirements contained in Section XI of Form FHWA 1273, will be or have been included in all subcontracts, material supply agreements, purchase orders, etc. except those procurement contracts for goods or services that are expected to be less than the Federal procurement small purchase threshold fixed at 10 U.S.C. 2304(g) and 41 U.S.C. 253(g) (currently $25,000) which are excluded from the certification requirements.

The bidder further certifies, to the best of his or her knowledge and belief, that:

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

2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this contract, Standard Form-LLL, Disclosure Form to Report Lobbying, in accordance with its instructions will be completed and submitted.

The certification contained in (1) and (2) above is a material representation of fact upon which reliance is placed and a prerequisite imposed by Section 1352, Title 31, U.S. Code prior to entering into this contract. Failure to comply shall be subject to a civil penalty of not less than $10,000 and not more than $100,000. The bidder shall include the language of the certification in all subcontracts exceeding $100,000 and all subcontractors shall certify and disclose accordingly.

All of the foregoing is true and correct.

Executed on _____ _____

Signature

(01/2016 F)

For Information Purposes Only

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SAM.GOV Registration and Unique Entity ID

Bidders are advised that the Prime Contractor must register and maintain a current registration in the **System for Award Management** (http://sam.gov) at all times during the project. Upon registration, the Contractor will be assigned a SAM Unique Entity ID.

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

I (We) acknowledge that this contract cannot be awarded if I (We) are not registered in the System for Award Management prior to the award of this contract. _____ (Yes / No)

I (We) have a SAM Unique Entity ID. _____ (Yes / No)

SAM Unique Entity ID: _____

Company Name: _____

Company e-mail address: _____

For Informational Purposes Only

SECTION 902

CONTRACT FOR _____
LOCATED IN THE COUNTY(IES) OF _____

STATE OF MISSISSIPPI
COUNTY OF HINDS

This Contract is entered into by and between the Mississippi Transportation Commission (the "Commission") and the undersigned contractor (the "Contractor"), as follows:

As consideration for this Contract, the Commission agrees to pay the Contractor the amount(s) set out in the Proposal attached hereto. Said payment will be made in the manner and at the time(s) specified in the Specifications and/or Special Provisions, if any. In exchange for said consideration, the Contractor hereby agrees to accept the prices stated in the Proposal as full compensation for the furnishing of all labor, materials and equipment, and the execution of the scope of work identified for this referenced Project as contemplated in this Contract, and as more fully outlined in the Contract Documents (the "Work"). The Contract Documents consist of the Advertisement, the Notice to Bidders, the Proposal, the Specifications, the Special Provisions, and the approved Plans, all of which are hereby made a part of this Contract and incorporated herein by reference.

The Contractor shall be responsible for all loss or damage arising out of, or in any way in connection with the Work, or from any unforeseen obstructions or difficulties that may be encountered in the prosecution of the Work, and for all risks of every description connected with the Work, with the exception of any items specifically excluded in the Contract Documents. The Contractor shall fully and faithfully complete the Work in a good and workmanlike manner, according to the Contract Documents and any Supplemental Agreements thereto.

The Contractor further agrees that the Work shall be done under the direct supervision of, and to the complete satisfaction of, the Executive Director of the Mississippi Department of Transportation, or his authorized representative(s), and, when federal funds are involved, subject to the inspection and approval of the Federal Highway Administration, or its agents, and/or the agents of any other state or federal agency whose funds are involved. Further, the Work shall be done in accordance with any applicable state and federal laws, and any such rules and regulations issued by the Commission and/or any relevant Federal Agency.

The Contractor agrees that all labor as outlined in the Contract Documents may be secured from a list furnished by the Manager of the Win Job Center nearest the project location, or any successor thereto.

It is agreed and understood that each and every provision of law and clause required by law to be inserted into this Contract shall be deemed to be inserted herein, and this Contract shall be read and enforced as though it were included herein. If through mere mistake or otherwise, any such provision is not inserted, then upon the application of either party hereto, the Contract shall be physically amended to make such insertion.

For Informational Purposes Only

The Contractor agrees that he has read each and every clause of the Contract Documents, and fully understands the meaning of same, and hereby acknowledges that he will comply with all terms, covenants and agreements therein.

Witness our signatures, this the _____ day of _____, 20___.

_____
Contractor

By: _____
Title: _____

_____
Signed and sealed in the presence of: (name and address of witness)

_____
_____

MISSISSIPPI TRANSPORTATION COMMISSION

_____
Executive Director

_____
Secretary to the Commission

Award authorized by the Mississippi Transportation Commission in session on the ____ day of _____, _____, Minute Book No._____, Page No. _____.

For Informational Purposes Only

SECTION 903
PERFORMANCE BOND

PERFORMANCE BOND FOR THE FOLLOWING CONTRACT:
Project No.: _____

For the construction of: _____

Contract date: _____ Contract Price: _____

FOR OWNER: MISSISSIPPI TRANSPORTATION COMMISSION, 401 N. WEST STREET, JACKSON, MISSISSIPPI 39201.

CONTRACTOR (full legal name, contact person, phone number and address):
_____
_____
_____
_____

SURETY (legal name, phone number, principal place of business and address ***for notice purposes***):
_____
_____
_____

Second Surety (if applicable):
_____
_____
_____

The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns, to the Owner for the performance of the Contract, which is incorporated herein by reference, and subject to the following terms:

1. If the Contractor fully and faithfully performs the Contract, the Surety and the Contractor shall have no obligation under this Bond.

2. The Surety's obligation under this Bond shall arise after:
   (a) the Owner first provides notice to the Contractor and the Surety that termination is imminent, pursuant to the current edition of the Mississippi Standard Specifications for Road and Bridge Construction, which is a part of the Contract; and
   (b) the Owner declares a Contractor Default, terminates the Contract, and notifies the Surety.

3. Within 20 calendar days as set forth in Section 108.08 of the current edition of the Mississippi Standard Specifications for Road and Bridge Construction, the Surety shall, after discussions with and consent from the Owner, and at the Surety's expense, elect to take one of the following actions:
   (a) Arrange for the Contractor, with the consent of the Owner, to perform and complete the Contract;
   (b) Undertake to perform and complete the Contract itself, through its agents or independent contractors;
   (c) Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and after investigation, determine the amount for which it may be liable to the Owner (subject to the consent of the Owner) and as soon as practicable after the amount is determined, make payment to the Owner.

For Informational Purposes Only

4. If the Surety does not proceed, within a reasonable time frame, to enact and carry out the election made in Paragraph 3, then the Surety shall be deemed to be in default on this Bond, and the Owner shall be entitled to enforce any remedy available to it under the Contract and applicable law.

5. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for
   (a) the responsibilities of the Contractor for correction of defective work and completion of the Contract;
   (b) additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 3; and
   (c) liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.

6. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.

7. The penal sum of the Bond shall be equal to the Contract Price; however, the penal sum may be increased or decreased as the result of any subsequent Supplemental Agreements and/or final contract quantities.

8. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address listed for notice purposes on the first page of this Bond.

CONTRACTOR AS PRINCIPAL
Company: _____

Signature: _____
Name: _____
Title: _____
Address: _____
_____

SURETY
Company: _____

Signature: _____ MS Insurance ID # _____
Name: _____
Title: _____
Address: _____
_____

SURETY (if applicable)
Company: _____

Signature: _____ MS Insurance ID # _____
Name: _____
Title: _____
Address: _____
_____

For Informational Purposes Only

SECTION 903
PAYMENT BOND

PAYMENT BOND FOR THE FOLLOWING CONTRACT:
Project No.: _____

For the construction of: _____

Contract date: _____ Contract Price: _____

FOR OWNER: MISSISSIPPI TRANSPORTATION COMMISSION, 401 N. WEST STREET, JACKSON, MISSISSIPPI 39201.

CONTRACTOR (full legal name, contact person, phone number and address):
_____
_____
_____

SURETY (legal name, phone number, principal place of business and address ***for notice purposes***):
_____
_____
_____
Second Surety (if applicable):
_____
_____
_____

The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns, to the Owner for payment of labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference, subject to the following terms:

1. If the Contractor promptly makes payment of all sums due to any and all subcontractors, sub-subcontractors, suppliers to the Contractor, suppliers to subcontractors and/or laborers who have performed work on the project site, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Contract, then the Surety and the Contractor shall have no obligation under this Bond.

2. The Owner shall provide notice to the Surety of any claims, demands, liens or suits against the Owner or the Owner's property that it receives from any person or entity ("Claimants") seeking payment for labor, materials or equipment furnished for use in the performance of the Contract.

3. Upon notice of any claims, demands, liens or suits provided by the Owner or Contractor or given to the Surety by a Claimant, the Surety shall promptly and at the Surety's expense, defend, indemnify and hold harmless the Owner against said claim, demand, lien or suit and shall take the following additional actions:
    (a) Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
    (b) Pay or arrange for payment of any undisputed amounts.

For Informational Purposes Only

4. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond and shall have no obligation under this Bond to make payments to, or give notice on behalf of, Claimants, or otherwise have any obligations to Claimants under this Bond.

5. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.

6. The penal sum of the Bond shall be equal to the Contract Price; however, the penal sum may be increased or decreased as the result of any subsequent Supplemental Agreements and/or final contract quantities.

CONTRACTOR AS PRINCIPAL
Company: _____

Signature: _____
Name: _____
Title: _____
Address: _____
_____

SURETY
Company: _____

Signature: _____ MS Insurance ID # _____
Name: _____
Title: _____
Address: _____
_____

SURETY (if applicable)
Company: _____

Signature: _____ MS Insurance ID # _____
Name: _____
Title: _____
Address: _____
_____

For Informational Purposes Only

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we_____
Contractor

_____
Address

_____
City, State ZIP

As principal, hereinafter called the Principal, and _____
Surety

a corporation duly organized under the laws of the state of _____

as Surety, hereinafter called the Surety, are held and firmly bound unto **State of Mississippi, Jackson, Mississippi**

As Obligee, hereinafter called Obligee, in the sum of **Five Per Cent (5%) of Amount Bid**

Dollars($_____)

for the payment of which sum will and truly to be made, the said Principal and said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for **Pavement Restoration on US 49 from Madison County Line to 0.8 miles North of Old Highway 49, known as Federal Aid Project No. NHPP-0008-04(085) / 108150304 in Yazoo County.**

NOW THEREFORE, the condition of this obligation is such that if the aforesaid Principal shall be awarded the contract, the said Principal will, within the time required, enter into a formal contract and give a good and sufficient bond to secure the performance of the terms and conditions of the contract, then this obligation to be void; otherwise the Principal and Surety will pay unto the Obligee the difference in money between the amount of the bid of the said Principal and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former, but in no event shall liability hereunder exceed the penal sum hereof.

Signed and sealed this _____day of _____, 20___

_____
(Principal) (Seal)

_____ By:_____
(Witness) (Name) (Title)

_____
(Surety) (Seal)

_____ By:_____
(Witness) (Attorney-in-Fact)

_____
(MS Agent)

_____
Mississippi Insurance ID Number