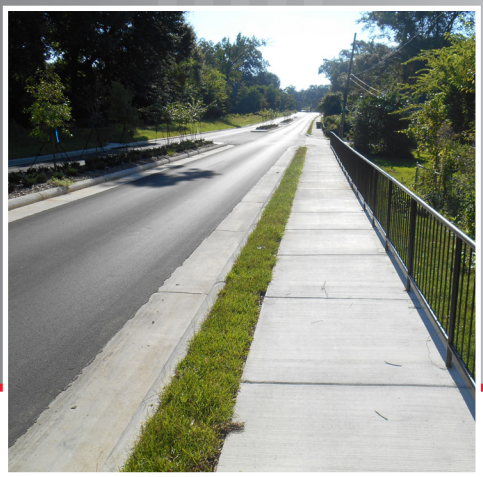
MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION



CRITICAL INSPECTION GUIDE

Local Public Agency Projects

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Mississippi Department of Transportation
LPA Division

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INTRODUCTION

The projects addressed in this manual relate to LPA funds authorized by any Federal Transportation Act. Funds from Federal Transportation acts are appropriated to the States by congressional action. MDOT is the State agency responsible for administering these funds while the Federal agency has the responsibility of having the program oversight responsibility. The appropriate MDOT District, with various Central Office Divisions, will provide complete oversight of the LPA at various stages of a project's development.

In order to optimize resources and improve efficiency, the Mississippi Department of Transportation decided to develop a Risk Based approach to inspection for Local Public Agency projects. Risk Based Inspection allows agencies to adjust the level of inspection designated to a pay item according to several factors. With MDOT's current rules and regulations, there is not a way of assigning inspection levels on pay items. For example, the level of inspection needed to place asphalt on an Interstate Highway is much greater than the inspection needed for asphalt being placed on a walking trail. A Risk Based Inspection model was implemented through the RISK BASED INSPECTION AND MATERIAL TESTING GUIDE.

This Critical Inspection Guide has been developed from the research for Risk Based Inspection. This Critical Inspection Guide, in conjunction with the Risk Based Inspection Manual, will

- Help personnel determine the amount of inspection required for a pay item based on the risk assigned to a project by the MDOT LPA Division
- Give the Inspector guidance on tasks that should be accomplished before pay item work begins
- Give the Inspector guidance on tasks to perform while that pay item work is ongoing
- Provide guidance and help strengthen inspection procedures throughout the life of a project

The main purpose of inspection is to validate that the contractor is performing the work as required by the contract. As such, the Critical Inspection Guide was established through research from various documents used by MDOT that include the following:

- 2017 Mississippi Standard Specifications for Road and Bridge Construction
- MDOT Inspectors Construction Manual
- MDOT Construction Manual

- MDOT Field Manual for Asphalt Mixes
- MDOT Concrete Field Manual
- MDOT Rules, Policies and Standard Operating Procedures

This guide does not relieve Inspectors from studying and applying the documents listed above and is not inclusive of all inspection activities to be performed but should be used as a supplement to help Inspectors perform their duties prior to and during the contractor's operations.

INSPECTION DEFINITIONS

Full Time – requires inspection during the full operation
An Inspector should be on site and inspecting the contractor's procedures, quality of work and performing the required tests.

Part Time – requires inspection at critical times in the operation
An Inspector should inspect the contractor's operations when the contractor cannot continue the process without gathering pertinent information for payment, assessing quality of work or testing the required materials.

Intermittent – requires inspection only during the construction operation at logical break points, when time permits and after completion of the operation
An inspector can accept the pay items through certifications or by end-product inspection. These items of work should be inspected during the construction operation at logical break points (such as form and reinforcing wire placement before a concrete sidewalk pour) and randomly during other inspection down time.

Priority – level of associated risk resulting from insufficient inspection
Factors used in developing the priority include inspection level, financial cost, bodily injury and traffic impacts resulting from insufficient inspection.

Inspector Experience (min) – Minimum amount of heavy civil construction inspection experience
Heavy civil construction inspection experience is specified as work experience in highway, bridge or other related inspection.

A range of years is listed due to the diversity that may be encountered for pay items due to project size, scope, complexity and pay item quantity.

In certain cases, educational experience may be substituted on a 2 to 1 basis for years of education to experience if the college course work was part of an Associate's Degree or Bachelor's Degree program in engineering, engineering technology, construction technology, engineering science, surveying technology or drafting/CAD. Other suitable educational experience may include classes/training as provided by the Mississippi Department of Transportation.

If the inspector does not meet the minimum inspection conditions, strict oversight from an inspector or engineer that fulfills the designated criteria will be required.

CLEARING AND GRUBBING AND EROSION CONTROL

Specification Section Reference(s):	201 & 210 - 250
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Objective:	Ensure approved SWPPP is being followed and document erosion control measures in place

Before Work Begins

- Become familiar with the approved Erosion Control Plan
- Verify that the construction limits have been properly located and flagged and all desirable natural growth within the right of way is being preserved.
- Identify and measure any additional areas requiring clearing and grubbing that are not included in a Lump Sum pay item
- Review Section 107.22.2 of the 2017 Mississippi Standard Specifications to familiarize yourself with MDEQ requirements as noted

Inspection during work activity

- Ensure that applicable best management practices are in place prior to clearing and grubbing operations
- Verify that the approved SWPPP is being followed and the Contractor is revising the approved plan as necessary
- Inspect erosion control measures in advance of a rainfall event and notify the Contractor and Project Engineer of areas of concern
- Inspect erosion control measures after a rainfall event and document all deficiencies on the appropriate form
- Calculate the erodible surface area of exposed material to verify that it does not exceed 19 acres
- Compute and document quantities associated with Clearing & Grubbing and Erosion Control pay items
- Monitor adjacent property and environmentally sensitive areas to observe that the Contractor's operations do not damage the areas
- Collect certifications, certified test reports and/or samples of materials as specified in the contract
- Perform applicable tests on paved ditch concrete (i.e. slump, air, etc.) as specified in the contract

REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Specification Section Reference(s):	202
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low
Inspector Experience (min):	1 year
Inspection Objective:	Documenting all obstructions that are not designated to remain or to be removed and disposed of by other provisions of the contract

Before Work Begins

- Become familiar with the Contract Documents and Plans to identify structures indicated to be removed, remain and/or to be salvaged
- Verify with the contractor those structures to be salvaged and the storage/delivery of those items

Inspection during work activity

- Document all structures to remain in place
- Verify that bridges, culverts and other structures that are in use shall not be removed until the traffic is satisfactorily accommodated
- Confirm that existing structures are removed to at least one foot below the final ground line or mud line
- Calculate and document for payment all items designated as removal items

EXCAVATION AND EMBANKMENT

Specification Section Reference(s):	203 -209 & 801
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure excavation and embankment materials are being placed in accordance with the Plans and the proper density is being obtained

Before Work Begins

- Become familiar with the approved Erosion Control Plan
- Collect samples of materials from in place and/or Contractor supplied pit(s) to verify the material meets the applicable requirements of the contract and to obtain proctor information
- Review the Plans and Specifications to determine the different types of excavation and methods of measurement
- Verify that slope stakes are in place if traditional non-GPS enabled equipment is being used. If GPS enabled equipment is being used, verify that the GPS Models have been reviewed and approved.

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Ensure that applicable best management practices are in place prior to excavation and embankment
- Verify that the approved SWPPP is being followed and the Contractor is revising the approved plan as necessary
- Inspect erosion control measures in advance of a rainfall event and notify the Contractor and Project Engineer of areas of concern
- Inspect erosion control measures after a rainfall event and document all deficiencies on the appropriate form
- Calculate the erodible surface area of exposed material to verify that it does not exceed 19 acres
- Verify areas that require original cross sectioning and that work has been performed
- Determine compaction lot size based on the Contractor's hourly production and observe compaction efforts of the Contractor according to the Department's SOP

- **EXCAVATION AND EMBANKMENT (Cont.)**

- Perform and document tests on the appropriate forms to verify the excavation and embankment materials are meeting the required density and moisture requirements
- Observe to determine any changes in materials
- Collect samples for testing and a new proctor if a significant change in material is encountered
- Notify the Contractor if the moisture content is not suitable for the material being placed and discuss plan for correcting
- Ensure that the material is being placed in lifts not to exceed 8 inches and in full width-layers parallel to the finished grade
- Verify that borrow material has not been placed until excavation from the roadway has been utilized as shown on the Plans
- Measure trucks to determine volumes for materials to be paid by LVM and document on the appropriate forms
- Record for payment each truck and the quantity hauled for material to be paid by LVM
- Contact the survey team to gather final cross section quantities upon completion of a section (if applicable)
- Verify and document that vertical and horizontal tolerances meet the Plans and Specifications upon completion of a section of roadway
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

BASES

Specification Section Reference(s):	304 – 321, 408
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the correct materials are placed in close conformity with the lines, grades and plans

Before Work Begins

- Become familiar with the approved Erosion Control Plan
- Review Figure 1 Section 101 of the 2017 Mississippi Standard Specifications which graphically defines the limits of the roadway, the design soil and the components of the pavement structure
- Review the plans and specifications to determine the different materials and testing requirements
- Obtain the Distributor Calibration Worksheet for the calculation of bituminous placement
- Collect material samples of the Contractor's sources to verify the materials meet the applicable requirements of the contract and to obtain proctor information

Inspection during work activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD (if applicable)
- Verify the underlying material is within the vertical and horizontal tolerances and meets the required densities
- Monitor the placement of granular material and determine lots to verify the material meets the density requirements
- Collect samples and tickets of applicable materials to verify compliance with the contract
- Verify the spread rate of lime, fly ash or cement for each truckload delivered
- Monitor the incorporation of lime, fly ash or cement into the granular material and perform the required tests (sieve analysis, moisture content, density, etc.)
- Ensure that the completed course is finished, cured and protected within the time frames as specified in the contract
- Document the measurements of the bituminous material in the truck before and after applications of material, record the temperature of the material in the tank and compute the application rate

- **Bases (Cont.)**

- Monitor the weather and verify that operations are within the allowable working months to ensure that contract requirements are being met
- Monitor the spreading and mixing of lime, fly ash or cement to determine if the it is creating a sight hazard to traffic in the vicinity of the project
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

ASPHALT PAVEMENTS

Specification Section Reference(s):	401-405, 407-408, 411
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the asphalt pavements are placed according to the plans, specifications and the field manual for asphalt mixes

Before Work Begins

- Become familiar with the plans to determine the various asphalt mixes required according to the typical sections
- Become familiar with Chapter 7 of the Mississippi Department of Transportation's FIELD MANUAL For ASPHALT MIXTURES and the "Hot-Mix Asphalt Paving Handbook"
- Verify that the Contractor has submitted and has an approved mix design for each type of asphalt mix on the contract
- Review the ambient temperature limitations for each mix
- Verify the tack coat being used is on the Approved Product List
- Verify that the Contractor's Inertial Profiling System is currently approved
- Confirm the Contractor has provided the data required for the existing surface in place for Category C projects (if applicable)
- Verify that all traffic control signs are up and they meet the contract requirements
- Identify and mark all areas of base and/or asphalt removal and replacement
- Obtain the Distributor Calibration Worksheet for the calculation of tack coat placement

Inspection During Work Activity

- Ensure that temporary traffic control is in place for the operation and is operating effectively per the Plans, Specifications and MUTCD
- Check and measure the layout ahead of the paving operation
- Complete the ASPHALT ROADWAY INSPECTION CHECKLIST located in the FIELD MANUAL For ASPHALT MIXTURES
- Review all surfaces for cleanliness before placement of tack coat

- **ASPHALT PAVEMENTS (Cont.)**

- Document the measurements of the tack coat in the truck before and after applications of material, record the temperature of the material in the tank and compute the application rate
- Ensure there is uniform coverage of the tack coat before placement of asphalt
- Verify that the asphalt layer being placed meets thickness and cross slope requirements
- Observe that the rolling pattern and equipment has not changed from the pattern initially set by the Contractor
- Gather information from the daily reports of asphalt tested by the Contractor's plant technicians and submitted by the contractor to determine the specific gravity of the asphalt produced and used in the nuclear density calculations for the applicable day
- Perform and record density tests to ensure the Contractor is meeting the Specifications (If the Specifications require "Roll to Refusal," document the density shots between each pass of the roller to verify the requirements are met)
- Observe the asphalt mat for bumps and dips and if discovered ensure they meet the smoothness tolerances in the contract
- Collect and sign tickets for each truck delivery of asphalt pavement
- Complete form TMD-004 each day asphalt is placed
- Verify the Contractor meets the smoothness tolerance through the data submitted by the contractor and processed by the appropriate software
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

COLD MILLING

Specification Section Reference(s):	406
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the operation is leaving a uniform surface and is true to the established line and grade

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Ensure the Contractor has an approved asphalt mix design and is prepared to begin paving operations within the specified time frame after milling
- Familiarize yourself with the plans and specifications to determine areas and depths of cold milling

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Verify that the milling machine meets the requirements of the contract
- Observe the milled surface to ensure that it has a desirable surface free from gouges, continuous grooves, ridges, oil film and other imperfections of workmanship and has a uniform surface
- Verify that the milled surface is reasonably smooth and true to the established line, grade and cross section
- Measure and document the milled area for payment (if required)

GEOTEXTILE FABRIC FOR UNDERSEAL

Specification Section Reference(s):	409
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the asphalt cement and fabric are installed without excessive wrinkles or folds

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Obtain three copies of the Manufacture's Certification and a sample of geotextile fabric from each lot and submit for testing
- Obtain a sample of the bituminous material and submit to the lab for testing
- Obtain the Distributor Calibration Worksheet for each distributor vehicle to calculate the bituminous material applied

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Review all surfaces for cleanliness before placement of bituminous material
- Document the measurements of the bituminous material in the truck before and after applications, record the temperature of the material in the tank and compute the application rate
- Ensure that the geotextile is placed as soon as practical and before adhesion properties of the sealant is lost
- Observe the geotextile for "folds" and if found, treat them as per the specifications
- Ensure that the longitudinal and transverse joints are made by overlapping the fabric correctly and by at least six inches
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

BITUMINOUS SURFACE TREATMENT

Specification Section Reference(s):	410
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure the treatment is being applied within the Specifications and as shown on the Plans

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Collect samples of aggregate for cover material and bituminous material to provide lab for testing
- Review the seasonal and temperature limitations for each type of material used
- Obtain the Distributor Calibration Worksheet for the calculations of bituminous material applied

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Verify that all “Loose Rock” signs are installed and remain in place until all operations are complete
- Review all surfaces for cleanliness before placement of bituminous material
- Document the measurements of the bituminous material in the truck before and after applications, record the temperature of the material in the tank and compute the application rate
- Ensure that the application of cover coat material is immediately following the application of bituminous material
- Verify the application rate of cover coat aggregate during the first day of production and at least once a week thereafter
- Collect bituminous and cover coat samples to provide to the lab as required
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

PRE-GRINDING

Specification Section Reference(s):	412
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Observe that bumps and knots have been sufficiently removed

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Verify that the Contractor's Inertial Profiling System is currently approved
- Review MRI to determine areas with a short interval of 160 inches per mile or more
- With the Engineer's approval, determine and mark the areas of pre-grinding that bumps cannot be eliminated during the paving operation

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Verify that the Contractor has positive means of removal of the grinding residue
- Ensure that residue is not permitted to flow across lanes used by public traffic or into gutter or drainage facilities that may be allowed to flow into adjacent ditches
- Measure and record for payment (if applicable)

SEALING AND FILLING JOINTS AND CRACKS

Specification Section Reference(s):	413
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Observe the routing, sawing and/or cleaning, sealing joints and cracks in existing pavement

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Familiarize yourself with the Plans and Specifications to determine the materials being incorporated and the testing requirements

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Verify that joints and cracks to be sealed have been cleaned/sawed to the minimum dimensions specified
- Ensure the surface to receive the new joint material is dry and free of all lubricants, tar, asphalt, discoloration and stains as well as other forms of contamination
- Verify the joint sealant material is dry enough to prevent tracking before allowing traffic to travel over it
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

GROUND IN RUMBLE STRIPS

Specification Section Reference(s):	423
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Observe the grinding of rumble strips at the specified locations

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Familiarize yourself with the plans and specifications to determine the locations that rumble strips shall be installed and the horizontal and vertical dimensions required by the contract

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Measure the roadway to ensure the rumble strips are being placed in the correct location
- Verify the rumble strips are placed in accordance with the plans and specifications
- Document all materials placed for payment as applicable

RIGID PAVEMENT

Specification Section Reference(s):	501 - 503, 511
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure that a quality, durable and smooth riding concrete pavement is achieved according to the contract requirements

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Familiarize yourself with the Plans, Specifications and mix designs
- Verify that the Contractor has submitted and has an approved concrete mix design
- Verify that the Contractor's Inertial Profiling System is currently approved
- Check and document grade, tolerances, density and surface of the underlying material
- Verify that the Contractor's equipment meets the required specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and is operating sufficiently per the Plans, Specifications and MUTCD
- Verify that the forms are set sufficiently in advance of where concrete is being placed, the forms have been set to the correct grade, they have been cleaned and oiled prior to placement of concrete and the base course is moist before placement of concrete unless the base course is waterproof
- Confirm the slip form paver (if used) meets the requirements of 501.03.5.3
- Verify that the Contractor has available at all time the materials for protection of unhardened concrete in the event of rain
- Sample test specimens to verify the concrete meets the requirements of the specifications
- Verify the concrete mix is installed per the specifications according to the appropriate placement method
- Inspect the concrete for the correct surface finish

- **RIGID PAVEMENTS (Cont.)**

- Verify the Contractor meets the smoothness tolerance through the data submitted by the contractor and processed by the appropriate software
- Inspect the curing process to ensure the proper method is followed and that it occurs within the required time
- Ensure the pavement meets the thickness requirements per the specifications
- Inspect the pavement for full depth cracks, misplaced joins and partial depth cracks
- Ensure the joints are cleaned and sealed per the contract
- Gather material certifications and invoices for appropriate items
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

SILICONE SEALED JOINTS

Specification Section Reference(s):	508, 510
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the pavement joints are repaired, sealed and smooth to prevent water intrusion

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Become familiar with the Plans and Specifications
- Confirm materials are on the Approved Products List before incorporation

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that joints are clean, dry and frost free
- Confirm the ambient air temperature at time of silicone placement
- Verify the sealant is tack free before opening to traffic
- Collect certifications and samples as required
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

REPAIR OF CONCRETE PAVEMENT

Specification Section Reference(s):	510
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure placement of polymer concrete in spalled areas is performed in accordance with the Specifications

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Become familiar with the Plans and Specifications
- Confirm materials are on the Approved Products List before incorporation

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that all spall areas one inch or greater shall be cleaned and prepared for receiving the polymer concrete
- Ensure the contractor has removed all loose, cracked or deteriorated concrete from the spalled areas using a mason or shop hammer, and if necessary, a jack hammer not larger than 20 pounds
- Verify that spalled areas are sandblasted, or other method approved by the Engineer, until the concrete exhibits an obvious color change, and is then air blasted to remove all loose debris
- Confirm the spall area is completely dry prior to priming and placement of polymer concrete
- Verify that the entire area plus an additional two inches around the circumference of the area shall be primed with a brush and has been allowed to gel prior to placing resin/aggregate
- Confirm that the resin has been mixed in accordance with the manufacturer's recommendation
- Verify that the Contractor shall first fill, tamp, trowel and screed the spalled area parallel to the centerline of the roadway, then apply a surface coat of dry graded aggregate and tamp into wetted aggregate to provide skid resistance
- Confirm that the polymer has been allowed to cure for two (2) hours prior to opening the area to traffic

- **REPAIR OF CONCRETE PAVEMENT (Cont.)**

- Collect certifications and samples as required
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

PRESSURE GROUTING CONCRETE PAVEMENT

Specification Section Reference(s):	512
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the concrete pavement is stabilized

Before Work Begins

- Verify that all traffic control signs are up and they meet the contract requirements
- Become familiar with the Plans and Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify the percent of calcium chloride is correct according to the atmospheric temperature
- Observe the stability testing to determine acceptance
- Verify the drilling and cleaning of holes and the incorporation of grout
- Document all quantities for payment

STRUCTURAL CONCRETE

Specification Section Reference(s):	601-602
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the structure conforms to plans, specifications and contract requirement

Before Work Begins

- Become familiar with the Plans, Specifications, and the approved Erosion Control Plan
- Verify that the contractor has field staked the location and submitted the staking information and calculations to the Project Engineer
- Confirm that the proposed alignment and length matches the Project Engineers calculations, existing drainage ditch and/or plans as required
- Verify that the Contractor has an approved concrete mix design
- Confirm with the Contractor that a One-Call has been performed before excavation operations occur
- Gather test reports and samples for material testing acceptance
- Confirm that precast units are approved (if requested)
- Confirm that the structural design analysis and detail drawings showing the method of falsework or centering are submitted and approved
- Verify that there is an approved bar list (if applicable)

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD (if applicable)
- Ensure that applicable best management practices are in place prior to work and are operating effectively
- Verify that the foundation material is adequate to support the structure and if necessary, contact the Project Engineer if additional excavation and select material are required
- Ensure the forms are built mortar tight and sufficiently rigid to prevent distortion
- Check reinforcing steel for correct size and spacing and that it has been tied correctly

- **STRUCTURAL CONCRETE (Cont.)**

- Sample test specimens to verify the concrete meets the requirements of the specifications
- Verify the concrete mix is installed per the specifications according to the appropriate placement method
- Verify the compressive strength results before the removal of falsework
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

DRAINAGE ITEMS

Specification Section Reference(s):	603 and 604
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 4 years
Inspection Objective:	Ensure there is an adequate foundation and the materials are installed in reasonably close conformity with the lines and grades shown in the plans or established

Before Work Begins

- Become familiar with the Plans, Specifications and approved Erosion Control Plan
- Verify that the contractor has field staked the location and submitted the staking information and calculations to the Project Engineer for conduits
- Confirm that the proposed alignment and length matches the Project Engineer's calculations, existing drainage ditch and/or plans as required
- Confirm with the Contractor that a One-Call has been performed before excavation operations occur

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Sample or gather test reports for the materials being used
- Verify the foundation is firm for the entire length of the trench
- Inspect the joining of conduit to ensure a watertight seal beginning at the staked downstream end with the bell or groove end facing upstream
- Inspect the structure before backfill is placed for alignment, unduly settling or damage
- Verify the inlet and outlet pipes have been cut flush with the walls of the manhole or catch basin on the inside surface and neatly pointed
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specification
- Inspect that all structures are thoroughly cleaned of accumulations of silt, debris and foreign matter

UNDERDRAINS

Specification Section Reference(s):	605
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 3 years
Inspection Objective:	Ensure the materials are installed in reasonably close conformity with the lines and grades shown in the plans and/or dictated by the conditions in the field

Before Work Begins

- Become familiar with the Plans, Specifications and approved Erosion Control Plan
- Confirm with the Contractor that a One-Call has been performed before excavation operations occur
- Gather samples and test reports/certifications for the items to be incorporated
- Verify the applicable materials are on the Approved Products List

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Ensure the materials being used are sampled and tested
- Inspect the trench and verify that it has been excavated to the required dimensions and of sufficient depth to allow proper installation of the pipe and covering
- Ensure that if perforated pipe is used, the perforated side is placed down and is laid on a four-inch bed of approved filter material
- Verify after the underdrain has been laid, it is covered with the specified filter material to the dimensions on the plans
- Inspect the joining of geotextile fabric to verify it is overlapped from 12 to 18 inches
- Verify that pipe and fitting are joined by solvent cement with commercial quality solvent cement and primer specifically manufactured for use with rigid PVC plastic pipe and fittings
- Inspect the pipe before installation to ensure it is free of obstructions and is clean

- **Underdrains (Cont.)**

  - Collect the video record and written report to provide to the Engineer of the edge drain inspection
  - Ensure that each drain outlet has an appropriate concrete apron
  - Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specification

GUARDRAIL

Specification Section Reference(s):	606
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure guard rail conforms to plans, specifications and contract requirements

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm that the materials submitted are on the approved products list

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the work and materials are corresponding with approved submittals
- Request two copies of the manufacturers installation details to ensure proper installation of the device and provide to the Engineer
- Verify that the materials necessary for replacement are on hand before removal begins if the work requires removal and replacement of guardrail on a facility opened to traffic
- Inspect the bolts for proper tightness and in the correct locations as per the installation instructions
- Check for conformance in the rail height and rail face with respect to grade, lateral offset and alignment
- Verify that the top inside edges of posts are set within ¼ inch of correct vertical and horizontal alignment
- Verify that all post hole voids are backfilled and compacted with appropriate material
- Inspect the reflective markers for proper placement
- Notify the engineer of uncompleted installation at the end of the day for sections of roadway opened to traffic and, if approved, verify that the correct traffic control devices are in place as directed by the Engineer before leaving the site

Guardrail (Cont.)

- Verify that the type of Terminal End Section is written on the back of the terminal section with a permanent marker or other means of permanent identification
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

FENCES AND CATTLE GUARD

Specification Section Reference(s):	607
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 or more
Inspection Objective:	Ensure fences and cattle guards conform to the Plans, Specifications and contract requirements

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm that the materials submitted are on the approved products list

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the work and materials are corresponding with approved submittals
- Verify that erosion control items are in place and that any necessary clearing and grubbing has occurred
- Inspect posts for plumb, location, grade and alignment
- Verify that wire or fencing has been stretched taut and is firmly attached to posts and braces by the method indicated on the plans
- Ensure that the fence has been properly grounded in areas that electric transmission, distribution or secondary power lines are encountered
- Verify that the fence follows the contour of the ground with the bottom of the fence fabric not less than one inch or more than six inches from the ground surface
- Inspect the splicing of fencing to ensure the splice meets the plans and specifications for each applicable type of wire
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

CONCRETE SIDEWALKS

Specification Section Reference(s):	608
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure concrete sidewalks are placed on a prepared subgrade in accordance to the Plans, Specifications and contract requirements

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted an approved mix design, certifications and certified test reports as required by the Plans and Specifications and they have been approved
- Confirm that the materials submitted are on the approved products list

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if applicable
- Verify that forms are set to the required grade and line and are rigidly held in place by stakes or braces
- Inspect the concrete placed, vibrated and/or tamped and struck off with an approved straightedge resting upon the side forms and drawn forward with a sawing motion
- Verify prior to use that an automatic extrusion (slip form) machine (if used) has demonstrated to produce a consolidated concrete section conforming to the dimensions, cross section, line and grades shown on the plans or established
- Verify that the concrete is given a Class 6 float finish and that the edges of the sidewalk are rounded with an edging tool having a radius of ½ inch and expansion joints are edged with and edger having a radius of ¼ inch and is cured according to the plans and specifications
- Inspect joints for the dimensions specified and installation is per the plans and specifications
- Ensure that detectable warning pads are installed on the concrete sidewalk at the location shown on the detail drawings in the plans and in accordance with the manufacture's recommendations

- **Concrete Sidewalks (Cont.)**

  - Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

CONCRETE GUTTER, CURB AND COMBINATION CURB AND GUTTER

Specification Section Reference(s):	609
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 3 years
Inspection Objective:	Ensure concrete gutter, curb and combination curb and gutter are placed to the correct line and grade in accordance with the plans and specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted the concrete mix design, certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm that the materials submitted are on the approved products list

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Inspect the forms for compliance with specifications and that they are securely staked, braced and sufficiently tight to prevent leakage of mortar
- Verify that if a curb forming machine is used, it conforms to the requirements of the Specifications and is able to produce curb with the specified section, line and grade
- Check that the sections will be uniform lengths as specified on the plans and will not be less than six feet
- Verify that all expansion joint material protruding after the concrete is finished is trimmed
- Inspect that the concrete is finished smooth and even by an approved float and is checked with a 10-foot straightedge so that all irregularities more than ⅛ of an inch in 10 feet are corrected
- Ensure that the concrete is protected and cured according to the specifications
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

HIGH TENSION CABLE BARRIER

Specification Section Reference(s):	610
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium to High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure high tension cable barrier conforms to line, grade, Plans, Specifications and contract requirements

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted a concrete design, certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm that the materials submitted are on the approved products list
- Confirm that the Contractor has submitted a copy of the FHWA letter of approval for the system
- Verify that the Contractor provides two copies of the manufacturer's most current product manuals covering installation and maintenance of the barrier system including detailed drawings

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the work and materials are corresponding with approved submittals
- Confirm that a manufacturer's representative shall be present during the initial installation of all components of the cable barrier system
- Confirm in installations greater than 1,000 feet in length, at least one turnbuckle per 1,000-foot strand shall be included
- Verify for installations less than 1,000 feet in length, one turnbuckle per strand shall be included near the center of the installation
- Check the tensioning immediately after installation per the manufacturer's recommendation and recheck approximately two (2) to three (3) weeks after initial tensioning
- Verify that the concrete has a minimum compressive strength of 3,000 psi prior to tensioning

- **High Tension Cable Barrier (Cont.)**

- Confirm that the contractor is maintaining a log showing the date, time, location, temperature and final tension reading
- Verify that posts are installed plumb and in accordance with the manufacturer's recommended location, spacing and elevation
- Ensure that the end terminal foundations are placed in excavation of natural, undisturbed ground, to the size and shape required by the manufacturer based on soil types and ground conditions
- Verify upon completion that a manufacturer's representative certifies in writing that that the cable barrier system was installed in accordance with the design and manufacturer's recommendation
- Inspect the high-tension cable barrier for proper delineation
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

BRICK MASONRY

Specification Section Reference(s):	611
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low
Inspector Experience (min):	1 to 2 years
Inspection Objective:	Ensure the brick masonry is installed to the line, grade, dimension and detail indicated in the Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify the correct grade of brick and mortar meets requirements as specified by the Plans and Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify that the work and materials are corresponding with Specifications and Plans
- Monitor that the prepared foundation is in accordance with the Plans or as directed
- Ensure that the bricks are thoroughly cleaned and saturated with water immediately prior to laying
- Verify that all joints are completely filled with mortar and finished properly as the work progresses
- Ensure in hot or dry weather that the brick masonry is protected and kept wet for a period of at least 48 hours after the bricks are laid
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

FLOWABLE FILL

Specification Section Reference(s):	612
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 2 years
Inspection Objective:	Ensure flowable fill is installed per the Plans and Specifications and documented for payment

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted (at least 30 days prior to production of flowable fill) a proposed flowable fill mixture design or requested a transfer from another project and has been approved by the appropriate Divisions

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if necessary
- Perform a yield test in accordance with AASHTO T121 on the first load of each production day
- Ensure each end of the structure is plugged, leaving an opening at each end no larger than necessary to accommodate the filling equipment
- Verify that the flowable fill is discharged on the downstream end of the structure (unless otherwise approved by the Engineer) and continue until no further material will enter the structure
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

ADJUSTMENT OF CASTINGS, GRATINGS AND UTILITY APPURTENANCES

Specification Section Reference(s):	613
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 2 years
Inspection Objective:	Ensure castings, gratings and utility appurtenances are adjusted to the correct grade per the Plans and Specifications and documented for payment

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications and/or certified test reports as required by the Plans and Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if necessary
- Verify where a casting, grating or utility appurtenance is to be lowered, the masonry is to be removed to sufficient depth so that a set of proper dimensions may be reconstructed to receive the casting, grating or utility appurtenance at the new grade.
- Confirm with the Engineer if the use of metal rings has been approved for the raising of appurtenances
- Verify upon completion of the adjustment all surplus materials are removed and the structure and site of work is left in a neat and clean condition
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

CONCRETE DRIVEWAYS

Specification Section Reference(s):	614
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3
Inspection Objective:	Ensure concrete driveways are placed to the correct line and grade in accordance with the Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted the concrete mix design, certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm with the Contractor that a One-Call has been performed before excavation operations occur

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the in-grade preparation is performed in accordance with the applicable provisions and requirements of Section 321
- Inspect the forms for compliance with specifications and that they are securely staked, braced, cleaned and oiled before placing concrete against them
- Verify that the surface has been given a Class 6 float finish
- Ensure that the concrete is protected and cured according to the specifications
- Confirm the area is left in a neat and presentable condition after backfilling and compaction of the area once forms are removed
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

CONCRETE BARRIER

Specification Section Reference(s):	615
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium to High
Inspector Experience (min):	3 to 4 years
Inspection Objective:	Ensure concrete barrier is placed in reasonably close conformity with the dimensions, lines, grade and elevations shown in the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted the concrete mix design, certifications and certified test reports required by the Plans and Specifications and they have been approved

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Confirm that precast barriers meet the requirements of NCHRP Report 350 or MASH
- Ensure that cast-in-place barriers are constructed in accordance to the requirements of 813.032.2 and applicable requirements of Section 804
- Verify barrier placed by slipform placement is constructed in accordance to the requirements of 615.03.2 and applicable requirements of Section 804
- Ensure after the placement of the barrier rail it is protected and cured according to the Specifications
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

MEDIAN AND ISLAND PAVEMENT

Specification Section Reference(s):	616
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 3 years
Inspection Objective:	Ensure concrete is placed in reasonably close conformity with the dimensions, lines, grade and elevations shown in the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted the concrete mix design, certifications and certified test reports required by the Plans and Specifications and they have been approved

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Confirm that in-grade preparation conforms with applicable provisions of Section 321
- Verify that soil sterilant is applied according to the Specifications
- Confirm that the concrete is deposited in a single layer on a moist grade
- Verify that the finished surface conforms closely to the typical section indicated on the plans and is given a Class 6 float finish
- Ensure after the placement of the concrete it is protected and cured according to the Specifications
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

RIGHT-OF-WAY MARKERS

Specification Section Reference(s):	617
Inspection Level:	High Risk – **Part Time (Daily)**
	Moderate Risk – **Intermittent (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low
Inspector Experience (min):	1 year
Inspection Objective:	Ensure the furnishing and placing of right-of-way markers and permanent easement markers are placed in accordance to the Specifications and as shown in the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Confirm that the State Plane Coordinate System control monuments are available on the jobsite and the Contractor has verified the accuracy of the control points before proceeding with installation

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify the reinforcement size and that brass or bronze caps being Mark-It® Model C/M-HS-3-1/4B, Berntsen® 6000 Series or an approved equal are used and stamped with the required information as indicated on the plans
- Verify that markers to be placed in concrete are Mark-It® Model C/M-SS-3-1/4B, Berntsen® C Series or an approved equal brass or bronze stem designed marker and are stamped with the required information as indicated on the plans
- Ensure that if markers are placed by drilling and anchoring, the marker is anchored using a bonding material recommended by the manufacture of the marker
- Confirm that witness posts are placed at markers according to the Plans and Specifications except that the Contractor will not be required to place witness posts in concrete
- Verify that the Contractor has submitted all required information after completion of the right-of-way markers such as a written certification which shall include a stamped copy of the right-of-way marker/permanent easement table(s) completed for all locations in which the Licensed Profession Surveyor installed markers and a final right-of-way plat containing all pertinent information
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

MAINTENANCE OF TRAFFIC & TRAFFIC CONTROL PLAN

Specification Section Reference(s):	618
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 5 years
Inspection Objective:	Ensure the traffic is always safely maintained throughout the project on an existing facility, detour and completed permanent facility

Before Work Begins

- Become familiar with the Traffic Control Plan, Part VI of the MUTCD, Plans and Specifications
- Familiarize yourself with the Owner's designated traffic control person and the Contractor's Traffic Control Supervisor
- Verify the Contractor has provided the telephone number, email address and proof of current certification of the Traffic Control Supervisor (and Traffic Control Technician if applicable) from American Traffic Safety Services Association, a construction industry association training recognized by the Department or Traffic Control Supervisor or Traffic Control Technician training conducted by the Department

Inspection During Work Activity

- Ensure that traffic control is in place and operating sufficiently as per the Traffic Control Plans and Chapter VI of the MUTCD
- Verify that the Contractor's Traffic Control Supervisor is performing daily daytime inspections and weekly nighttime inspections with predominantly daytime work, and perform daily nighttime inspections and weekly daytime inspections on predominantly nighttime work (Form CSD-762)
- Verify the Contractor is providing documentation of the traffic control inspections indicated above on the form provided by the Department and the forms are submitted to the Engineer on a weekly basis
- Perform traffic control inspections daily and document on the appropriate Department form (CSD-761) at least once per week unless conditions warrant more frequent documentation
- Verify that the Contractor has provided to the Engineer the Contractor's Project Management Plan that has been stamped by a Professional Engineer registered in the State of Mississippi

- **Maintenance of Traffic and Traffic Control Plan (Cont.)**

- Monitor the work zone for performance of all traffic control devices and contact the Owner's designated traffic control person and Contractor's Traffic Control Supervisor of deficiencies
- If construction of a detour road/bridge is required, verify that the Contractor has provided to the Engineer copies of records for all quality control testing of mixture properties and all roadway embankment, gravel and asphalt density tests conducted during construction of the detour with a certification stating the testing records are true and accurate
- If construction of a detour road/bridge is required, confirm that the Contractor has provided the Engineer with written certification from a Registered Professional Design Engineer stating the detour bridge has been built in accordance with the design plans before opening the bridge to traffic
- Ensure traffic lanes are kept free of dust
- Confirm that flaggers have proof of certification and valid identification available while performing flagging duties
- Ensure that longitudinal joints that traffic is expected to move across has an elevation difference of not more than 2 ¼ inches
- Verify that uneven pavement signs are in place for a pavement edge more than 1½ inches and less than or equal to 2¼ inches
- Inspect transverse pavement joints for adequate taper
- Ensure the Contractor places granular material on the shoulder at any time a differential of two and one-quarter (2¼) inches or more exists between the present pavement edge and the shoulder grade
- Ensure that all centerline, lane lines, edge lines and no-passing stripes that have been covered during the day's operations are replaced with temporary stripe before work is discontinued for the day or as soon as weather conditions will permit except that:
    - Replacement of no-passing stripes may be delayed for a period not to exceed three (3) days for a two- or three-lane road
    - Temporary edge lines on projects requiring shoulders constructed of granular material may be delayed for a period not to exceed three (3) days
- Verify that the Contractor has placed the standard "DO NOT PASS," NO-PASSING ZONE" and "PASS WITH CARE" signs in accordance with the plan details or as specified in the MUTCD
- Ensure that permanent pavement markings are placed not sooner than 10 days or later than 45 days after placement of the final lift of pavement
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

TRAFFIC CONTROL FOR CONSTRUCTION ZONES

Specification Section Reference(s):	619
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 5 years
Inspection Objective:	Ensure traffic control is placed according to the Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications, certified test reports and documents required by the Plans and Specifications and those material are on the MDOT Approved Products List

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the traffic control devices adhere to the reflectivity requirements of the Specifications
- Confirm that Type III barricades meet the NCHRP or MASH crashworthy requirements if used
- Verify that impact attenuator systems meet the standardized testing as defined in NCHRP Report 350 or MASH along with documentation from FHWA that the devices meet the approved crash criteria and can be used on the National Highway System
- Confirm that the Contractor has provided the Engineer two copies of the manufacturer's installation detail for impact attenuators if used
- Verify that temporary paint is placed in accordance with the Plans and requirements set out in Section 625, except that alignment of temporary stripe placed on underlying courses shall have a tolerance of four inches in 50 feet from true alignment for skip stripes and edge lines and one inch in 50feet from true alignment for no-passing stripes and lane lines
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

TRAFFIC MARKINGS

Specification Section Reference(s):	625, 626, 628
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure traffic markings and markers are placed according to the Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications, certified test reports and documents required by the Plans and Specifications and those material are on the MDOT Approved Products List

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the surface to receive traffic markings and markers are thoroughly cleaned
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

Painted Traffic Markings

- Ensure the ambient and pavement surface temperature is no less than 50° F before the application of paint
- Calculate the rate of application for paint and beads for compliance with the specifications
- Ensure that newly painted traffic markings are protected until dry

Thermoplastic Traffic Markings

- Verify that all pavement markings shall be applied using the extrusion/ribbon method except edge lines placed over rumble strips use the atomization/spray method
- Verify alkyd resin is used in the formulation for construction of stop lines, cross walks and legends

- **Traffic Markings (Cont.)**

- Ensure that the proper beads are used in the sequence indicated per the Plans and Specifications
- Verify that application is made during dry weather and the pavement surface is at least 55° F
- Check that the application temperature is between 400° and 450° F
- Confirm that a binder-sealer of the type and amount recommended by the manufacturer of the thermoplastic material is applied prior to placement of the thermoplastic material to concrete pavement or bridge surfaces
- Verify and document the thickness (mils) of the thermoplastic stripe meets the requirements as shown on the Plans or Specifications
- Check that the length and width tolerances are within the Specifications

Cold Plastic Pavement Markings

- Ensure the pavement surface is dry, clean and the free-air temperature is at least 60° F prior to installation
- Verify that all longitudinal stripes are mechanically applied
- Ensure that cold plastic pavement markings are applied according to the manufacturer's instructions

RAISED PAVEMENT MARKERS

Specification Section Reference(s):	627
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the raised pavement markers are installed per the Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications, certified test reports and documents required by the Plans and Specifications and those material are on the MDOT Approved Products List

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the work and materials are corresponding with approved submittals
- Verify that the relative humidity of the air is 80% or less, the pavement surface is dry, and the temperature of the pavement surface is no less than 50° F
- Confirm the bituminous adhesive being used is the correct type (flexible or regular) as specified in the Plans and Specifications
- Verify that the bituminous adhesive is heated and maintained between 375° F and 425° F
- Ensure the markers are being installed with the reflective face perpendicular to a line parallel to the roadway centerline
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications
- Notify the Project Engineer in advance of completion of items so that inspections can take place by the appropriate Divisions

VEHICULAR IMPACT ATTENUATORS

Specification Section Reference(s):	629
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 5 years
Inspection Objective:	Ensure the vehicular impact attenuators are installed per manufacturer's installation detail, Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm that the materials submitted are on the approved products list
- Verify that the systems meet standardized testing defined in NCHRP Report 350 or MASH and documentation from FHWA is included indicating that the devices meet the appropriate crash test criteria and can be used on the National Highway System
- Verify that the manufacturer provides two copies of the manufacturer's installation details to the Project Engineer

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the work and materials are corresponding with approved submittals
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

TRAFFIC SIGNS AND DELINEATORS

Specification Section Reference(s):	630
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 3 years
Inspection Objective:	Ensure the traffic signs and delineators are installed per the Plans and Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all documents, designs, shop drawings and/or calculations required by the Plans and Specifications and have been approved by the appropriate Divisions
- Verify that the contractor has submitted the concrete mix design, certifications and certified test reports required by the Plans and Specifications and they have been approved
- Confirm with the Contractor that a One-Call has been performed before excavation operations occur

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if applicable
- Verify that the work and materials are corresponding with approved submittals
- Verify that the signs placed meet the correct horizontal and vertical clearances
- Confirm that ground mounted signs are erected so that the sign face is truly vertical and at 93 degrees away from the center of the lane that the sign serves
- Inspect the signs at night after installation for specular reflection
- Verify the Contractor has removed all rejected and unused materials and debris from the right-of-way, shoulders and slopes and that slopes are restored to their original conditions and the Contractor has performed touching up of paint finishes and cleaning of exposed sign and support surfaces
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

TRAFFIC SIGNALS and ELECTRICAL

Specification Section Reference(s):	631-665 & 681-686
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Part Time (Daily)**
	Low Risk – **Intermittent (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 5 years
Inspection Objective:	Ensure the traffic signals and electrical components are installed per the Plans and Specifications and documented for payment

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the contractor has submitted all documents and calculations required by the Plans and Specifications and have been approved by the appropriate Divisions
- Confirm with the Contractor that a One-Call has been performed before excavation operations occur

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Verify that the work and materials are corresponding with approved submittals
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications
- Notify the Project Engineer in advance of completion of items so that inspections can take place by the appropriate Divisions

SHEET PILING & DEEP FOUNDATIONS

Specification Section Reference(s):	802 & 803
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Full Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the contractor is following Plans and Specifications and document quantities associated with the pay item

Before Work Begins

PILES/DRILLED SHAFTS

- Familiarize yourself with the Plans and Specifications regarding associated pay items, length and tip elevations of various components
- Monitor delivery and storage of materials to the job site and collect documentation and/or samples of materials to ensure compliance to the Plans and Specifications
- Verify the contractor has staked the location of the components to be installed and the measurements adhere to the Plans
- Notify the Geotechnical Branch of the MDOT Materials Division of PDA testing a minimum of three days prior to required test
- If Drilled Shafts are used, verify that the contractor has an approved Drilled Shaft Installation Plan
- Obtain the pile driver information from the Project Engineer
- Acquire appropriate Personal Protection Equipment required for proper inspection

Inspection During Work Activity

PILES

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Ensure that applicable erosion best management practices are in place prior to beginning work
- Mark piles in 1-foot increments before they are lifted from the ground and driven
- Inspect the piles for damage caused by handling before being placed in the pile driver

- **SHEET PILING & DEEP FOUNDATIONS (Cont.)**

- Verify that a suitable cushioning material is used between the driving cap and the top of pile
- Document the blows per foot for the test piles driven on the appropriate form and promptly provide to the Project Engineer
- Document the 1- and 7-day restrike of the test piles if required
- Verify the pile driving hammer used to drive test piles is the same hammer being used to drive production piles
- Document the blows per foot for the production piles driven on the appropriate form and verify they meet the required bearing according to the pile approval table provided by the Project Engineer
- Promptly notify the Project Engineer if the piling does not meet the minimum tip elevation or bearing
- Ensure that piles driven in trestle bents are within tolerance of ¼" per foot of vertical or from the batter shown on the Plans (Notify Project Engineer if out of tolerance)
- Ensure that piles to be incorporated into a cap or footing are not out of position shown on the Plans by more than 6 inches (Notify Project Engineer if out of tolerance)
- Document all cut-offs or built-up pilings
- Collect documentation of the certified steel welder if steel piles require extensions

DRILLED SHAFTS

- Ensure that applicable erosion best management practices are in place prior to beginning work
- Verify that the approved drill shaft Installation plan is being followed by comparing equipment on site to the plan
- Monitor and document the trial shaft installation in an out of position location
- Verify that the trial shaft has been cut off 2 feet below the finish grade or 2 feet below the mud line
- Monitor and document all quantities associated with the production shaft installation and verify the construction tolerances as per 803.03.2.5 of the Specifications
- Verify the drilled shaft concrete meets the required tolerances and document on the appropriate forms

CONCRETE BRIDGES AND STRUCTURES

Specification Section Reference(s):	804
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Full Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the structure is conforming to the contract and is in close conformity with the dimensions, designs, lines and grades indicated on the plans or established

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the Contractor has submitted the appropriate concrete mix designs and they have been approved by the MDOT
- Verify that the contractor has submitted a Quality Control Plan and it has been approved by the MDOT
- Become familiar with the Contractor's approved Quality Control Plan
- Become familiar with the Quality Assurance requirements listed in Section 804.02.13 of the Mississippi Standard Specifications for Road and Bridge Construction
- Confirm that the contractor has submitted to the Engineer four copies of the structural design analysis and detail drawings that show the method of falsework or centering and they bear the seal of a Registered Professional Engineer with experience (min) in falsework design
- Document condition of structure if work is being performed on or adjacent to a structure designated to stay in place

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD
- Perform Quality Assurance on concrete for compliance with the specifications
- Monitor that the work and materials are corresponding with approved submittals
- Verify that the Registered Professional Engineer has certified that the erected falsework is capable of supporting the load for construction upon completion of falsework erection

- **CONCRETE BRIDGES AND STRUCTURES (Cont.)**

- Inspect the forms for compliance with the specifications (i.e., mortar tight, sufficiently rigid to prevent distortion, substantial and unyielding, treated with an approved oil or saturated with water immediately prior to concrete placement, etc.)
- Verify that three (3) complete sets of SIP metal form shop drawings and design calculations, bearing the Design Engineer's stamp (Mississippi Registered Professional Engineer) are approved if SIP metal forms are used
- Confirm the reinforcement spacing, splicing and clearances for compliance with the plans
- Verify that the concrete truck has the MDOT Concrete Truck Inspection sticker on the driver-side door before placement of concrete
- Collect all concrete delivery tickets and inspect for conformance of the correct materials and aggregates being used in the approved mix design
- Monitor the concrete placement and consolidation for conformance to the specifications and the Contractor's Quality Control Plan
- Verify that concrete has met the minimum compressive strength and/or time requirement before form removal
- Verify the Contractor is taking appropriate measures for cold or hot weather concreting (if necessary)
- Confirm that the Contractor has available on the project the approved facilities necessary to enclose and protect uncured concrete when the Contractor proposes to place concrete during seasons when there is a probability of ambient temperatures lower than 40°F
- Confirm that for bridge decks the forms, reinforcing steel, steel beam flanges and other surfaces that will come in contact with the concrete shall be cooled to below 90°F by means of water spray or other approved methods
- Monitor the National Weather Service to determine if the atmospheric temperature is predicted to be 90°F or above during the day of placement, or day after placement, of bridge deck concrete and relay to the Contractor that the time of placement shall not begin until 5:00 p.m. on the day of placement and shall be completed by 6:00 a.m. the following day according to the Specifications
- Verify the Contractor has provided the appropriate finish after the concrete bridge deck has been struck off
- Inspect the curing of concrete for conformance to 804.03.17 of the Mississippi Standard Specifications for Road and Bridges
- Verify that the Contractor is providing daily inspection reports to the Engineer for bridge decks as per 804.03.17.1.1 of the Mississippi Standard Specifications for Road and Bridges
- Confirm that the contractor has tested the bridge decks and bridge end slabs for ride quality and the Profile index Values meet the specified requirements

- **CONCRETE BRIDGES AND STRUCTURES (Cont.)**

- Verify the Contractor has developed a grinding plan and submitted it to the Engineer for approval if grinding areas are determined
- Confirm the appropriate class of finish and methods for exposed concrete surfaces
- Ensure, unless otherwise specified, the bridge deck is closed to public highway traffic for a period of at least 21 days after placing concrete
- Ensure unless otherwise specified, the concrete bridge deck is closed to construction traffic for the time required for curing and the minimum required compressive strength for the concrete placed is obtained
- Collect TMD-895 for each Precast-Prestressed Concrete Bridge Member delivered to the construction site and review the prestressed member per 2.5.3.3 of the MDOT Inspector's Manual for the following:
    - Cracks
    - Broken Corners
    - Identification Numbers
    - Embedded items
    - Coating of strands
- Retain and provide copies of all applicable certificates to the County or LPA Engineer for project clearance records
- Verify that the Precast-Prestressed Concrete Bridge Members are placed in the correct location and orientation per the plans
- Notify the Project Engineer in advance of completion of items so that inspections can take place by the appropriate Divisions
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

REINFORCEMENT

Specification Section Reference(s):	805
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the contractor is furnishing and placing steel reinforcement for bridges in accordance with these specifications and in reasonably close conformity with the dimensions, bending, spacing and other requirements shown on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that pretested reinforcing steel has the wording "This material was shipped from MDOT Pretested Stock" on the Project Engineer's copy of the invoice
- If the steel is not pretested, collect one 30-inch sample for each bar size for each 10 tons or fraction thereof and submit to the testing facility unless the sample is cut with a torch and then the length shall be 42 inches

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Monitor delivery and storage of materials to the job site and collect documentation and/or samples of materials to ensure compliance to the Plans and Specifications
- Verify bar reinforcement is bundled, tagged and marked in accordance with Code of Standard Practice of the Concrete Reinforcing Steel Institute
- Ensure the reinforcement is free of dirt, oil, paint, grease and other foreign substances and shall be free of loose or thick rust or millscale that could impair bond of the steel with the concrete when placed in the work and immediately prior to placement of concrete
- Verify that bars are tied at all intersections unless spacing is less than one foot in each direction - then alternate intersections shall be tied.
- Confirm that the distances from the forms are maintained by means of stays, blocks, ties, hangers or other approved supports
- Verify the clear distance between layers meet the specifications

- **REINFORCEMENT (Cont.)**

- Verify that the bars are not spliced unless shown on the Plans or permitted by the Engineer and if approved they are staggered insofar as possible
- Ensure that epoxy coated bars are repaired, handled and placed in accordance with the Specifications
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

PRECAST CONCRETE BRIDGE CAPS, SPANS AND WINGS

Specification Section Reference(s):	806
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the contractor is furnishing and installing precast concrete caps, precast concrete spans complete with post, bridge railing or concrete barrier rail and precast wings for bridges in accordance with the Specifications and in reasonably close conformity with the dimensions and design indicated on the Plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Inspect the caps, slabs or wings upon delivery for identification marks of acceptance by the Department or approved laboratories

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify the tolerance of dimensions are required for caps, slabs, wings and concrete barrier rails as required by the Specifications
- Inspect the members for excessive and undue abuse producing crushing, spalling or undue marring of the concrete
- Verify after the caps are set and doweled, welded or grouted to the piling the dowel holes are filled with grout or AC-13 before the slabs are set
- Inspect that after slab units are set, doweled and bolted in their initial position, the keyways and dowel holes are filled with an approved non-shrink grout
- Ensure that traffic is not permitted on the spans for 24 hours and heavy construction type traffic, or other loads exceeding 15 tons, will not be allowed on the spans for a period of 72 hours after grouting unless:
    - When epoxy grout is allowed, these time requirements may be reduced to 12 hours
    - When a non-shrink commercial grout is used, the 72-hour time requirement may be reduced to 24 hours
- Verify traverse joints are installed per the Specifications of this section

- **PRECAST CONCRETE BRIDGE CAPS, SPANS AND WINGS (Cont.)**

- Ensure that bridge railing is installed after all other work on the bridge is complete
- Inspect and document for payment all items installed per the Plans and Specifications

JOINT REPAIR

Specification Section Reference(s):	808
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the contractor is performing the required joint repairs with specified materials according to the details shown on the plans and instructions contained in the Specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Collect documentation from the Contractor for materials used that are on the Department's approved products list stating that the epoxy and all components meet the requirements of the contract
- Obtain samples of the epoxy and all components required for the epoxy mortar mix proposed for use that are not on the Department's current list of approved materials and submit for evaluation and approval at least 30 calendar days prior to placement
- Ensure the proposed materials meet the required Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Monitor the trial batch of mortar, approximately once cubic foot, mixed and used for joint repair to determine the pot life and subsequent amount of material to be mixed
- Verify the curing time is regulated so the repaired area may be open to traffic in four hours
- Inspect that all repair areas are thoroughly cleaned by chipping and sandblasting to sound concrete
- Verify that Styrofoam or other approved forming materials are inserted to the desired grade and greased lightly to assist in removal
- Ensure the prepared surface is lightly primed with neat epoxy prior to placement of the mortar mix
- Inspect that the mortar mix is finished to the line of the existing joint and to the grade of the adjacent pavement or bridge deck

- **JOINT REPAIR (Cont.)**

  - Confirm after the final finish of the mortar mix that the surface is sprinkled with sand to provide texture and the excess sand is hand broomed from the surface after mortar has set
  - Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

RETAINING WALL SYSTEMS

Specification Section Reference(s):	809
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure the contractor is designing and installing one of the retaining wall systems in accordance with the lines, grades and dimensions shown in the plans and specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the Contractor has submittal three sets of wall plans and three sets of design calculations and notes that meet the contract requirements and are prepared, stamped and signed by a Professional Engineer licensed to practice in the State of Mississippi
- Ensure the proposed materials meet the required Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify that the materials meet the requirements of the type wall system chosen
- Monitor the Contractor's excavation to the lines and grades shown on the approved final wall plans
- Verify the Engineer has inspected the excavation and given approval prior to placement of the base leveling pad
- Verify that the placement of backfill material is placed in lifts not to exceed eight inches and is compacted to at least 95% density unless otherwise noted on the approved final wall plans
- Ensure at the end of each day's production the Contractor slopes the last level of backfill away from the wall facing to rapidly direct runoff away from the wall face
- Verify that walls are erected as required in the Specifications for each type of wall unless otherwise directed in the approved final wall plans
- Verify that the final construction plans reflecting all changes made from the initial plans are submitted on 24-inch by 36-inch reproducible mylar sheets and is accompanied by a flash drive or compact disk containing the plans in Tagged Image File Format (TIFF)

- **RETAINING WALL SYSTEMS (Cont.)**

  - Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

STEEL STRUCTURES

Specification Section Reference(s):	810
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the Contractor is furnishing, fabricating, preparing, assembling, erecting and painting structural steel and all accessories and other metal parts indicated on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the Contractor has prepared shop drawings for all material to be fabricated and two complete sets have been submitted to the Bridge Engineer for approval prior to ordering any material for fabrication
- Ensure the proposed materials meet the required Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Collect paperwork when materials are delivered to compare against approved shop drawings and specifications
- Verify a Skidmore-Wilhelm calibrator or an equivalent tension measuring device is at each job site during erection
- Monitor that each fastener is tightened to provide, when all fasteners in the joint are tight, at least the minimum bolt tension for the size and grade of fastener used as shown in the table of 810.03.1.1 of the Mississippi Standards for Road and Bridge Construction
- Verify that the Contractor has provided all wrenches necessary for obtaining the specified bolt tension, and shall also provide, at no additional cost to the State, the necessary inspection wrenches and provisions for calibration of such wrenches as specified in Section 810.03.1.1 and Subsection 810.03.2
- Verify the following concerning bolts and nuts:
  - Galvanized nuts shall have a visible lubricant on the threads
  - Black bolts shall be “oily” to the touch when delivered and installed

- **STEEL STRUCTURES (Cont.)**

    - Weathered or rusted bolts and nuts shall be cleaned and re-lubricated prior to installation
    - When required, bolt, nut and washer combinations as installed shall be from the same rotational-capacity lot

- Verify when Direct Tension Indicators are required on the plans, the Contractor shall furnish a copy of the manufacturer's written installation instruction to the Bridge Engineer for approval prior to beginning work
- Ensure the DTI is installed, and the bolts tightened in strict accordance with the manufacturers written instruction
- Ensure that if it becomes necessary to loosen a bolt previously tensioned, the DTI shall be discarded and replaced
- Verify that high strength bolts, nuts washers and DTIs are shipped to the project site in sealed metal containers or an approved equal
- Confirm the Engineer observes the installation and tightening of bolts to determine the select tightening procedure is used and will determine that all bolts are tightened
- Ensure that all welding and oxygen cutting conform to the Welding Code
- Verify that each piece of steel fabricated is properly identified for the Engineer and he is furnished with four complete copies of certified mill test reports showing chemical analysis and physical tests for each heat of steel for all members, unless excepted by the Engineer
- Confirm that each member is painted or marked with an erection mark for identification and an erection diagram is furnished with erection marks
- Verify the proper handing and storing of materials
- Confirm the falsework is properly designed and substantially constructed and maintained for the loads that will come upon it
- Inspect bearings and anchorages for compliance with the Specifications
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

BRONZE OR COPPER-ALLOY BEARING AND EXPANSION PLATES

Specification Section Reference(s):	811
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure the Contractor is furnishing and installing metal plates of the kind and type specified and in the manner shown on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify that the Contractor has prepared shop drawings conforming to the requirements of Section 811.01.2
- Ensure the proposed materials meet the required Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Collect paperwork when materials are delivered to verify it is appropriately stamped by a MDOT representative
- Verify that each bearing has the Project Identification Number, Lot Number and individual bearing number indelibly marked with ink on a side that will be visible after erection
- Sample materials in accordance with Section 811.02.3.2 of the Specifications
- Verify that disc bearings are stored under cover on a platform above ground surface
- Inspect that each disc bearing device is installed in accordance with the alignment plan and installation scheme as shown in the contract plans
- Verify that in addition to records of test result, the Contractor's disc bearing supplier shall submit Certificates of Compliance for the disc bearings
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

STEEL GRID FLOORING

Specification Section Reference(s):	812
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure the Contractor is constructing steel grid flooring, open or concrete-filled type as specified, in accordance with the specifications and in reasonably close conformity to the lines and grades as shown on the plans or established

Before Work Begins

- Become familiar with the Plans and Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Confirm that materials conform to the provisions of Subsection 717.05 of the Specifications
- Verify that provisions for camber are made according to the Specifications unless otherwise provided on the Plans
- Inspect welding for conformance
- Verify that galvanizing that has been chipped off or damaged in handling transporting, welding or riveting is repaired by field galvanizing by the application of a paste composed of approved zinc powder and flux with a minimum amount of water
- Inspect that areas of considerable size are assembled before the floor is welded to its supports
- Verify the ends of all the main steel members of the slab are securely fastened together at the side of the roadway for the full length of the span by means of steel plates or angles welded to the ends of the main members, or by thoroughly encasing the ends with concrete
- Ensure that concrete filler is mixed in accordance with Section 804 of the Specifications and the forms retain the concrete filler without excessive leakage
- Verify that flooring furnished without galvanizing, but a shop coat of paint, is given field coats of paint

- **STEEL GRID FLOORING (Cont.)**

  - Confirm that if a structural steel plate is used on the bottom of a filled type floor, the bottom surface of the plate is given one shop coat, one field intermediate coat and one field topcoat in accordance with Section 814
  - Inspect and document for payment all items installed per the Plans and Specifications

RAILING

Specification Section Reference(s):	813
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Full Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	3 to 5 years
Inspection Objective:	Ensure the Contractor is constructing bridge railing of the type specified in accordance with the specifications

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify the Contractor has an approved Class "AA" (unless otherwise specified) mix design
- Ensure all proposed materials meet the required Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify the railing line and grade is being placed in reasonably close conformance to the lines and grades shown in the plans and shall not follow any unevenness in the superstructure
- Ensure the railing, posts and curbs on bridges are vertical, whether on horizontal grade, super-elevated, or not unless otherwise specified on the plans
- Verify that cast-in-place railings are constructed according to the requirements of Section 804 and railings constructed by the slipform method are constructed to the requirements of Section 615.03.2 of the Specifications
- Inspect the surface finish of all railing for conformance to the requirements of Section 804 of the Specifications
- Ensure expansion joints are constructed to permit freedom of movement
- Verify the fabrication and erection of ferrous metal is performed in accordance with the requirements of Section 810 of the Specifications
- Inspect the adjustment of metal railings prior to fixing in place to ensure proper matching at abutting joints and correct alignment and camber throughout their length
- Verify the painting conforms to the requirements of Sections 710 and 814
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

PAINTING METAL STRUCTURES & MAINTENANCE PAINTING OF METAL STRUCTURES

Specification Section Reference(s):	814 & 816
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Full Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 4 years
Inspection Objective:	Ensure the Contractor is furnishing all materials and painting of metal structures and the work is in reasonably close conformity with the specifications and as indicated on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Verify the proposed paints are listed on the MDOT approved products list
- Confirm that paint is shipped in sturdy leak proof containers and each container is labeled according to 710.01.2 of the Specifications
- Verify the Contractor furnished the Engineer a certificate from the manufacturer covering each lot of paint in the shipment and attesting that the paint in the shipment conforms to the same formulas as that originally approved by the Department

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify all paint is mixed in accordance with the manufacturer's printed instructions
- Confirm the air temperature is above 40°F when applying solvent base paint and above 50°F when applying waterborne paint
- Verify the surrounding air temperature is not expected to drop below 32°F prior to drying of the paint
- Confirm the paint is not applied to a hot enough surface to cause blistering and when the steel surface is less than 5°F above the dew point
- Verify that all surfaces to be painted are thoroughly cleaned, removing rust, loose mill scale, dirt, oil or grease and other foreign substances
- Confirm the water-blasting unit is capable of operating at pressures up to 4,000 psi at a water flow rate up to 10 gpm

- **PAINTING METAL STRUCTURES & MAINTENANCE PAINTING OF METAL STRUCTURES (Cont.)**

    - Verify that all coats of paint are placed in accordance with the manufacturer's printed instructions
    - Confirm that generated debris is confined to the immediate area of the structure and appropriate screens and barriers are erected to protect pedestrian and vehicular traffic during water-blasting and painting operation
    - Verify thicknesses between coats
    - Collect samples of paint and provide to the Lab for testing
    - Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

RIPRAP AND SLOPE PAVING

Specification Section Reference(s):	815
Inspection Level:	High Risk – **Full Time (Daily)** Moderate Risk – **Full Time (Daily)** Low Risk – **Part Time (Daily)**
Priority:	Medium
Inspector Experience (min):	2 to 3 years
Inspection Objective:	Ensure the Contractor is furnishing all and placing a protective covering of erosion resistant material in reasonably close conformity with the specifications and as indicated on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Confirm the geotextile is stored per the Specifications and the Contractor has submitted to the Engineer three copies of the manufacturer's certification that each lot in a shipment complies with the requirements of the contract of the geotextile material (if used)

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Collect tickets for all riprap arriving on the jobsite
- Verify the slopes or grade surface is shaped to the lines and grades indicated on the plans or directed and are thoroughly compacted
- Inspect that the riprap or slope paving is embedded as per the Specifications
- Verify the riprap or slope paving starts at the toe of the slope and is constructed upward
- Confirm the area to receive geotextile is prepared to a relatively smooth condition free of obstruction, depressions and debris and the geotextile is placed loosely without wrinkles or creases with the long dimension perpendicular to the channel with a minimum overlap of 18 inches
- Verify that the geotextile is installed with the required overlapping and securing pins
- Confirm the placement of riprap from the bottom of the bank upward and with close joints
- Verify that grout for grouted riprap consists of one part of hydraulic cement and three parts of approved sand thoroughly mixed with water to produce grout having a thick creamy consistency

- **RIPRAP AND SLOPE PAVING (Cont.)**

- Verify that concrete slope paving is constructed in a single layer in conformity with the design dimensions and details indicated on the plans
- Confirm that the forms are wood or metal and of sufficient strength to withstand the pressure of the concrete without bulging
- Perform the required testing concrete arriving to the jobsite
- Inspect the concrete for proper curing methods
- Verify the areas beneath the slope paving receive soil sterilization treatment
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

TIMBER STRUCTURES

Specification Section Reference(s):	820
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Full Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Medium to High
Inspector Experience (min):	2 to 4 years of Structure inspection
Inspection Objective:	Ensure the Contractor is constructing timber structures in conformity with the specifications and in accordance with lines, grades, dimensions and details shown on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Confirm the materials meet the requirements as listed in the Specifications upon arrival at the jobsite
- Verify the storage of lumber and timber on the site are kept in orderly piles or stacks and untreated material is open-stacked on supports at least 12 inches above the ground surface in addition to being stacked and stripped to permit free circulation of air between the tiers and courses

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Timber piling shall be driven in accordance with the requirements of Subsection 803.03.1.7 except the use of gravity or drop hammers shall be allowed
- Ensure that treated timber is carefully handled with rope slings without sudden dropping, breaking of outer fibers, bruising or penetrating the surface with tools
- Verify that all cuts in treated piles or timber, and all abrasions, after having been carefully trimmed, shall be covered with two applications of a mixture of 60 percent creosote oil and 40 percent roofing pitch, or brush coated with at least two application of hot creosote oil and covered with hot roofing pitch
- Ensure all bolt holes bored after treatment are treated with creosote oil by means of an approved pressure bolt hole treater and any unfilled holes, after being treated with creosote oil, shall be plugged with creosoted plugs
- Verify in temporary structures of untreated timber, the surfaces of ends, tops and all contact surfaces of sills, caps, floor beams, and stringers; and all ends, joints, and contact surfaces of bracing and truss members are thoroughly coated with two coats of hot creosote oil before assembling
- Ensure the protection of pile heads and the pile covering meets the Specifications

- **Timber Structures (Cont.)**

- Verify the use of a washer under all bolt heads and nuts that would otherwise come in contact with wood
- Verify that all lumber and timber is accurately cut and framed to a close fit in such manner that the joints will have even bearing over the entire contact surfaces
- Ensure mud sills are of the timber type specified
- Verify that concrete pedestals are finished so that the sills or posts will take even bearing on them
- Confirm the sills have true and even bearing
- Verify that posts are fastened to pedestals with recommended dowels
- Confirm that timber caps are placed, with ends aligned, in a manner to secure an even and uniform bearing over the tops of the supporting posts or piles
- Verify that single plank floors are laid heart side down and with the appropriate joint spacing
- Confirm on two-ply timber floors the top course is laid either diagonally or parallel to the centerline of the roadway as specified with joints being staggered at least three feet
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications

NEOPRENE EXPANSION JOINTS

Specification Section Reference(s):	822
Inspection Level:	High Risk – **Full Time (Daily)**
	Moderate Risk – **Full Time (Daily)**
	Low Risk – **Part Time (Daily)**
Priority:	Low to Medium
Inspector Experience (min):	1 to 3 years
Inspection Objective:	Ensure the Contractor is furnishing and installing neoprene expansion joints in accordance with the Specifications and details shown on the plans

Before Work Begins

- Become familiar with the Plans and Specifications
- Ensure the Contractor has furnished three copies of the manufacturer's certificate to the Engineer, stating that the expansion joint and each component material meets all the requirements of the Specifications and have the properties and characteristics stated in the Specifications

Inspection During Work Activity

- Ensure that temporary traffic control is in place and operating sufficiently as per the Plans, Specifications and MUTCD if required
- Verify the expansion joins are installed in accordance with the manufacturer's recommendations
- Confirm the expansion material seals the deck surface, gutter and curbs to prevent moisture or other contaminants from leaking through the joints
- Verify anchor bolts are cast-in-place or drilled and grouted at a spacing recommended by the manufacturer
- Confirm the expansion material is installed in such a manner that the top surface of the material is parallel to but not protruding above the roadway or bridge surface
- Inspect, document for payment and collect samples for testing on all items installed per the Plans and Specifications