

SECTION 905 -- PROPOSAL (CONTINUED)

I (We) hereby certify by digital signature and electronic submission via Bid Express of the Section 905 proposal below, that all certifications, disclosures and affidavits incorporated herein are deemed to be duly executed in the aggregate, fully enforceable and binding upon delivery of the bid proposal. I (We) further acknowledge that this certification shall not extend to the bid bond or alternate security which must be separately executed for the benefit of the Commission. This signature does not cure deficiencies in any required certifications, disclosures and/or affidavits. I (We) also acknowledge the right of the Commission to require full and final execution on any certification, disclosure or affidavit contained in the proposal at the Commission's election upon award. Failure to so execute at the Commission's request within the time allowed in the Standard Specifications for execution of all contract documents will result in forfeiture of the bid bond or alternate security.

Bidder acknowledges receipt of and has added to and made a part of the proposal and contract documents the following addendum (addenda):

ADDENDUM NO.	<u>1</u>	DATED	<u>7/15/2025</u>	ADDENDUM NO.	_____	DATED	_____
ADDENDUM NO.	_____	DATED	_____	ADDENDUM NO.	_____	DATED	_____
ADDENDUM NO.	_____	DATED	_____	ADDENDUM NO.	_____	DATED	_____

Number

Description

- 1 Revised Table of Contents; Replaced Special Provision 907-720-3 with 907-720-4; Amendment EBSx Download Required.

TOTAL ADDENDA: 1

(Must agree with total addenda issued prior to opening of bids)

Respectfully Submitted,

DATE _____

Contractor

BY _____

Signature

TITLE _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE _____

FAX _____

E-MAIL _____

(To be filled in if a corporation)

Our corporation is chartered under the Laws of the State of _____ and the names, titles and business addresses of the executives are as follows:

President

Address

Secretary

Address

Treasurer

Address

The following is my (our) itemized proposal.

STBG-9999-03(381) / 108780303

Copiah County(ies)

Revised 01/26/2016

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

07/15/2025 12:00 PM

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION NO. 907-720-4

CODE: (IS)

DATE: 06/17/2025

SUBJECT: Pavement Marking Materials

Section 720, Pavement Marking Materials, of the 2017 Edition of the Mississippi Standard Specifications for Road and Bridge Construction is hereby amended as follows.

Delete Section 720 on pages 840 thru 854, and substitute the following.

SECTION 720 - PAVEMENT MARKING MATERIALS

907-720.01--General. The Department reserves the right to perform sampling and testing of any materials at any time. Upon request of the Engineer, samples of the material shall be furnished.

907-720.02--Color Requirements. All pavement markings except raised pavement markers are required to meet the color requirements of ASTM D6628.

907-720.03--Optics. Optics used in thermoplastic pavement markings shall consist of a double-drop system of glass beads or advanced optics.

907-720.03.1--Glass Beads. The manufacturer shall furnish the Engineer with a certified test report indicating that the glass beads meet AASHTO M 247. AASHTO Type 4 beads shall be applied to the newly placed stripe first, followed by the application of AASHTO Type 1 or Type 2 beads. Type 1, 2, and 4 glass beads shall be transparent, clean, colorless glass, smooth and spherically shaped, free from milkiness, pits, or excessive air bubbles. Type 1, 2, and 4 glass beads shall be coated with a bead coating that is compatible with the traffic marking material to which the glass beads will be applied and will provide adequate moisture proofing, increased adhesion, and optimum embedment of the glass beads.

907-720.03.1.1—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing will be in accordance with the Materials Division Inspection, Testing, and Certification Manual (Materials Manual).

907-720.03.2--Advanced Optics. Advanced optics are materials that do not meet the specific requirements of AASHTO M 247 but produce a final drop-on optics system that meets or exceeds the reflectivity requirements in Special Provision 907-626. Advanced optics shall be a double-

drop system that is pre-approved and listed on the Department's Approved Products List.

907-720.03.2.1—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing may be conducted at the request of the Engineer.

907-720.04--Thermoplastic Marking Material. Thermoplastic marking material shall meet the color requirements of Subsection 907-720.02.

There shall be no obvious change in the color of the material if held at its plastic temperature for a period of four (4) hours nor by reason of four (4) re-heatings to its plastic temperature.

The pavement markings shall maintain its original dimension and placement. The material shall not be slippery when wet and it shall not lift from the pavement in freezing weather.

907-720.04.1--Extruded Thermoplastic Material. Extruded thermoplastic pavement marking material shall meet the requirements of AASHTO M 249, and shall meet the requirements of 907-720.04 with the following exceptions:

- Blue - ADA thermoplastic marking material shall meet the requirements of Subsection 907-720.04.2 with the exception that the color shall be Blue – ADA, and the Contractor may use hot applied thermoplastic materials meeting the satisfaction of the Engineer.

907-720.04.2--Spray-Applied Thermoplastic Material. Spray-applied thermoplastic pavement marking material shall meet the requirements of AASHTO M 249 and shall meet the requirements of 907-720.04.

907-720.04.3--Pre-formed Thermoplastic Material. Heat-fused, pre-formed thermoplastic pavement marking material shall meet the color requirements of 907-720.02.

907-720.04.4—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

907-720.05--Pavement Marking Tape. Pavement marking tape shall be listed on the Department's Approved Lists.

907-720.05.1—Cold Plastic Pavement Markings (Permanent Pavement Marking Tape). Pavement marking tape for use in roadway applications shall be designated on the Department's Approved Lists as permanent.

The prefabricated markings described shall consist of white or yellow pigmented plastic films with reflective optics uniformly distributed throughout their entire cross-sectional area, and be capable of being affixed by either a pressure sensitive pre-coated adhesive or a liquid contact cement. The markings shall be provided complete in a form that will facilitate rapid application and protect the markings in shipment and storage. The manufacturer shall identify proper solvents and/or adhesives to be applied at the time of application, all equipment necessary for proper application, and recommendations for application that will assure an effective performance life.

Prefabricated legends and symbols shall conform to the applicable shapes and sizes as outlined in the current "Manual on Uniform Traffic Control Devices."

907-720.05.1.1--Specific Requirements. Unless otherwise indicated on the plans, the patterned material without adhesive shall have a minimum caliper of 0.065 inch at the thickest portion of the patterned cross-section and a minimum caliper of 0.020 inch at the thinnest portion of the cross-section. The material shall be a pliant polymer film with 50±15% of the surface are raised and presenting a near vertical face angle of 0° to 60° to traffic from any direction. The channels between the raised areas shall be substantially free of exposed optics or particles.

The size and quality of the optics will be such that performance requirements of Subsection 907-720.02 for the retroreflective pliant polymer film shall be met. The pigments shall be selected and blended to provide a marking film that is white or yellow conforming to the performance requirements of Subsection 907-720.02 through the expected life of the film.

907-720.05.1.2--Conformability and Resealing. The marking shall be capable of conforming to pavement contours, breaks, faults, etc. through the action of traffic at normal pavement temperatures.

The marking shall have resealing characteristics that allows it to be capable of fusing with itself and previously applied marking of the same composition under normal conditions of use. The marking shall be capable of use for patching worn areas of the same type in accordance with manufacturer's instructions.

907-720.05.1.3--Tensile Strength and Elongation. The material shall have a minimum tensile strength of 40 pounds per square inch of cross section when tested according to ASTM D 638. A 6-inch x 1-inch x 0.06-inch sample shall be tested at a temperature between 70°F and 80°F using a jaw speed of 12 inches per minute.

The material shall have a minimum elongation of 75% at break when tested according to ASTM D 638 using a jaw speed of 12 inches per minute.

907-720.05.1.4--Skid Resistance. The surface of the material shall provide a minimum skid resistance value of 45 BPN when tested according to ASTM E 303 except values will be taken at

downweb and at a 45-degree angle from downweb. These two values will then be averaged to find the skid resistance of the patterned surface.

907-720.05.1.5--Effective Performance Life and Warranty. When applied according to the recommendations of the manufacturer the pavement marking tape shall provide a neat and durable marking that will not flow or distort due to temperature if the pavement surface remains stable. The film shall be weather resistant and through normal traffic wear shall show no appreciable fading, lifting, or shrinkage throughout the useful life of the marking, nor shall it show significant tearing, roll back, or other signs of poor adhesion.

All manufacturer's standard warranties and guarantees on pavement marking tape, which are provided as customary trade practice, shall be delivered to the Engineer at the final inspection. All warranties and guarantees shall be made out to the Department.

907-720.05.1.6—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing will be in accordance with the Materials Division Inspection, Testing, and Certification Manual (Materials Manual). Samples of the material shall be furnished and shall be provided at no cost to the State.

907-720.05.2--Preformed Pavement Markings for Construction Zones. Preformed pavement markings for construction zones shall be designated Department's Approved Lists as temporary. Retroreflective preformed pavement markings for construction zones shall be as specified on the plans or in the contract documents.

The markings shall be provided in specified widths and shapes. Preformed words and symbols shall conform to the applicable shapes and sizes as outlined in the current "Manual on Uniform Traffic Control Devices for Streets and Highways," or as modified.

The materials shall be packaged in accordance with accepted commercial standards and when stored indoors in a cool dry place, shall be suitable for use one year after date of purchase.

907-720.05.2.1--Specific Requirements. Preformed markings shall consist of retroreflective materials on a conformable backing and shall meet the performance requirements of Subsection 907-720.02. The markings shall consist of a mixture of high-quality polymeric materials, pigments, and optics with a reflective layer of optics bonded to the top surface. The markings shall be pre-coated with a pressure sensitive adhesive capable of adhering to pavement in accordance with the manufacturer's instructions without the use of heat, solvents, or other additional adhesives. The markings and/or adhesive shall not require any curing time after application. A coated non-metallic medium shall be incorporated with the pressure sensitive adhesive to facilitate removal.

907-720.05.2.2—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

907-720.06--Raised Pavement Markers. Pavement markers shall be listed on the Department's Approved Lists and shall conform to ASTM D 4280.

907-720.06.1--Packaging. Shipments shall be made in containers acceptable to common carriers and packaged in such a manner as to ensure delivery in perfect condition. All damaged shipments shall be replaced by the Contractor. Each package shall be clearly marked as to the name of the manufacturer, type, quantity enclosed, lot number, and date of manufacture.

907-720.06.2--Non-Reflective Pavement Markers. Non-reflective pavement markers are occasionally referred to as "jiggle markers". Non-reflective markers consisting of a heat-fired, vitreous, ceramic base, and a heat-fired, opaque, glazed surface are permitted for use; the bottom of the marker shall not be glazed. Ceramic markers shall be produced from any suitable combination of intimately mixed clays, shales, talcs, flints, feldspars, or other inorganic material. Ceramic markers shall be thoroughly and evenly matured, and all non-reflective pavement markers shall be free from defects which affect appearance or serviceability.

Ceramic non-reflective markers shall conform to the following finish and testing requirements in Table 2 below.

Table 2

Ceramic Non-Reflective Marker Requirements	
Glaze Thickness	0.005 inch, minimum
Mohs Hardness	6, minimum
Autoclave	Glaze shall not spall, craze, or peel.
Compressive Strength	750 psi, minimum
Water Absorption	2.0%, maximum

907-720.06.3—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

907-720.07--Adhesive for Pavement Markers. The adhesive shall be listed on the Department's Approved Lists and shall be an asphaltic material suitable for bonding pavement markers to surfaces when the road surface and marker temperatures are in the range of 50°F to 160°F. The composition of the adhesive must be such that its properties will not deteriorate when heated to and applied at temperatures up to 425°F. Samples may be submitted in the form of an adhesive

testing package from each batch or material obtained from a package shipped to the project.

907-720.07.1--Packaging and Labeling. The adhesive shall be packaged in self-releasing cardboard containers that will stack properly. The label shall show the manufacturer, quantity, and lot or batch number. "Adhesive for Pavement Markers" or "Adhesive for Traffic Markers" shall be printed in bold lettering on the label.

907-720.07.2--Bituminous Adhesive. The asphaltic adhesive material shall be flexible type.

907-720.07.2.1--Flexible Bituminous Adhesive. Flexible bituminous adhesive shall be designated on the Department's Approved Lists as flexible and shall comply with requirements of Table 3 below.

Table 3

Flexible Bituminous Adhesive Properties			
	Min	Max	Test Method
Penetration @ 77°F	-	25	ASTM D 5
Softening Point, °F	200	-	ASTM D 36
Brookfield Viscosity @ 400°F, cp.	-	10,000	ASTM D 3236
Ductility @ 77°F, 5 cm/min	15	-	ASTM D 113
Ductility @ 39.2°F, 1 cm/min	5	-	ASTM D 113
Asphalt Compatibility	Pass		ASTM D 5329
Flexibility @ 20°F	Pass		Per Subsection

907-720.07.3—Acceptance Procedure. The Contractor shall furnish the Engineer with a copy of the manufacturer's certified test reports for the lot(s) of materials from which the shipment originated. The test report shall show all the test results for the material properties and characteristics as specified herein. The test report shall state that the material represented by the test results meets all the requirements of the contract. It shall be the Contractor's responsibility to furnish the manufacturer's test report to the Engineer for each shipment of material to the project.

Acceptance sampling and testing will be in accordance with the Materials Division Inspection, Testing, and Certification Manual (Materials Manual). Samples of the material shall be furnished and shall be provided at no cost to the State.