

**ADDENDUM NO. 2**  
**April 24, 2017**

**TO: PLANS AND SPECIFICATIONS FOR**

**2017 ASPHALT OVERLAY PROGRAM**  
**PROJECT NO. 2017-501-1**

Bidders are hereby informed that the construction plans and/or specifications are modified as follows:

**Job Special Provisions**

The following Job Special Provision shall be added:

**6-23 LOW-TRACKING OR NON-TRACKING TACK COAT NJSP-15-15C**

See following sheets for more information

**BY THE ORDER OF:**

Eric Landwehr, P.E., County Engineer  
Cole County Department of Public Works  
April 24, 2017

## **LOW-TRACKING OR NON-TRACKING TACK COAT NJSP-15-15C**

**1.0 Description.** This work shall consist of preparing and treating an existing bituminous or concrete surface with a low-tracking or non-tracking tack coat material prior to an asphalt overlay in accordance with Section 407, except as revised by this specification.

**2.0 Material Requirements.** All material shall be in accordance with Section 1015 of the Standard Specifications and specifically as follows:

<b>Emulsion Properties for Low-Tracking or Non-Tracking Tack Coat</b>			
Test on Emulsion	Method	Min	Max
Viscosity, Saybolt Furol @ 25°C (77°F), s	AASHTO T 59	20	100
Particle Charge Test		--	
Storage Stability Test <sup>a</sup> , 24 hr, percent	AASHTO T 59	--	1.0
Sieve Test, percent	AASHTO T 59	--	0.30
Residue by Distillation, percent	AASHTO T 59	50	
Oil Distillate by Distillation, percent	AASHTO T 59	--	1
Test on Residue from Distillation			
Softening Point, °F	AASHTO T 53	149	200
Penetration 25°C, 100 g, 5 s	AASHTO T 49	--	40
G* / sin delta @ 76° C – 10 rad/sec, kPa	AASHTO T 315	1.0	--
Solubility in Trichloroethylene <sup>b</sup> , %	AASHTO T 44	97.5	--

<sup>a</sup> In addition to AASHTO T 59, upon examination of the test cylinder, and after standing undisturbed for 24 hours, the surface shall show no appreciable white, milky colored substance and shall be homogeneous brown color throughout. The storage stability test may be waved provided the asphalt emulsion storage tank at the project site has adequate provisions for circulating the entire contents of the tank, provided satisfactory field results are obtained.

<sup>b</sup> In lieu of performing AASHTO T 44, AASHTO T 111, Ash in Bituminous Material, may be performed with a maximum allowable percent ash of 1.0 percent.

**2.1 Low-Tracking or Non-Tracking Requirements.** In addition to the above Material Requirements, low-tracking or non-tracking tack shall not stick to the tires, tracks or other parts of paving equipment or vehicles such that the surface to be overlaid becomes visible or void of tack prior to the placement of the asphaltic concrete pavement mixture. The tack material shall exhibit a low-tracking or non-tracking characteristic within 20 minutes of being applied to the roadway. If a tack coat material is unable to satisfy these conditions, then a polymer modified emulsion membrane as described under the Optional Polymer Modified Emulsion Membrane section of this JSP shall be used.

**3.0 Equipment and Construction Requirements.** All equipment and construction requirements shall be in accordance with Section 407; except as revised as follows:

**3.1 Weather Limitations.** The low-tracking or non-tracking tack coat shall not be placed on any wet surface or when the ambient temperature or the temperature of the pavement on which it is to be placed is below 50° F. Temperatures shall be obtained in accordance with MoDOT Test Method TM 20.

**3.2 Spraying Temperature.** The low-tracking or non-tracking tack coat emulsion shall be applied at temperatures between 160° F and 180° F. Temperatures of the tack shall not exceed 180° F and any overheated material shall be rejected.

**3.3 Storage and Handling.** All guidelines and instructions about storage and handling of the non-tracking tack product shall be followed in accordance with the product manufacturer.

**3.4 Distributor.** The distributor shall have the full circulating and heating capabilities in the tank. If the particle charge of the low-tracking or non-tracking tack is different from the particle charge of the emulsion that was previously used then the tank shall be thoroughly cleaned prior to use, since some products are not compatible. The following heating and circulating process shall be used:

- 1) The emulsion shall be slowly heated to 140<sup>o</sup> F.
- 2) Begin circulating the emulsion in the distributor tank only (100 to 150 gallons per minute) and continue slowly increasing heat to 160<sup>o</sup> F to 180<sup>o</sup> F.
- 3) Once the desired temperature is reached, begin circulation in the distributor bar.
- 4) Maintain circulation in the distributor's spray bar for a minimum of 30 minutes prior to tack application.

**3.5 Curing.** The low-tracking or non-tracking tack shall be allowed to cure prior to any construction traffic driving on the surface. A minimum of 15 minutes of cure time shall be allowed prior to driving on the tacked surface, unless less cure time is successfully demonstrated and approved by the engineer.

**3.6 Supplier Information.** The low-tracking or non-tracking tack materials are a different type of product compared to the conventional tacked used in Missouri. The following manufacturers are known producers/suppliers of low-tracking or non-tracking tack products:

Blacklidge Emulsions, Inc.  
Calumet Specialty Product Partners, L.P.  
Heartland Asphalt Materials  
Vance Brothers

There may be other manufacturer's that can produce an equivalent product. All products that are in compliance with this specification will be allowed.

#### **4.0 Optional Polymer Modified Emulsion Membrane.**

**4.1 Description.** In lieu of using a low-tracking or non-tracking tack coat material, a Polymer Modified Emulsion Membrane may be placed prior to a bituminous overlay of hot asphaltic concrete pavement. The Polymer Modified Emulsion Membrane shall be spray applied immediately prior to the application of the hot asphaltic concrete pavement so as to produce a homogeneous surface in accordance with Secs 401, 402, or 403.

**4.2 Materials.** The Polymer Modified Emulsion Membrane shall be in accordance with Sec 1015.20.5.1.1 or Sec 1015.20.6.2.

**4.3 Construction Requirements.** The asphaltic concrete pavement shall be placed in accordance with Secs 401, 402, or 403, except as modified herein.

**4.4 Equipment.** No wheel, track or other part of the paving machine or any hauling equipment shall come in contact with the Polymer Modified Emulsion Membrane before the asphaltic concrete pavement mixture is applied.

#### **4.5 Application of Polymer Modified Emulsion Membrane.**

**4.5.1** The Polymer Modified Emulsion Membrane shall be sprayed at a temperature of 120 - 180° F. The sprayer shall accurately and continuously monitor the application rate and provide a uniform coverage across the entire width to be overlaid. The target application rate of the asphalt emulsion membrane shall be within  $\pm 0.02$  gallon per square yard of the target application rate indicated on the project plans. The Engineer may make adjustments to the application rate based upon the existing pavement surface conditions and the recommendations of the Polymer Modified Emulsion Membrane supplier.

**4.5.2** Water may be added to SS-1hp and CSS-1hp by the emulsion manufacturer and shipped to the jobsite. No dilution shall be allowed in the field. When water is added to SS-1HP or CSS-1HP, the resulting mixture shall contain no more than 20 percent of added water. The contractor shall notify the engineer of the use of a diluted emulsion. The exact quantity of added water shall be indicated on the manufacturer's bill of lading, manifest or truck ticket. The application rate of the resulting mixture shall be adjusted such that the original emulsion will be spread at the specified rate. No water shall be added to the CPEM-1 or PEM-1.

**5.0 Basis of Payment.** This work shall be considered incidental to the placement of the asphalt. All costs associated with this work shall be considered completely covered by Item No. 401.10 "Bituminous Pavement (BP-1), per ton and Item No. 401.20 "Bituminous Base", per ton.