

Attachment 11

Detailed Specifications

2024 VPP NYSDOT

Specific Projects

(Federal & State Funds)

IFB# 23340

**GROUP 31503 – Bituminous Concrete Asphalt Mixtures
(2024 VPP NYSDOT Specific Projects) (Federal & State Funds)**

ITEM 407.01040009-NON-TRACKING TACK COAT

DESCRIPTION

This work shall consist of preparing and treating an existing Portland cement concrete surface or asphalt pavement surface with a non-tracking tack coat in accordance with the Contract documents or as directed by the Engineer.

MATERIALS

Non-tracking tack coat shall be agitated or circulated to ensure a homogenous tack coat prior to sampling or application of material. The consistency of the non-tracking tack coat shall be appropriate for pumping and uniform application. Non-tracking tack coat shall not be diluted with water and must meet the physical requirements of the following table:

NON-TRACKING TACK COAT		
Test Property	Test Method	Result
Residue by Distillation,	AASHTO T59	50% minimum
Oil Distillate, Volume of Total Emulsion		2% maximum
Penetration on Residue from Distillation, @77°F, 100 g, 5s, 0.1 mm	AASHTO T49	40 maximum
Softening Point on Residue from Distillation	AASHOT T53	140°F minimum

Use an approved non-tracking tack coat or approved equal as determined by the Director of Materials Bureau.

Approved Products	Supplier	Location
EM-50-TT	Seaboard Asphalt Products Company	Baltimore, MD
CNTT	Midland Asphalt Materials Inc.	Lyons, NY
SK-TT	Suit-Kote Corporation	Cortland, NY
Non-tracking tack	Vestal Asphalt Inc.	Vestal, NY
EE-NNT	Empire Emulsions	Chester, NY
NTT	Peckham Materials Corporation	New Windsor, NY

Other products must be submitted to the Materials Bureau for evaluation.

CONSTRUCTION DETAILS

The provisions of §407-3, Construction Details, shall apply except as modified herein:

Required spray nozzle size, distributor and nozzle settings per manufactures written recommendations.

The application rate shall be as determined in Table 407-1 *Tack Coat Application Rates*. These are recommended application rates for tack coat on various surface types and may be modified by the Engineer.

TABLE 407-1 – TACK COAT APPLICATION RATES	
Surface Type	Application Rate (gal/yd²)
New Asphalt Pavement	0.04-0.05
Milled Surfaces and Existing Asphalt Pavement	0.06-0.07
Portland Cement Concrete	0.06-0.07
Vertical Surfaces (curbs, drainage structures, and appurtenances)	0.07-0.08

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ITEM 407.01040009 – NON-TRACKING TACK COAT

The application is considered satisfactory when the material is applied uniformly with no visible evidence of streaking or ridging and the application rate is ±10% of the specified rate.

METHOD OF MEASUREMENT

The quantity to be paid for will be to the nearest whole gallon of Trackless Tack Coat asphalt emulsion for tack coat measured at 60°F. The following formula will be used to calculate material quantity at 60°F:

$$\text{Volume@60°F} = \text{VolumeD} \times [1 - (\Delta T \times 0.00025)]$$

$$\Delta T = \text{Delivered Temperature (°F)} - 60$$

$$\text{VolumeD} = \text{Quantity Delivered (gal)}$$

BASIS OF PAYMENT

The unit price bid per gallon for tack coat shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work.

Payment will be made under:

Item Number	Item	Pay Unit
407.01040009	Non-Tracking Tack Coat	Gallon

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- ITEM 404.03810218 MISCELLANEOUS PATCHING F1, ASPHALT MIX**
- ITEM 404.03820218 MISCELLANEOUS PATCHING F2, ASPHALT MIX**
- ITEM 404.03830218 MISCELLANEOUS PATCHING F3, ASPHALT MIX**
- ITEM 404.03890218 MISCELLANEOUS PATCHING F9, ASPHALT MIX**

The requirements of Section 401 – Plant Production and Section 404 – Asphalt Pavements shall apply except as modified below.

DESCRIPTION

This work shall consist of developing an asphalt mixture for pothole patching, small pavement repairs, and paver placed patching.

MATERIALS

The materials and composition for Miscellaneous Patching mixtures shall meet the requirements specified in §401-2 and §404-2, Materials, except as noted herein.

TABLE 1 - COMPOSITION OF MISCELLANEOUS PATCHING ASPHALT MIX		
Sieve Sizes	General Limits % Passing¹	Job Mix Tolerance %²
½ inch	100	-
3/8 inch	95-100	-
1/4 inch	90-100	-
No. 4	67-85	±4
No. 8	35-60	±6
No. 16	24-50	±7
No. 30	12-34	±7
No. 50	6-22	±4
No. 100	3-11	±3
No. 200	2-6	±2
Asphalt Content, %^{3,4}	6.0 – 8.0	±0.4
Mixing and Placing Temperature Range °F	Hot Mix	250-325
	Warm Mix	230-295

- Notes:
1. All aggregate percentages are based on the total weight of the aggregates.
 2. In no case shall the job mix tolerance fall outside the general limits.
 3. The asphalt content is based on the total weight of the mix. When using slag aggregates in the mix, the asphalt content shall be increased accordingly, a minimum of 25 percent for an all-slag mix.
 4. Use a Performance-Graded Binder (PG Binder) appropriate for the county in which the mix will be used, as specified in Table 6-4 of the Comprehensive Pavement Design Manual. The footnotes to Table 6-4 will not apply.
 5. The use of conventional Hot Mix Asphalt (HMA) will be allowed under this contract if warm mix modified asphalt is not available.

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Use Table 2, Pay Item Selection Criteria, to select the appropriate friction requirements for the location and type of use for the mixture.

TABLE 2 – PAY ITEM SELECTION CRITERIA			
Use Type	Traffic Volume²	Location³	Pay Items
Paver-Placed Patching and Pavement Repairs greater than 10 feet in length ¹	High	Downstate	404.03810218 (Type F1 Conditions)
		Upstate	404.03820218 (Type F2 Conditions)
	Low	Statewide	404.03830218 (Type F3 Conditions)
Pothole Patching and Pavement Repairs 10 feet or less in length ¹	High or Low	Statewide	404.03890218 (Type F9 Conditions)

- Notes:
1. Pavement Repair lengths are measured in the longitudinal direction of the roadway.
 2. High Volume” refers to 2- or 3-lane highways with design-year, two-way AADT over 8,000, or for more than three lanes with a two-way AADT over 13,000. “Low Volume” refers to highways with lower volumes for the specified number of lanes.
 3. The City of New York and the surrounding counties of Dutchess, Nassau, Orange, Putnam, Rockland, Suffolk, and Westchester are referred to as “Downstate.” All other areas are referred to as “Upstate.”

A. Coarse Aggregate Type F1 Conditions Use one of the following types of coarse aggregate.

1. Sandstone, granite, chert, traprock, ore tailings, slag, or other similar noncarbonate materials.
2. Gravel, or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag or other similar materials, meeting the following requirements:
 - a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8-inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 90.0% of plus 3/8-inch particles must be non-carbonate.
 - b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8-inch particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 90.0% of plus No. 4 particles must be non-carbonate.
 - c. 6.3 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus No. 8 particles must comprise a minimum of 30.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 90.0% of plus No. 4 particles must be non-carbonate.

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ITEM 404.03810218 MISCELLANEOUS PATCHING F1, ASPHALT MIX

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ITEM 404.03830218 MISCELLANEOUS PATCHING F3, ASPHALT MIX

ITEM 404.03890218 MISCELLANEOUS PATCHING F9, ASPHALT MIX

B. *Coarse Aggregate Type F2 Conditions* Use one of the following types of coarse aggregate.

1. Limestone, dolomite, or a blend of the two having an acid-insoluble residue content of not less than 20.0%.
2. Sandstone, granite, chert, traprock, ore tailings, slag, or other similar noncarbonate materials.
3. Gravel or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials meeting the following requirement:
 - a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8-inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus 3/8-inch particles must be noncarbonate.
 - b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8-inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be noncarbonate.
 - c. 6.3 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be non-carbonate.

C. *Coarse Aggregate Type F3 Conditions* Use one of the following types of coarse aggregate.

1. Limestone or a blend of limestone and dolomite having an acid-insoluble residue content of not less than 20.0%.
2. Dolomite.
3. Sandstone, granite, chert, traprock, ore tailings, slag, or other similar noncarbonate materials.
4. Gravel or a natural or manufactured blend of the following types of materials: limestone, dolomite, gravel, sandstone, granite, chert, traprock, ore tailings, slag, or other similar materials meeting the following requirement:
 - a. 12.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8-inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus 3/8-inch particles must be noncarbonate.
 - b. 9.5 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus 1/8-inch particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be noncarbonate.
 - c. 6.3 Nominal Maximum Size Aggregate Mixes. Noncarbonate plus No. 8 particles must comprise a minimum of 10.0% of the total aggregate (by weight with adjustments to equivalent volumes for materials of different specific gravities). A minimum of 20.0% of plus No. 4 particles must be non-carbonate.

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- ITEM 404.03890218 MISCELLANEOUS PATCHING F9, ASPHALT MIX**

D. Coarse Aggregate Type F9 Conditions.

1. Use coarse aggregate meeting the requirements of §703-02, Coarse Aggregate.

CONSTRUCTION DETAILS

The provisions of §401-3 and §404-3 Construction Details, shall apply except as noted herein.

Compact the pavement in accordance with §404-3.07 D. 80 Series Compaction Method. Use the same number of passes as for 9.5 Top Pavement Course in Table 404-3, Number of Machine Passes.

METHOD OF MEASUREMENT

The provisions of §401-4 and §404-4, Method of Measurement, shall apply. A QAF of 1.00 will be assigned to material meeting the specification requirements as certified by the QCT.

BASIS OF PAYMENT

The provisions of §404-5 Basis of Payment shall apply. Payment will be made under:

Item Number	Item	Pay Unit
404.03810218	Miscellaneous Patching F1, Asphalt Mix	Ton
404.03820218	Miscellaneous Patching F2, Asphalt Mix	Ton
404.03830218	Miscellaneous Patching F3, Asphalt Mix	Ton
404.03890218	Miscellaneous Patching F9, Asphalt Mix	Ton

**GROUP 31503 – Bituminous Concrete Asphalt Mixtures
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ITEM 406.XYZ0108 - WARM MIX ASPHALT (WMA) WITH POLYMER FIBERS

DESCRIPTION

This work shall consist of formulation and placement of a fiber reinforced asphalt mixture. The placement of this mixture shall be in accordance with these specifications and in reasonably close conformity with the required lines, grades, thicknesses, and typical sections shown on the plans or established by the Engineer.

MATERIALS

The requirements of §401-2 and §404-2, *Materials*, shall apply except as modified below.

A. Fibers. Aramid fiber shall meet the requirements of Table 1 – Aramid Fiber Properties. The acceptance shall be based on the certification from the supplier of fibers.

Table 1 – Aramid Fiber Properties	
Length	Minimum ¾ in. ± 1/16
Form	Fibrillated & Monofilament Fibers, non-resin impregnated
# of filaments per strand	1,000
Specific Gravity	1.44 +/-0.01
Filament diameter	12 microns +/- 2 microns
Acid/Alkali/ Resistance	Inert
Tensile Strength, minimum	400,000 psi
Decomposition Temperature	800° F, minimum

1. **Delivery.** The fibers shall be delivered in a sealed undamaged container with legible labels indicating material name, and lot number.
2. **Storage.** The fibers shall be stored in accordance with manufacturer’s recommendations. The fibers shall be protected from UV radiation, contamination, or becoming wet.

B. Mixture Design. The formulation of the mixture shall be done using the mixture design procedure detailed in the current Materials Method 5.16, “*Asphalt Mixture Design and Mixture Verification Procedures*” and this specification.

C. PG Binder. PG binder grade used for the production of the mixture shall be the one specified in the project documents.

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CONSTRUCTION

Provisions of §401-3 and §404-3, *Construction Details*, shall apply except as modified below:

The fibers shall be added to the asphalt mixture at a rate recommended by the fiber supplier. The minimum rate of aramid fiber added to the mix shall be 2.0 ounces per ton.

The fibers shall be added to the asphalt mixture through specialized equipment that can accurately proportion and meter, by weight of total mix, during production of asphalt mixture. The equipment shall be calibrated to the satisfaction of the Regional Materials Engineer showing the fiber is being accurately metered and uniformly distributed into the mix (visual inspection). When a batch plant is used, pre-weighed fibers bags may be added per batch to provide the designed quantity of fibers in the asphalt mixture. Additional requirements for plants are as follows:

1. **Batch Plant.** When a batch plant is used, the fibers shall be added to the aggregate in the weigh hopper and follow the manufacturer's recommendations for both the dry and wet mixing times. The fibers shall be uniformly distributed before the injection of asphalt cement into the mixture.
2. **Drum Mixer Plant.** When a drum plant is used, the fibers shall be introduced such that it does not become entangled in the exhaust system.

If there is evidence of clumps of fibers at the discharge chute or on the project, the production of asphalt mixture shall be stopped and follow the fiber manufacture's procedures to reduce clumping.

METHOD OF MEASUREMENT

Provisions of §401-4 and §404-4, *Method of Measurement*, shall apply.

BASIS OF PAYMENT

Provisions of §401-5 and §404-5, *Basis of Payment*, shall apply except that the bid price shall include the cost of fibers, feeder, and labor for the asphalt mixture production with fibers.

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Payment will be made under:

Item	Item Description	Pay Unit
406.01790108	Truing & Leveling F9 WMA with Polymer Fibers, 70 Series Compaction	Ton
406.01890108	Truing & Leveling F9 WMA with Polymer Fibers, 80 Series Compaction	Ton
406.06810108	6.3 F1 Top Course WMA with Polymer Fibers, 80 Series Compaction	Ton
406.06820108	6.3 F2 Top Course WMA with Polymer Fibers, 80 Series Compaction	Ton
406.06830108	6.3 F3 Top Course WMA with Polymer Fibers, 80 Series Compaction	Ton
406.09510108	9.5 F1 Top Course WMA with Polymer Fibers, 50 Series Compaction	Ton
406.09520108	9.5 F2 Top Course WMA with Polymer Fibers, 50 Series Compaction	Ton
406.09610108	9.5 F1 Top Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.09620108	9.5 F2 Top Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.09630108	9.5 F3 Top Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.09710108	9.5 F1 Top Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.09720108	9.5 F2 Top Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.09730108	9.5 F3 Top Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.12510108	12.5 F1 Top Course WMA with Polymer Fibers, 50 Series Compaction	Ton
406.12520108	12.5 F2 Top Course WMA with Polymer Fibers, 50 Series Compaction	Ton
406.12610108	12.5 F1 Top Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.12620108	12.5 F2 Top Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.12630108	12.5 F3 Top Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.12710108	12.5 F1 Top Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.12720108	12.5 F2 Top Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.12730108	12.5 F3 Top Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.19590108	19 F9 Binder Course WMA with Polymer Fibers, 50 Series Compaction	Ton
406.19690108	19 F9 Binder Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.19790108	19 F9 Binder Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.25590108	25 F9 Binder Course WMA with Polymer Fibers, 50 Series Compaction	Ton
406.25690108	25 F9 Binder Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.25790108	25 F9 Binder Course WMA with Polymer Fibers, 70 Series Compaction	Ton
406.37690108	37.5 F9 Base Course WMA with Polymer Fibers, 60 Series Compaction	Ton
406.37790108	37.5 F9 Base Course WMA with Polymer Fibers, 70 Series Compaction	Ton