

ITEM A-71-23 LATEX MODIFIED ASPHALT PAVEMENT COURSE

DATED: JANUARY 2023

CONTRACT PERIOD: 3/31/23 - 03/30/24

DESCRIPTION

This work shall consist of a latex modified asphalt pavement course to fill ruts or provide a wearing course for existing pavements in reasonably close conformity with the lines shown on the plans or established by the Engineer. The paving mixture shall be composed of a latex modified CSS-1h Emulsified Asphalt, 100 percent crushed aggregate, and mineral filler.

MATERIALS

Materials shall be:

LATEX MODIFIED EMULSIFIED ASPHALT. The latex modifier and other emulsifiers shall be milled into the asphalt cement and shall show no separation after mixing. The latex modified CSS-1h emulsified asphalt shall have a minimum softening point (Ring and Ball) of 135 degrees Fahrenheit when tested in accordance with AASHTO T53. The blended asphalt mixture when combined with aggregate and mineral filler shall be capable of filling up to one and one half (1-1/2) inch wheel ruts in one pass, be capable of field regulation of the setting time, and be suitable for nighttime placement. The latex modified (CSS-1h) emulsified asphalt shall be accepted by certification from the manufacturer and the latex modified asphalt shall be manufactured by a New York State Department of Transportation approved supplier. The latex modified emulsion shall meet the requirement of N.Y.S. Department of Transportation Item 702-4501 (CSS-1h) with the following exceptions:

Test on Emulsion:

Cement Mixing - Waived
Residue by Distillation - min. 60

The latex modifier shall be unvulcanized styrenebutadine rubber in liquid latex form. The cationic latex modifier shall conform to the following requirement:

Tests	Cationic Latex Modifier	
Styrene/Butodine	Ratio %	24/76 +/- 1.5
Solids Content	%	60 Min.
P.H.		6.2 Max.
Weight per Gallon (lbs.)		
Wet Basis @ 77F		7.9 Min.
Dry Basis @ 77F		4.5 Min.

The manufacturer of latex shall provide written certification of the results of the above notes tests.

Tests on Residue from Distillation

Penetration @ 77F 60 Min

Ductility	@ 77F	150 +
	@ 34F	100 +
Softening Point Ring and Ball		125 Min
AASHTO T53		

Pour onto a quart friction can lid, or similar container, enough of the emulsion to cover the surface to a depth of 1/16 to 1/8 inch. Immediately, while the emulsion is still brown, embed with thumb pressure several stones or chips approximately 1/2 inch in size (3/8 inch to 5/8 inch) into the binder. Put the lid, or similar container containing the emulsion and aggregate into a 100F oven and allow curing for a minimum of eight hours. After the curing period, remove the lid and allow cooling for one hour. Upon lifting a stone or chip from the binder, the asphalt material must adhere to the aggregate and must elongate for a minimum distance of three inches without loss of adhesion and without breaking.

The latex modified (CSS-1h) emulsified asphalt shall be accepted by certification of the manufacturer to meet the enclosed specifications. The emulsion shall be manufactured and supplied by an approved supplier of the New York State Liquid Bituminous Materials Commodity Group 31501 of the New York State Department of Transportation.

AGGREGATE. The aggregate shall be crushed limestone, crushed air-cooled blast furnace slag, or crushed gravel meeting the gradation limits in Table A except the percent of fractured pieces shall be 100 percent. Compatibility of all ingredients (including the mix set additive) of the mix shall be certified by the emulsified asphalt manufacturer. The aggregate shall be screened from the on-site stockpile into the feeder trucks that supply the continuous mix paving unit. Also, the screen box shall be located at the "Low" end of the unit so that only prescreened; unsegregated material reaches the high end where it is loaded into the feeder trucks.

MIX DESIGN. Before the work commences, the contractor shall submit a signed mix design to the Engineer, covering the specific materials to be used on the project. This mix design shall be performed by a laboratory who has experience in the designing of the Microsurfacing. After the mix design has been approved, no substitutions will be permitted, unless approved by the Engineer.

Compatibility of the mineral aggregate, polymer modified asphalt emulsion, mineral filler, and other additives shall be verified by the mix design. The mix design shall be made with the same mineral aggregate gradation that the contractor will provide on the project.

A test strip of 1,000 feet shall be placed to assure that the approved mix design is followed.

Minimum acceptable values are as follows:

WET COHESION:	30 minutes 12 kg-cm minimum
	60 minutes 20 kg-cm minimum
WET TRACK ABRASION LOSS:	1 hour soak 50g/sq. ft. max
	6 day soak 75g/sq. ft. max

MIX TIME:

Controllable to 120 seconds minimum

The mix design must clearly show the proportions of mineral aggregate, mineral filler (minimum & maximum), water (minimum & Maximum), additive(s) with usage, and polymer modified asphalt emulsion based on the dry weight of the aggregate.

All the component materials used in the mix design shall be representative of the materials proposed by the contractor to be used on the project. Adjustments may be required during construction based on field conditions and with the approval of the Engineer.

GRADATION LIMIT FOR AGGREGATE

	TYPE II	TYPE III
<u>Sieve</u>	<u>Total Percent Passing</u>	<u>Total Percent Passing</u>
3/8 inch	100	100
No. 4	85-100	70-95
No. 8	50-80	50-75
No. 16	40-65	30-55
No. 30	25-45	20-40
No. 50	13-25	7-19
No. 200	5-15	5-15

RESIDUAL ASPHALT: Type II 6.5% to 9.0% by dry weight of aggregate
Type III 5.5% to 7.5% by dry weight of aggregate

MINERAL FILLER: 0% to 3% by dry weight of aggregate

POLYMER BASED MODIFIER: Minimum of 3% solids based on bitumen weight

ADDITIVE: To improve the tensile properties of the mix, a chemical additive must be incorporated. This additive will also improve the black color retention of the surfacing.

WATER: As required to produce proper mixing consistency.

WEATHER LIMITATIONS

The mixture shall be placed when the atmospheric temperature is 40 degrees Fahrenheit and rising or above, it is not raining, and there is no forecast of temperature below 32 degrees Fahrenheit within 24 hours from the time the mixture is applied. Applications after October 31 and before March 31 shall not be made when the atmospheric temperature is less than 50 degrees Fahrenheit.

MIXING EQUIPMENT

The paving mixture shall be produced in a self-propelled, front feed, continuous loading, mixing machine equipped with a chain-dragged conveyer belt aggregate delivery system and inter-connected positive displacement water-jacketed gear pump to accurately proportion ingredients. A spray bar shall

be provided to completely wet the aggregate dropping down to the pugmill with additive and water. The twin-shafted multi-blade pugmill shall be a continuous flow type and a minimum of fifty (50) inches long. The emulsion shall be introduced above the third point of the mixer to ensure proper premixing of the aggregate, cement, additive and water when the modified emulsified asphalt is added. Blade size and side clearances shall meet the equipment manufacturer's recommendations. Mixer shall be equipped with a remote forward speed control at the back mixing platform so the back operator can control the forward speed and level of mixture in paving or rutbox. Contract shall provide material control devices that are readily accessible and positioned so the amount of each material used can be determined at any time. Each material control device shall be calibrated prior to each mix application.

Mixing machine shall be equipped with a water pressure system and nozzle type spray bar to provide a water spray ahead of and outside the spreader box when required.

Mineral filler feed shall be located so the proper amount of Portland cement is dropped on the aggregate before discharge into the mixer.

Truck-mounted machines without the front feed, continuous loading feature will not be permitted.

SPREADING EQUIPMENT

The paving mixture shall be spread uniformly by means of a mechanical type squeegee box, attached to the mixer, equipped with the paddles mounted on adjustable shaft to continually agitate and distribute the materials throughout the box. The equipment shall provide sufficient turbulence to prevent the mix from settling in the box or causing excessive side build-up or lumps. To prevent loss of the mixture from the box, the contractor shall attach flexible seals, front and rear, in contact with the road. Rut filling will require a steel strike off on the spreading equipment. The contractor shall operate the spreading equipment in such a manner to prevent the loss of the mixture on super-elevated curves. Mixture shall be spread to fill cracks and minor surface irregularities and achieve a uniform, skid-resistant surface without causing skips, lumps, or tears, in the finished surface.

SURFACE PREPARATION

Prior to applying the mixture, the surface shall be cleaned by removing vegetation, loose materials, dirt, mud and other objectionable materials. Water shall be misted on the existing pavement surface immediately prior to applying the asphalt mixture. Tack coat, 702-90, shall be required on Portland cement concrete surface. Tack coat application rate shall be 0.05 gal. per square yard.

APPLICATION

The paving mixture shall be spread to fill minor cracks and shallow potholes and leave a uniform surface. Care shall be taken when rut filling to restore the design profile of the pavement cross section. Excess crowning (over-filling) of rut area shall be avoided. The Contractor shall use squeegees and lutes to spread the mixture in areas inaccessible to the spreader box and areas requiring hand spreading.

A sufficient amount of material shall be carried at all times in all parts of the spreader box to ensure complete coverage. No lumps or unmixed aggregate will be permitted in the finished surface.

Adjustments to the additives are permitted to provide a slower setting time when hand spreading is needed. If hand spreading is necessary, the mixture shall be poured in a small windrow along one edge of the surface to be covered and then spread uniformly by a hand squeegee or lute.

A smooth, neat seam shall be provided where two passes meet. Excess material shall be immediately removed from ends of each run.

The Contractor shall provide sampling and testing. This testing shall include a minimum of two (2) extraction/gradation analyses per day. All results shall be furnished to the Engineer.

COMPACTION

Rolling with a pneumatic-tired roller shall be required after proper curing for sections of pavement not to be exposed to traffic.

OPENING TO TRAFFIC

The latex modifier shall be capable of producing an emulsified asphalt paving mixture that will cure at a rate which will permit traffic on the pavement within one hour after application without damaging the pavement surface.

ACCEPTANCE

The Contractor must be an approved supplier of Commodity Group #31501 of the New York State Department of Transportation Liquid Bituminous Materials. The Contractor shall maintain continuous control of the latex modified emulsified asphalt to dry aggregate proportioning to conform to the approved JMF within a tolerance of plus or minus two (2) gallons per ton and shall control the spread rate to not less than the specified quantity of aggregate per square yard on the basis of dry weight. The latex modified asphalt pavement shall be applied in two lifts with a total aggregate weight of 28 lbs. per square yard plus or minus 4 lbs. for Type II mix or 36 lbs. per square yard for Type III mix.

METHOD OF MEASUREMENT

The quantity under this item will be the number of square yards completed and accepted in place. The width of the pavement course will be the width shown on the plans or as otherwise directed by the Engineer. The length will be measured along the centerline of each roadway or ramp. The plan quantities as adjusted for changes and errors will be the method of measurement.

BASIS OF PAYMENT

The accepted quantities of latex modified emulsified asphalt pavement course will be paid for at the contract unit price per square yard which price and payment shall be full compensation for furnishing all materials, equipment,

labor, and tack coat, if required, and all incidentals necessary to complete this work.

<u>Unit</u>	<u>Description</u>
Square Yard	Latex Modified Asphalt Pavement Course

PRICE ADJUSTMENT

Asphalt price adjustments allowed will be based on the January 1, 2018 average of the F.O.B. terminal price per ton on unmodified PG 64-22 binder without anti-stripping agent (base average F.O.B. terminal price). The new monthly average terminal price will be in accordance with the New York State Department of Transportation Standard Specification.

The January 2023 average is \$626.00 per ton.

CONTRACT EXTENSION

The County of Montgomery reserves the right to extend any contract issued, based on this specification, under the same terms and conditions for a one year period from date of expiration, provided such extension is mutually agreeable to both County and Contractor.

PREVAILING RATES SCHEDULE

Successful contractors shall pay not less than the prevailing wage rate established by the New York State Department of Labor, Bureau of Public Works. The Wage Rate Schedule as prepared by the Department of Labor becomes a part of the contract and is included herein.

OTHER MUNICIPALITIES

All provisions of this specification and the ensuing contract, including insurances, shall be extended to all municipalities in the County of Montgomery, and work ordered by them, shall be furnished according to their needs at the prices and terms of the contract.

INSURANCE

Before the actual commencement of work, the Contractor shall file with the County liability insurance policies, with limits not less than the following amounts indicated:

TYPES OF POLICIES

- a. Contractor's Liability Insurance
- b. Contractor's Protective Liability Insurance
- c. Completed Operations Liability Insurance
- d. Protective Liability Insurance for the County
- e. Owner, Landlords and Tenants Liability Insurance

Minimum Limits

<u>General Liability</u>		<u>Umbrella Liability</u>	
Each Occurrence	Annual Aggregate	Each Occurrence	Annual Aggregate
\$1,000,000.00	\$3,000,000.00	\$5,000,000.00	\$5,000,000.00

PROPOSAL FORM ITEM A-71-23
LATEX MODIFIED ASPHALT PAVEMENT COURSE
Sheet 1 of 2

Deliver Proposals to: Montgomery County Purchasing Agent
P.O. Box 1500
Fonda, NY 12068-1500

Sir:

The undersigned has read and understands the information and instructions to bidders and the specifications for the furnishing of Item A-71-23 Latex Modified Asphalt Pavement Course and proposes to furnish the item at the price shown hereon.

This proposal is subject to acceptance within forty five (45) days of the time set for the opening of bids.

Applying latex modified asphalt pavement course in two (2) lifts with a total dry aggregate weight of 28 lbs. plus or minus 4 lbs. per sq. yds. for Type II or 36 lbs. per sq. yd. for Type III mix.

FIRM NAME: _____

ADDRESS: _____

TELEPHONE: _____

SIGNATURE OF AUTHORIZED REPRESENTATIVE: _____

NAME AND TITLE: _____

DATE: _____

BIDDERS FEDERAL ID NO.
OR SOCIAL SECURITY NO.: _____

IS FIRM INCORPORATED? _____

IS FIRM MINORITY OWNED? _____

(Minority ownership refers to ethnic origin NOT gender)

PROPOSAL FORM ITEM A-71-23
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 Sheet 2 of 2

PROPOSAL OF: _____

<u>SQUARE YARDS</u>	<u>TYPE II PRICE PER SQ. YD.</u>	<u>TYPE III PRICE PER SQ. YD.</u>
5,000 - 9,000	\$ _____	\$ _____
9,000 - 15,000	\$ _____	\$ _____
15,001 +	\$ _____	\$ _____

TYPE III RUT FILLING: 75 - 125 Tons - PRICE PER TON \$ _____
 125+ Tons - PRICE PER TON \$ _____