



Spray Applied Penetrating Asphalt Rejuvenator Material and Application Specification

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I. **Scope:**

This work shall consist of furnishing all labor, material and equipment necessary to perform all operations for the application of a penetrating asphalt spray rejuvenator to asphalt pavement surfaces. The penetrating asphalt spray rejuvenator shall be worker safe and environmentally safe, (categorized as non-hazardous and non-regulated), in full conformance and accordance with the specifications, applicable project drawings and subject to the terms and conditions of this contract.

II. **Material Specifications**

The penetrating asphalt spray rejuvenator liquid shall be non-toxic, environmentally "GREEN" composed of plant oils and restorative chemistry in concentrated form or uniformly emulsified with water. Each bidder must submit with their bid a certified statement from the penetrating asphalt spray rejuvenator manufacturer showing that the penetrating asphalt spray rejuvenating concentrate or emulsion conforms to the required physical and chemical requirements.

Petroleum based penetrating asphalt spray rejuvenator may be used provided it is environmentally safe and worker safe, (categorized as non-hazardous and non-regulated), as specified herein. Petroleum based penetrating asphalt spray rejuvenator shall comply in full accordance with these specifications.

III. **Specified Material Performance**

The penetrating asphalt spray rejuvenator shall have a record of satisfactory performance as tested and documented by the third-party industry testing agency National Center for Asphalt Technologies, (NCAT).

The environmentally friendly, worker safe, surface applied penetrating asphalt spray rejuvenator shall penetrate the aged binder and reverse the oxidation through a carrier matrix which solvates aged binder to allow the antioxidant properties of the suspended small molecules to react with the oxidized components and return the binder's physical properties to meet or exceed near virgin binder performance specifications. The penetrating asphalt spray rejuvenator shall be proven to perform on the ability to decrease the viscosity of the binder material, to reduce the rate of loss of fines and to retard crack propagation.

The surface applied penetrating asphalt spray rejuvenator shall neither permanently damage nor obscure paint markings. The surface applied penetrating rejuvenator shall cure/dry clear without minimizing the reflectivity of the pavement markings.

IV. **Product Alternatives**

Bidders may offer an ALTERNATE for a material which is not "GREEN", environmentally safe and worker safe nor environmentally safe and worker safe petroleum based, (categorized as non-hazardous and non-regulated). ALTERNATE submittals, however, must be in full compliance with these performance specifications and submit the following with their bid;

- a. List the proposed alternate on the BID SHEET form providing the product name and price;
- b. Furnish complete specifications and descriptive literature for the alternate product, a one-gallon sample of the product and an SDS sheet, (Safety Data Sheet) for the alternate material; and
- c. Performance data including, but not limited to, binder viscosity reduction and skid analysis data provided by the third-party industry testing agency National Center for Asphalt Technologies, (NCAT).

The ALTERNATE will be given consideration by the City. The Bidder may furnish only those alternate items included in their proposal and approved by the City prior to award of a contract.

If no ALTERNATE is indicated on the BID SHEET the Bidder shall furnish the STANDARD type specified in the specifications herein.

If the ALTERNATE material is found to be unacceptable by the City based upon the data submitted with the bid and no bid is entered on the BID SHEET, then said bid will be considered non-responsive.

V. **Manufacturer Approved Applicator**

The penetrating asphalt spray rejuvenator shall be applied by an experienced applicator having advanced computer-controlled application equipment capable of distributing the material evenly on the pavement surface to within 0.005 gal/SY of the determined rate of application. The approved applicator shall have experience applying penetrating asphalt spray rejuvenator product for the intended use and have successfully demonstrated their qualifications to the manufacturer.

Technical support by a knowledgeable and experienced crew person shall be provided by the contractor during the contract period of the project. Each bidder shall submit a written experience outline if so requested.

VI. **Application Equipment**

The mechanical equipment used to evenly spray the rejuvenating liquid shall be self-propelled, designed and equipped to apply the rejuvenating liquid uniformly on varying surface widths, at

prescribed application rates, and with an allowable variation of specified application rate suggested by the manufacturer.

VII. Calibration of Equipment

Furnish all equipment, materials and labor as necessary to calibrate the computer-controlled distributor. Perform the calibration with the specified material listed in section II., prior to applying the penetrating asphalt spray rejuvenator on the prepared surface, in accordance with applicable standards and the project specifications.

VIII. Application Rates

The penetrating asphalt spray rejuvenator shall be applied at rates between 0.05 gal/SY to 0.13 gal./SY, or as approved by the Streets & Roads Representative following performance review of the Manufacturer's performance data.

IX. Surface Conditions

Prior to application, the approved applicator shall determine whether the existing surface to be treated requires sweeping and cleaning. This surface preparation, if required, shall be accomplished by hand or power broom, power blowing, mechanical vacuum sweeper or other approved cleaning methods.

It is recommended the manufacturer closely review the pre-existing conditions of the pavement surface with the approved applicator to determine the effective application rate(s) for the penetrating asphalt spray rejuvenator treatment prior to application.

X. Application Temperatures / Weather Conditions

The ambient temperature when the penetrating asphalt spray rejuvenating liquid is applied shall be as recommended by the manufacturer. The rejuvenating liquid shall not be applied to paved surfaces if the surface temperature is below 50°F.

The penetrating asphalt rejuvenator shall be applied only when the existing surface is thoroughly dry and when it is not threatening to rain.

XI. Ponding and Puddling of Rejuvenator Material

If low spots and depressions in the pavement surface cause ponding or puddling of the penetrating spray rejuvenating liquid, broom the pavement surface evenly in that area so the surface is free of any pools of excess material.

XII. Cure

The rate of cure for the penetrating asphalt spray rejuvenator shall be 60-90 minutes. Do not disturb the surface for this time period following application of the penetrating asphalt spray rejuvenator. The penetrating asphalt spray rejuvenator rate of cure may vary slightly based upon temperature and humidity. Care should be given to adjusting traffic control if these conditions occur.

XIII. Blotting Materials, Sand and/or Fine Aggregates

Blotting materials, sand and/or fine aggregates are sometimes used as part of the application process (required or otherwise), to aid, among other things, the reduction and loss of surface skid resistance following application of the penetrating asphalt rejuvenator. This is due to the petroleum oils, (or other waste oils), contained in the rejuvenating material substantially altering the friction characteristics of the pavement surface.

Blotting materials, sand and/or fine aggregates, if used, shall be consistent in gradation, dry and free of dirt and debris.

If blotting materials, sand and/or fine aggregates are used it shall be the contractors' responsibility to remove said materials from the pavement surface within 24 hours of first being applied.

Removal shall be at the Contractors expense, by vacuum sweeper capable of rapidly removing the material from the pavement surface. Care shall be given to open storm drains and catch basins of the City's storm water management system as to prevent these materials from entering and contaminating the system. State and Federal Environmental and Clean Watershed Act regulations shall be strictly adhered to.

All removed blotting materials, sand and/or fine aggregates shall be disposed of at an approved landfill in full compliance with State and Federal Environmental Protection Agency requirements.

XIV. Skid Analysis Data

As specified in **Section III.** of these specifications, the penetrating asphalt spray rejuvenator shall have a record of satisfactory performance as tested and documented by the third-party testing agency National Center for Asphalt Technologies, (NCAT). This applies to skid testing and analysis data for the penetrating asphalt spray rejuvenator. Inadequate skid resistance will lead to higher incidences of skid related accidents.

Surface applied penetrating asphalt spray rejuvenators that have been skid tested, by a reputable third-party as specified above, if with the aid of blotting materials, sand and/or fine aggregates and/or textured surfaces, shall not be accepted.

Said skid test data shall conform to industry standards, on existing paved surfaces, without the aid of blotting materials, sand, fine aggregates and/or surface texturing. Tests normally conducted within 24 hours of application and again in 96 hours following application with results indicating friction is increasing at a rate to obtain similar friction value of the pavement surface prior to application.

XV. Bidders Certified Submissions

All bidders must submit with their bid the manufacturer's certification that the penetrating asphalt spray rejuvenating liquid is in complete conformity with the specified material in section II and complies with all other applicable sections within these specifications.

XVI. Traffic Control

The Contractor shall schedule his operations and carry out the work in a manner to cause the least disturbance and / or interference with the normal flow of traffic over the areas in which the penetrating asphalt spray rejuvenator is applied. Treated portions of the pavement surfaces shall be kept closed and free from traffic until rejuvenator has penetrated and cured, 60-90 minutes, and in the opinion of the Streets & Roads Representative, has become complete and the area is suitable for traffic.

When, in the opinion of the Streets & Roads Representative, traffic must be maintained at all times on a particular street, then the Contractor shall apply the penetrating asphalt spray rejuvenator to one lane at a time. Traffic shall be maintained in the untreated lane until the traffic may be switched to the completed lane.

The Contractor shall be responsible for all traffic control and signing required to permit safe travel. The Contractor shall notify the Police and Fire departments as to the streets that are to be treated each day. If, in the opinion of the Streets & Roads Representative, proper signing is not being used, the Contractor shall stop all operations until safe signing and barricading is achieved.

XVII. Resident Notification

The contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract. The Contractor shall contact the local Division of Police to obtain "No

Parking” signs to post on the streets to be treated. This is to be done with a minimum of 24-hour advance notice.

XVIII. **Method of Measurement**

Asphalt rejuvenating agent will be measured by the square yard as provided for in the list to be provided to the Contractor annually at the time of scheduling.

XIX. **Basis for Payment**

The accepted quantities, measured as provided for above, will be paid for at the contract unit price for penetrating asphalt rejuvenator.

Penetrating asphalt rejuvenator shall be paid for **PER SQUARE YARD** which shall be full compensation for furnishing all materials, equipment, labor and incidentals to complete the work as specified and required.