

**Project Manual for
2025 ASPHALT SURFACE REJUVENATING TREATMENT PROGRAM**

April 16, 2025



Prepared by:

**Town of Hope Mills
Public Works Department
5770 Rockfish Road
Hope Mills, NC 28348**

For information on this BID, please contact:

**The Hope Mills Public Works
publicworks@townofhopemills.com
(910) 429-3387**

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ADVERTISEMENTS FOR BIDS

Notice is hereby given that sealed bids will be received by the Public Works Department of the Town of Hope Mills **until 3:00 PM., local time, May 14, 2025**, at which time they will be publicly opened and read aloud at the Town of Hope Mills Town Hall, 5770 Rockfish Road Hope Mills, North Carolina 28348, for the furnishing of all labor and materials for the construction of the following items and the approximate quantities indicated:

<u>Quantity</u>	<u>Item</u>
72,088 SY +/-	Petroleum Maltene-Based Rejuvenating Pavement Treatment

Bids shall be on the form provided for that purpose and according to the Bidding Requirements prepared by the Town of Hope Mills and dated April 16, 2025.

The Bidding Documents can be found on the Town Website at <https://www.townofhopemills.com/bids.aspx> and available to prospective bidders upon request at bclark@townofhopemills.com.

Bids shall be directed to the Town of Hope Mills, Town Hall, 5770 Rockfish Road Hope Mills, North Carolina 28348, securely sealed and endorsed upon the outside wrapper, "**Bid For 2025 Asphalt Surface Rejuvenating Treatment Program**".

No pre-Bid conference will be held.

BIDDERS Proof of Responsibility must be submitted to the Town of Hope Mills in accordance with the Instructions to Bidders.

CONTRACTORS on the Project shall be required to comply with the minimum wages in effect for the State of North Carolina.

The Town Board reserves the right to reject any and all bids, to waive irregularities and informalities therein, and to award the Contract in the best interests of the Town of Hope Mills.

INSTRUCTION TO BIDDERS

Written questions will be received by Bruce Clark at bclark@townofhopemills.com through 3:00 PM, local Time, May 12, 2025. Proposals, to be entitled to consideration, must be in accordance with the following instructions:

1. PROPOSALS

Proposals must be made in accordance with the "Form of Proposal" provided herein, must not be detached from these documents and all blank spaces for bids and alternates properly filled in. When requested alternates are not bid, the proposal may be considered incomplete. In accepting the proposal, the Town will assume that no such alterations have been made and if they appear afterwards, they shall not be binding upon either party.

Any modification to the Form of Proposal (Including alternates) will disqualify the bid and may cause the bid to be rejected.

The CONTRACTOR shall fill in the Form of Proposal as follows:

- a. If the documents are executed by a sole Owner, the fact shall be evidenced by the word "Owner", appearing after the name of the person executing them.
- b. If the documents are executed by a Partnership, the fact shall be evidenced by the word "Partner", appearing after the name of the Partner executing them.
- c. If the documents are executed on the part of a corporation, they shall be executed by either the President or the Vice President and attested by the secretary in either case, and the title of the office of such persons shall appear after their signatures. The seal of the corporation shall be impressed on each copy of the documents.
- d. All signatures shall be properly witnessed.

Proposals shall be addressed as indicated on the Advertisement for Bids, and shall delivered enclosed in an opaque sealed envelope, marked "Proposal" and bearing the title of the work, the name of the BIDDER and the BIDDER'S license number.

It shall be the responsibility of the BIDDER to deliver its bid to the proper official at the appointed place, and prior to the time of the opening of the bids. Later delivery of a bid for any reason, including delivery by the US Mail, shall disqualify the bid.

Modification of bids will only be acceptable only if delivered in writing to the place of the bid opening prior to the time of for opening of bids. Should the BIDDER find discrepancies in or omissions from any of the bidding document, or should they be in doubt as to their meaning, they shall at once notify the Public Works Director who will send a written instruction to all BIDDERS. The Town will not be responsible for any oral instructions.

2. ADDENDA

Any addenda to the specifications issued during the time of bidding are to be considered in the proposal and in closing a contract they will be part thereof. Receipt of addenda shall be acknowledged (If Needed) by the BIDDER on the proposal form.

3. AWARD OF CONTRACT

The award of the contract will be made to the lowest responsible BIDDER as soon as practical; provided that in a selection of equipment of materials, a contract may be awarded to a responsible BIDDER other than the lowest in the

interest of standardization or ultimate economy is clearly evident The TOWN reserves the right to award either alternate bid or to reject any and all bids.

Before awarding a contract, the Town may require the apparent low BIDDER to qualify themselves to be a responsible BIDDER by furnishing any or all of the following documents:

- a. A financial statement showing assets and liabilities of the Company, current to date within 30 days of the of the date of bid opening or other in formation satisfactory to the Town.
- b. A listing of not less than three completed projects of similar scope and nature.
- c. Permanent name and address of business.
- d. The number of regular employees of the organization and the length of time the organization has been in business under the present name.
- e. The name of the members of the firm who hold appropriate trade licenses, together with license numbers.

4. EXAMINATION OF CONDITIONS

The submission of a bid will assume that the CONTRACTOR has fully examined the site and knows the existing conditions and has made every provision for the operation under existing conditions and has included all items.

5. PAYMENTS

Payments shall be made on a basis of 95 percent of monthly estimated cost of labor and materials. Work completed (with the balance being retainage). Upon reaching 50 percent completed as determined by Director of Public Works, and if the character and progress of the Work have been satisfactory to the Director of Public Works, then as long as the character and progress of the Work remain satisfactory to Owner and Director of Public Works, there will be no additional retainage. Total payments shall not exceed 95 percent of material and labor performed at any time and shall not exceed 95 percent of the total contract. The contract payment shall be due and payable within 30 days after the CONTRACTOR'S invoice has been certified for payment by the Public Works Director, the balance to be paid upon completion and acceptance of the job. The CONTRACTOR'S invoice shall be certified by the Public Works Director ten days after being submitted by the CONTRACTOR. For projects of \$100,000 or less not retainage shall be withheld. Final payment shall be made to the CONTRACTOR within 30 days after all work has been completed and every provision of the specifications complied with to the TOWN'S satisfaction.

6. BIDS TO BE RETAINED

No bid may be withdrawn, for a period of 60 days, after the scheduled closing time for the receipt of bids pending the execution of a contract by the successful BIDDER. Should the successful BIDDER default and not execute a contract, the contract would be offered to the next lowest responsible BIDDER.

7. EXECUTION OF A CONTRACT

The successful BIDDER shall sign (execute) the necessary agreements for entering into the contract and return such signed contract to the Town, along with any surety bonds or insurance certificates required by these specifications, within 15 calendar days from the date of the Notice-of-Award.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

BID PROPOSAL
(Company Letterhead)

The following proposal is hereby made to:

The Town of Hope Mills
5770 Rockfish Road
Hope Mills, North Carolina

The undersigned, as BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with the Town of Hope Mills, North Carolina to provide the necessary machinery, tools, apparatus, other means of construction, and all materials and labor specified in the Contract Documents or as necessary to complete the Work in the manner therein specified within the time specified, as therein set forth for:

2025 Asphalt Surface Rejuvenating Treatment Program

In full and in complete accordance with the specifications and contract documents, to the full and entire satisfaction of the Town of Hope Mills, with a definite understanding that no money will be allowed for extra work except set forth in the Specific Provisions and the Contract Documents for the sum of:

\$ _____

Note: Tab 1 "Basis of Bid" Table to be attached.

The BIDDER hereby proposes and agrees to commence work under this contract on a date to be specified in written order of the Director of Public Works and shall fully complete all work thereunder within the time proposed by the BIDDER, and agreed to by the Director of Public Works.

Respectfully Submitted this _____ day of _____, _____

Name of Firm or Corporation

By: _____
Witness

By: _____
Title: _____

(Seal if Bid by a Corporation)

Business Address

License Number

TAB 1 (to Bid Proposal) – BASIS OF BID
(BIDDERS Must Return with Proposal)

STREETS	STREET SECTION	UNITS	QUANTITY	UNIT PRICE	TOTAL AMOUNT
McKinnon Farm Rd	Entire Street	SY	10663		
McCandless Ct	Entire Street	SY	1060		
Michler Ln	Entire Street	SY	2395		
Jacobs Creek Dr	Entire Street	SY	5532		
Stoddert Ln	Entire Street	SY	1618		
Volta Dr	From Cul-de-sac to Brodick Lane	SY	2337		
Evermay Ct	Entire Street	SY	901		
Bankswood Ct	Entire Street	SY	1690		
Saleeby Way	Entire Street	SY	5665		
Dock View Ct	From Saleeby Way to 4226 Dock View Road	SY	1658		
Mackenzie Lynn Ct	Entire Street	SY	1118		
Park Garden Ct	Entire Street	SY	2317		
Low Oak Court	Entire Street	SY	2976		
Narrow Pine Ct	Entire Street	SY	2530		
Cherry Bend Lane	Entire Street	SY	913		
Benchmark Way	Entire Street	SY	1814		
Long Lake Drive	Entire Street	SY	1615		
Legend Creek Dr	From Scenic Pines Drive to far property edge of 1127 Legend Creek Dr.	SY	621		
Mayfern Dr	From Scenic Pines Drive to far property edge of 1109 Mayfern Dr	SY	1919		
Scenic Pines Dr	Property line between 4608 and 4612 Scenic Pines Dr. to far edge of property at 4716 Scenic Pines Dr.	SY	2848		
Andalusian Drive	Entire Street	SY	4183		
Roadster Pony Ln	From Cul-de-sac to far edge of 2237 Roadster Pony Ln.	SY	820		
Standardbred Dr	From stub out to far property edge of 3942 Standardbred Dr	SY	3721		
Yates Ranch Rd	Entire Street	SY	3507		
Racking Horse Rd	From Cul-de-sac to far property edge of 4000 Racking Horse Rd.	SY	508		
Shire St	From Bretton Woods to far property edge of 4016 Shire St.	SY	5486		
Oldenburg Ln	Entire Street	SY	1673		
TOTAL:		SY	72088		

CONTRACT TEMPLATE

NORTH CAROLINA
COUNTY OF CUMBERLAND

CONTRACT FOR: _____

THIS CONTRACT, made and entered into this the _____ day of _____, 2025, by and between the TOWN OF HOPE MILLS, a North Carolina municipal corporation (hereinafter referred to as "TOWN") and _____, a corporation organized and existing under the laws of the State of North Carolina (hereinafter referred to as "CONTRACTOR").

W I T N E S S E T H:

That the Town and the Contractor, for the consideration stated herein, mutually agree as follows:

- 1. STATEMENT OF WORK. The Contractor shall furnish all supervision, labor, materials, machinery, tools, equipment and services necessary to complete

in an efficient and workmanlike manner, and in accordance with all applicable federal, state or local laws, acts or requirements, etc. (hereafter the "Contract Work").

- 2. INCORPORATION OF SPECIFICATIONS

- 3. CONTRACT PRICE: The Town will pay the Contractor for performance of the contract, the sum of _____ Dollars (\$) _____ to be paid as follows:

Town, before making any payment, may require the Contractor to furnish releases or receipts from any or all persons performing work and supplying material or services to the Contractor, or any subcontractor, for work under this contract, if this is deemed necessary to protect its interests.

- 4. INDEPENDENT CONTRACTOR. The parties acknowledge that the Contractor is an independent contractor and in no way or for any reason shall be considered an employee of the Town. Except as otherwise provided by this Contract, the Contractor shall have full discretion to determine which tools and methods shall be used and how much time shall be devoted to the completion of the Contract Work. Also, the Contractor shall have full authority and discretion to employ those persons or subcontractors the Contractor deems necessary to complete the Contract Work.

- 5. IRAN DIVESTMENT ACT. Contractor COMPLIES that they are not listed on the final Divestment List created by the State Treasurer pursuant to N.C.G.S 143-6A-4. Individuals or companies on the Final Divestment List are ineligible to contract or subcontract with Local Government Units. (N.C.G.S. 143-6A-5(a), it is each vendor or contractors' responsibility to monitor its compliance with this restriction. Contracts valued at les than \$1000.00 are exempt from this restriction. (List - www.nctreasurer.com/iran). Complete attachment 2 with contract.

6. COMPLIANCE WITH ALL PERMITS AND CODES. The contractor shall give all notices required by, and comply with all applicable codes, ordinances, laws and acts of the United States, State of North Carolina, County of Cumberland and/or the Town of Hope Mills, and shall, at his own expense, secure and pay the fees or charges for all permits required for the performance of the Contract work

7. CARE OF WORK. The Contractor shall be responsible for and required to make good all damages to persons or property that may occur during the contract period, caused by carelessness, neglect, or want of due precaution on the part of the Contractor, or as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all work performed until completion and final acceptance of the work by the Town. He shall repair at his own expense in a manner satisfactory to the Town any damage caused by his operations.

8. ACCIDENT PREVENTION. The Contractor shall exercise proper precautions at all times for the protection of persons or property and shall be responsible for all damages to persons or property, either on or off the site. The safety provisions of applicable laws, acts and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as is determined to be reasonably necessary.

9. INDEMNIFICATION OF TOWN.
 - (A) The Contractor shall indemnify and hold harmless the Town from liability for any damage to persons or property resulting from prosecution of work under this Contract.

 - (B) The Contractor shall indemnify and hold harmless the Town from any and all claims of subcontractors performing services or supplying material to the site.

 - (C) The Contractor shall indemnify and hold harmless the Town and the officers and agents thereof from any and all claims, suits and proceedings of every name and description which may be brought against the Town or the officers and agents thereof, for or on account of any injuries or damages to persons or property received or sustained by a person or persons, firm or corporation, of, by or in consequence of any materials used in said work, or by or on account of any improper material or workmanship in its construction, or by or on account of any accident or of any other act or omission of said Contractor or their agents, employees, servants or workers.

10. INSURANCE. The work and products to be provided under this Contract shall not commence until the contractor has obtained all required insurance and certificates of insurance have been submitted to and approved by the Town. These certificates shall contain a provision that coverage afforded under the policies will not be canceled, reduced in amount or coverage eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested to the insured and the Town of such alteration or cancellation. The Town of Hope Mills shall also be named as an additional insured.
 - (A) Workers' Compensation and Employer's Liability

The contractor shall provide and maintain, during the life of the Contract, workers' compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of \$1,000,000 for each accident, \$1,000,000 disease for each employee, and \$1,000,000 disease coverage limit.

(B) General Liability Coverage

The contractor shall carry comprehensive general liability insurance to protect the contractor and his subcontractors against claims for injury to or death to one, or more than one person due to accidents which may occur or result from operations under the Contract and to protect him and his subcontractors from claims for property damage which might arise from operations under the Contract. Such general liability insurance shall cover the use of all equipment, hoists, and motor vehicles on the site, or hauling materials or debris from the site.

Minimum limits of general liability insurance shall be as follows:

- General Liability - \$2,000,000 (Can be \$1,000,000 of General Liability with \$1,000,000 of Umbrella or Excess Coverage)
- Auto Liability - \$2,000,000 (Can be \$1,000,000 of Auto Liability with \$1,000,000 of Umbrella or Excess Coverage)

All deductibles shall be the responsibility of the Contractor.

11. EQUAL EMPLOYMENT OPPORTUNITY. During the performance of this Contract, the Contractor agrees as follows:

(A) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, religion, sex, age, or handicap. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, national origin, religion, sex, age, or handicap. Such action shall include but not be limited to employment, upgrading, demotion, transfer recruitment, or recruitment advertising, layoff, termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post notices setting forth the provisions of this non-discrimination clause in conspicuous places available to employees and applicants for employment.

(B) (In the event of the Contractor's noncompliance with the non-discrimination clauses of this Contract or with any of such releases, regulations or orders, this contract may be cancelled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts.

12. E-VERIFY. As a condition of this contract, the contractor shall comply with the requirement of Article 2 of Chapter 64 of the General Statutes, further if Contractor provides services to the Town utilizing a subcontractor, Contractor shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the General Statutes as well. Contractor shall verify, by affidavit, compliance of terms of the section upon request by the Town (Complete Attachment "1" with the Contract.

13. TIME FOR COMPLETION. The work the Contractor is required to perform under this contract shall be commenced within _____ (_____) days after the execution of the Contract and shall be fully completed within _____ (_____) consecutive calendar days following such commencement.

14. INSPECTION OF WORK. All materials and each part or detail of the work shall be subject to inspection by the Town. The Town shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.
15. CARE OF EXISTING FACILITIES. In execution the work, the Contractor shall exert every effort not to injure existing facilities or to break into them. Any damage that is done thereto shall be promptly repaired by the Contractor at his own expense. He shall not interrupt or interfere with operation of the existing facilities during construction except when absolutely necessary. When this is the case, he shall consult with the Town Manager or his or her designee as to procedure, and shall be governed by their decision. Any improvements damaged during construction of the project shall be restored to a condition equal to that existing at the time of award of contract.
16. GUARANTEE OF ALL WORK. All work shall be guaranteed by the Contractor and his Sureties against defects resulting from the use of faulty or inferior materials, equipment, or workmanship for one year from the date of final completion of the work as signified by acknowledgment of receipt of final Payment by the Contractor, or from date of notice of full occupancy of the facility by the Town, whichever is earlier, or from the date of final completion as established by the Town.

Additional Warranties/Guarantees: _____

17. TERMINATION OF CONTRACT.

- (A) If the Contractor refuses or fails to prosecute the work with such diligence as will ensure its completion within the time specified, the Town may terminate the Contract's rights to proceed with the work. Upon such termination, the Town may take over the work and prosecute the same to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Town for any additional cost incurred by the Town in its completion of the work and they shall also be liable to the Town for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is so terminated, the Town may take possession of and utilize in completing the work such materials, tools, equipment, and plans as may be on the site of the work and necessary thereof.
- (B) The Town may terminate this Contract at any time for any reason or no reason at all upon five (5) business days' written notice to the Contractor. If the Town terminates pursuant to this subsection, it shall pay the Contractor for the reasonable value of the services and materials provided as of the date of termination.

18. FORCE MAJEURE. The Contractor shall not be responsible for delays or failures if such delays or failures arise out of causes beyond its control. Such causes may include, but are not restricted to, acts of God or of the public enemy, fires, floods, epidemics, riots, quarantine restrictions, strikes, freight embargoes, earthquakes, electrical outages, computer or communications failures, and severe weather. Should one of the causes delay the Contractor's completion of the Contract Work within the time specified herein, the parties shall agree to a reasonable extension of the time to complete the Work without penalty to the Contractor.
19. LIQUIDATED DAMAGES FOR DELAYS. If the work is not completed within the time stipulated in herein, including any extensions of time granted for excusable delays, the Contractor shall pay to the Town the sum of \$_____ for

each calendar day of delay, until the work is satisfactorily completed.\

- 20. CHANGES IN THE WORK. Changes in the scope of work and time under this contract shall be in writing and mutually executed by the Contractor and the Town. The Contractor shall not be paid for any work requiring a change order unless the Town approves the change order.
- 21. CHOICE OF LAW. Any and all disputes arising from this Contract or work performed pursuant to this Contract shall be governed by the laws of the State of North Carolina.

IN WITNESS WHEREOF, the Town and the Contractor have executed this Contract as of the day and year first above written.

TOWN OF HOPE MILLS

CONTRACTOR

By: _____
Chancer McLaughlin, Town Manager

By: _____

Title: _____

ATTEST:

Ashley Wyatt, Town Clerk

This instrument has been pre-audited in the manner required by the local government budget and fiscal control act.

Drew Holland, Finance Director

Date

ATTACHMENT 1

STATE OF NORTH CAROLINA
COUNTY OF CUMBERLAND
TOWN OF HOPE MILLS

AFFIDAVIT: E-VERIFY COMPLIANCE

I, _____ (the individual attesting below), being duly authorized by and on behalf of
_____ (the entity bidding on project hereinafter "Employer") after first being duly sworn
hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).
2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).
3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. (mark Yes or No)
 - a. YES _____, or
 - b. NO _____
4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This ____ day of _____, 20____.

Signature of Affiant
Print or Type Name: _____

Signed and sworn to (or affirmed) before me, this the ____
day of _____, 20____.

My Commission Expires:

Notary Public

(Affix Official/Notarial Seal)

ATTACHMENT 2

IRAN DIVESTMENT ACT CERTIFICATION

Contractor certifies that, as of the date listed below, it is not on the final Divestment List as created by the State Treasurer pursuant to N.C.G.S 143-6A-4. In compliance with the requirements of the Iran Divestment Act and N.C.G.S. 143-6A-5(b), Contractor shall not utilize in the performance of the contract any subcontractor that is identified on the Final Divestment List.

Contractor

Date

ATTEST:

SPECIAL PROVISIONS

Asphalt Rejuvenation

1. GENERAL SCOPE

This work shall consist of furnishing all labor, material and equipment necessary to perform the operations for the application Reclamite **Maltene-Based** Asphalt Rejuvenating Agent to bituminous asphaltic surface courses. The rejuvenation of surface courses shall be by spray application of a cationic Maltene-Based Rejuvenating Agent composed of petroleum oils and resins emulsified with water. The base used for the emulsion shall be a naphthenic base stock. The asphalt binder rejuvenation shall be affected through maltene replacement technology. All work shall be in accordance with the specifications, any applicable drawings, and subject to the terms and conditions of this contract.

2. RESIDENT NOTIFICATION

- A. The Contractor shall provide the Public Works Director with at least 48 hours' notice prior to planned work activities to allow for sufficient notice to be issued to impacted property owners.
- B. The Owner shall issue notice to impacted property owners by means of hand delivering a typed notice, issuance of a press release on the Town website (www.hopemills.com) and by email to subscribers, and/or notification of homeowners' associations no less than 48 hours prior to commencement of work. The Owner shall also place a notice on the windshield of any parked vehicles on the roadways the evening prior to commencement of work.

3. MATERIAL SPECIFICATIONS

The asphalt rejuvenating agent shall be a naphthenic petroleum maltene-based rejuvenating agent composed of four petroleum maltene components (listed below) uniformly emulsified with water. The asphalt rejuvenating emulsion must conform to the required physical and chemical requirements:

SPECIFICATIONS

	Test Methods		Requirements	
	ASTM	AASHTO	Min	Max
Tests on Emulsion				
Viscosity @ 25°C, SFS	D-244	T-59	15	40
Residue, %W ¹	D-244(Mod)	T-59(Mod)	60	65
Miscibility Test ²	D-244(Mod)	T-59(Mod)	No Coagulation	
Sieve test, %W ³	D-244(Mod)	T-59(Mod)	-	0.1
Particle Charge Test	D-244	T-59	Positive	
Percent Light Transmittance ⁴			-	30
Tests on Residue from Distillation				
Flash Point, COC, °C	D-92	T-48	196	-
Viscosity @ 60°C, cSt	D-445	-	100	200
Asphaltenes, %w	D-2006-70	-	-	1.00
Maltene Dist. Ratio ⁵	D-2006-70	-	0.3	0.6
PC/S Ratio ⁵	D-2006-70	-	0.5	-
Saturated Hydrocarbons, S ⁵	D-2006-70	-	21	28

¹ ASTM D-244 Modified Evaporation Test for percent of residue is made by heating 50-gram sample to 149°C (300°F) until foaming ceases, then cool immediately and calculate results.

² Test procedure identical with ASTM-D-244-60 except that .02 Normal Calcium Chloride solution shall be

used in place of distilled water.

³ Test procedure identical with ASTM-D-244 except that distilled water shall be used in place of two percent sodium oleate solution.

⁴ Procedure for Determining Percent Light Transmittance on Asphalt Rejuvenating Agent:

1. Scope: This procedure covers the determination of percent light transmittance of the asphalt rejuvenating agent.

2. Apparatus:

- Container may be glass, plastic or metal having a capacity of 6,000 ml.
- Graduated cylinder, 1,000 ml, or greater
- Light transmittance measuring apparatus, such as Bausch and Lomb or Lumberton spectrophotometer
- Graduated pipette having 1 ml capacity to 0.01 ml accuracy
- Suction bulb for use with pipette
- Test tubes compatible with spectrophotometer, 3/4" x 6, Bausch and Lomb, Catalog No. 33-17-81, (B&L)

3. Calibration of spectrophotometer:

- Calibrate spectrophotometer as follows:
 - Set wavelength at 580 mu,
 - Allow spectrophotometer to warm-up thirty minutes,
 - Zero percent light transmittance (%LT) scale,
 - Rinse test tube three times with tap water and fill to top of circle marking on B&L test tube or approximately 2/3 full,
 - Place tube in spectrophotometer and set %LT scale at 100, and,
 - repeat steps (c) and (e) two times or until no further adjustments are necessary.

4. Procedure:

- Shake, stir or otherwise thoroughly mix emulsion to be tested. Place sample of emulsion in beaker and allow to stand one minute.
- Place 2,000 ml tap water in container.
- Suck 1.00 ml emulsion into pipette using suction bulb. Wipe off outside of pipette.
- Using suction bulb, blow emulsion into container.
- Rinse pipette by sucking in diluted emulsion solution and blowing out.
- Clean pipette with soap or solvent and water. Rinse with acetone.
- Stir diluted emulsion thoroughly.
- Rinse out tube to be used with the diluted emulsion three times and fill to top of circle.
- Calibrate spectrophotometer.
- Place diluted emulsion sample tube in spectrophotometer, cover and read %LT to nearest tenth.
- Repeat steps 9 and 10 until three identical consecutive readings are achieved.
 - The elapsed time between addition of emulsion to dilution of water and final %LT reading should not exceed 5 minutes.

⁵ Chemical Composition by ASTM Method D-2006-70:

$$\frac{PC + A_1}{S + A_2}$$

PC = Polar Compounds
A₂ = Second Acidaffins

A₁ = First Acidaffins
S = Saturated Hydrocarbons

C. Material Performance: The asphalt rejuvenating agent shall have the capability to penetrate the asphalt pavement surface. The asphalt rejuvenating agent shall be absorbed and incorporated into the asphalt binder. Verification that said incorporation of the asphalt rejuvenating agent into the asphalt binder has been affected shall be by analysis of the chemical properties of said asphalt binder.

1. The viscosity shall be reduced by an average of thirty-five percent (35%) for pavements receiving the first or original application of rejuvenating agent as determined by dynamic shear rheometer (DSR) method for asphalt testing in accord with AASHTO T315-05. For retreated pavements after an initial treatment with the asphalt rejuvenator, the viscosity shall be reduced by petroleum maltene replacement method a minimum of twenty percent (20%) as determined by dynamic shear rheometer (DSR) method for testing in accord with ASSTHO T315-05.
2. This analysis shall apply to extracted asphalt binder, taken from cores extracted fifteen to thirty days following application, in the upper 3/8 inch of pavement. In addition, the treated areas shall be sealed in-depth to the intrusion of air and water.
3. When directed by the Director of Public Works, the Contractor shall have the following additional testing performed at the cost of the Owner:
 - a. The extracted asphalt binder taken from the treated and untreated cores as heretofore outlined shall be further tested per ASTM D-2006-70 Rostler Analysis. The results of this testing shall indicate a decrease in the percent asphaltene content for the treated samples as compared to the untreated samples.

D. Materials Handling:

1. Contents in tank cars or storage tanks shall be circulated at least forty-five minutes before withdrawing any material for application.
2. When loading the distributor, the asphalt rejuvenating agent concentrate shall be loaded first and then the required amount of water shall be added. The water shall be added into the distributor with enough force to cause agitation and thorough mixing of the two materials. To prevent foaming, the discharge end of the water hose or pipe shall be kept below the surface of the material in the distributor, which shall be used as a spreader.
3. The distributor truck will be cleaned of all its asphalt materials and washed out to the extent that no discoloration of the emulsion may be perceptible. Cleanliness of the spreading equipment shall be subject to inspection and the Contractor shall halt the application process when so ordered by the Public Works Director

4. APPLICATION EQUIPMENT

The distributor for spreading the emulsion shall be self-propelled, and shall have pneumatic tires. The distributor shall be designed and equipped to distribute the asphalt rejuvenating agent uniformly on variable widths of surface at readily determined and controlled rates from 0.05 to 0.5 gallons per square yard of surface, and with an

allowable variation from any specified rate not to exceed five (5) percent of the specified rate. Distributor equipment shall include full circulation spray bars, pump tachometer, volume measuring device and a hand hose attachment suitable for application of the emulsion manually to cover areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the emulsion within the tank. A check of distributor equipment as well as application rate accuracy and uniformity of distribution shall be made when directed by the Resident Engineer. The truck used for sanding shall be equipped with a spreader that allows the sand to be uniformly distributed onto the pavement. The spreader shall be able to apply 1 to 4 pounds of sand per square yard in a single pass. The spreader shall be adjustable so as to not broadcast sand onto driveways or tree lawns. Any equipment which is not maintained in full working order, or is proven inadequate to obtain the results prescribed, shall be repaired or replaced at the direction of the Resident Engineer.

- 5. APPLICATION OF REJUVENATING AGENT:** The asphalt rejuvenating agent shall be applied by a distributor truck at the temperature recommended by the manufacturer and at the pressure required for the proper distribution. The emulsion shall be so applied that uniform distribution is obtained at all points of the areas to be treated. Distribution shall be commenced with a running start to ensure full rate of spread over the entire area to be treated. Areas

inadvertently missed shall receive additional treatment as may be required by a hand sprayer application. Application of the asphalt rejuvenating agent shall be on one-half width of the pavement at a time. When the second half of the surface is treated, the nozzle nearest the center of the road shall overlap the previous by at least one-half the width of the nozzle spray. In any event the construction joint of the pavement shall be treated in both passes of the distributor truck. Before spreading, the asphalt rejuvenating agent shall be blended with water at the rate of 60% rejuvenating agent and 40% water, by volume or as specified by the manufacturer. The combined mixture of asphalt rejuvenating agent and water shall be spread at the rate of 0.05 to 0.10 gallons per square yard, or as approved by the Resident Engineer following field testing. Where more than one application is to be made, succeeding applications shall be made as soon as penetration of the preceding application has been completed and approval is granted for additional applications by the Resident Engineer. Grades or super elevations of surfaces that may cause excessive runoff in the opinion of the Resident Engineer shall have the required amounts applied in two (2) or more applications as directed. Said treatment shall be uniformly applied by a method acceptable to the Resident Engineer. Care should be taken during all rejuvenator applications to not get excessive material on the curb and gutter. Additional cleaning may be required if this occurs at the contractor's expense. After the rejuvenating emulsion has penetrated, a coating of sand shall be applied to the surface in sufficient amount to protect the traveling public as required by the Resident Engineer. The Contractor shall furnish a quality inspection report showing the source and manufacturer of asphalt rejuvenating agent. When directed by the Public Works Director, the Contractor shall take representative samples of material for testing.

- 6. TRAFFIC CONTROL AND SAFETY:** The Contractor shall schedule their 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 to be treated. Treated portions of the pavement surfaces shall be kept closed and free from traffic until penetration has become complete and the area is suitable for traffic. Cure time shall be no longer than 90 minutes. When traffic must be maintained at all times on a particular street, then the Contractor shall apply asphalt rejuvenating agent to one (1) lane at a time. Traffic shall be maintained in the untreated lane until the traffic may be switched to the completed lane. Access to adjacent properties shall be maintained during the application. The Contractor shall be responsible for all traffic control and signing required to permit safe travel. All signing and barricading of the work zone shall comply with MUTCD guidelines and State standards. The Contractor shall notify the Public Works Director as to the streets that are to be treated each day. All support vehicles used shall also have flashing beacons that can be seen from all sides of the vehicle, for safety considerations for all work on major arterials. If the Contractor fails to provide the required signing, the Contractor shall stop all operations until safe signing and barricading is achieved.

