

COUNTY OF BARNSTABLE
PURCHASING

Elaine Davis
Chief Procurement Officer

DEPARTMENT OF FINANCE
SUPERIOR COURT HOUSE
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Invitation for Bids

Barnstable County is seeking sealed bids for Towns in Barnstable County for Roadway Construction Items for the period of April 1, 2016 through March 31, 2017, with the option to renew for one additional year.

Bids will be received at the Superior Court House, Office of the County Commissioners, Purchasing Department, 3195 Main Street, P.O. Box 427, Barnstable, MA 02630, on or before **February 11, 2016 at 10:00AM, no exceptions.**

Bid specifications may be obtained from the Barnstable County Purchasing Department, Superior Court House, P.O. Box 427, Barnstable, Massachusetts 02630.

Sealed envelopes containing bids shall be clearly marked **“Bid – Roadway Construction Items – ‘2016’”**.

NOTE: One original and one (1) copy of each bid shall be submitted. NO faxed proposals will be accepted.

The County of Barnstable reserves the right to accept or reject any or all bids, to waive any informality contained therein, and to award the contract as decided to be in the best interest of the County.

All submissions for this project are subject to the provisions of Massachusetts General Laws, Chapter 30, 39M. Prevailing wages apply. MA Highway Prequalification is required for some items.

The County of Barnstable fully complies with federal, state, and local laws and directives governing equal opportunity, affirmative action and non-discrimination in all county activities and actively solicits bids/proposals from MBE/WBE businesses in accordance with County policy.

Dated at Barnstable, Massachusetts, this 20th day of January, Two Thousand Sixteen.

Elaine Davis
Chief Procurement Officer

INSTRUCTIONS TO BIDDERS

1. Defined Terms.

The term "County" means the County of Barnstable, MA through the County Commissioners.

The term "Successful Bidder" means the lowest, qualified, responsible, and responsive Bidder to whom the County (on the basis of the County's and Towns' evaluation as hereinafter provided) makes an award.

The term "Owner" means the Towns of Barnstable, Bourne, Brewster, Chatham, Dennis, Eastham, Falmouth, Harwich, Orleans, Sandwich, Wellfleet, and/or Yarmouth, as appropriate.

2. Copies of Bidding Documents.

- 2.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation may be obtained from the Office of the County Commissioners.
- 2.2 Complete sets of Bidding Documents shall be used in preparing Bids; the County will not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 The County, in making copies of Bidding Documents available on the above terms, does so only for the purpose of obtaining Bids on the Work and does not confer a license or grant for any other use.

3. Examination of Contract Documents and Site(s).

- 3.1 Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the Towns to familiarize himself with local conditions that may in any manner affect cost, progress or performance of the Work, (c) familiarize himself with federal, state and local laws, by-laws, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.
- 3.2 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.
- 3.3 If this bid is received electronically, bidders are solely responsible for obtaining and completing required attachments that are identified in this bid and for checking for any addenda or modifications that are subsequently made to this bid or attachments. Barnstable County accepts no liability and will provide no accommodation to bidders who fail to check for amended bids and submit inadequate or incorrect responses. Bidders may not alter (manually or electronically) the bid language or any bid documents. Unauthorized modifications to the body of the bid, specifications, terms or conditions, or which change the intent of this bid are prohibited and may disqualify a response.

4. Interpretations.

All questions about the meaning or intent of the Contract Documents shall be submitted to the County in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by the County as having received the Documents. Questions received less than seven days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

5. Bid Security.

- 5.1 Bid Security shall be made payable to the County, in an amount of five percent (5%) of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond.
- 5.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security (Bonds, when required) and Insurance Binders, where upon it will be returned; if the Successful Bidder fails to execute and deliver the Agreement and furnish the required documents within five (5) working days of the Notice of Award, the County may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom the County believes to have a reasonable chance of receiving the award may be retained by the County until the earlier of the seventh (7th) day after the "effective date of the Agreement" (which term is defined in the General Conditions) by the County to Contractor and the required Contract Security is furnished or the sixty-first (61st) day after the Bid opening. Bid Security of other Bidders will be returned within seven (7) days of the Bid opening.

6. Contract Time.

The Contract Time begins April 1, 2016 and terminates March 31, 2017, or when the Contract amount has been expended, whichever occurs first. If the bids are extended for 1 year, then the new Contract period for all Towns will be from April 1, 2017 to March 31, 2018. The County reserves the right to extend the Contract under the same terms, conditions, and estimated quantities for a maximum period of one (1) year from date of expiration. If the County chooses to extend a contract, then the County will forward a written notice to the Contractor. If the Contractor refuses to extend the contract for the additional year (if selected by the County), then that Contractor will be considered in breach of contract and will not be allowed to bid on similar contracts for one (1) year.

7. Substitute Material and Equipment.

The Contract, if awarded, will be on the basis of material and equipment described/ specified in the Contract Specifications. Whenever it is indicated in the Contract Specifications that a substitute or "approved equivalent" item of material or equipment may be furnished or used by Contractor if acceptable, application for such acceptance will not be considered by the County until after the "effective date of the Agreement".

8. Subcontractors, etc.

- 8.1 If the General Conditions require the identity of certain Subcontractors and other persons and organizations to be submitted in advance of the Notice of Award, the apparent Successful Bidder, and any other Bidder so requested, will within seven days after the day of the Bid opening submit a list of all Subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for those portions of the Work as to which such identification is so required. Such list shall be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, person and organization if requested. If, after due investigation, reasonable objection exists to any proposed Subcontractor, other person or organization, the apparent Successful Bidder will be requested to submit an acceptable substitute without an increase in Bid price.

If the apparent Successful Bidder declines to make any such substitution, the Contract shall not be awarded to such Bidder. Any Subcontractor, other person or organization so listed and for whom the County has no written objection is submitted prior to the giving of the Notice of Award will be deemed acceptable.

- 8.2 No Contractor shall be required to employ any Subcontractor, other person or organization against whom he has reasonable objection.

9. Bid Form.

- 9.1 All Bids must be submitted on the Bid forms bound herein; additional copies may be obtained from the County.
- 9.2 Bid Forms must be completed in ink or by typewriter. The Bid unit price of each item bid on the form must be stated in words and numerals; in case of a conflict, words will take precedence.
- 9.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 9.4 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.
- 9.5 All names must be typed or printed below the signature.
- 9.6 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- 9.7 The address to which communications regarding the Bid are to be directed must be shown.

10. Submission of Bids.

Bids shall be submitted at the time and place indicated in the Invitation to Bid and shall be included in an opaque sealed envelope, marked with the Project title and name and address of the Bidder and accompanied by all required documents. If the Bid is sent through the mail or other delivery system the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof.

11. Modification and Withdrawal of Bids.

11.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

11.2 If, within twenty-four (24) hours after Bids are opened, any Bidder files a duly signed written notice with the County and promptly thereafter demonstrates to the reasonable satisfaction of the County that there was a material and substantial mistake in the preparation of his Bid, that Bidder may withdraw his Bid. Thereafter, that Bidder will be disqualified from further bidding on the Work.

12. Opening of Bids.

Bids will be opened publicly. They will be read aloud, and an abstract of the amounts of the base Bids will be made available after the opening of Bids.

13. Bids to Remain Open.

All Bids shall remain open for sixty (60) days after the day of the Bid opening, but the County may, in its sole discretion, release any Bid prior to that date.

14. Award of Contract.

14.1 The County may consider informal any bid not prepared and submitted in accordance with the provisions hereof. The County reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of a column of figures and the correct sum thereof will be resolved in favor of the correct sum.

14.2 In evaluating Bids, the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and prices if requested in the Bid forms shall be considered. The Contract shall be awarded to the lowest, qualified, responsive and responsible Bidder.

- 14.3 The qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions may be considered. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment may also be considered.
- 14.4 Investigations may be conducted as deemed necessary (including but not limited to requesting a list of all projects completed by a Bidder) to assist in the evaluation of any Bid and to satisfactorily establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents within the prescribed time.
- 14.5 The right is reserved to reject the Bid of any Bidder who does not satisfactorily pass any such evaluation.
- 14.6 If the Contract is to be awarded, it will be awarded to the lowest, qualified, responsive and responsible Bidder whose evaluation indicates that the award will be in the best interests of the Project.
- 14.7 If the Contract is to be awarded, the County will give the Successful Bidder a Notice of Award within sixty (60) days after the day of the Bid opening.

15. Signing of Agreement.

When the County gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three (3) counterparts of the Agreement and all other Contract Documents. Within five (5) working days thereafter Contractor shall sign and deliver at least three counterparts of the Agreement to the County with all other Contract Documents (e.g. Bonds, Insurance Binders) attached.

16. Special Legal Requirements.

All bids shall be submitted in accordance with all requirements of all laws and regulations governing the performance of work on the Project or Services. Bidder warrants and represents that it has read and is familiar with all such requirements.

17. Performance and other Bonds.

Each successful Bidder shall supply the required Performance/Maintenance Bond and Labor/Materials (Payment) Bond, and shall provide the Bonds to each Town after receiving a written Notice to Proceed from that Town.

The General Conditions set forth the detailed requirements as to the Performance/Maintenance, and Labor/Materials Bonds.

18. Other.

- 18.1 Termination of a Contract or Services by any Town shall not invalidate or alter the terms of a Contract or Services with any other Town.
- 18.2 Each Town shall be solely responsible for payment of invoices due Contractor for quantities ordered and received by that Town only.
- 18.3 Bids shall be available for all divisions, departments, and political subdivisions of each Town including, but not limited to: water, fire, and school districts.
- 18.4 “As per MGL, Chapter 7, section 22, each political subdivision participating in this bid is solely responsible for any payment due vendor for its share of such purchase. Barnstable County, as lead purchasing agent shall not be liable for payment or for any claim based upon a breach of warranty or defects in the design, manufacture or installation of material, supplies or equipment purchase pursuant to this bid.”

19. Fair Employment Practices.

During the performance of this project, the Bidder and all of his Subcontractors, for himself, his assignees, and successors in interest, agree as follows: **The Bidder, in the performance of all work during, after and prior to completion of work under this Agreement, will not discriminate on grounds of race, color, religious creed, national origin, age or sex in employment practices, in the selection or retention of subcontractors, or in the procurement of materials and rentals of equipment. (Fair Employment Practices law of the Commonwealth M.G.L. Chapter 151B.)** The Bidder by signing this Agreement agrees to abide by the above paragraph to the best of his/her ability.

GENERAL CONDITIONS

ARTICLE 1 - CONTRACT DOCUMENTS, INTENT, AMENDING, AND REUSE

Intent:

- 1.1 The Contract Documents comprise the entire Agreement between the County and CONTRACTOR concerning the Work. The Contract Documents are complementary: what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.
- 1.2 It is the intent of the Contract Documents to describe a functionally complete Project or Service (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the County, the Towns or CONTRACTOR, or any of their agents or employees from those set forth in the Contract Documents, nor the Notice to Proceed.

ARTICLE 2 CONTRACTOR'S LIABILITY INSURANCE

- 2.1 CONTRACTOR shall purchase and maintain such comprehensive general liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR'S performance and furnishing of the Work and CONTRACTOR'S other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:
 - 2.1.1 Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;
 - 2.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR'S employees;
 - 2.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR'S employees;

- 2.1.4 Claims for damages insured by personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (b) by any other person for any other reason;
- 2.1.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom;
- 2.1.6 Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and
- 2.1.7 Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The insurance required above shall include the specific coverages and be written for not less than the limits of liability and coverages provided as follows:

1. Workmen's Compensation: In accordance with the Workmen's Compensation Laws that are applicable to the employees engaged in the Work. The limit of Employer's Liability Insurance shall be not less than \$500,000 each accident.
2. Public Liability Insurance for Personal Injury:
 - a. Individual limit of \$1,000,000 each person.
 - b. Total limit of \$ 3,000,000 for each accident.
3. Property Damage Insurance:
 - a. Each claim \$ 1,000,000.
 - b. Aggregate \$ 3,000,000.
4. If the CONTRACTOR sublets any portion of his work, then he shall also provide:
 - a. Contractor's Protective Liability Insurance:
 - (1) Individual limit for personal injury of \$1,000,000.
 - (2) Total limit for personal injury for one accident of \$3,000,000.
 - b. Contractor's Protective Property Damage Insurance with a limit of \$1,000,000/\$3,000,000.

Any Subcontractor under contract with CONTRACTOR to perform Work on the Project shall hold the County, the Towns and agents harmless, and purchase and maintain such comprehensive general liability and other insurance as will provide protection from claims set forth herein.

The County and the Towns shall be specifically named as additional insureds on all required insurance policies of the CONTRACTOR and any Subcontractors.

In addition, CONTRACTOR shall maintain such completed operations insurance for at least one year after final payment and furnish the County with evidence of continuation of such insurance at final payment.

ARTICLE 3 - CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

- 3.1 CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

Labor, Materials and Equipment

- 3.2 CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without a Town's written consent.
- 3.3 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the County or a Town, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier.

Laws and Regulations

- 3.4 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, the County or Towns shall not be responsible for monitoring CONTRACTOR'S compliance with any Laws or Regulations.

Taxes

- 3.5 State taxes will be excluded from all General and Sub-bids. The Towns shall provide their exemption certificate number(s) to the CONTRACTOR. CONTRACTOR shall pay all taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

Use of Premises

- 3.6 CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against the County or any Town by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold the County and all Towns harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against the County and all Towns to the extent based on a claim arising out of CONTRACTOR'S performance of the Work.

Safety and Protection

- 3.7 CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work (examples: OSHA Regulations regarding Excavation safety: 29 CFR Part 1926 and Confined Space Procedures: 29 CFR 1910.146). CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
- 3.7.1 all employees on the Work and other persons and organizations who may be effected thereby:
 - 3.7.2 all the Work and materials and equipment to be incorporated there-in, whether in storage on or off the site; and
 - 3.7.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws, regulations and Guidelines of any public body (examples: OSHA, DIGSAFE, MHD Work Zone Safety Guidelines) having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 3.7.1 or 3.7.2 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any sub-contractor, supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of the County, any Towns or anyone employed by any of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR). CONTRACTOR'S duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.

Indemnification

- 3.8 To the fullest extent permitted by Laws and Regulations CONTRACTOR shall indemnify and hold harmless the County, the Towns and their consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work.

Separate Contracts

- 3.9 The County and the Towns have the right to let other contracts in connection with the Work and the CONTRACTOR shall properly cooperate with any such other contractors.

ARTICLE 4 - UNIT PRICE WORK

- 4.1 Initially, the Contract Price will be deemed to include for Unit Price Work an amount equal to the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classification of Unit Price Work performed by CONTRACTOR will be made by each Town.
- 4.2 Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR'S overhead and profit for each separately identified item.
- 4.3 When the accepted quantities of Work vary from the estimated quantities, the CONTRACTOR shall accept as payment in full, so far as contract items are concerned, payment at the original Contract unit prices for the accepted quantities of Work done. No allowance will be made for any increased expenses, loss of expected reimbursement or loss of anticipated profits suffered or claimed by the Contractor, resulting either directly or indirectly from such increased or decreased quantities.

- 4.4 The CONTRACTOR shall make monthly estimates of the materials complete in place for the amount of Work performed in accordance with the Contract. The estimates will be itemized for review and approval by each Town. Each estimate will show the total value of the Work done to date, the total money due the CONTRACTOR since the previous estimate and the money paid the CONTRACTOR to date. This estimate will be considered approximate only and shall be subject to correction. Five (5%) percent of all payments due the CONTRACTOR for Work done and materials furnished will be withheld until final completion of the Work. The acceptance by the CONTRACTOR of the final payment, including the retainage of five (5%) percent, shall operate as a release to the specific Town of all claims and all liabilities to the CONTRACTOR for all Work done or materials furnished in connection with the Contract. Final payment shall be as provided in G.L. Ch.30, Section 39G. The payment to the CONTRACTOR of said final payment does not, however, release them or their sureties from any obligation under this contract.
- 4.5 It shall be the responsibility of the CONTRACTOR to inform each Town when the sum of all orders for units of work is within 90% of the total Contract price for that Town. The CONTRACTOR'S total billing can not exceed the total Contract price without prior written approval by each Town.
- 4.6 All monies not paid when due hereunder shall bear interest at the maximum rate allowed by law at the place of the Project.

ARTICLE 5 - WARRANTY AND GUARANTEE; TESTS AND INSPECTION; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

Warranty and Guarantee

- 5.1 CONTRACTOR warrants and guarantees to the County and the Towns that all Work will be in accordance with the Contract Documents and will not be DEFECTIVE. Prompt notice of all defects shall be given to CONTRACTOR. All DEFECTIVE Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article.

Access to Work

- 5.2 The County's or Town's representatives, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

Tests and Inspections

- 5.3 CONTRACTOR shall give each Town timely notice of readiness of the Work for all required inspections, tests or approvals. CONTRACTOR shall furnish written information to each Town stating the original sources of all materials manufactured away from the actual site of the Work. In order to insure a proper time sequence for required inspection and approval, this information shall be furnished at least two weeks in advance of the incorporation in the Work of any such materials.

- 5.4 If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of a specific Town, it must, if requested by that Town, be uncovered for observation. Such uncovering shall be at CONTRACTOR'S expense unless CONTRACTOR has given that Town timely notice of CONTRACTOR'S intention to cover the same and that Town has not acted with reasonable promptness in response to such notice.
- 5.5 Neither observations by the County or a Town, nor inspection, tests or approvals by others shall relieve CONTRACTOR from CONTRACTOR'S obligations to perform the Work in accordance with the Contract Documents.

Two Year Correction Period

- 5.6 If within two (2) years after the date of Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be DEFECTIVE, CONTRACTOR shall promptly, without cost to the Town and in accordance with Town's written instructions, either correct such DEFECTIVE Work, or, if it has been rejected by the Town, remove it from the site and replace it with NONDEFECTIVE Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the Town may have the DEFECTIVE Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by CONTRACTOR. In special circumstances where a particular item of equipment is placed in continuous service before Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

ARTICLE 6 - PERFORMANCE AND OTHER BONDS

- 6.1 CONTRACTOR shall furnish Performance and Maintenance, and Labor and Materials Bonds, each in an amount 100% of the Contract Price as security for the faithful performance and payment of all CONTRACTOR'S obligations under the Contract Documents. These Bonds shall remain in effect at least until two (2) years after the date when final payment becomes due, except as otherwise provided by Law or Regulation or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.
- 6.2 If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 6.1, CONTRACTOR shall within five (5) days thereafter substitute another Bond and Surety, both of which must be acceptable to the County.

ARTICLE 7 - EFFECTIVE DATE

The Effective Date of the Agreement shall be the date that the County determines that the Contract is complete, signs the Agreement and forwards a Notice to Proceed to CONTRACTOR.

ARTICLE 8 - CHANGES IN THE WORK

- 8.1 The County or any Town, without invalidating the Contract may order Changes in the Work consisting of additions, deletions, or modifications, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by written Change Order signed by the County, Town or the Engineer as their duly authorized agent.
- 8.2 The Contract Sum and the Contract Time may be changed only by Change Order.
- 8.3 The cost or credit to the Town from a Change in the Work shall be determined by mutual agreement.

ARTICLE 9 - WAGE RATES

- 9.1 Full compliance with applicable federal, state and local wage laws is required on all Work done for any Town.
- 9.2 The County and Towns shall not be held liable should the CONTRACTOR fail to compensate any person(s) in accordance with the prevailing (minimum) wage rates included herein. The CONTRACTOR claims full responsibility to compensate the person(s) associated with the project accordingly and will assume any liability on behalf of the County and Towns, should a person(s) associated with the project file a claim pursuant to MGL Chapter 149.
- 9.3 The "work classifications" provided by the CONTRACTOR on the required "Weekly Payroll Report Form" shall exactly match the classifications provided in the "Minimum Wage Rates". Should the CONTRACTOR use an unlisted classification, it shall be the CONTRACTOR's responsibility to contact the Department of Labor and Industries in order to determine a matching classification or obtain minimum wage rate for the new classification.

ARTICLE 10 - ENGINEER

- 10.1 The Engineer (as designated by each Town) will provide general administration of the Contract and will be the Town's representative during the construction period.
- 10.2 The Engineer shall at all times have access to the Work wherever it is in preparation and progress.

- 10.3 The Engineer will make periodic visits to the site to become generally familiar with the progress and quality of the Work in accordance with the Contract Documents. On the basis of on-site observations by the Engineer, he will keep the Town informed of the progress of the Work, and will endeavor to guard the Town against defects and deficiencies in the Work of the CONTRACTOR. The Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Engineer will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, and he will not be responsible for the CONTRACTOR'S failure to carry out the Work in accordance with the Contract Documents.
- 10.4 Based on such observations and the CONTRACTOR'S Application for Payment, the Engineer will determine the amounts owed to the CONTRACTOR.
- 10.5 The Engineer will be, in the first instance, the interpreter of the requirements of the Contract Documents.
- 10.6 The Engineer will have authority to reject Work which does not conform to the Contract Documents.

ARTICLE 11 - TERMINATION OF CONTRACT

The County and the Towns reserve the right to terminate this Contract or Services whenever it deems that the CONTRACTOR is in violation of laws, regulations and/or provisions of this Contract. Termination of a Contract or Services by any Town shall not invalidate or alter the terms of a similar Contract or Services with any other Town.

ARTICLE 12 – MISCELLANEOUS

- 12.1 No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically, but without limitation, moneys that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 12.2 The County and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.
- 12.3 This CONTRACT shall be deemed to include all terms and requirements imposed by laws related to the performance of the Work on the Project or Services.
- 12.4 This is not an exclusive contract to provide services or materials to the County and Towns. The County and Towns reserve the right to contract for similar services or materials.

SPECIAL PROVISIONS

SCOPE OF WORK

The Work under this Contract consists of providing various materials as described herein to the Towns of Barnstable, Bourne, Brewster, Chatham, Dennis, Eastham, Falmouth, Harwich, Orleans, Sandwich, Wellfleet, and Yarmouth through an Agreement with the County of Barnstable.

All Work done under this Contract shall be in conformance with the 1988 Massachusetts Highway Department (MDOT) Standard Specifications for Highways and Bridges, the Supplemental Specifications, the 2005 Standard Special Provisions, the 2010 Construction Standard Details, and the 2009 Manual on Uniform Traffic Control Devices, all as amended, and these Special Provisions. The General Conditions and Special Provisions shall take precedence over the General Requirements of the Standard Specifications.

As noted on the Bid Form liquid asphalt, diesel fuel, gasoline, Portland cement, and steel price adjustments will be allowed for a limited number of items.

FOR ESTIMATED QUANTITIES SEE APPENDIX A

WORK SCHEDULE

The Contractor shall commence Work within **ten (10)** working days of receiving a Notice to Proceed from a Town. If the Contractor cannot begin work within the **ten (10)** working days, that Town may order such services from such contractors as are available, and the Contractor shall reimburse that Town for all expenses incurred above the Contract Price. When needing work completed for those items that will be awarded to the two (2) lowest bidders, each Town shall first forward by e-mail or fax a Notice to Proceed to the lower of the two lowest bidders. If the lowest bidder does not schedule the work requested within **forty-eight (48) hours** of receiving the Notice to Proceed and/or cannot begin (and remain at) work within **ten (10) working days**, then the Town shall have the right to forward a Notice to Proceed to the second low bidder.

Work is restricted to a normal eight-hour day, five-day week, with Contractor and all subcontractors working on the same shift.

No Work shall be done on this Contract on Saturdays, Sundays or holidays or on the day before or the day after a long weekend which involves a holiday without prior approval by the specific Town.

OSHA REQUIREMENT

Any employee found on the worksite without documentation of the successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal. OSHA certifications must be submitted with the certified payrolls for all workers during the first week they work on a project.

PROGRESS OF WORK

The Contractor shall promptly start and continue actual construction work under this Contract with the necessary equipment to properly execute and complete this Contract in the specified time. No cessation of

Contractor's operations will be allowed without the approval of the Engineer. The rate of progress shall be satisfactory to that Town and the Engineer. The Contractor shall furnish to the Engineer a schedule for the Work prior to the start of construction.

CONTRACT DOCUMENTS IN THE FIELD

The Contractor shall keep a copy of the Contract Documents at the work site at all times while work is being performed and said copy is to be available to those in charge of work.

POLICE SERVICES

Each Town shall provide all Town police services at no cost to the Contractor to direct traffic when such protection is required by that Town's Police Department. The Contractor shall be solely responsible for contacting and scheduling police services with the Police Department. If the Contractor must cancel police services, he must do so within the time limits set by the Police Department. **If the Contractor does not cancel police services within the time limits, then Contractor shall be responsible to promptly pay the minimum required amount.**

PUBLIC SAFETY AND CONVENIENCE

The Contractor shall be required without additional compensation to provide safe and convenient access to all abutters during the prosecution of the Work.

No excavation shall be left open during non-working hours.

MSDS sheets and information shall be available on site and copies submitted to a Town as requested.

NECESSARY ACCESS FOR FIRE APPARATUS AND OTHER EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH THE POLICE AND FIRE DEPARTMENTS AT ALL TIMES REGARDING ACCESS.

For the protection of life and property, all backfill operations shall follow closely behind completed work. The Contractor shall insure that no excavation be left open, unguarded, or water filled during any period of time when work is not actually in progress. It is the purpose and intent that all excavations and backfill, including consolidation operations, and temporary surfacing within an area be accomplished expeditiously before proceeding to other work areas.

Contractor shall comply with all applicable Laws, regulations and Guidelines of any public body (example: OSHA, DIGSAFE, MDOT Work Zone Safety Guidelines, Police) having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary signs/ safeguards for such safety and protection at no extra cost to the Owner. See General Conditions also.

CLEANUP

Cleanup shall be done on a daily basis. At the end of each working period, the Contractor shall completely backfill all holes and trenches, and remove all equipment from the traveled way. The Contractor shall ensure that all safety marking and warning devices are satisfactorily in place prior to leaving any job.

During the course of the Work, the Contractor shall keep the site of his operations in as clean and neat condition as is possible. He shall dispose of all residue resulting from the construction work and, at the

conclusion of the work, he shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

Sweeping and cleaning of surfaces beyond the limits of the Project to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be considered as incidental to the Work being performed under the Contract and there will be no additional compensation.

EMERGENCY CONTACTS

The Contractor shall maintain a 24-hour, 7-day a week telephone service and a local facility to handle emergency requirements such as settled trenches, clogged drains, rain damage, work zone safety issues, etc. A list of personnel (minimum of two) and their telephone numbers shall be submitted to the Engineer, the Highway Superintendent (or his designee), the Public Works Director and to the local Police and Fire Departments. This requirement shall apply during the entire length of the Project or Service for each Town where work is being completed. This list shall be submitted on the Contractor's letterhead and shall state that should an emergency arise during the implementation of this Project or Service, these people are to be contacted. The Contractor shall submit this letter to the Engineer prior to initiating construction. The Highway Superintendent for each Town or his designee has the right to determine whether or not an emergency exists and to require Contractor to promptly resolve the emergency at no cost to that Town. If Contractor can not respond in a timely manner as determined by the Highway Superintendent, the Town has the right to complete the necessary work and to bill Contractor for that work.

DIGSAFE

The Contractor shall notify "Mass. DIG SAFE" and the Local Water Department or District and procure a DIG SAFE number of each location prior to disturbing ground in any way.

"DIG-SAFE" Call Center: Telephone 1-888-344-7233

Commonwealth Electric has a policy regarding the location of electric utilities. Dig-Safe can no longer be relied upon to locate electric utilities that are "privately" owned. This can include electric cables located in Public ways that run from utility poles to buildings. It is therefore incumbent upon Contractor to ascertain if any electric cables are located in any area prior to excavation. This will be done at Contractor's expense.

The Contractor shall make his own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, and other utilities will occur as a result of his operations

PROTECTION OF UTILITIES AND PROPERTY

The Contractor, in constructing or installing facilities alongside or near sanitary sewers, storm drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls, vaults or other structures shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. The Contractor shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect, and shall leave them in the same condition as they existed prior to commencement of the Work. In case of damage to utilities, the Contractor shall promptly notify the utility owner and shall, if requested by the Engineer, furnish labor and equipment to work temporarily under the owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the municipality or by utility owner which suffers the

loss. The cost of such repairs shall be borne by the Contractor, without compensation therefor.

If, as the Work progresses, it is found that any of the utility structures are so placed as to render it impracticable, in the judgment of the Engineer, to do the Work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the Engineer will, as soon thereafter as reasonable, cause the position of the utilities to be changed or take such other actions deemed suitable and proper.

If live service connections are to be interrupted by excavations of any kind, the Contractor shall not break the service until new services are provided. Abandoned services shall be plugged off or otherwise made secure.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in protecting or repairing property as specified in this section, shall be considered included in the prices paid for the various Contract items of Work and no additional compensation will be allowed therefor.

PROVISIONS FOR TRAVEL AND PROSECUTION OF THE WORK

For the items that require traffic control, the Contractor shall supply and use traffic control devices, positioning and methodology, conforming with the Manual on Uniform Traffic Control Devices (MUTCD) and MDOT Work Zone Safety Guidelines at no additional cost to any Town. Traffic control devices required only during working hour operations shall be removed at the end of each working day. Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

Particular care should be taken to establish and maintain methods and procedures which will not create unnecessary or unusual hazards to public safety.

WORK DONE BY OTHERS

Relocation and/or resetting to new grades of all private utilities, including utility poles, made necessary by the construction of this Project, will be accomplished by the respective utility companies.

DISPOSAL OF SURPLUS MATERIALS

All materials not required or needed for use on the Project, and not required to be removed and stacked, shall become the property of the CONTRACTOR and shall be removed from the site and legally disposed of. No separate payment will be made for this Work, but all costs in connection therewith shall be included in the prices bid for various Contract items.

COMPACTION

Compaction of filled areas under pavement (no matter what type of fill material) shall be completed in 6" lifts. Compaction of filled areas elsewhere (no matter what type of fill material) shall be completed in 12" lifts. Appropriate compaction equipment shall be used.

PROPERTY BOUNDS

Any bounds or markers flagged by a Town and disturbed by the Contractor shall be replaced utilizing the services of a Registered Land Surveyor. The cost of replacing flagged bounds or markers disturbed by the Contractor's operations shall be at the Contractor's expense.

WEIGHING

All materials requiring payment by weight shall be weighed at a certified scale prior to delivery and the weigh slips shall be delivered to and signed by a Town representative. Each Town may provide use of its scale and require gross weights and vehicle tare weights verified at time of delivery.

NOTE: For all paving, no separate payments will be made to mobilize to different locations.

Item No. 1 : HOT MIX ASPHALT PAVEMENT, MACHINE PLACED

The Work shall include the furnishing and placement of top course, binder course, and/or levelling course for new pavements and existing pavement overlays by self-powered mechanical pavers. Any Town may specify any job - mix formula from Section M3.11.00 of the Standard Specifications.

A tack coat of liquid bituminous material (RS-1 or equal) shall be furnished and applied to existing pavements at the rate of 0.10 gallon per square yard immediately prior to placement of pavement overlay and the cost shall be included in the unit price bid. The tack coat shall be machine applied and sprayed uniformly. Hand application will not be allowed.

When bituminous concrete berm (Cape Cod berm) is required, the Work shall also include the berm construction and the cost shall be included in the unit price bid.

If requested by the Town, Contractor shall provide and install MassHighway approved temporary pavement markings at no additional cost to the Town.

The measured quantity will be paid for at the Contract unit price per ton, which price shall include all labor, materials, equipment, and incidental costs required to complete the Work. Contractor shall install Owner provided risers on gate valve boxes at no additional cost to the Town. Drainage and sewer casting adjustments are paid for under a separate item.

Item Nos. 2a & 2b: HOT MIX ASPHALT PAVEMENT, HANDWORK

The Work shall include the furnishing and placement of top course and binder course material by mechanical and hand methods for sidewalk resurfacing, berm, driveway, aprons, and other construction. Any Town may specify any job - mix formula from Section M3.11.00 of the Standard Specifications.

A tack coat of liquid bituminous material (RS-1 or equal) shall be applied to existing pavements at the rate of 0.10 gallon per square yard immediately prior to placement of pavement and the cost shall be included in the unit price bid.

The measured quantity will be paid for at the Contract unit price per ton, which price shall include all labor, materials, equipment, and incidental costs required to complete the Work. Contractor shall install Owner provided risers on gate valve boxes at no additional cost to the Town. Drainage and sewer casting adjustments are paid for under a separate item.

Item No. 3: HOT MIX ASPHALT SHIM:

This work consists of the skilled placement of hot mix asphalt in irregularly shaped areas of various thicknesses in order to restore roadway profiles or cross-section. Typical HMA placement will be where the shimming will vary in thickness from 0.0" to 2". The contractor shall be prepared to drag the screed of their

paver and rake edges as necessary to place the mix in areas designated by the town. To obtain this rate mix placement at multiple locations may be required.

Mix and mix placement shall be in conformance with Mass DOT *Standard specifications for Highways and Bridges*.

The intent of this item is that it is to be used independent of any other hot-mix machine placed item work for the same location and timeframe. Any shimming done prior to machine work or leveling courses shall be paid for per the unit price for hot mix asphalt.

Responsibilities of the Town:

- Pre-sweep
- Traffic control
- Temporary pavement markings
- Project supervision and plan preparation when needed.

Responsibilities of the Contractor:

Mark out areas for leveling based on directions from the town – i.e. the town will give a budget in tons for each road and will point out deficiencies/problem areas such as puddles, roughness, or plow hazards. The marking is subject to approval by the town.

Removal of fines- It shall be noted that there may be residual fines left in depressions by the town's sweeper. The contractor shall come equipped with a portable blower capable of removing fines from the marked areas. This equipment shall also be capable of removing minor puddles and drying pavement if necessary.

Tack – All marked out areas shall be tacked with RS-1 emulsion applied at a uniform rate of 0.05 gallons per square yard with pressurized asphalt distributor

Mix – Mass DOT Dense Top mix.

Mix placement – Mix shall be placed with a paver that has performance specifications similar to a Lee Boy 8500. The paver shall be adjustable from 8 – 15 feet and be able to place mix on patches narrower than 8 feet as marked. The paver shall break in the middle to allow crown to be placed in the road if necessary. The paver shall have a vibratory screed. Spreading by grader or loader is not acceptable. All structures shall sprayed/covered and uncovered after the mix is placed. The contractor shall have adequate and competent staff to rake/lute/shovel as necessary before the mix is compacted. Multiple lifts may be required.

Compaction – Contractor shall compact mix with a vibratory roller with a minimum rating of 8 tons.

Measurement and Payment

Hot mix asphalt shim shall be measured for payment by the ton of mix placed and accepted by the Town and shall be paid at the contract unit price per ton which shall include all labor, materials, equipment and incidental costs required to satisfactorily complete the work. Including cleanup and tack.

Item No. 4: PAVEMENT RECLAMATION (Including FG&C)

The Work under this item shall conform to the provisions of Section 170 & 403 of the Standard Specifications and the following:

Fine grading and compacting (FG&C) of the subgrade shall be included in the work for this item. If requested by a Town, the Contractor shall negotiate a reasonable additional cost for related work (e.g., excavating and hauling away excess materials).

The measured quantity will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, fine grading, compacting, and incidental costs required to complete the Work.

Item No. 5: PAVEMENT RECLAMATION (Including FG&C and Calcium Chloride)

The Work under this item shall conform to the provisions of Section 170 & 403 of the Standard Specifications and the following:

Fine grading and compacting (FG&C) of the subgrade, and adding and mixing liquid calcium chloride to the pulverized mass shall be included in the work for this item. If requested by a Town, the Contractor shall negotiate a reasonable additional cost for related work (e.g., excavating and hauling away excess materials).

The calcium chloride solution shall be provided by the manufacturer as a true solution and shall not be reconstituted from flake calcium chloride. The calcium shall meet the following material specifications (see ASTM Designation D98; AASHTO-M144):

Calcium Chloride	35% +/-1%
Alkali Chloride as NaCl	2% max.
Magnesium as MgCl	0.1%

Typical (Pounds per gallon)

Calcium Chloride	5.05
Sodium Chloride	0.2
Magnesium Chloride	0.004
Calcium Sulfate	0.004
Water	<u>6.002</u>
	11.26

The measured quantity will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, fine grading, compacting, and incidental costs required to complete the Work.

Item No. 6: BITUMINOUS CONCRETE EXCAVATION BY COLD PLANER

The Work under this item shall conform to the relevant provisions of Section 120 of the Standard Specifications and the following:

The work shall include the cold planing of existing bituminous concrete pavement surface to various depths to shape the pavement cross-section (crown or super elevation), to meet driveways, and/or to produce a uniform surface for the application of the pavement surfacing.

Pavement areas abutting utility structures and other areas which cannot be planed by the principal cold planing machine shall be excavated with smaller mechanical cold planing equipment designed for this purpose or by manual methods at no additional cost to any Town.

The machine shall be capable of being operated at speeds from 10 to 40 feet per minute and designed so that the operator can at all times observe the planing operation without leaving his control area. Pneumatic rubber-tire mounted equipment shall be used only for trimming and edging operations.

The equipment furnished by the Contractor shall be maintained in good repair at all times.

No pavement cuttings shall remain on the project at the end of each work period. The pavement cuttings shall become the property of the Town and the Contractor shall be responsible to remove, haul, and deposit the pavement cuttings at no additional cost to a site as directed by the Town.

The measured quantity will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, removal, hauling, and incidental costs required to complete the Work.

Item No. 7: COLD PLANED (MILLED) PAVING JOINTS

The work shall include the cold planing of existing bituminous concrete pavement surface to create key ways (paving joints) for the purpose of overlaying pavement. All work is to be performed no more than forty eight (48) hours prior to the scheduled start of paving.

The machine shall be capable of milling to a depth of two (2) inches and a minimum width of twenty four (24) inches. The cutter head must be able to rotate 15 degrees to provide a beveled cut. All key ways shall be one (1) to two (2) inches in depth and twenty four (24) inches to forty eight (48) inches in width at the discretion of the Town. The Contractor is responsible milling and clean up of all excavated materials.

The equipment furnished by the Contractor shall be maintained in good repair at all times.

No pavement cuttings shall remain on the project at the end of each work period. The pavement cuttings shall become the property of the Town and the Contractor shall be responsible to remove, haul, and deposit the pavement cuttings at no additional cost to a site as directed by the Town.

The measured quantity will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, removal, hauling, and incidental costs required to complete the Work.

Item Nos. 8 & 9: MICROSURFACING (ONE AND TWO LIFTS)

The Work under this item shall conform to the relevant provisions of the Standard Specifications and the following:

Description

Microsurfacing is a tough and durable thin overlay material which can restore the original service properties to worn but structurally sound pavements. Its properties are based on a blend of select crushed aggregate and a chemical formulation of asphalt cement, cationic emulsifiers, adhesives, and latex. This specification covers all materials, equipment, construction and application procedures for rutfilling and/or surfacing of existing paved surfaces. The microsurfacing shall be a mixture of cationic latex modified asphalt emulsion, mineral aggregate, mineral and field control additives, and water, properly proportioned, mixed and spread on the paved surface in accordance with this specification and as directed by any Town.

Materials

Emulsified Asphalt: The emulsified asphalt shall be a quick-set latex modified cationic type CSS-1H emulsion and shall conform to the requirements specified in AASHTO M208 and ASTM 2397. It shall pass all applicable storage and settlement tests. The latex shall be milled into the emulsion. The cement mixing test shall be waived for this emulsion.

Special Residue Properties: Distillation of residue will be at a temperature of 350 degrees F for 20 minutes. Softening point of the residue shall be 140 degrees F minimum. Viscosity, absolute at 140 degrees F, shall be 8,000 poise minimum.

Aggregate

General: The mineral aggregate used shall be of the type and grade specified for micro-surfacing. The aggregate shall be manufactured crushed stone such as granite, slag, limestone, chat, or other high quality aggregate or combination thereof.

Aggregate Physical Requirements: The aggregate including natural fines when tested by AASHTO methods

T11 or T27 or ASTM C117 or C136, should meet the referenced gradation requirements. To limit the permissible amount of clay like fines in an aggregate, a sand equivalent value of 65 or higher is required when tested by ASTM 2419. The aggregate shall have a weighted loss of not more than 15% when the sodium sulfate test is used or 20% when the magnesium sulfate test is used. The aggregate wear, from resistance to abrasion, shall be a maximum of 35% when using AASHTO T96 or ASTM C131 test methods.

Water

The water shall be potable and shall be free of harmful soluble salts.

Modifier

Special quick-setting emulsifier agents shall be milled into the asphalt emulsion. **The emulsified asphalt shall be so formulated that when the paving mixture is applied at thickness of one inch with the relative humidity at not more than 50% and the ambient air temperature of at least 75 degrees F. the material will cure sufficiently so that rolling traffic can be allowed in one hour with no damage to the surface.**

Additives

A mineral additive shall be introduced to the mineral aggregate and may be any recognized brand of nonairentrained 25ortland cement or hydrated lime that is free of lumps, or other approved mineral additive. The amount of mineral additive needed shall be determined by the laboratory mix design and will be considered as part of the material gradation requirement. A liquid field control additive is introduced and blended with water to provide effective control of the required quick-set properties. This additive shall be made available by the chemical supplier or emulsion manufacturer and certifiable as being compatible with the mixture.

Engineering

General: Before work commences, the Contractor shall submit a signed mix design covering the specific material to be used on the project. This design shall be performed by a qualified laboratory, suitable to the Town. Once the materials are approved, no substitution will be permitted unless first tested and approved by the laboratory preparing the mix design .

Mix Design: The qualified laboratory shall develop the job mix design and present certified test results for the Contractor's approval. Compatibility of the aggregate and emulsion shall be verified by the mix design. **The job mix formula shall provide a minimum Marshall stability of 1,800 pounds and a flow of 6 to 16 units when tested according to the ASTM 1559 or AASHTO 245 procedure as modified.** All component material used in the mix design shall be representative of the material proposed by the Contractor for use on the project.

Specifications: The Contractor shall guarantee the design mix and all microsurfacing materials and methods prior to use. The component materials shall be within the following limits.

Residual Asphalt	5% to 9% by dry weight of aggregate
Mineral Additive	0.5% to 3% by dry weight of aggregate
Latex Modifier	As required to provide specified properties

Field Control Additive As required to provide the specified properties

Water As required to produce Consistency

Aggregate Gradations:

<u>Screen Size</u>	<u>Type II % Passing</u>	<u>Type III % Passing</u>
3/8"	100	100
#4	0-100	70-90
#8	65-90	45-65
#16	40-65	30-50
#30	25-45	19-34
#50	15-30	12-25
#100	10-21	7-18
#200	5-13	4-12

Suggested Application Rate:

Type II - Urban and Residential Streets Airport Runways: 18-22 lbs per sq. yd.

Type III- Primary and Interstate Routes: 25-30 lbs per sq. yd.

Wheel Ruts: Application rates as required.

Equipment

General: All equipment, tools, and machines used in the performance of this work shall be maintained in satisfactory working condition at all times to ensure a high quality product.

Mixing Equipment: The material shall be mixed by a self-propelled microsurfacing mixing machine which shall be a **continuous flow** mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral and field control additives, and water to a revolving multi-blade twin shafted mixer and discharge the mixed product on a continuous flow basis. The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral and field control additives, and water to maintain an adequate supply to the proportioning controls. **The machine may be equipped with self-loading devices which provide for the loading of materials while continuing to lay microsurfacing, thereby minimizing construction joints.**

Proportioning Devices: Individual volume or weight controls for proportioning each material to be added to the mix, i.e., aggregate, emulsified asphalt, mineral and field control additives, and water shall be provided and properly marked. These proportioning devices are usually revolution counters or similar devices and are used in material calibration and determining the materials output at any time.

Emulsion Pump: The emulsion pump shall be a heated positive displacement type.

Spreading Equipment: The surfacing mixture shall be spread uniformly by means of a mechanical type spreader box attached to the mixer, equipped with paddles to agitate and spread the materials throughout the box. A front seal shall provided to insure no loss of the mixture at the road contact point. The rear seal shall act as final strike off and shall be adjustable. The mixture shall be spread to fill cracks and minor surface irregularities and leave a uniform skid resistant application of material on the surface, The spreader box and rear strike off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike off. The longitudinal joint where two passes join shall be neat appearing, uniform and lapped.

All excess material shall be removed from the job site prior to opening the road. The spreader box shall have suitable means provided to side shift the box to compensate for variations in pavement width and longitudinal alignment. A **Rut Box** shall be available to prefill wheel ruts when necessary prior to overlay to eliminate puddles or runoff interruption. The box shall be readily adjustable from 4' – 6' width with hydraulically adjusted strike off screeds to attain maximum grade and profile.

Auxiliary Equipment: Suitable surface cleaning equipment, traffic control equipment, hand tools and any support equipment shall be provided as necessary to perform the work.

Machine Calibration

Each mixing unit to be used in performance of the work shall be calibrated in the presence of the Town prior to construction, or previous calibration documentation covering the exact materials to be used may be acceptable provided they were made during that calendar year. The documentation shall include the individual calibration of each material at various settings, which can be related to the machine metering devices.

Weather Limitations

The material shall be spread only when the road surface and atmospheric temperatures are at least 45 degrees F and rising and the weather is not rainy and there is no forecast of temperatures below 32 degrees F within 48 hours from the time of placement of the mixture.

Traffic Control

Suitable methods shall be used by the Contractor to protect the microsurface from traffic until the new surface will support traffic without damage. All traffic control methods used shall be in accordance with the specifications and shall be employed in a safe manner.

Surface Preparation

General: The area to be surfaced shall be thoroughly cleaned, by the Contractor, of pavement markings (if needed), vegetation, loose aggregate and soil, particularly soil that is bound to the surface. Manholes, valve boxes and other service entrances shall be protected from the surfacing material.

Cracks in Surface: Cracks in the surface shall be filled prior to microsurfacing. Crackfilling shall be paid for separately.

Tack Coat: The Contractor shall apply a tack coat consisting of one part emulsified asphalt and three parts water with a distributor at .10-.15 gallons per square yard. This emulsified asphalt should be the CSS1H emulsion grade.

Stockpile

Precautions shall be taken to insure that stockpiles do not become contaminated. The mineral aggregate shall be screened prior to being weighed for job site delivery. This weight shall be done by means of a certified scale.

Application

General: The surface shall be pre-wetted by fogging ahead of the spreader box when required by local conditions. The rate of application of the fog spray shall be adjusted during the day to suit temperatures, surface texture, humidity, and dryness of the pavement surface.

The microsurfacing mixture shall be of the desired consistency upon leaving the mixer and no additional materials should be added. A sufficient amount of material shall be carried in all parts of the spreader at all times so that a complete coverage is obtained. Overloading of the spreader shall be avoided. No lumping, balling, or unmixed aggregate shall be permitted.

No streaks, such as those caused by oversized aggregate, will be left in the finished surface. If excessive oversize develops, the job will be stopped until the Contractor proves to the Town that the situation has been corrected.

Joints: No excessive buildup, uncovered areas or unsightly appearances shall be permitted on longitudinal or transverse joints. The Contractor shall provide suitable width spreading equipment to produce a minimum number of longitudinal joints throughout the project. When possible, longitudinal joints shall be placed on lane lines. Half passes and odd width passes will be used only in minimum amounts. If half passes are used, they shall not be the last pass of any paved areas.

Mix Stability: The microsurfacing mixture shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsion and free of segregation of the emulsion and aggregate fines from the coarser aggregate.

Hand Work: Areas which cannot be reached with the mixing machine shall be surfaced using hand squeegees to provide complete and uniform coverage. The area to be handworked shall be lightly dampened prior to mix placement. Care shall be exercised to leave no unsightly appearance from handwork. The same type finish as applied by the spreader box shall be required. Handwork shall be completed at the time of the machine applying process.

Lines: Care shall be taken to insure straight lines along curbs and shoulders. No runoff on these areas will be permitted. Lines at intersections will be kept straight to provide a good appearance.

Rolling: If required, specified areas shall be rolled by a self-propelled 10 ton pneumatic roller with a tire pressure of 50 PSI and equipped with a water spray system.

Quality Control

Materials: The Contractor will permit each Town to take samples of the aggregate and asphalt emulsion to be used in the project at the Town's discretion. Gradation and sand equivalent tests may be run on the aggregate and residual asphalt content test on the emulsion. Test results will be compared to specifications. Tests will be run by a qualified laboratory at the expense of the Contractor. The Town shall notify the Contractor immediately if any test fails to meet the specifications.

Micro-Surfacing Mixture: Samples of the mixture should be taken daily and may be taken directly from the mixing unit(s). Consistency and residual asphalt content tests may be made on the samples and compared to the specifications. Tests will be run by a qualified laboratory at the expense of the Contractor. The Town must notify the Contractor immediately if any test fails to meet specifications. Any Town may use the recorder and measuring facilities of the unit to determine application rates, asphalt emulsion content mineral and field control additives, and water.

Non-Compliance: If any two successive tests fail on the stockpile material, the job shall be stopped. It is the responsibility of the Contractor, at his own expense, to prove to the Town that the conditions have been

corrected. If any two successive tests on the mix from the same machine fail, the use of the machine shall be suspended. It will be the responsibility of the Contractor, at his own expense, to prove to the Town that the problems have been corrected and that the machine is working properly.

Performance

It is the intention of every Town not to award a contract for microsurfacing work under this or any other proposal if the bidder cannot furnish satisfactory evidence that he has the ability and experience to perform this class of work and that he has sufficient capital and equipment to enable him to prosecute the work successfully and to complete it within the time named in the Contract; and that every Town reserves the right to reject this or any other proposal or to award the Contract as is deemed to be to the best interest of said Town.

Performance Warranty

The Contractor shall furnish the following warranty after completion of the work and prior to final payment:

The Contractor hereby warrants that all workmanship and all materials furnished under the Contract comply fully with requirements of these microsurfacing specifications.

If at any time within two years after the date of the final inspection, any unfaithful or defective work should appear, which in the opinion of a Town is due to inferior materials or workmanship, the Contractor warrants to do whatever is necessary to remedy the defects immediately without cost to the Town. The Town shall notify the Contractor in writing of the defects and the repairs to be made, and the Contractor will begin repairs within a mutually agreed time frame.

Measurement and Payment

The quantity, for one or two lifts of microsurfacing, to be measured for payment will be the number of square yards of microsurfacing actually completed. The accepted quantity of microsurfacing will be paid for at the Contract unit price per square yard, which shall be full compensation for furnishing, transporting, handling and placing the material specified and furnishing of all labor, tools, equipment, pavement surface cleaning, and incidentals for the satisfactory completion of the work.

Item Nos. 10 & 11: ASPHALT-RUBBER SURFACE TREATMENT

The Work under this item shall include the furnishing, application, and compaction of hot asphalt and granulated rubber, and a crushed stone cover, and the sweeping of the roads before and after application.

Materials

Asphalt Cement – Asphalt cement for the asphalt-rubber mixture shall be PG 58-28 OR P G 64-28, complying with the requirements of the Standard Specifications. The grade selected shall be based on laboratory testing by the asphalt-rubber supplier.

Anti-stripping Agent – An anti-stripping agent that is heat stable shall be incorporated into the asphalt-rubber material at the dosage required by the job-mix formula (up to 1.0% by weight of asphalt). It shall be added to the asphalt cement prior to blending with the granulated rubber.

Rubber – The granulated rubber shall be vulcanized rubber product from the ambient temperature processing of scrap, pneumatic tires. The granulated rubber shall meet the following gradations: No substitutions will be accepted.

<u>Sieve Size</u>	<u>Percentage Passing</u>
No.10	100
No.16	90 - 100
No.30	25 - 75
No.80	0 - 20

The use of rubber of multiple types from multiple sources is acceptable provided that the overall blend of rubber meets the gradation requirements. The length of the individual rubber particles shall not exceed 1/8". The rubber shall be accepted by certification from the rubber supplier.

Aggregate – The aggregate shall conform to the requirements of the Standard Specifications. Crushed gravel stone shall not be permitted. Percentage of wear as determined by the Los Angeles Abrasion Test (AASHTO-T96) shall be a maximum of 30. The aggregate shall be pre-heated to a temperature between 200°F and 300°F, and be pre-coated with 0.4% to 0.8% (by weight of aggregate) of AC-10 or AC-20 asphalt cement prior to application. The gradation of the aggregate shall meet the following limits:

<u>Sieve Size</u>	<u>Percentage Passing</u> <u>Nominal Size 3/8"</u>	<u>Percentage Passing</u> <u>Nominal Size 1/2"</u>
5/8"	100%	100%
1/2"	100%	85 - 100%
3/8"	85 - 100%	15 - 45%
No. 4	0 - 25%	0 - 15%
No. 8	0 - 5%	0 - 5%
No. 50	0 - 2%	0 - 2%
No.200	0 - 2%	0 - 2%

Materials Testing - A minimum of 60 days prior to construction, the Contractor shall send a representative sample of the asphalt cement and the aggregate proposed for use to the asphalt-rubber supplier for testing. Testing for stripping and asphalt content to determine and assure that appropriate characteristics are achieved when blended with the granulated rubber shall be performed.

Asphalt-rubber Mixing and Reaction

Mixing and Reaction - The percent of rubber shall be 20 +/- 3% for Item No.7 and 10±% for Item No.8, as indicated by the mixture design for specific project requirements by weight of total mixture, that is, by total weight of asphalt cement, plus granulated rubber. The exact granulated rubber content shall be determined by the mix design submitted by the asphalt-rubber supplier based on laboratory testing.

The temperature of the asphalt shall be between 350°F and 425°F, at the time of addition of the granulated reclaimed rubber. The asphalt and rubber shall be combined and mixed together in a blender unit and reacted in the distributor for a period of time as required by the mix design. The temperature of the asphalt-rubber mixture shall be above 325°F, during the reaction period.

Delays - When a job delay occurs after full reaction, the asphalt-rubber may be allowed to cool. The asphalt-

rubber shall be reheated slowly just prior to application, but not to a temperature exceeding 375°F. An additional quantity of granulated rubber or additive not exceeding 3% by volume of the hot asphalt-rubber mixture may be added after reheating.

Viscosity - Viscosities shall be run, by the asphalt-rubber supplier, on each blended load of asphalt-rubber using a Haake-type field viscometer. The viscosity of the final product shall be in the range of 1,000 to 3,500 centipoise.

Equipment

Mechanical Blender - A mechanical blender for proper proportioning and thorough mixing of the asphalt-cement and granulated rubber is required. This unit shall be equipped with: an asphalt totaling meter (gallons); a flow rate meter (gallons per minute); a positive displacement auger to feed the rubber properly to mixing chamber at the specified rate; and a static motionless mixer.

Blender shall have a separate rate; and a static motionless mixer. Blender shall have a separate asphalt cement feed pump and finished product pump to maximize production. Blender shall be capable of providing 100% proportional mix at any given time during the blending cycle and documentation from the manufacturer, supporting this, shall be submitted to each Town, if requested.

Distributor Truck - On projects exceeding 35 tons of liquid asphalt rubber, at least two pressure-type bituminous distributor trucks in good condition shall be required. The distributor shall be equipped with an internal heating device capable of heating the material evenly up to 425° F; an internal mixing unit capable of maintaining a proper mixture of asphalt cement and granulated rubber; have adequate pump capacity to maintain a high rate of circulation in the tank and to spray the asphalt-rubber at a viscosity of 1,000 to 3,500 centipoise; have adequate pressure devices and suitable manifolds to provide constant positive cut-off to prevent dripping from the nozzles. Distributor shall be equipped with an electronically controlled computerized compensation unit for controlling application rates at various width and speed changes. The application unit shall have electronic controls and a digital read out installed and operated from the inside of the cab of the distributor. The distribution bar on the distributor shall be fully circulating. Any distributor that produces a streaked or irregular distribution of the material shall be promptly repaired or removed from the project.

Distributor equipment shall include a tachometer, pressure gauges, volume measuring devices, and a thermometer for reading temperature of tank contents. Controls for spray bar shall be located in cab of truck, for controlling width and rate of spray of product. It shall be so constructed that uniform applications may be made at the specified rate per square yard with a tolerance of plus or minus 0.05 gal. / sq. yd.

A “bootman” shall accompany the distributor and ride in a position so that all spray bar nozzles are in his full view and readily accessible for unplugging.

Hauling Equipment - Trucks for hauling cover material shall be rear discharge conveyor-fed or “live bottom” trucks and shall be equipped with a device to lock onto the hitch at the rear of the chip spreader to prevent aggregate spillage. Sufficient hauling vehicles shall be available to ensure continuous operation of the distributor and chip spreader.

Aggregate Spreader - The aggregate spreader shall be hydrostatically driven and self propelled. It must be equipped with a hydraulically controlled variable adjustable head that is capable of spreading stone in widths from 4.5 to 18 feet. The spreader shall be mounted on pneumatic tires, and shall apply the stone on the road

surface in a manner that ensures that the tires do not contact the road surface until after the stone has been applied. The unit shall be equipped with an electronic radar type sensor used to measure ground speed and will automatically adjust the stone application rate depending on width of application and the speed of chip spreader. It shall have the ability to apply stone on any grade from 0 - 6%. The spreader shall be equipped with an integral hopper with a minimum capacity of 5 tons of stone which shall be filled by trucks in a manner which ensures that the truck tires never come in contact with asphalt treated road surfaces until the stone has been properly applied. To maintain constant stone application, a self-locking truck hitch will permit towing of aggregate trucks without stopping the chip spreader. It shall be capable of maintaining positive engagement over irregular terrain.

Pneumatic-Tired Roller - One (1) self-propelled, multiple wheel, pneumatic-tired rollers shall be used and shall weigh between 7 and 12 tons, each roller shall have a total compacting width of at least 56 inches, have a minimum tire pressure of 60 psi, and be equipped with a watering system.

Steel-Wheel Roller - One (1) self-propelled, 2-axle (tandem) steel-wheel roller shall be used and shall weigh between 8 and 12 tons, and be equipped with scrapers, wetting pads and watering system. Combination pneumatic and steel drum-type rollers are acceptable, as one unit only.

Construction Procedures

Preparation - Potholes, other areas of pavement failure, and major depressions in the existing pavement surface, shall be repaired by each Town.

The Contractor shall, immediately prior to application of the asphalt-rubber, thoroughly sweep the surface. The Contractor shall be responsible for covering all utility irons just prior to application and uncovering after aggregate is spread.

Seasonal and Weather Limitations - The asphalt-rubber shall not be applied when weather conditions are unfavorable to obtaining a uniform spread. Construction shall proceed only when the atmospheric temperature is at least 50°F and rising. No water shall be present on the road surface.

Application - The asphalt-rubber mixture shall be applied at a temperature of 338°F to 419°F, at a rate of 0.55 to 0.65 gallons per square yard for Item No.7 or 0.35 to 0.50 gallons per square yard for Item No.8. Exact rate to be determined by the aggregate gradation, traffic volume and pavement condition.

Longitude joints shall be reasonably true to line and parallel to centerline. Where any construction joint occurs, the edges shall be broomed back and blended so there are no gaps and the elevations are the same, and free from ridges and depressions. Longitudinal joints shall be overlapped from 4 to 6 inches.

During application, adequate provision shall be made to prevent marring and discoloration of adjacent pavements, structures, vehicles, foliage or personal property.

Aggregate Application - The application of aggregate shall follow as close as possible behind the application of the hot asphalt-rubber which shall not be spread further in advance of the aggregate spread that can be immediately covered. Construction equipment or other vehicles shall not drive on the uncovered asphalt-rubber. The hot-precoated aggregate shall be spread uniformly by a self-propelled spreader at a rate of spread generally between 30 to 40 pounds per square yard for Item No.7 or 20 to 30 pounds per square yard for Item No.8.. Any deficient areas shall be covered with additional material.

Rolling - A minimum of three (3) rollers shall be used for aggregate compaction into the hot asphalt-rubber.

Two rollers must be pneumatic-tired and one must be steel-wheel. Rolling shall commence immediately following spread of aggregate. There shall be at least three (3) coverages by the pneumatic-tired rollers to embed the aggregate firmly into the asphalt-rubber. A coverage shall be as many passes as are necessary to cover the entire width being spread with a pass being one (1) movement of a roller in either direction. Additional coverage of the steel-wheel roller will follow. Water shall be applied to the tires or wheels as required to limit sticking of the asphalt-rubber and aggregate to the rollers.

Sweeping – When the maximum amount of aggregate has been embedded into the asphalt-rubber and the pavement has cooled, all loose material shall be swept or otherwise removed to the satisfaction of the Town. This shall be done at a time and in a manner which will not displace any embedded aggregate or damage the asphalt-rubber. Pre and one post sweeping is the responsibility of the Contractor.

Measurement and Payment

Asphalt-Rubber Surface Treatment shall be measured by the square yard and shall be the actual number of square yards applied. Price per square yard shall be full compensation for all labor, materials, equipment, and incidentals required to complete the work (including street sweeping before and after treatment).

Item No. 12: SINGLE STONE SEAL SURFACE TREATMENT

The Work under this item shall include the furnishing, application, and compaction of a latex modified emulsified asphalt binder and a crushed stone cover, furnishing and installing temporary warning signs, and the sweeping of the roads before and after application. The temporary cardboard warning signs shall read “Fresh Oil, Loose Stone” (or similar wording) and shall be placed at locations as directed by the Engineer (as a minimum at all intersections).

Materials

1. Emulsified Asphalt – Emulsified asphalt for Stone Seal Surface Treatment shall be CRS-2 (cationic/3% latex) conforming to ASTM D2397 or RS-2 (33nionic/3% latex) conforming to ASTM 977-86.
2. Latex Additive – The latex additive to the emulsified asphalt binder shall conform to the following properties. The latex shall be co-milled at the bulk emulsion facility, to ensure complete and balanced blending, and the emulsion manufacturing plant must be open to inspection by the Owner.

<u>Properties</u>	<u>Anionic</u>	<u>Cationic</u>
Monomer Ratio, Butadiene/Styrene	(76±2)/(24±2)	(76±2)/(24±2)
Solids Content, %	67	59
Solids Content, lbs./gal.	5.2	4.8
Coagulum on 80 mesh screen, max %	0.1	0.1
Mooney Viscosity of Polymer (ML 4 @ 212 deg.F) min.	100	100
Ph of latex	9.5 – 10.5	4.0 – 5.5
Surface Tension, dynes/cm	32	32
Brookfield Viscosity, cps (Model RVT, #3 Spindle @ 20 RPM)	800 – 2,000	5,000 max.
Mechanical Stability	Excellent	Excellent

3. Cover Aggregate – The cover aggregate shall be blue quarry stone with 70% fractured face, and shall be compatible with the emulsified asphalt.

The crushed stone shall be thoroughly clean and free from deleterious matter, essentially one size, sharp and conform to the following gradation requirements as determined by California Test Method No. 202.

<u>Sieve Size</u>	<u>Percentage Passing</u> Medium 3/8" x No.6
1/2"	100%
3/8"	85-100%
1/4"	10 – 60%
No. 4	0 – 10%
No. 8	0 - 5%
No. 16	0 - 2%

Maximum passing the #200 sieve shall not exceed 1.0%. Stone shall be wet washed for all sized aggregates used in surface treatments.

Screening shall be non-cubical in nature and shall also conform to the following quality requirements:

<u>Test</u>	<u>Method No.</u>	<u>Requirements</u>
Loss in L.A. Rattler Test (After 100 Rev.)	211	10% Maximum
(After 500 Rev.)	211	40% Maximum
Film Stripping	302	25% Maximum
Cleanliness Value	227	75% Minimum

The successful bidder shall submit a 10-pound sample of material proposed to be supplied. Samples which, in the opinion of the Town, would result in excessive stripping shall be rejected.

The quantity of asphalt material to be used shall be in the range of 0.35 to 0.50 gallons per square yard. Cover aggregate shall be spread in the range of 20 to 30 pounds per square yard. The Contractor will use lab tests to design specific material quantities to meet existing field conditions. Variations in material quantities will be made without adjustment to contract unit price. The Contractor shall maintain a laboratory open to the inspection of any Town.

Quality Assurance

A certificate of compliance shall be issued to the Town prior to the application of the stone seal surface treatment which guarantees the compatibility of the emulsified asphalt with the cover aggregate. The laboratory results from a pre-approved testing company shall be submitted with the certificate of compliance.

Emulsified asphalt and cover aggregate shall be matched to obtain compatible molecular charges.

Samples shall be supplied with the following information:

- * quarry location
- * gradation
- * certificate of material compliance

Construction Equipment

The equipment used by the Contractor shall include, but not be limited to, one or more of the following:

- a. **Asphalt Distributor** - The asphalt distributor shall contain suitable mechanical circulating and heating mechanisms to provide a uniform approved temperature of the entire mass of material. The distributor shall be capable of applying asphalt materials in accurately measured quantities at any rate between 0.1 to 2.0 gallons per square yard of roadway surface, at any length of spray bar up to twenty four feet. The distributor shall be capable of maintaining a uniform rate of distribution of asphalt material regardless of change in grade, width or direction of the road. The spray nozzles and pressure system shall provide a sufficient and uniform fan-shaped spray of asphalt material throughout the entire length of the spray bar at all times while operating. The spray shall completely cover the roadway surface receiving the treatment.
- b. **Aggregate Spreader** - The aggregate spreader shall be hydrostatically driven and self-propelled. It may be equipped with a hydraulically controlled variable adjustable head that is capable of spreading stone in widths from 4.5 to 18 feet. The spreader shall be mounted on pneumatic tires, and shall apply the stone on the road surface in a manner that ensures that the tires do not contact the road surface until after the stone has been applied. The unit shall be equipped with an electronic radar type sensor used to measure ground speed and will automatically adjust the stone application rate depending on width of application and the speed of chip spreader. It shall have the ability to apply stone on any grade from 0 - 6%. The spreader shall be equipped with an integral hopper with a minimum capacity of 5 tons of stone which shall be filled by trucks in a manner which ensures that the truck tires never come in contact with asphalt-treated road surfaces until the stone has been properly applied. To maintain constant stone application, a self-locking truck hitch will permit towing of aggregate trucks without stopping the chip spreader. It will be capable of maintaining positive engagement over irregular terrain.
- c. **Rollers** - At least one rubber tired and one steel wheeled roller shall be used on each treated surface immediately after the stone has been applied. Each roller shall have a compacting width of not less than 5 feet. Each roller shall have a gross weight of not less than 8 tons and contact pressure adjustable from 200 to 300 psi.
- d. **Trucks** - Rear discharge conveyor-fed trucks in sufficient number and size may be used to deliver stone to the spreader.

Construction Method

The construction of Single Stone Seal Surface Treatment by the Contractor shall conform to recommended practices of the Asphalt Institute and the following.

1. **Preparation of Existing Surface** - Immediately before Work begins, the existing surface shall be adequately swept by the Contractor. The Contractor shall then oil and cover with tar paper all pavement surface utility hardware within project limits. Surface preparation, which may include pothole patching, truing and leveling, adjusting of street irons (valve covers, manhole covers, drop inlet gratings), etc., will be the responsibility of each Town and will be completed before the Contractor moves onto the job.
2. **Weather Limitations** - Work will not be done unless the road surface is dry. No work shall be done during rain or foggy periods, or if the local forecast calls for rain or fog on that day. No work shall be done if the ambient temperature is below fifty degrees Fahrenheit (50°F).

WORK UNDER THIS CONTRACT SHALL BE PERFORMED FROM JUNE TO SEPTEMBER, AS AUTHORIZED BY EACH TOWN. EACH TOWN SHALL BE THE SOLE DETERMINING JUDGE OF WHEN THE WEATHER CONDITIONS ARE SUITABLE FOR BEGINNING WORK. ALL STREETS SELECTED FOR TREATMENT SHALL BE TREATED BEFORE OCTOBER.

3. Application of Emulsion – The pre-determined quantity of emulsified asphalt binder shall be sprayed uniformly onto the prepared surface. The asphalt material shall not be applied more than 300 feet in advance of the self-propelled aggregate spreader. AT NO TIME SHALL ANY ASPHALT MATERIAL BE ON ANY ROAD SURFACE FOR MORE THAN FIFTEEN (15) MINUTES BEFORE IT IS COVERED WITH STONE.
4. Application of Aggregate – A uniform application of the pre-determined quantity of aggregate shall immediately be spread over the emulsified asphalt binder.
5. Application Operation – The bituminous distributor and the aggregate spreader shall move at the same rate of speed. These units shall operate at a distance not exceeding 50 feet from each other.
6. Rolling – Rolling shall begin immediately after aggregate is spread and continue until at least two complete rollings have been completed over the entire width of each pass of the aggregate spreader. Rollers shall never be more than 100 feet behind the aggregate spreader.

Initial rolling shall be done with self propelled pneumatic rollers immediately following the application of the cover aggregate. Final rolling on stone seal shall be done by steel roller weighing not less than 8 nor greater than 10 tons. The rollers shall be operated at a speed that will not displace the aggregate.

7. Traffic Control – During construction and 24 hours following construction, vehicle speed shall be posted to a maximum of 20 miles per hour. One lane of traffic shall remain open to vehicles at all times.
8. Street Sweeping/Clean Up – The roads shall be mechanically swept by the Contractor to remove excess aggregate as soon as possible but no later than 14 calendar days after the stone application as approved by the Town. The sweepings shall become the property of the Contractor unless a Town requests that the Contractor stockpile the sweepings in Town for it's use. The tar paper covers over utility hardware shall also be removed by the Contractor.

Quality Control and Inspection

Each Town shall have access to all construction activities to closely supervise and inspect the rates of application and amount of rolling to ensure that proper methods are being adhered to.

6. Aggregate – The aggregate shall be washed to insure clean material. Immediately after the aggregate has substantially dried from the washing process, the stone shall be sprayed with a coating of emulsified asphalt at a rate of three (3) gallons per ton of aggregate.
2. Temperature of Emulsified Asphalt Binder – Temperature of asphalt emulsion at the time of application shall be not less than 130 deg. F nor more than 180 deg. F.
7. Latex Additive – Latex additive shall be added at the refinery or terminal. A certificate of compliance shall be submitted by the refinery or terminal attesting that the required rate of application has been provided. The latex addition should be at the rate of 3.0 gallons per 100 gallons of emulsified asphalt binder.

4. Weather - The minimum temperature shall be 50 deg.F and rising, with no rain predicted. Should any form of precipitation begin during construction, stone seal operation shall cease. Re-commencement of operations shall be as directed by each Town.
5. Sweeping - Excess aggregate shall be mechanically swept by the Contractor to the satisfaction of the Town as soon as possible after application but no later than 14 calendar days after the stone application.

Product Performance

The stone seal surface treatment elements that shall be retained on the road surface shall conform to the following minimum quantities:

1. Residual Asphalt Content: 0.20 to 0.25 gallons/square yard.
2. Stone Chips: 20 to 25 pounds/square yard (based on a specific gravity of 2.65. Quantity requirements will be adjusted based on the source of stone.)

Measurement and Payment

Single Stone Seal Surface Treatment will be measured for payment by the square yard of pavement surface area complete in place. Single Stone Seal Surface Treatment will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, disposal and incidental costs required to complete the Work (including furnishing and installing temporary warning signs, and street sweeping before and after stone application).

Item No. 13: DOUBLE STONE SEAL SURFACE TREATMENT

The Work under this item shall include the furnishing, application, and compaction of a latex modified emulsified asphalt binder and crushed stone covers applied in two courses, furnishing and installing temporary warning signs, and the sweeping of the roads before and after application. The temporary cardboard warning signs shall read “Fresh Oil, Loose Stone” (or similar wording) and shall be placed at locations as directed by the Engineer (as a minimum at all intersections). The Work shall be constructed in conformance with the above specifications for SINGLE STONE SEAL SURFACE TREATMENT with the following differences:

The Contractor shall supply samples of stone and asphalt, and job mix formula to each Town for approval. The stone seal surface treatment elements that shall be retained on the road surface shall conform to the following minimum quantities:

Residual Asphalt Content: 0.45 to 0.65 gallons/square yard

Stone Chips Applied: 45 to 55 pounds/square yard
3/8" Crushed Stone

<u>Sieve Size</u>	<u>Percentage Passing</u>
1/2"	100%
3/8"	85-100%
1/4"	10-60%
No.4	0-10%
No.8	0-5%
No.16	0-2%

1/2" Crushed Stone

<u>Sieve Size</u>	<u>Percentage Passing</u>
5/8"	100%
1/2"	85-100%
3/8"	15-45%
No.4	0-10%
No.8	0-2%

Measurement and Payment

Double Stone Seal Surface Treatment will be measured for payment by the square yard of pavement surface area complete in place. Double Stone Seal Surface Treatment will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, disposal and incidental costs required to complete the Work (including furnishing and installing temporary warning signs, and street sweeping before and after stone application).

Item No. 14: POROUS PAVEMENT FULL DEPTH CONSTRUCTION

The Work under this section shall conform to the relevant provisions of Sections 120, 460, M1, M2, M3, and M9 of the Standard Specifications and the following. The porous pavement shall meet the Standard Specifications for Polymer Modified Open-Graded Friction Course.

The Work shall include the full depth excavation and subsequent installation of a porous pavement full depth construction system consisting of, from top to bottom: a four (4) inch layer of porous pavement installed in separate two (2) inch lifts; an eight (8) inch layer of three eighths (3/8") to three quarter inch (3/4") blended crushed stone; and, a twelve inch (12") layer of one and one half inch (1-1/2") native (rounded) stone. Filter fabric (Mirafi 160N Non-Woven Geotextile) shall be installed along all sides and ends (not the bottom) of the porous pavement system. **Each site shall be a guaranteed minimum of 400 square yards.**

The measured quantity will be paid for at the Contract unit price per square yard, which price shall include a complete porous pavement full depth construction system in-place including all labor, materials, equipment, pavement sawcutting, excavation, hauling, disposing, grading, compacting, tack coating pavement edges, porous pavement, stone, filter fabric, and incidental costs required to complete the Work. If needed, Contractor shall install Owner provided risers on gate valve boxes at no additional cost to the Town. Drainage and sewer casting adjustments are paid for under a separate item.

Item No. 15: BITUMINOUS PAVEMENT REPAIR - INFRA-RED METHOD

The Work shall include the treatment of utility trench and other bituminous concrete patches to provide a permanent, uniform and durable patch matching the surface of the abutting pavement. The Work shall be performed by workmen skilled in the infra-red method, and with equipment and materials approved for use by the Engineer prior to start of Work. The following procedure shall be used:

- * Adequately sweep the treatment area clean, and remove all loose and foreign material.
- * Apply infrared heat to the patch area by carefully positioning an infra-red heater not to exceed 15,000 BTUs per square foot per hour for the period of time required to soften the pavement to

a depth which will allow adequate raking of the asphalt without oxidation of the bitumen in the pavement material (minimum depth of 1"). The Contractor shall remove all unsuitable oxidized material and replace same with bituminous concrete.

- * Introduce a suitable proven recycling agent additive amount as approved, to the softened area. Scarify to produce a uniform workable mix and regrade the patch to a uniform grade and surface, and to match the abutting pavement.
- * Add additional Class I bituminous concrete Type I-1 material as necessary. A supply of the material shall be kept on hand in an infrared storage unit at a constant temperature during working hours. The stored material shall be kept at a temperature above 200 degrees F. No material with a temperature of less than 200 degrees F shall be used in the Work.
- * After the proper consistency of the paving material and recycling agent has been attained, the combined mixture shall be raked to the desired grade and compacted with a steel wheel roller of sufficient weight to achieve a uniform density comparable to that of the adjacent pavement.
- * Seal the edges of the repaired patch with an approved penetrating liquid asphalt emulsion to develop a stronger, more durable bond. Uniformly distribute a compatible approved petroleum resin sealant, and broadcast an approved mineral filler over the entire patch area to absorb any excess liquid and to prevent tracking.
- * Test the compacted surface with a straight edge to verify that a uniform, depression free surface has been obtained. Repeat the treatment process to remove any depressions found by the test.

The measured quantity will be paid for at the Contract unit price per square yard, which price shall include all labor, materials (excluding additional bituminous concrete), equipment, disposal costs, and incidental costs required to complete the Work. The additional bituminous concrete shall be supplied by the Town's vendor at no cost to the Contractor; however, the Contractor shall pick-up the bituminous concrete at the Town's vendor's plant at no additional cost to the Town. Contractor shall install Owner provided risers on gate valve boxes at no additional cost to the Town. Drainage and sewer casting adjustments are paid for under a separate item.

Item No. 16: PARTIAL DEPTH PAVEMENT PATCH

The Work shall consist of the construction of partial depth pavement patches at various locations as directed by the Engineer. The Work shall include the following:

Partial depth pavement patch excavation shall consist of the removal and satisfactory disposal of all bound pavement materials, the removal of which is necessary for the proper completion of the work. The excavation will be made to a minimum depth of 1.5". Contractor shall make the excavation square or rectangular with faces straight and vertical. The Contractor may use any type of pavement saw-cutting or milling equipment that will not damage adjacent pavement. A jack-hammer and compressor will not be allowed for cutting the pavement surface.

The Contractor shall swab or paint the existing vertical faces of the pavement with an approved emulsified asphalt such that a uniform film of asphalt will remain when cured.

Hot Mix Asphalt Pavement shall be placed and properly compacted with a power roller. The surface shall not deviate more than 1/8" from a straight edge placed on the existing pavement.

The perimeter of the patch shall be painted with an emulsified asphalt or approved equal such that a 4" wide strip will be equally spaced on the new and existing pavement. The joint sealing material shall be dusted with stone screenings or stone dust such that no tracking or pick-up of the seal will occur.

Partial depth pavement patch will be measured for payment by the square yard complete in place. The measured quantity will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, and incidental costs required to complete the Work. Contractor shall install Owner provided risers on gate valve boxes at no additional cost to the Town. Drainage and sewer casting adjustments are paid for under a separate item.

Item No. 17: MISC. PAVEMENT PATCH

The Work shall consist of the construction of miscellaneous pavement patches of various thicknesses on local roads at locations as directed by the Engineer. The Work shall include the following:

- * Because the areas to be patched are typically in very poor condition, the Contractor shall use any method at his disposal to cut and completely remove the existing failed pavement/ subbase to the depth (minimum 3" depth) as directed by the Engineer.
- * The subgrade area shall be fine graded and compacted in conformance with Section 170 of the Standard Specifications.
- * Cut surfaces shall be sprayed or painted with a uniform, thin coat of RS-1 asphalt emulsion immediately before placement of bituminous concrete material against the surfaces.
- * Class I Bituminous Concrete – Type I-1 shall be placed and compacted in 2 courses as a wearing surface (minimum 3" depth). Binder (2" minimum) and top (1" minimum) courses shall be installed on the same day allowing for adequate cooling between courses. The top course may be installed the next day if approved by the Engineer and if adequate safety signing/ measures are taken. In any case, the top course must be installed prior to weekends and/or holidays.

Miscellaneous pavement patches will be measured for payment by the ton complete in place. The measured quantity will be paid for at the Contract unit price per ton, which price shall include all labor, materials, equipment, and incidental costs required to complete the Work. Contractor shall install Owner provided risers on gate valve boxes at no additional cost to the Town. Drainage and sewer casting adjustments are paid for under a separate item.

Item No. 18: VELOCITY SPRAY INJECTION POTHOLE REPAIR

Scope of Work:

The work under this item shall consist of furnishing all labor, equipment, materials (asphalt emulsion and aggregate) and incidentals required to perform repairs on distressed bituminous concrete pavement by the Velocity Spray Injection Method.

Equipment:

- a. The distribution unit shall be a 33,000 GVW truck, equipped with a 6 cubic yard aggregate hopper, a 300 gallon asphalt emulsion tank, a 1000 pound anti-track material hopper and a delivery tube, air pressurized, to distribute the items above to the distressed pavement.

- b. Aggregate shall be delivered to the tube by a nylon belt covered positive drive chain conveyor, emulsion shall be delivered by a pressurized system at 140 degrees F, and anti-track material shall be delivered to the tube as required. Each item is delivered to the tube by in-cab remote controls.

Item No. 19: Cape Seal:

Item # 19a CAPE SEAL w/ Single Stone Chip

Item #19b CAPE SEAL w/ Double Stone Chip

The work under this item consists of the furnishing, application, and cleanup of “Cape Seal”, furnishing and installing temporary warning signs, and sweeping of roads before and after chipseal application.

“Cape Seal” shall be a combination of Stone Seal Surface Treatment (Chipseal) and Micro Surfacing completed in two successive operations with the micro surfacing completely covering and encapsulating the chip seal aggregate.

Both processes shall be completed within the same construction season and meeting the Town’s desired schedule. and the micro paving shall not be applied sooner than seven (7) days after the chip seal is complete in order that the chip seal emulsion can be totally cured. An additional sweep may be required prior to the placement of Micro to remove any surplus aggregate.

STONE SEAL SURFACE TREATMENT:

The first phase of the cape seal installation shall be completed in accordance with the conventional single (Item 12.00) or double chip (Item 13.00) specification herein utilizing the CRS-2 emulsion without the 3% latex

MICRO SURFACING:

The micro paving second phase of the cape seal installation shall be completed in accordance with the Item Six specification herein except that the application shall be a single lift of Type II material applied at not less 25 pounds per square yard (dry aggregate weight), and of sufficient thickness that none of the chip seal aggregate is exposed after curing of the micro surfacing. Basis of payment shall be by the square yard.

Item No. 20 PAVEMENT SEALING (PaveShield) (Greater than 1,500 square yards)

Item No. 21 PAVEMENT SEALING (PaveShield) (Less than 1,500 square yards)

The Work shall consist of providing and installing two coats of an Engineered resin emulsion seal coat slurry (PaveShield by Neyra Industries, Inc.) over aged and new hot mix asphalt concrete pavements, and shall conform to the relevant provisions of the Standard Specifications and the following:

Testing Methods and Practices

ASTM C 136 Method for Sieve Analysis of Fine and Coarse Aggregates

ASTM D 244 Standard Test Method for Emulsified Asphalts

ASTM D 2939 Method for Testing Emulsified Bitumens used as Protective Coatings

ASTM D 3910 Practices for Design, Testing, and Construction of Slurry Seal

AASHTO T-04481 - Method for Testing the Solubility of Bituminous Materials in Organic Solvents

Materials

Sealer (Pavement Coating): PaveShield manufactured by Neyra Industries, Inc., Cincinnati, Ohio; or approved equivalent. An engineered resin emulsion specifically formulated to extend pavement life.

Physical Composition: Sealer shall meet the following requirements when tested in accordance with ASTM D2939:

Requirements	Max.	Min.
Non-Volatiles %	-	47
Water %	53	-
Ash of Non-Volatiles %	40	30
Specific Gravity	-	1.1

Drying Time: When tested according to ASTM D2939, sealer shall be “set to touch” in 1 hour, and exhibit “final set” in less than 8 hours.

Non-Flammability: The cured coating shall show no tendency to flash or ignite.

Adhesion & Resistance to Water: The cured coating shall exhibit no penetration, blistering, loss of adhesion, nor tendency to re-emulsify after immersion for 24 hours.

Oil Spot Primer: Neyra Petrobond manufactured by Neyra Industries, Inc., Cincinnati, Ohio; or approved equivalent. Water based acrylic oil spot primer compatible with pavement coating.

Sand: As recommended in printed data sheets by sealer manufacturer. Washed, dry silica sand free of dust, trash, clay, organic materials or other contaminants.

Gradation: To have an American Foundry Society grain fineness number that is no less than fifty (50) and no more than seventy (70), when tested in accordance with ASTM C 136.

Mixing Water: Potable and free from harmful soluble salts. Temperature of the water shall be a minimum fifty degrees (50) F.

Submittals

Contractor shall submit to the Owner: the trade name and manufacturer of the sealer and oil spot primer; and, the sealer and oil spot manufacturer’s printed Product Data Sheets and Technical Specifications.

At its discretion, Owner may require submittal of references, list of similar sites where the same products have been installed by Contractor, and other information needed by the Owner to complete its evaluation (see Instructions to Bidders contained herein).

Equipment

Use equipment that keeps the mixture homogeneous at all times and is capable of applying required coating weights evenly over entire width of application mechanism to provide a uniformly coated surface.

Construction Procedures

Site Examination(s): Contractor shall inspect new and existing paving surfaces for condition and defects that will adversely affect quality of work, and which cannot be put into an acceptable condition through normal preparatory work as specified herein. Contractor shall notify the Owner in writing of the specific defects found. Owner shall not be required to fix said defects unless Owner wishes to continue with the project and have the Contractor complete the sealing work. Contractor shall not be required to place the sealer over the noted defects without the defects being repaired by the Owner.

Preparation: Owner shall be responsible for: repairing any paving defects (if he chooses to continue with the work); for pre-sweeping the areas to be sealed; for providing and installing barriers needed to protect the work; and, for providing and paying for police services, if needed. Contractor shall be responsible for: final cleaning (e.g., removal of fines, if needed) of the areas to be sealed; for cleaning oil spots and treating with oil spot primer; and, for protecting adjacent curbs, walks, fences, and other items from receiving primer and coating.

Sealing: Contractor shall apply coating (sealer) when pavement temperature is at least fifty (50) degrees F. and air temperature is fifty (50) degrees F. and rising, and shall apply coating during dry weather and when rain is not anticipated within eight (8) hours after application is completed. Because of the public nature of the work sites, Contractor understands and agrees that he may not be allowed to close off an entire area (e.g., a golf course or Town Hall parking lot) all at once and may be required to complete sealing of an area over two work cycles.

Contractor shall add water to the coating mix as required for application, quantity not to exceed twenty five (25) percent of engineered resin emulsion; and, shall add three (3) to five (5) pounds of sand per gallon to the engineered resin emulsion, and mix with power equipment to a homogeneous coating. Contractor shall apply all coats uniformly at a rate of 0.14 - 0.17 gallons per square yard using mixed and diluted material. Each coat shall be allowed to cure sufficiently to take traffic without scuffing. Final coat shall be allowed to cure a minimum of twenty four (24) hours under good drying conditions before allowing traffic.

For new paved areas, Contractor shall allow new asphalt to cure at least thirty (30) days before applying pavement coating. There shall be no difference in payment if the existing surface is new asphalt or aged asphalt.

Contractor shall remove primer and coating from surfaces other than those requiring primer and coating.

Measurement and Payment

Pavement Sealing will be measured for payment by the square yard of pavement surface area primed and sealed complete in place. Pavement Sealing will be paid for at the Contract unit price per square yard, which price shall include all labor, materials, equipment, and incidental costs required to satisfactorily complete the work (including oil spot cleaning and priming).

Materials:

The aggregate shall be 1/4" or 3/8" durable crushed rock, consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock, and free from a detrimental quantity of thin, flat, elongated or other objectionable pieces. The crushed stone shall have a maximum percentage of wear as determined by the Los Angeles Abrasion Test (AASHTO-T-96) and shall be uniformly blended meeting Section M2.01.6 of the Standard Specifications. Crushed gravel will not be permitted.

The asphalt emulsion shall be a Cationic Asphalt Emulsion CRS-2 or CMS-2.

Properties:

Viscosity, Saybolt Furol @ 122 degrees F (50 degrees C),s	300
Sieve Test, %	.02
Residue by distillation, %	67
Test on residue from distillation test:	
Penetration, 77 degrees F (25 degrees C) 100g, 5 s	140
Ductility, 77 degrees F (25 degrees C), 5 cm/min, cm	60
Solubility in trichloroethylene, %	99

The anti-track material shall be Black Beauty, as manufactured by the Reed Minerals Slag Products, a division of HARCO Corp. in Highland, Indiana or an approved equal.

REQUIRED FORMS

- **Bid Deposit – 5% of bid price in the form of a certified, treasurer’s, or cashier’s check payable to Barnstable County; or a bid bond from a licensed surety registered to do business in the Commonwealth of Massachusetts.**
- **Bid Form**
- **Certificate of Non-Collusion and Tax Compliance**

APPENDIX A
ESTIMATED BID QUANTITIES

Each Town has provided estimated quantities for each bid item that it presently intends to order. These estimated quantities are for bid purposes only and cannot be guaranteed. If there is no quantity provided for an item, then that specific Town does not intend to use that item. Estimated quantities are listed in a separate attachment entitled "Appendix A".

6. Communications concerning this Bid shall be addressed to:

Company Name: _____

Address: _____

Telephone No.: _____

Fax No.: _____

E-mail Address: _____

Bidder's Contact Person: _____

7. Bid comparison will be based on each item unit price provided for each Town. Bidders may bid on any or all items for any or all Towns listed. Bid selection will be by each item by Town and will be based on the lowest, qualified, responsible, and responsive bid for each item for each Town.

8. It is the intent to award a contract to the two (2) lowest, qualified, responsible, and responsive bidders for Item Numbers: **1- 6, 7, 15-17.**

9. The undersigned certifies under penalties of perjury that this Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

10. The undersigned also certifies: that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; and, that all employees at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

SUBMITTED on _____, 20__.

An Individual

By _____ (SEAL)

(Individual's Name and Signature)

doing business as _____

Business address: _____

Phone No.: _____

A Partnership

By _____ (SEAL)
(Firm Name)

(General Partner Name and Signature)

Business address: _____

Phone No.: _____

A Corporation

By _____
(Corporation Name)

(State of Incorporation)

By _____
(Name of person authorized to sign and Signature)

(Corporate Seal)

Attest _____
(Secretary)

Business address: _____

Phone No.: _____

A Joint Venture

By _____
(Name and Signature)

(Address)

By _____
(Name and Signature)

(Address)

(Each joint venture must sign. The manner of signing for each individual, partnership and corporation that is party to the joint venture should be in the manner indicated above.)

CERTIFICATE of NON-COLLUSION AND TAX COMPLIANCE

Pursuant to MGL Chapter 62C, Section 49A, I certify under the penalties of perjury that I, to the best of my knowledge and belief, have complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

I certify under the penalties of perjury that this bid/proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certificate, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other legal organization, entity or group of individuals.

Company: _____

Address: _____

Signature of Individual Signing

Bid, or Corporate Officer: _____

Telephone Number: _____

Social Security Number

Or Federal Identification Number: _____

Date: _____

Any person or corporation which fails to execute this document
will be considered a non-responsive bidder
and will be rejected pursuant to MGL Chapter 30, 39M.

**BID FORM
ROADWAY CONSTRUCTION
(UNIT PRICE WORK)**

State the unit bid price (written in words and in numerals) for each Town listed. See Appendix “A” for estimated quantities. Bidders may wish to contact each Town to obtain actual quantities purchased during prior years. Bidders may bid on any or all items for any or all Towns. Bid selection will be by each item and will be based on the lowest, qualified, responsible, and responsive bid for each item for each Town.

Two Lowest Bidders: It is the intent to award a contract to the two (2) lowest, qualified, responsible, and responsive bidders for **Item Numbers: 1- 6, 7, 15-17**. When needing work completed for each of these items, each Town shall first forward by e-mail or fax a Notice to Proceed to the lower of the two lowest bidders. If the lowest bidder does not schedule the work requested within forty-eight (48) hours of receiving the Notice to Proceed and/or cannot begin (and remain at) work within ten (10) working days, then the Town shall have the right to forward a Notice to Proceed to the second low bidder. Each Town shall follow its own policy in the case of the need to break a tied bid.

MASSDOT Prequalification: The Towns presently intend to use Chapter 90 (State) funds to finance some of the bid items. Therefore, Bidders for **Items that have an asterisk (*) beside them** are required to be **prequalified** through the Massachusetts Department of Transportation (MDOT). Vendors who are not on the MA Highway list of pre-qualified bidders cannot be awarded bids for these items. Only bidders whose companies name appears on the MDOT list of certified bidders will be awarded bids for the items identified with an asterisk.

Price Adjustments: Price adjustments for cost fluctuations will be allowed for liquid asphalt, diesel fuel, gasoline, Portland cement, and steel as specified by MASSDOT and the following: **Liquid asphalt** (variance from base price of 5% or more) adjustment will be allowed for **Bid Item Numbers: 1-3, and 8-18**. **Diesel fuel** (variance from base price of 10% or more) adjustment will be allowed for **Bid Item Numbers: 1-6, and 8-18**. **Gasoline** (variance from base price of 10% or more) adjustment will be allowed for **Bid Item Numbers: 4- 6**. MASSDOT procedures shall be used to determine the adjustments, except as noted herein. The price adjustments shall be based on the difference between the “base price” and the “order price”. The “base price” shall be determined from the **most recent MASSDOT** published liquid asphalt, diesel fuel, gasoline, Portland cement, or steel price that precedes the bid date. The “order price” shall be the most recent published MASSDOT liquid asphalt, diesel fuel, gasoline, Portland cement, or steel price available on the day that the item is placed. A Town ordering work shall be provided with **only one (1) invoice for each project**. This invoice shall include the name of the item(s) installed, the quantity installed, the original unit bid price(s), and the price adjustment(s) (including back-up information such as calculations, MASSDOT publication) for each project. **A second invoice for the adjustment(s) submitted at a later date shall not be acceptable.**

<u>ITEM NO. 1</u>	<u>HOT MIX ASPHALT PAVEMENT</u> <u>(Machine Placed)</u>	<u>PER TON</u>
<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Bourne	_____	\$ _____
*Brewster	_____	\$ _____
*Dennis	_____	\$ _____
*Eastham	_____	\$ _____
*Falmouth	_____	\$ _____
Provincetown	_____	\$ _____
Sandwich	_____	\$ _____
Wellfleet	_____	\$ _____
Yarmouth	_____	\$ _____

<u>ITEM NO. 2 a</u>	<u>HOT MIX ASPHALT PAVEMENT</u> <u>(Machine Placed under 40 tons/day)</u>	<u>PER TON</u>
<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
Bourne	_____	\$ _____
*Brewster	_____	\$ _____
Dennis	_____	\$ _____
Eastham	_____	\$ _____
*Falmouth	_____	\$ _____
Orleans	_____	\$ _____
Provincetown	_____	\$ _____
Wellfleet	_____	\$ _____
Yarmouth	_____	\$ _____

<u>ITEM NO. 2 b</u>	<u>HOT MIX ASPHALT PAVEMENT (Handwork)</u> <u>(Under 40 tons/day)</u>	<u>PER TON</u>
<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
Bourne	_____	\$ _____
Dennis	_____	\$ _____
Eastham	_____	\$ _____
Provincetown	_____	\$ _____
Sandwich	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO. 3 **HOT MIX ASPHALT SHIM** **PER TON**

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Brewster	_____	\$ _____
*Dennis	_____	\$ _____
*Eastham	_____	\$ _____
Provincetown	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO. 4 **PAVEMENT RECLAMATION (Including FG&C)** **PER SQ.YD.**

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Brewster	_____	\$ _____
*Dennis	_____	\$ _____
Harwich	_____	\$ _____

ITEM NO. 5 **PAVEMENT RECLAMATION (Including FG&C, CaCl)** **PER SQ.YD.**

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
Bourne	_____	\$ _____
*Eastham	_____	\$ _____
Sandwich	_____	\$ _____
Provincetown	_____	\$ _____

ITEM NO. 6 **BIT. CONCRETE EXCAVATION BY COLD PLANER** **PER SQ.YD.**

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Brewster	_____	\$ _____
*Dennis	_____	\$ _____
*Eastham	_____	\$ _____
*Falmouth	_____	\$ _____
Sandwich	_____	\$ _____
Provincetown	_____	\$ _____

ITEM NO. 7 **COLD PLANED (MILLED) PAVING JOINTS** **PER SQ.YD.**

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
Bourne	_____	\$ _____
*Brewster	_____	\$ _____

*Dennis	_____	\$ _____
Eastham	_____	\$ _____
*Falmouth	_____	\$ _____
Sandwich	_____	\$ _____
Provincetown	_____	\$ _____
Yarmouth	_____	\$ _____
<u>ITEM NO. 8</u>	<u>MICROSURFACING (ONE LIFT)</u>	<u>PER SQ.YD.</u>
Town	Unit Bid Price Written in Words _____	<u>In Numerals</u>
Sandwich	_____	\$ _____
<u>ITEM NO. 9</u>	<u>MICROSURFACING (TWO LIFTS)</u>	<u>PER SQ.YD.</u>
Town	Unit Bid Price Written in Words _____	<u>In Numerals</u>
Sandwich	_____	\$ _____
<u>ITEM NO. 10</u>	<u>ASPHALT – RUBBER SURFACE TREATMENT (20% RUBBER)</u>	<u>PER SQ.YD.</u>
Town	Unit Bid Price Written in Words _____	<u>In Numerals</u>
Bourne	_____	\$ _____
*Brewster	_____	\$ _____
*Dennis	_____	\$ _____
*Eastham	_____	\$ _____
Falmouth	_____	\$ _____
*Sandwich	_____	\$ _____
*Yarmouth	_____	\$ _____
<u>ITEM NO. 11</u>	<u>ASPHALT – RUBBER SURFACE TREATMENT (10% RUBBER)</u>	<u>PER SQ.YD.</u>
*Dennis	_____	\$ _____
Harwich	_____	\$ _____
Orleans	_____	\$ _____
*Sandwich	_____	\$ _____
*Yarmouth	_____	\$ _____
<u>ITEM NO. 12</u>	<u>SINGLE STONE SEAL SURFACE TREATMENT</u>	<u>PER SQ.YD.</u>
Town	Unit Bid Price Written in Words _____	<u>In Numeral</u>
Sandwich	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO. 13 DOUBLE STONE SEAL SURFACE TREATMENT PER SQ.YD.

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Eastham	_____	\$ _____
Sandwich	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO.14 POROUS PAVEMENT FULL DEPTH CONSTRUCTION PER SQ.YD.

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
Dennis	_____	\$ _____
Eastham	_____	\$ _____
Provincetown	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO. 15 BIT. PAVEMENT REPAIR-INFRA-RED METHOD PER SQ.YD.

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Brewster	_____	\$ _____
Dennis	_____	\$ _____
Orleans	_____	\$ _____
Sandwich	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO. 16 PARTIAL DEPTH PAVEMENT PATCH PER SQ.YD.

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
*Brewster	_____	\$ _____
Dennis	_____	\$ _____
Eastham	_____	\$ _____
Harwich	_____	\$ _____
Sandwich	_____	\$ _____
Provincetown	_____	\$ _____
Yarmouth	_____	\$ _____

ITEM NO. 17 MISC. PAVEMENT PATCH PER TON

<u>Town</u>	<u>Unit Bid Price Written in Words</u>	<u>In Numerals</u>
Dennis	_____	\$ _____
Eastham	_____	\$ _____

Harwich _____	\$ _____
Orleans _____	\$ _____
Sandwich _____	\$ _____
Provincetown _____	\$ _____
Yarmouth _____	\$ _____

ITEM NO. 18 VELOCITY SPRAY INJECTION POTHOLE REPAIR PER DAY

<u>Town</u> _____	Unit Bid Price Written in Words _____	<u>In Numerals</u>
Harwich _____		\$ _____

ITEM NO. 19a CAPE SEAL W/SINGLE STONE CHIPSEAL PER SY

<u>Town</u> _____	Unit Bid Price Written in Words _____	<u>In Numerals</u>
Dennis _____		\$ _____
*Sandwich _____		\$ _____
Provincetown _____		\$ _____

ITEM NO. 19b CAPE SEAL W/DOUBLE STONE CHIPSEAL PER SY

<u>Town</u> _____	Unit Bid Price Written in Words _____	<u>In Numerals</u>
Provincetown _____		\$ _____

ITEM NO. 20 PAVEMENT SEALING (PAVE SHIELD) PER SQ. YD.
(UNDER 1500 SY/DAY)

<u>Town</u> _____	Unit Bid Price Written in Words _____	<u>In Numerals</u>
*Brewster _____		\$ _____
Dennis _____		\$ _____
Provincetown _____		\$ _____
Sandwich _____		\$ _____

ITEM NO. 21 PAVEMENT SEALING (PAVE SHIELD) PER SQ. YD.
(1500 SY/DAY OR GREATER)

<u>Town</u> _____	Unit Bid Price Written in Words _____	<u>In Numerals</u>
*Brewster _____		\$ _____
Dennis _____		\$ _____
Sandwich _____		\$ _____
Provincetown _____		\$ _____
Yarmouth _____		\$ _____