Town of New Milford
Project Manual and Bid Documents

For:

Reconstruction of Long Mountain Road and Squire Hill Road

Affirmative Action /Equal Opportunity Employer

Minority/Women

Business Enterprises are encouraged to apply.

Funded by:
Town of New Milford

and the taxpayers of the Town of New Milford

Prepared by:
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Mayor Pete Bass
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PURCHASING AUTHORITY  
Town of New Milford, Connecticut  
REQUEST FOR BIDS

Sealed bids will be received at the Purchasing Office until 3 p.m., on Thursday, July 12, 2018. Bids must be in a sealed envelope, addressed to the Purchasing Authority, 10 Main Street, New Milford, CT 06776, and clearly marked: Long Mountain Rd and Squire Hill Rd Rehabilitation. Bids will be opened publicly in the E. Paul Martin Room by the Purchasing Authority, Thursday, July 12, 2018 at 3:30 p.m. Late bids will be considered informal and rejected.

**INTENT:** The Town intends to reclaim existing pavement; install roadway base, pave, perform storm drainage updates, remove rock/ledge and install guiderail to enhance safety and quality of the roadways.

Plans and specifications must be obtained at Advance Reprographics, 50 Corporate Avenue, Plainville, CT, (860) 410-1020.

The Purchasing Authority reserves the right to reject any and all bids. In addition to the bid specifications, all bids are subject to the terms, provisions and conditions of the New Milford “Municipal Purchases” Ordinance, set forth in Article III, Section 2-92 (a) through (o) inclusive, of the Code of New Milford. By bidding on the proposed purchase, the bidder agrees to such terms, provisions and conditions.

Any bidder found by the Purchasing Authority to be delinquent in the payment of taxes and/or sewer use charges due to the Town of New Milford shall be subject to the provisions of Section 2-92 (e) of the Code of New Milford. Copies of the Bid Ordinance may be obtained at the Office of the Town Clerk, Town Hall.

Pete Bass, Mayor  
An Equal Opportunity/Affirmative Action Employer
Reconstruction of Long Mountain Road and Squire Hill Road
New Milford, CT

INFORMATION FOR BIDDERS

SUBJECT:

1. Receipt and Opening of Bids
2. Preparation of Bid
3. Subcontracts
4. Qualifications of Bidder
5. Bid Security
6. Liquidated Damages for Failure to Enter into Contract
7. Time of Completion and Liquidated Damages
8. Conditions of Work
9. Addenda and Interpretations
10. Security for Faithful Performance
11. Power of Attorney
12. Notice of Special Conditions
13. Laws and Regulations
14. Obligation of Bidder
15. Hiring of Local Labor
16. Affirmative Action Requirements
INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS:

The Town of New Milford, hereinafter referred to as the Municipality, invites bids on the form attached hereto. All blanks must be appropriately filled in. Bids will be received by The Purchasing Authority at the Office of Finance, Town Hall, 10 Main Street, New Milford, Connecticut, until 3:00 p.m. on July 12, 2018 and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to The Purchasing Authority, Town of New Milford, 10 Main Street, New Milford, CT, and designated as Bid for the Reconstruction of Long Mountain Road and Squire Hill Road. The Municipality may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above-scheduled time for the opening of bids or the authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 45 days after the actual date of the opening thereof. The Municipality may accept or reject any or all bids or any or all portions of bids and take any action deemed to be in its best interest.

2. PREPARATION OF BID:

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures. Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the paragraph above.

Only complete bids will be accepted. In order for a bid to be complete, it must include all of the following:

   A. Bid Forms (Quantity Estimate Sheets & Bid Sheet Summary)
   B. Indemnification, Acknowledgement & Agreement
   C. Non-Collusion Affidavit of Prime Bidder
   D. Certificate as to Corporate Principal
   E. Statement of Contractor’s Qualifications
   F. Bid Security (5% Bid Bond)
   G. Any other documents required in the Special Provisions (Section II)
   H. Insurance Requirements

3. SUBCONTRACTS:

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Municipality.

4. QUALIFICATIONS OF BIDDER:

The Municipality may make whatever investigations it deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Municipality all information and data for this purpose as the Municipality may request. The Municipality reserves the right to reject any bid if the evidence submitted by, or investigation of, the bidder fails to satisfy the Municipality that the bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.
5. **BID SECURITY:**

Each bid must be accompanied by a bid bond duly executed by the bidder as principal and having a surety thereon approved by the Municipality, in the amount of 5% of the bid.

6. ** LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT:**

The successful bidder, upon his failure or refusal to execute and deliver the contract, bonds, and certificates of insurance required within 10 days after he has received notice of the acceptance of his bid, shall forfeit to the Municipality, as liquidated damages for such failure or refusal, the security deposited with his bid.

7. **TIME OF COMPLETION AND LIQUIDATED DAMAGES:**

The bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Municipality and to fully complete the project within consecutive calendar days thereafter. The bidder must agree also to pay as liquidated damages the sum of $1,000.00 for each consecutive calendar day thereafter. See Article 2 and “Notice to Contractor – Contract Time and Liquidated Damages” special provision.

8. **CONDITIONS OF WORK:**

Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible, the contractor in carrying out his work must employ such methods or means as will cause the least interruption of or interference with the work of any other contractor.

9. **ADDENDA AND INTERPRETATIONS:**

No interpretation of the meaning of the plans, specifications, or other prebid documents will be made to any bidder orally.

Every request for such interpretation must be in writing and addressed to Daniel Stanton, P.E., Town Engineer, 10 Main Street, New Milford, CT, or emailed to dstanton@newmilford.org and vdooglass@newmilford.org, and to be given consideration, must be received at least seven days prior to the date fixed for the opening of the bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications, which will be made available at Advanced Reprographics (50 Corporate Avenue, Plainville, CT 06062, (860) 410-1020) seven or more days prior to the date fixed for the opening of the bids. It shall be each Bidder's responsibility to make inquiry as to the Addenda issued. Failure of any bidder to receive any such addenda or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

10. **SECURITY FOR FAITHFUL PERFORMANCE:**

Simultaneously with his delivery of the executed contract, the Contractor shall furnish a 100% surety bond or bonds as security of faithful performance of his contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Municipality and listed in the Department of Treasury's Listing of Approved Sureties (Circular 570).
11. POWER OF ATTORNEY:

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

12. NOTICE OF SPECIAL CONDITIONS:

Although each and every part of the General Conditions is important, particular attention is called to those sections pertaining to the following, when applicable:
A. Inspection and testing of materials;
B. Insurance requirements;
C. Wage rates;
D. Contract Compliance Reporting Requirements; and
E. Stated allowances.

13. LAWS AND REGULATIONS:

The bidders' attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the construction of the project shall apply to the contract throughout, and they are considered included in the contract the same as though they were written out in full.

14. OBLIGATION OF BIDDER:

At the time of the opening of the bids, each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the plans and the contract documents including all addenda. The failure or omission of a bidder to examine any form, instrument, or document shall in no way relieve the bidder from any obligation with respect to his bid.

15. HIRING OF LOCAL LABOR:

This section emphasizes that every contractor and subcontractor undertaking to do work on the project shall employ to the maximum extent practical, in carrying out the work under this contract, qualified persons who regularly reside in the designated area where such project is located. For the purposes of this contract, the designated area is Litchfield County Non-Metro.

The contractor will be responsible for assuring that his subcontractors comply with this goal. This section emphasizes that every contractor and subcontractor undertaking to do work on the project shall employ to the maximum extent practical, in carrying out the work under this contract, qualified persons who regularly reside in the designated area where such project is located. For the purposes of this contract, the designated area is Litchfield County Non-Metro.
SECTION I – CONTRACT AGREEMENT
ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.1 Defined Terms:

Wherever the words defined in this section, or pronouns used in their stead, occur in the specifications, they shall have the meanings herein given.

contract documents: Whenever the term "contract documents" is used herein, it shall include the Agreement, Information to Bidders, General Specifications, Bid Documents, Special Provisions, Special Notes, Addenda, and Project Plans, including all modifications thereof incorporated in-the documents before their execution.

public works director: The Public Works Director, of the Town of New Milford, Connecticut, under whose authority all public works are performed, hereinafter when the word "Engineer" is used, it is hereby interpreted to include the authority of the Public Works Director, as well as the Engineer.

engineer: The Engineer shall mean the Town of New Milford Town Engineer, and shall have complete charge of all work involved. Hereinafter where the word "Engineer" appears, it shall mean the Engineer or his duly authorized representatives performing their usual duties, i.e., clerk of the works, etc.

contractor: Party of the second part to the contract, acting directly or through his agent or employees.

subcontractor: Any individual, firm, partnership or corporation to whom the Contractor sublets or assigns any part or parts of this project covered by this contract.

notice: The term "notice" as used herein shall mean and include written notices. Written notice shall be deemed to have been served, when deposited in a United States Mail Box to or at last known business address of the person, firm, or corporation for whom intended or to his or their or its duly authorized agent, representative, or office, or enclosed in a postage prepaid wrapper or envelope addressed to such person or firm or corporation at his or their or its last known business address.

as directed, as required, etc.: Wherever in the specifications, or on the drawings the words "As Directed," "As Ordered," "As Requested," "As Required," "As Permitted," or words of like import are used, it shall be understood that the Direction, Order, Request, Requirement, or Permission of the Engineer is intended. Similarly, the words "Approved," "Accepted," "Satisfactory," and words of like import shall mean Approved by, Acceptable to, or Satisfactory to the Engineer.

elevation: The figures given on the drawings or in the other contract documents after the word "Elevation" or abbreviation of it shall mean the Distance in Feet above the Datum Adopted by the Engineer. NOTE: Unless otherwise stated elsewhere in the
contract documents and/or on the contract drawings, vertical elevation datum for Long Mountain Road is based upon NAVD 1988 and Squire Hill is based upon NGVD 1929.

**Rock:** The word "Rock" wherever used as the name of any excavated material or material to be excavated, shall mean only boulders or solid ledge rock of 1 cubic yard or more which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledger, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel and no loose, shaken, or previously blasted rock or broken stone in rock fillings or elsewhere and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as 'Rock.'

**Earth:** The word "Earth," wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as above defined.

**Laborers:** When used herein, shall include all workmen, tradesmen, mechanics or any other hourly paid employees.

1.2 Abbreviations:
Where any of the following abbreviations are used in the Specifications, they shall have the meaning set forth below:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AASHTO</td>
<td>American Association of State Highway Transportation Officials</td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>ASA</td>
<td>American Standard Association</td>
</tr>
<tr>
<td>ASCE</td>
<td>American Society of Civil Engineers</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>NEC</td>
<td>National Electrical Code</td>
</tr>
</tbody>
</table>

1.3 Substitutes "(Or Equal Clauses)"
Whenever in this contract or specifications a particular brand or make of material, device, or equipment is shown or specified, such brand, make of material, device, or equipment should be regarded merely as a standard unless otherwise specified. If three or more brands, makes of material, devices, or equipment are shown or specified, each should be regarded as the equal of the others. When in the opinion of the Engineer, or his authorized agent, any other brand, make of material, device, or equipment is recognized as equal to that specified, considering quality, workmanship, and economy of operation, and suitable for the purpose intended, it will be accepted.

In the opinion of the Engineer and the Town's duly authorized agents, all material and workmanship shall in every respect be in accordance with what is in conformity with
approved modern practice. Whenever the plans, drawings, specifications, other contract documents, or the quality of the work, admit of doubt as to what is permissible, the interpretation will be made by the Engineer, as to which is in accordance with approved modern practice, in order to meet the particular requirements of the contract.

In all cases, new material shall be used unless this provision is waived with a special written notice by the Engineer.

**ARTICLE 2 – CONTRACT PERIOD**

2.1 Contract Time Frame:

The contract period is established from the Notice to Proceed issued by the Engineer for a period of calendar days, including weekends and holidays, as detailed in “Notice To Contractor – Contract Time and Liquidated Damages” (page SP-2).

2.1.1 Liquidated Damages:

Failure of the Contractor to meet this established time frame will result in liquidated damages being assessed in the amount of $1,000/day for each and every calendar day beyond the contract time limit. See NTC – Contract Time and Liquidated Damages (page SP-2).

2.1.2 Time is of The Essence:

Time is of the essence for this contract as execution of the work may inconvenience property owners, vehicular traffic, and pedestrians and adversely affect business in the area; therefore, it is essential that the work be pressed vigorously to completion. Also, the cost of Town administration and supervision of construction will be increased as the time occupied in the work is lengthened, and the deprivation to the residents of the Town of the needed improvement on herein contract may cause damages to the Town.

In the event the Contractor fails to perform the work in a timely manner due to the Contractor's poor planning, financial status, errors in construction, or any other reason directly attributed to the Contractor's circumstances, the Town may institute default proceedings against the Contractor to recover damages and losses. Any payments due the Contractor may be withheld pending final determinations, and the bonding company for the performance of the work on this contract may be notified of impending actions that may be warranted.

If any delay is imposed on the Contractor by specific orders of the Engineer, i.e.; to stop the work (for reasons other than failure on the part of the Contractor to comply with the requirements of the Contract Documents), material or labor strikes, acts of God, etc., such delay will entitle the Contractor to an equivalent extension of time.

When extra or additional work is ordered by the Engineer, the Contractor will be allowed an extension of time expressed in days as determined by the Engineer. The Contractor shall submit a written request for an extension of time, along with reasons for the request. A written response will be transmitted to the Contractor with a determination by the Town as to whether or not an extension of time will be granted. See Section 2.2 Modification Procedures for issuance of change orders and/or time
extensions.

2.1.3 Commencement of Work

The Contractor shall commence work on the day specified in the Notice to Proceed issued by the Engineer and shall fully complete the work within the number of consecutive calendar days from said date as hereinafter specified as the period for completion of his contract, unless such period shall be extended as hereinafter provided by the Town.

2.2 Modification Procedures

A. Construction Change Directive: Engineering Department may issue a document, signed by Town of New Milford, instructing Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. The document will describe changes in the Work and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change in Work.

B. Proposal Request: Engineering Department may issue a document which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required, and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 2 days.

C. Computation of Change in Contract Amount:
   1. For change requested by Engineering Department for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Engineering Department.
   3. For predetermined unit prices and quantities, the amount will be based on the fixed unit prices as bid by contractor.

D. Execution of Change Orders: Engineering Department will issue Change Orders for signatures of parties.

E. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

F. Promptly revise progress schedules to reflect any change in Contract Time, revise subschedules to adjust times for other items of work affected by the change, and resubmit.
ARTICLE 3 – BIDDING REQUIREMENTS AND FORMS

3.1 Special Provisions
All work done under this contract shall be in conformance with the Town of New Milford ROW Ordinance; Town of New Milford ROW Ordinance Detail Drawings; Town of New Milford construction standards; the latest edition Manual of Uniform Traffic Control Devices; Town of New Milford Transportation Design Standards; CTDOT Form 817 and most recent supplements; the plans, and these special provisions.

3.2 Corrections
Erasures or other changes in the Bid must be initialed by the Bidder.

3.3 Time for Receiving Bids
Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no Bid received thereafter will be considered; except that when a Bid arrives by U.S. Mail after the time fixed for opening, but before the reading of all other Bids is completed, and it is shown to the satisfaction of the Owner that the nonarrival time was due solely to delay in the mails for which the Bidder was not responsible, such Bid will be received and considered.

3.4 Opening of Bids
At the time and place fixed for the opening of Bids, the Owner will cause to be opened and publicly read aloud every Bid received within the time set for receiving Bids, irrespective of any irregularities therein. Bidders and other persons interested may be present, in person or by representative.

3.5 Withdrawal of Bids
Bids may be withdrawn on written or telegraphic request dispatched by the Bidder in time for delivery in the normal course of business to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the Bidder is placed in the U.S. Mail and postmarked prior to the time set for Bid opening. The Bid Guaranty of any Bidder withdrawing his Bid in accordance with the foregoing conditions will be returned promptly.

3.6 Award of Contract: Rejection of Bids
If the Contract is awarded, it will be awarded to the responsible Bidder submitting the lowest Bid complying with the conditions of the Invitation for Bids and Instructions to Bidders. The Bidder to whom the award is made will be notified at the earliest possible date. The Owner, however, reserves the right to reject any and all Bids and to waive any informality in Bids received whenever such rejection to waiver is in its interest.

3.6.1 Basis of Award:
Bids, as stated in the "Bid Sheet," will be compared on the basis of the sum of the quantities multiplied by respective unit prices, added to lump-sum prices. In the event that there is a discrepancy in the bid sheet between the lump-sum or unit
prices written in words and figures, the prices written in words shall govern. The Town agrees to examine and consider each bid submitted in consideration of the Bidder's Agreements, as herein above set forth in the Bid Sheet.

ALTERNATES NOTE:
Alternate bid items shall include the cost of all labor, materials, equipment, time extension or deletion, general conditions, general requirements, overhead, profit, insurance, for the work. Claims for extras resulting from the acceptance or rejection of any alternate item will not be allowed.

If any bid for such Alternates is obviously unbalanced either in excess of, or below reasonable fair market values, then the entire bid will be considered nonresponsive, and the bid will be rejected.

The Award of Contract will be made to the lowest responsible bidder for the "Base Bid" work – which does not include the bid price for any Alternate.

The Owner shall have the right to accept or omit any Alternate.

The Drawings, Specifications, and other Contract Documents shall be considered appropriately modified by either the acceptance or omission of any Alternates.

The contract completion date (calendar days) will be adjusted if any of the Alternates is added. The additional days granted should be considered to perform the alternate work only and substantial completion based on base bid items and contract days.

- **Bid Alternate No. 1** (Long Mountain Road ledge removal from Sta. 98+20 to 101+40 Left) – 14 additional calendar days
- **Bid Alternate No. 2** (Double yellow centerline on Long Mountain Road & Squire Hill Road) – 2 additional calendar day
- **Bid Alternate No. 3** (Sharrow markings on Squire Hill Road) – 2 additional calendar days

Other requests on the base bid for time extensions shall be approved/rejected by the Engineer.

All costs associated with the above time extensions(s) are to be included in the Alternate Price. After award of the contract, one or more of the alternates for which funds are available may be added to the Contract in the discretion of the Owner. The adjustment to the bid price shall be solely based on the bid price for the alternate(s) added. The Contractor will be notified as to which alternates will be included in the Contract within fourteen (14) calendar days of the Award of Contract.

### 3.6.2 Rejection of Bids:

The Owner also reserves the right to consider as not responsible any Bidder who does not habitually perform with his own forces at least fifty percent (50%) of the dollar value of the work involved in this Contract.

### 3.7 Representations of Contractors:

By signing and submitting the attached bidding sheet(s), the Contractor represents and warrants:

1. That he is financially solvent and that he is experienced in and competent to perform
the type of work, or to furnish plant and equipment materials and supplies.

2. That he is familiar with all federal, state, and municipal laws, ordinances, and regulations, which in any way may affect the work of those employed therein.

3. That he has carefully examined the plans and specifications and the site of the work and that from his own investigation he has satisfied himself about the nature and location of the work, character, quality, and quantity of the surface and subsurface materials likely to be encountered, as well as the character of equipment and other facilities needed for the performance of the work, the general local conditions, and all other conditions which may in any way affect the work.

3.7.1 Inspection of Site

Each Bidder shall visit the site of the proposed work and fully acquaint himself with the existing conditions there relating to the work and labor and shall fully inform himself as to the facilities involved, the difficulties, and restrictions attending the performance of the Contract. The Bidder shall thoroughly examine and familiarize himself with the Drawings, Special Provisions, and all other Contract Documents. The Contractor agrees, by the execution of the Contract, that he shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal instrument or to visit the site and acquaint himself with the conditions there existing, and the Owner shall be justified in rejecting any claim based on facts regarding which the Contractor should have known as a result thereof.

The undersigned understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty of guarantee, express or implied, that the subsurface and/or other structures (surface and/or subsurface) actually encountered will be the same as these shown on the drawings or in any of the other contract documents and he agrees that he shall not use or be entitled to use any such information made available to him through the contract documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Town, arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this bid.

3.7.2 Interpretations and Addenda

No oral interpretation will be made to any Bidder as to the meaning of the Contract Documents or any part thereof. Every request for such an interpretation shall be made in writing to the Owner. Any inquiry received seven or more days prior to the date fixed for opening of Bids will be given consideration. Every interpretation made to a Bidder will be in the form of an Addendum to the Contract Documents, which will be made available at Advanced Reprographics (50 Corporate Avenue, Plainville, CT 06062, (860) 410-1020) seven or more days prior to the date fixed for the opening of the bids. It shall be each Bidder's responsibility to make inquiry as to the Addenda issued, and all
such Addenda shall become part of the Contract, and all Bidders shall be bound by such Addenda, whether or not received by the Bidders.

3.8 Bid Forms:
These Contract Documents include a complete set of Bid and Contract Forms which are for the convenience of Bidders. This package, in its entirety, will make up the Contract Agreement; however, only the required Bid Forms are to be filled out, signed, date, and stamped (if required) at the time of Bidding but are not to be detached from the Contract Documents. The Contract forms will be executed upon award of the bid to the successful responsible bidder.

3.8.1 Use of Separate Bid Sheets
Bidders should submit forms, as required. Bid documents should not be attached to bid specifications.

3.8.2 Bid Submission
All bids must be typed and submitted in duplicate on forms supplied by the Owner and shall be subject to all requirements of the Contract Documents, including the Drawings, and these INSTRUCTIONS TO BIDDERS. All Bids must be regular in every respect and no interlineations, excisions, or special conditions shall be made or included in the Bid Forms by the Bidder.

Two (2) original copies of Bid Documents including the Bid, the Bid Guaranty (if requested), the Form of Surety Guaranty (if requested), the Non-Collusion Affidavit(s), Certification(s) Regarding Equal Employment Opportunity, Certificate of Corporate Principal, Indemnification, and Qualifications shall be enclosed in envelopes (inner and outer), both of which shall be sealed and clearly labeled with the words "Bid Documents" project name, name of Bidder, and date and time of Bid opening, in order to guard against premature opening of the bid.

The Owner may consider as irregular any Bid on which there is an alteration of or departure from the Bid Forms hereto attached and at its option may reject the same.

Each Bidder shall include in his Bid the following information:

**Principals:**
- Names
- Home addresses, including city, state and zip code
- Telephone numbers:
  - Office, mobile, pager, and fax

**Firm:**
- Name
- Treasury number
- Address
- City, state, zip code
3.8.3 Collusive Agreement

Each Bidder submitting a Bid to the Owner for the work contemplated by the Documents on which bidding is based shall execute and attach thereto the Non-Collusion Affidavit(s) on the form(s) herein provided, to the effect that he has not colluded with any other person, firm, or corporation in regard to any Bid submitted.

Before executing any subcontract, the successful Bidder shall submit the name of any proposed subcontractor for prior approval and an affidavit in the form provided herein.

3.8.4 Statement of Bidder's Qualifications

Each Bidder shall submit with his Bid, on the form furnished for that purpose (a copy of which is included in the Contract Documents), a statement of the Bidder's qualifications, his experience record in the type of work embraced in the Contract and his organization and equipment available for the work contemplated, and other pertinent information so contained on said form, and the Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform his obligations under the Contract and the Bidder shall furnish the Owner all such information and data for this purpose as it may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified to carry out properly the terms of the Contract.

The Owner also reserves the right to consider as not responsible any Bidder who does not habitually perform with his own forces at least fifty (50%) percent of the dollar value of the work involved in this Contract.

At the option of the Owner, a preaward conference may be scheduled provided one week's advance notice of the time and place of the same shall be given to the Contractor. In the event of such a conference, the Owner may in its notice to the Contractor require the submission of the Progress Schedule mentioned in the General Conditions. In the event such a schedule is required, the Contractor will submit the same to the Owner at least three (3) full working days before the date of the conference.

3.8.5 Equal Employment Opportunity

Attention of Bidders is particularly called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin.

Each Bidder submitting a bid to the Owner shall execute and attach thereto the Certification(s) Regarding Equal Employment Opportunity. Although the Bidder is not required to attach such Certification by proposed Subcontractors to his Bid, the Bidder is hereby advised of this requirement so that appropriate action can be taken to prevent subsequent delay in subcontract awards.
3.8.6 Required Bid Documents

The following documents must be signed and submitted as part of the bidder's proposal:

- Bid Forms (Quantity Estimate Sheets & Bid Sheet Summary)
- Indemnification, Acknowledgement, & Agreement
- Non-Collusion Affidavit of Prime Bidder
- Certificate as to Corporate Principal
- Statement of Contractor's Qualifications
- Bid Security (5% Bid Bond)
- Any other documents required in the Special Provisions (Section II)
- Insurance

3.8.7 Quantity Estimate Sheets
<table>
<thead>
<tr>
<th>Item #</th>
<th>Work Description and Unit Price in Words</th>
<th>UOM</th>
<th>Long Mountain Rd. Estimated Quantity</th>
<th>Squire Hill Rd. Estimated Quantity</th>
<th>Total Estimated Quantity (Both Roads)</th>
<th>Unit Price($)</th>
<th>Total($) (Both Roads)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0201001A</td>
<td>Clearing and Grubbing</td>
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<td>Long Mountain Rd. Estimated Quantity</td>
<td>Squire Hill Rd. Estimated Quantity</td>
<td>Total Estimated Quantity (Both Roads)</td>
<td>Unit Price($)</td>
<td>Total($) (Both Roads)</td>
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<td>$7,000.00</td>
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<td>0507831</td>
<td>Convert Catch Basin to Manhole</td>
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<td>Long Mountain Rd. Estimated Quantity</td>
<td>Squire Hill Rd. Estimated Quantity</td>
<td>Total Estimated Quantity (Both Roads)</td>
<td>Unit Price($)</td>
<td>Total($) (Both Roads)</td>
</tr>
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<td>0704001A</td>
<td>Gabion Retaining Wall (Complete)</td>
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<tr>
<td>0751711</td>
<td>6&quot; Underdrain</td>
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<td>1,190</td>
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<td>0751712</td>
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<td>0910300</td>
<td>Metal Beam Rail (R-B MASH)</td>
<td>LF</td>
<td>1,850</td>
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<td>1,900</td>
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<tr>
<td>Item #</td>
<td>Work Description and Unit Price in Words</td>
<td>UOM</td>
<td>Long Mountain Rd. Estimated Quantity</td>
<td>Squire Hill Rd. Estimated Quantity</td>
<td>Total Estimated Quantity (Both Roads)</td>
<td>Unit Price($)</td>
<td>Total($) (Both Roads)</td>
</tr>
<tr>
<td>---------</td>
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<td>0911923</td>
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<td>0912104</td>
<td>Drilling Hole for Guiderail Post in Rock</td>
<td>VF</td>
<td>150</td>
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<td>0918002</td>
<td>Modify Three-Cable Wood Guiderail with R-B Long Posts</td>
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<td>0922501</td>
<td>Bituminous Concrete Driveway</td>
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<tr>
<td>0944003</td>
<td>Furnishing and Placing Topsoil</td>
<td>SY</td>
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<td>5,200</td>
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<td>0950013</td>
<td>Erosion Control Matting</td>
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<td>0950019A</td>
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<td>0975002A</td>
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## BASE BID

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<tr>
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<th>Work Description and Unit Price in Words</th>
<th>UOM</th>
<th>Long Mountain Rd. Estimated Quantity</th>
<th>Squire Hill Rd. Estimated Quantity</th>
<th>Total Estimated Quantity (Both Roads)</th>
<th>Unit Price($)</th>
<th>Total($) (Both Roads)</th>
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<tr>
<td>0980001</td>
<td>Construction Staking</td>
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<tr>
<td>1208931</td>
<td>Sign Face-Sheet Aluminum (Type IX Retroreflective Sheeting)</td>
<td>SF</td>
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<td>20</td>
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<tr>
<td>1208932</td>
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<td>1210105</td>
<td>Epoxy Resin Pavement Markings, Symbols and Legends</td>
<td>SF</td>
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<td>1700001A</td>
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<td>$12,000.00</td>
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"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepancy between "Unit Price" and "Total", the unit price will govern.

Base Bid Total (in words):

Base Bid Total (in words):

<p>| | |</p>
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<tr>
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## BID ALTERNATE NO. 1 (Long Mountain Road ledge removal from Sta. 98+20 to 101+40 Left)

<table>
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<tr>
<th>Item #</th>
<th>Work Description and Unit Price in Words</th>
<th>UOM</th>
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<th>Unit Price($)</th>
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<td>Rock Excavation ________________________________ dollars ________________________________ cents</td>
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</table>

Bid Alternate No. 1 Total:

"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepancy between "Unit Price" and "Total", the unit price will govern.

Bid Alternate No. 1 Total (in words):

__________________________________________ dollars
__________________________________________ cents

0202100 CY 300
### BID ALTERNATE NO. 2 (Double yellow centerline on Long Mountain Road & Squire Hill Road)

<table>
<thead>
<tr>
<th>Item #</th>
<th>Work Description and Unit Price in Words</th>
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<th>Squire Hill Rd. Estimated Quantity</th>
<th>Total Estimated Quantity (Both Roads)</th>
<th>Unit Price($)</th>
<th>Total($) (Both Roads)</th>
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<td>1210102</td>
<td>4&quot; Yellow Epoxy Resin Pavement Markings</td>
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"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepancy between "Unit Price" and "Total", the unit price will govern.

Bid Alternate No. 2 Total:

Bid Alternate No. 2 Total (in words):

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### BID ALTERNATE NO. 3 (Sharrow markings on Squire Hill Road)

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<th>Work Description and Unit Price in Words</th>
<th>UOM</th>
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<th>Total($)</th>
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<tr>
<td>1210105</td>
<td>Epoxy Resin Pavement Markings, Symbols and Legends</td>
<td>SF</td>
<td>530</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"Unit Price" amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. In case of discrepancy between "Unit Price" and "Total", the unit price will govern.

Bid Alternate No. 3 Total (in words):

__________________________________________dollars
__________________________________________cents
Reconstruction of Long Mountain Road and Squire Hill Road
BID SHEET SUMMARY

BASE BID
TOTAL AMOUNT $ _____________
TOTAL WRITTEN VALUE (from Quantity Estimate Sheets):
___________________________________________________________DOLLARS and
___________________________________________________________CENTS

BID ALTERNATE NO. 1 (Long Mountain Road ledge removal from Sta. 98+20 to 101+40 Left)
TOTAL AMOUNT $ _____________
TOTAL WRITTEN VALUE (from Quantity Estimate Sheets):
___________________________________________________________DOLLARS and
___________________________________________________________CENTS

BID ALTERNATE NO. 2 (Double yellow centerline on Long Mountain Road & Squire Hill Road)
TOTAL AMOUNT $ _____________
TOTAL WRITTEN VALUE (from Quantity Estimate Sheets):
___________________________________________________________DOLLARS and
___________________________________________________________CENTS

BID ALTERNATE NO. 3 (Sharrow markings on Squire Hill Road)
TOTAL AMOUNT $ _____________
TOTAL WRITTEN VALUE (from Quantity Estimate Sheets):
___________________________________________________________DOLLARS and
___________________________________________________________CENTS

Alternate Bid items will be considered if economically desirable.

THIS BID INCLUDES ADDENDUM NOS._________________________________
(Please write in all Addenda #’s received.)

THE UNDERSIGNED BIDDER UNDERSTANDS THAT, IN ADDITION TO THE BID SPECIFICATIONS, ALL BIDS ARE SUBJECT TO THE TERMS, PROVISIONS AND CONDITIONS OF THE NEW MILFORD "MUNICIPAL PURCHASES" ORDINANCE, SET FORTH IN ARTICLE III, SECTION 2-92 (a) THROUGH (o) INCLUSIVE, OF THE CODE OF NEW MILFORD. The undersigned submits this proposal without collusion with any other individual or corporation.

PROPOSAL SUBMITTED: BY: ________________________ TITLE: ______________________

NAME (AUTHORIZED CORPORATE OFFICER)

SIGNATURE: ______________________ DATE: ______________________
OFFICIAL ADDRESS: The undersigned hereby designates as his/her office to which notice of acceptance and other notices may be mailed, telephoned or delivered:

NAME: ____________________________________
ADDRESS: ____________________________________
TOWN: ______________________ STATE ______________________ DATE ____________
PHONE (DAY) __________________ (NIGHT) ___________________ FAX: ___________________

NOTE: This document, in order to be considered valid, must be signed by a principal, officer or owner of the bidding firm. Such signature will attest to the fact that all terms, conditions and specifications have been read, understood and accepted by the bidder.
INDEMNIFICATION, ACKNOWLEDGEMENT & AGREEMENT

To the fullest extent permitted by law, the contractor shall indemnify and hold harmless the Town of New Milford, and agents and employees of said Town from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including loss or use resulting therefrom, but only to the extent caused in whole or in part by acts or omissions of the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to the Town of New Milford. In claims against any person or entity indemnified under this paragraph by an employee of the contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this paragraph shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

Contractor acknowledge and understands that the Town of New Milford has adopted as its policy, the nondiscrimination agreements and warranties required under Connecticut General Statutes § 4a-60(a)(1) and § 4a-60a(a)(1), as amended in State of Connecticut Public Act 07-245 and sections 9(a)(1) and 10(a)(1) of Public Act 07-142, as those statutes may be amended from time to time. Contractor further agrees to comply with such mandates.

______________________________
Signature

______________________________
Title

______________________________
Company

______________________________
Date
NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
(To Accompany Bid)

State of_________________________  Reconstruction of Long Mountain Road

Ss._____________________________  and Squire Hill Road

being first duly sworn, deposes and says that:

(1) He is __________________________________________of ______________________,

the Bidder that has submitted the attached Bid:

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all
pertinent circumstances respecting such bid:

(3) Such Price is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, Owners, agents, representatives,
employees or parties in interest, including this affidavit, has in any way colluded, conspired, connived
or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham
Bid in connection with the Contract for which the attached Bid has been submitted or to refrain
from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought
by Agreement or collusion or communication or conference with any other Bidder, firm or person
to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or
cost element of the Bid price or the Bid price of any Bidder, or to secure through any collusion,
conspiracy, connivance or unlawful agreement any advantage against the Town of New Milford, or
any person interested in the proposed Contract; and

(5) The price or prices quoted in the Subcontractor's Proposal are fair and proper and are not tainted
by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of
its agents, representatives, Owners, employees or parties in interest, including this affiant.

(Signed)_______________________________

_____________________________________
Title

Subscribed and sworn to before me this ________ day of __________ 20____.

__________________________________(Title) ___________________

My Commission Expires __________________20___.
CERTIFICATE AS TO CORPORATE PRINCIPAL
(To Accompany Bid)

I, __________________________________________________ certify that I am the Secretary of the Corporation named as Principal in the within bond; that ________________________________________________
who signed the said bond on behalf of the Principal was then __________________________________ of said corporation; that I know his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

Signed__________________________________________________________ Seal

Title____________________________________________________________

(Corporate)
STATEMENT OF CONTRACTOR'S QUALIFICATIONS
(To be included with Bid)

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Please answer questions on separate attached sheets. The Contractor may submit any additional information he desires.

1. Name of Contractor.
2. Permanent main office address, including phone and facsimile numbers.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to complete the work awarded to you? If so, where and why?
9. Have you ever defaulted on a contract? If so, where and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed.
11. List your major equipment available for this Contract, including make and model year.
12. List your experience in work similar to this project.
13. List the background and experience of the principal members of your organization including all personnel licensed by the State of Connecticut.
14. List of the work to be performed by subcontractors and summarize the dollar value of each subcontract.
15. Credit available: $
16. Give bank references:
17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Town of New Milford?
18. The undersigned hereby authorizes and represents any person, firm, or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder’s Qualifications.

Dated this _______ day of ______________ 20__

____________________________________________
(Name of Bidder)

By: _______________________________________

Title: ______________________________________

State of Ss.
County of

__________________________________________________ being duly sworn deposes
and says that he is ______________________________ of

__________________________________________________

__________________________ and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me

____________________________________________
(this _______ day of ______________ 20__

____________________________________________
(Notary Public)

My commission expires ________________ 20__
IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in three (3) counterparts. One counterpart each has been delivered to Owner, Contractor, and Engineer. All portions of the Contract Documents have been signed, initialed, or identified by Owner and Contractor or identified by Engineer on their behalf.

The CONTRACTOR hereby agrees to commence work under this Contract on or before a date to be specified in a written "Notice to Proceed" of the OWNER and to fully complete the project within the time limit specified in Article 2 of this Contract Agreement. The CONTRACTOR further agrees to pay, as liquidated damages, the sum specified in Article 2.1.1.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Contract, subject to additions and deductions as provided in Article 2.2 of this Contract Agreement, and to make payments on account thereof as provided in Article 4 of this Contract Agreement. This Agreement is dated________________.

OWNER:  

Town of New Milford  

By:  Pete Bass  

Title:  Mayor  

CONTRACTOR:  

[CORPORATE SEAL]  

By:  

Title:  

[CORPORATE SEAL]  

Attest:  Daniel Stanton, P.E.  

Title:  Town Engineer  

Address for giving notices:  

10 Main St  

New Milford, CT 06776  

Attest:  

Title:  

Address for giving notices:  

Agent for service of process:  

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)
3.9 Execution of Agreement and Bonds

Subsequent to the award and within ten (10) calendar days after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the Owner, an Agreement in the form included in the Contract Documents, or other form acceptable to the Owner in such number of copies as the Owner may require.

All bonds required by the Contract Documents shall be obtained from a surety or insurance company that is duly licensed and/or authorized in the State of Connecticut to issue bonds for the limits and coverage required. The surety is further subject to approval by the Finance Director and/or the Town Attorney of the Town of New Milford.

Having satisfied all conditions of award as set forth elsewhere in these Documents, the successful Bidder shall, within the period specified in the paragraph above, furnish a Performance Bond in a penal sum of not less than one hundred percent (100%) and a Labor and Material Payment Bond in a penal sum of not less than one hundred percent (100%) of the Contract as awarded, as security for the faithful performance of the Contract, and for the payment of all persons, firms, or corporations to whom the Contractor may become legally indebted for labor, materials, tools, equipment, or services of any nature including utility and transportation services, employed or used by him in performing the work. Such bonds shall be in the same form as that included in the Contract Documents, or other acceptable form to the Owner and shall bear the same date as or a date subsequent to that of the Agreement. The current power of attorney for the person who signs for any surety company shall be attached to such bonds. These bonds shall be signed by a Guaranty or Surety Company listed in the latest issue of the U.S. Treasury Circular 570, and the penal sum shall be within the maximum specified for such Company in said Circular 570.

Notwithstanding the foregoing, all bonds required by law shall be in accordance with the form and substance so required by law. The failure of the successful Bidder to execute such Agreement and to supply the required bonds within ten (10) calendar days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant, based upon reasons determined sufficient by the Owner, shall constitute a default, and the Owner may either award the Contract to the next lowest responsible Bidder or readvertise for Bids.

3.9.1 Bid Security/Bond:

The Bidder shall furnish a bid security/bond in the amount equal to 5% of the maximum bid price shown on their submittal.

3.9.2 Performance and Payment Bond:

The Contractor shall secure and furnish performance and payment bonds in the amount at least equal to the contract price bid. These bonds shall serve to secure the faithful performance and payment of all the Contractor's obligations under the Contract Documents.
These bonds shall remain in effect for a period of two (2) years from the date of acceptance by the Town guaranteeing the bidder's work in all phases of construction, which shall also cover all damages due to trench settlement and/or other defects found throughout the two-year period.

3.9.3 Additional or Substitute Bond:

If at any time the Town becomes dissatisfied with the performance bond as issued by the present surety or sureties, or if for any other reason such bond shall cease to be adequate surety to the Town, the Contractor shall within five (5) days after notice from the Town to do so, substitute an acceptable bond in such form and sum and signed by such other sureties as may be satisfactory to the Town.

The premium on all such bonds shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until new sureties shall have qualified.

3.9.4 Power Of Attorney:

Attorneys-in-Fact who sign contract bonds must file with each bond a certified copy of their power of attorney to sign said bond.

3.10 Insurance Requirements:

A Certificate of Insurance must accompany all bids.

Contractors shall carry the following minimum insurance coverages, and the provisions specified below must be met.

- Insurance carriers providing the required insurance coverages must have an A.M. Best's financial rating of "A-VII" or better.

- The Town of New Milford, its officials, employees, and volunteers MUST be named as additional insured with reference to this project on a primary and non-contributory basis. The policy endorsement evidencing this coverage must be provided with the certificate of liability insurance. Any changes in insurance coverage will require (30) thirty days' notice to the Town of New Milford.

- The contract should have a hold harmless indemnification agreement provision which protects the Town of New Milford to the greatest extent that Connecticut Law will allow.

- If Umbrella Liability is used to make up required limits, the policy shall not reduce or restrict coverage provided by the underlying Commercial General Liability or Automobile Liability insurance policies.
3.10.1 Commercial General Liability

(Form 1988 ISO Occurrence Form or equivalent) Limits of Liability shall be combined bodily injury and property damage.

- General Liability Aggregate: $1,000,000.
- Products & Completed Operations Aggregate: $1,000,000.
- Personal Injury: $1,000,000.
- Each Occurrence for Bodily Injury and Property Damage: $2,000,000.
- Fire Damage (Any One Fire): $50,000.
- Medical Expense (Any One Person): $5,000.

The Town of New Milford must be named as 'Additional Insured.' The insurer shall waive all rights of subrogation against the Town of New Milford, its officers, employees, and volunteers arising from work performed by the contractor for the Town of New Milford.

Umbrella limits over General Liability limits may be used to make up the required limits. The additional insured coverage MUST be provided by the Umbrella to mirror the General Liability coverage.

- Required Umbrella Excess: $2,000,000.

3.10.2 Automobile Liability

Policies must include coverage for all vehicles utilized on the job including owned vehicles, hired vehicles and non-owned vehicles. Limits of insurance shall be combined single limit bodily injury and property damage $1,000,000. Umbrella limits over Automobile Liability limits may be used to make up the required limits.

3.10.3 Statutory Workers Compensation and Employers Liability

Policy coverage will include limits of $100,000 each accident, $100,000 Disease-each employee, and $500,000 Disease-policy limit.

ARTICLE 4 – PAYMENT, MEASUREMENT, AND SUBMISSIONS

4.1 Payments:

The Town's terms of payment are Net 30 Days after approval of invoice. No invoice will be paid until acceptance of goods ordered. For lump sum items, payment shall be made in accordance with an accepted progress schedule and schedule of values on the basis of actual work completed. For unit-priced items, payment shall be based on the actual amount of work accepted and for the actual amount of materials in place as determined by the final measurements. It shall be incumbent on the Contractor, through his designated field superintendent, to meet with the Town's designated representative and measure and determine actual field quantities of items and/or materials installed during that pay period.
4.1.1 Unit Price

The Unit Price for each of the items in the Bid of each Bidder shall include its prorated share of overhead and profit so that the sum of the products obtained by multiplying the quantity shown for each item by the Unit Price Bid represents the Total Bid. The quantities shown in the Bid are approximate estimated quantities only and are given only as a basis of calculation upon which the Award of the Contract is to be made. The Owner does not assume any responsibility that these quantities shall remain unchanged in the actual construction, and the Contractor shall not plead misunderstanding or deception because of any variation between estimated and final quantities. The Unit Price Bid shall also include an allowance for increased prices due to changed market conditions during the period of the Contract. Any Bid not conforming to these requirements may be rejected. The special attention of all Bidders is called to these provisions, for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities, nor extra compensation allowed, except for work not covered in the Drawings and Special Provisions.

Bids in which the prices obviously are unbalanced may be rejected. Unbalanced prices shall be interpreted to mean that the unit price for any item is such that it is unreasonable for that particular item when considered by itself and not considered in connection with the bid submitted on any other item or items.

4.1.2 Computation of Quantities:

For estimating quantities in which the computation of areas by Geometric methods would be comparatively laborious, it is agreed that the Planimeter shall be considered an instrument adapted to the measurement of such areas. It is further agreed that the computation of the Volume Prismoids shall be by the method of average end areas.

4.1.3 No Payment

Unless otherwise provided for by a specific Contract Item, no separate payment shall be made for any of the requirements as described in the above General Specifications but shall be deemed included in the total bid price for all the work in this Contract.

All unit price work will include the cost of performing any incidental work, not specifically covered by the unit description, but necessary and/or convenient for the completion of the unit price work. (i.e., Any excavation will include any necessary pumping and/or sheeting/shoring unless there are separate contract unit prices for pumping and/or sheeting/shoring.)

The Contractor shall accept compensation, as herein provided, as full payment for furnishing all materials, labor, tools, equipment, and incidentals necessary to provide the completed work as described in the contract documents; and also for all loss or damage arising from the nature of work, any unforeseen difficulties, actions of the elements which may be encountered during the prosecution of the work, until the final acceptance by the Engineer. The payment of any partial estimate or retainage, except by and under Final Payment defined herein, in no way shall affect the obligation of the Contractor to repair or replace any defective portion of the construction and/or to be
responsible for all damages due to such defects.

4.1.4 Partial Payments:

Partial payments shall be made monthly as the work progresses. By the fifth (5th) day of each month, an application for payment should be submitted by the Contractor to the Town’s designated field representative, for verification and approval of quantities and costs incurred during said pay period. Only upon approval by designated representative will authorization for payment be forwarded and processed.

4.1.5 Retainage:

Item No. 0975002 – “Mobilization and Project Closeout” shall serve as means of retainage for this project, in accordance with the Standard Specifications. There is NO additional retainage required from the Town. The final payment for Item No. 0975002 – “Mobilization and Project Closeout”, to achieve 100% of the bid lump sum price, will not be submitted to the Contractor until final completion and acceptance of all work covered by this contract.

4.2 Certificate of Completion:

Upon completion of all work whatsoever required under this contract, the Engineer shall file a written certificate with the Director of Finance and the Contractor, for the entire amount of work performed and compensation earned by the Contractor, including extra work and compensation thereof.

4.3 Final Payment:

Upon issuance of certificate of completion, the Contractor shall furnish, within seven (7) calendar days a Final Estimate indicating all charges, payments, credits, and retainage made to date and the final amount owed the Contractor for all services and materials due. Within 30 days of filing said estimate, the Town shall pay the Contractor the amount therein stated, less all prior payments and advances whatsoever to or for the account of the Contractor. All prior estimates and payments, including those relating to extra work, shall be subject to correction by this payment, which throughout this contract is called the FINAL PAYMENT.

4.3.1 Acceptance Of Final Payment Constitutes Release:

The acceptance by the Contractor of the final payment shall be and shall operate as a release to the Town of all claims and of all liability to the contract or for all things done or furnished in connection with this work, and for every act of the Town and others relating to or arising out of this work, accepting the Contractor’s claim for interest upon the final payment, if the payment is improperly delayed.

No payment, however, final or otherwise, shall release the Contractor or his sureties from any obligation under this contract or of the performance bond.

4.4 Statement Showing Amount Due For Wages, Material, and Supplies:

With each application for payment under this contract, the Contractor and every subcontractor shall deliver to the Town a written verified statement in a form satisfactory to the Town, showing in detail the amounts then due and unpaid by such Contractor or
subcontractor, to all laborers for daily or weekly wages, men employed by him under the contract for performance of work at the site thereof, or to other persons for material and equipment delivered at the site of the work.

The term "laborers" as used herein shall include workmen and mechanics.

4.5 Town Right to Withhold Payments:
The Town may withhold from the Contractor as much, of any approved payment due him, as the Town deems necessary according to one or more of the following:

1st  To assure the payment of just claims due any person or business supplying labor or materials for the work covered by this contract

2nd  To protect the Town from loss and/or corrective expenses due because of defective work not fully or properly remedied according to the provisions contained herein.

Or

3rd  To protect the Town from loss due to injury to persons or damage to the work or property of other Contractors, subcontractors, or others caused by the act or neglect of the Contractor or any of his subcontractors.

The Town shall have the right, as agent for the Contractor, to apply any such amounts so withheld in such manner as the Town may deem proper, to satisfy such claims or to secure such protection. Distribution of such money shall be considered as payments for the amount due the Contractor.

ARTICLE 5 – GENERAL CONDITIONS

5.1 Town Right to Stop Work or Terminate Contract:
If the Contractor shall be adjudged bankrupt, an assignment shall be made for the benefit of creditors. A receiver or liquidator shall be appointed for the Contractor and for any of his property. The Contractor shall be dismissed within twenty (20) days after such appointment. The proceedings in connection therewith shall not be stayed within the said twenty (20) days.

If the Contractor shall refuse or fail after notice or warning from the Engineer, to supply enough properly skilled workmen or proper materials, or if the Contractor shall fail to prosecute the work or any part thereof with such diligence as will insure its completion within the period herein specified (or duly authorized extension thereof) or shall fail to complete the work within said period, or if the Contractor shall fail to make prompt payment to persons supplying labor or materials for the work, or if the Contractor shall fail or refuse to regard laws, ordinances, or the instructions of the Engineer or otherwise be guilty of a substantial violation of any provision of this contract, then in any such event, the Town without prejudice to any other right or remedy, may give seven (7) days' notice to the Contractor, to terminate the employment of the Contractor. The Contractor shall lose the right to proceed either for the entire work or (at the option of the Town) for any portion thereof on which delays shall have occurred. The Town may, as it deems expedient, take
possession of the work and complete it by contract or otherwise.

In such cases, the Contractor shall not be entitled to receive any further payment until the work is finished, except as follows.

- If the unpaid balance of the compensation to be paid the Contractor hereunder shall exceed the expense of so completing the work (including compensation for additional managerial administrative and inspection services and any damages for delay), such excess shall be paid to the Contractor.

- If the work shall be stopped by order of the Court or any other public authority for a period of three (3) months or more, without act or fault of the Contractor or any of his agents, servants, employees, or subcontractors, the Contractor may upon ten (10) days written notice to the Town of New Milford, discontinue his performance of the work and/or terminate the contract. The contractor shall be due payment for any work installed and approved, per this contract, so long as it meets the above requirement.

5.2 All Work Subject To Control of the Engineer:

In the performance of the work, the Contractor shall abide by all orders, directions, and requirements of the Engineer and shall perform all duties to the satisfaction of the Engineer, and at such time and places, by such methods and in such manner and sequence as the Engineer may require. The Engineer shall determine the amount, quantity, acceptability, and fitness of all parts of the work, shall interpret the plans, specifications, contract and any extra work orders, and shall decide all other questions in connection with the work.

The Contractor shall employ no plant, equipment, materials, methods, or employees to which the Engineer objects for just cause and shall remove no plant, materials, equipment, or other facilities from the site of the work, without the Engineer's permission. Upon request, the Engineer shall confirm in writing any oral order, direction, requirement, or determination.

5.3 Engineer Control Not Limited:

The enumeration herein or elsewhere in the contract of particular instances in which the opinion, judgment, discretion, or determination of the Engineer shall control or in which work shall be performed to his or their satisfaction as subject to his or their approval or inspection shall not imply that only matters similar to those enumerated shall be governed and performed, but without exception all the work shall be governed and so performed.

ARTICLE 6 – INSTRUCTIONS TO BIDDERS

6.1 Obligation of Bidders:

At the time of opening of bids, each bidder shall be presumed to have inspected the sites and to have read and made himself thoroughly familiar with the Plans and Contract Documents including all addenda. The failure or omission of any bidder to receive or examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect to his bid.

Each bidder must fully inform himself of the construction and labor conditions relating to the work which is now or will be performed. Failure to do so will not relieve the successful
bidder of his obligation to furnish all labor and materials necessary to carry out the provisions of the contract documents and to complete the contemplated work. Inasmuch as possible, the contractor must, in carrying out his work, employ such methods or means as will not cause any interruptions or interference with the work of any other contractor.

The successful bidder must furnish a field and office organization chart and equipment list to be used on the job to demonstrate that he has the capability to perform the work prescribed for this project and shall furnish the Town all other information and data requested on the form provided for this purpose; such submission to be made prior to construction startup.

The Contractor shall supply a Superintendent full time on the job. Contractor must submit the name and the title of the person assigned Superintendent for this contract, and said person must be satisfactory to the Town of New Milford and, except for extraordinary circumstances, shall not be replaced without written consent of the Town. **Failure to comply shall be cause for breach of contract.**

### 6.1.1 Subsurface Structures:

All subsurface structures and public utility lines have been located within the project limits, from information provided by the respective utilities, as indicated on the plans. The Town does not assume the responsibility for the accuracy of this information.

**Contractors are advised and required to contact Call Before You Dig (CBYD) at 1-800-922-4455 BEFORE performing any excavation.**

### 6.1.2 Subsurface Conditions:

Bidders are notified that it is obligatory for them to obtain all the information they require as to the existing physical conditions relative to the work and in particular to subsurface conditions. **THE TOWN SHALL NOT BE HELD LIABLE FOR ANY ADDITIONAL COST TO THE CONSTRUCTION WHICH MAY RESULT DUE TO THESE CONDITIONS,** and each bidder shall rely exclusively upon his own investigation, and that he makes this bid with the full knowledge of the kind, quality, and quantity of work required.

### 6.2 Working Hours and Holidays:

The Contractor shall perform no work during the Town of New Milford employees' holidays nor before or after the Town's normal working hours, without specific approval of the Director. The normal working hours of the Town are Monday through Friday, 8:00 a.m. to 4:00 p.m. Working hours may be limited by project permits. Proposed schedules other than the Town's normal working hours must be submitted in writing and approved by the Director, in writing, PRIOR to the contractor working said hours or days.

**THE OFFICIAL TOWN OF NEW MILFORD HOLIDAYS ARE:**

- New Year's Day
- Lincoln's Birthday
- Good Friday
- Independence Day

- Martin Luther King Day
- Washington's Birthday
- Memorial Day
- Labor Day
6.3 Qualifications for Employment:
No person under the age of sixteen (16) years and no person currently serving sentences in a penal or correctional institution shall be employed to perform any work on the project under this contract. No person whose age or physical condition is such as to make their employment dangerous to their health or safety, or to the health and safety of others shall be employed to perform any work on the project under this contract; provided that this sentence shall not operate against the employment of physically handicapped persons otherwise employed where such persons may be safely assigned to work which they can ably perform.

There shall be no discrimination because of race, creed, color, or political affiliation in employment of persons for work on the project under this contract, and by signing this bid document, the company so certifies that it is an Equal Opportunity Employer.

6.4 Payment of Employees:
The Contractor and each of his subcontractors shall pay each of his employees engaged in the work on the project under this contract in full (less deductions made mandatory by law) in a timely and routine manner.

6.5 Accident Prevention:
Precaution shall be exercised at all times for the protection of all persons, including employees, and property. The safety provisions of applicable laws, building, and construction codes shall be observed at all times while performing work for this contract. Except as otherwise provided by law, neither the Town of New Milford and/or any of its agents shall be responsible for monitoring Contractor's compliance with any laws or regulations.

Machinery, equipment, and all hazards shall be guarded or eliminated in accordance with the safety provisions as provided by law (29 CFR Part 1926) and of the "Manual of Accident Prevention for Construction," published by the Associated General Contractors of America, to the extent that such provisions are not in breach of applicable laws.

If Contractor performs any work knowing or having reason to know that it is contrary to laws or regulations, the Contractor shall bear all claims, losses, and damages (including but not limited to court costs, attorney's fees, and other professionals fees) arising out of or relating to such work. However, changes in laws and regulations not known at the time of bid opening that have an effect on the cost and/or time needed for performance of the contract shall be the subject of an adjustment in contract price and/or contract time.

ARTICLE 7 – PROTECTION OF PROPERTY

7.1 Protection of Work and Property:
The Contractor shall at all times safely guard the Town's property from injury or loss, in
connection with this contract. He also shall at all times safely guard and protect his own work and that of adjacent property from damage. All passageways, guard fences, lights, and other facilities required for protection by local conditions must be provided and maintained.

Contractor shall not load any part of any structure or allow any part of any structure to be loaded in a manner that will endanger it or employees or persons occupying or utilizing the area. Nor shall the Contractor allow or subject any part of the work or adjacent property to pressures or stresses that will endanger it. Should any reasonable claim be made by a property owner or occupant, the Contractor shall promptly replace and/or make good on any such damage, loss, or injury by either negotiation, arbitration, or other dispute resolution process. Claims not completely settled by the completion of work shall be grounds for the Town to withhold payments, as necessary.

7.2 Power of Contractor to Act in an Emergency:
In case of an emergency which threatens loss or injury of property and/or safety of life, the Contractor shall be allowed to act without previous instructions from the Engineer, as he sees fit. He shall notify the Engineer immediately thereafter of any compensation claimed by the Contractor due to such extra work and shall submit same to the Engineer for approval. When the Contractor has not taken action but has notified the Engineer of an emergency threatening injury to persons or damage to the work or any adjoining property, the Contractor shall act as instructed or authorized by the Engineer to prevent such threatened injury or damage.

7.3 Uses of Premises and Removal of Debris:
The Contractor undertakes at his own expense:

a). To take every precaution against injuries to persons or damage to property.

b). To store his apparatus, materials, supplies, and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work.

c). To place upon the work area or any part thereof, only such loads as are consistent with the safety of that portion of the work.

d). To frequently clean up all refuse, rubbish, scrap material, and debris caused by his operations, so that the site of the work shall at all times present a neat, orderly, and workmanlike appearance. Failure to comply with this article within 24 hours of notification may result in the Owner having the work performed by outside sources at the Contractor's expense. These expenses will be deducted from the regular monthly periodic estimate.

e). To remove before final payment all surplus materials, false work, temporary structures, (including foundations thereof), plant of any description and debris of every nature resulting from his operation, and to put the site in a neat and orderly condition.

f). To effect all cutting, fitting, or patching of his work required to make the same conform to the plans and specifications, and with the consent of the Engineer, to cut or otherwise alter the work of any other Contractor.
7.4 Driveways and Property Entrances:
Excavated materials and equipment shall be placed in such position as not to unnecessarily impede travel on the streets, or access to driveways. A sufficiently clear space for pedestrian travel shall be maintained on the sidewalks, and all property entrances and driveways shall be kept clear, where possible. Where necessary, bridges shall be constructed and maintained for residents. Before closing any driveway or entrance, the Contractor shall give the owner or resident of the property involved, due notice of such temporary closing. When this is not practicable and an emergency arises, the Contractor shall, on the order of the Engineer, provide a satisfactory place to house temporarily any motor vehicle which may be prevented from being housed at night.

No direct payment will be allowed for this work or condition but shall be considered as included in the base bid submitted.

7.5 Occupying Private Land:
The Contractor shall not (except after written consent from the proper parties) enter or occupy with men, tools, materials, or equipment, any land outside the right-of-way or property of the Town. A copy of the written consent shall be given to the Engineer.

7.6 Preservation of Trees:
Trees and shrubs on the site of the work shall be protected during the entire period of the contract, and if injured by the Contractor or his employees, shall be replaced, unless it is covered by the bid items, at his expense before the completion of the contract.

7.7 Watchman:
If it becomes necessary to supply watchmen during nonregular working hours, they shall be employed until (in the opinion of the Engineer) their services are no longer required. The Contractor shall employ and pay a satisfactory, sober, able-bodied watchman who shall be in attendance upon the work at all times, (regardless of the hour) whenever work by the regular employees stops.

ARTICLE 8 – CONTRACTOR'S RESPONSIBILITIES

8.1 Contractor's Title to Materials:
No materials or supplies for the work shall be purchased by the Contractor or subcontractor, subject to any chattel mortgage or under any conditional sale or other agreement for which interest is retained by the seller. It is explicitly understood that by accepting payment for the workmanship and materials performed as part of this contract the contractor releases any and all liens that have or may have been present and hereby releases the Town of New Milford from any and all obligation whatsoever.

8.2 Superintendence by Contractor:
The Contractor shall employ a project superintendent who shall be present full time at the site of the work and who shall have full authority to act for the Contractor. The Contractor shall employ a project foreman who shall be in attendance at the worksite during working hours. It is understood that such representative shall be acceptable to the Town and shall be one whose experience and length of service in this particular kind of work warrants his
ability to perform the duties entailed to the satisfaction of the Engineer, and who can continue in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

The Engineer reserves the right of investigation to satisfy the Town that the appointed superintendent is properly qualified to carry out the obligations entailed to perform the work herein contemplated in the plans and specifications and directions.

**8.3 Patent Right:**
As part of his obligation hereunder and without any additional compensation, the Contractor will pay for all patent fees or royalties required in respect to the work or any part thereof and will fully indemnify the Town for any loss on account of infringement of any patent rights.

**8.4 Permits and Regulations:**
The Contractor shall procure and pay for all permits and licenses necessary for the execution of his work.

The Contractor shall comply with all laws, ordinances, rules, and regulations relating to the performance of the work.

**8.5 Correction of Work:**
All work, all material, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all time and places subject to the inspection of the Engineer, who shall be the final judge of the quality and suitability of the work, materials, processes of manufacture, and methods of construction for the purpose for which they are used. Should they fail to meet the approval of the Engineer, they shall be forthwith reconstructed, made good, replaced, and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site.

If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged material, or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract, the compensation to be paid to the Contractor hereunder shall be reduced by such amount which the Engineer deems equitable.

The Contractor expressly warrants that his work shall be free from any defects in material or workmanship and agrees to correct any such defects which may appear within the maintenance period, following final completion of work. Acceptance of material and workmanship by the Inspectors shall not relieve the Contractor from his obligation to supply other materials and workmanship when so ordered by the Engineer. Neither acceptance of the completed work nor payment thereof shall release the Contractor or his sureties from any obligation under or upon this contract or the performance bond.

**8.6 Provisions Required By Law Deemed Inserted:**
Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein, and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not correctly inserted, then upon the application of either party, the contract shall forthwith be physically amended to make such insertion.
8.7 Subcontracting, Subletting Successor and Assigns:
Subcontracting and/or subletting portions of this contract are permissible provided that the following conditions are met:

- The contractors provides a written request to the Town specifying the proposed work to be sublet; the proposed contractor's name, address, and principals; and the value of the work to be performed by said subcontractor.

- That the Contractor is granted, in writing, authorization by the Town to award the work to the proposed subcontractor. However, reasonable objection by the Town to deny the use of particular subcontractors is hereby acknowledged by the Contractor.

- Nothing in the contract documents shall create any contractual relationship between the Town and any such subcontractor, supplier, or other individual or entity.

- That the Contractor shall be fully responsible to the Town for any and all acts or omissions of the subcontractor, supplier, individual, or entity performing or furnishing any work or supplies, just as the Contractor is for responsible for his own acts or omissions.

- That the Contractor shall be fully responsible for scheduling and coordinating of the work and deliveries of any subcontractor or supplier furnishing any of the work and/or materials covered under this contract.

- That the sum total of ALL subcontracts (excluding any material-only suppliers) cannot exceed 50% of the contract value.

- The Contractor must make the proposed subcontractor aware of the provisions contained in this contract.

**ARTICLE 9 – TRAFFIC AND SAFETY PRECAUTIONS**

**9.1 Maintenance of Traffic:**
The Contractor shall conduct his operations in such a manner so that he does not impose unnecessary hardship upon the residents along the route of the work and traffic shall be maintained within the project area, except those times where the Contractor is allowed to close the roads as detailed in “Section 1.08 - Prosecution and Progress” and “Maintenance and Protection of Traffic” special provisions. Roads may be closed to traffic only upon written order of the Engineer. If permanent repairs are not completed immediately, the pavement surface along the line of work shall be maintained in a condition comparable to the adjacent road surface.

People living or having business within the barricaded zone shall be permitted to use the roadway for auto traffic if possible. The Contractor shall protect all phases of the work from damage due to traffic, etc. and provide necessary watchmen, certified flagmen, and/or (if so ordered by the Engineer) police officers.

Refer to “Section 1.08 – Prosecution and Progress” and “Maintenance and Protection of Traffic” special provisions for additional information.
9.2 Interference with and Protection of Streets:
The Contractor shall not close or obstruct any portion of a street, road or private way without obtaining permits therefore from the proper authorities (Town/CTDOT). If any street, road, or private way shall be rendered unsafe by the Contractor’s operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Engineer and to the proper authorities. Streets, roads, private ways, and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefor.

The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. He shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion. All detour plans and proposed signage must be approved by the Engineer prior to implementation.

9.3 Insufficiency of Safety Precautions:
If at any time, in the sole judgment of the Engineer, the work is not properly lighted, barricaded, or in any other respect safe in regard to public travel, persons on or about the work, or public or private property, the Engineer shall have the right to order such safeguards to be erected and such precautions to be taken as he deems advisable, and the Contractor shall comply promptly with such orders. If, under such circumstances, the Contractor does not or cannot immediately put the work and the safeguards into proper and approved condition, or if the Contractor or his representative is not upon the site so that he can be notified immediately of the insufficiency of safety precautions, the Engineer may put the work into such a condition that it shall be, in his opinion, in all respects safe. The Contractor shall pay all costs and expenses incurred by the Engineer or Town in so doing. Such action of the Engineer, or his failure to take such action, shall in no way relieve or diminish the responsibility of the Contractor for any and all costs, expenses, losses, liability, claims, suits, proceedings, judgments, awards, or damages resulting from, by reason of, or in connection with any failure to take safety precautions or the insufficiency of the safety precautions taken by him or by the Engineer acting under authority of this article or for failure to comply with the provisions of any state or federal Occupational Safety and Health Laws, Rules, or Regulations.

9.4 Sanitary Regulations:
When deemed necessary by OSHA or the Engineer, the Contractor shall provide suitable sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public observation, and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of the Town, or on adjacent property. The Town and the Engineer shall have the right to inspect such facilities at all times to determine whether or not they are being properly and adequately maintained.
9.5 Dust:
The Contractor shall at all times during the execution of this contract control the nuisance of flying dust by water sprinkling or by application of CaCl2 or an alternate method satisfactory to the Engineer.

ARTICLE 10 – MATERIAL INSPECTIONS AND TESTS

10.1 Materials:
Samples - Inspection – Approval - Unless otherwise expressly provided on the Drawings or in any of the other contract documents, only new material and equipment shall be incorporated in the work. All materials and equipment furnished by the Contractor to be incorporated in the work shall be subject to the inspection and approval of the Engineer. No material shall be processed or fabricated for the work or delivered to the work site without prior approval of the Engineer.

As soon as possible after execution of the Agreement, the Contractor shall submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or supplier have the ability to furnish a product meeting the specifications. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it confirms to the Contract Requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor. Defective materials and equipment shall be removed immediately from the site of the work.

If the Engineer so requires either prior to or after commencement of the work, the Contractor shall submit additional samples of materials for such special tests as the Engineer deems necessary to demonstrate that they conform to the specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, placed, and shopped by the approved molds for making concrete test cylinders. Except as otherwise expressly specified, with special provisions, the Town shall make arrangements and pay for the testing of material once furnished to the site, in accordance with the Standard Specifications. The Contractor is responsible for providing material certifications and lab test results from source locations (quarry, plants, etc.) for imported materials prior to delivery to the site, as specified by the Standard Specifications.

All samples shall be packed so as to reach their destination in good condition and shall be labeled to indicate the material represented including the name of the building or work location for which the material is intended and the name of the contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Engineer by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples. The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, testing, and approval before the materials and
equipment are needed for incorporation in the work. The consequence of his failure to do so shall be the Contractor's sole responsibility. When required, the Contractor shall furnish to the Engineer triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent test laboratories) relative to materials, equipment, performance rating, and concrete data.

10.2 Inspection and Tests:
The Engineer or his authorized representative shall be permitted to inspect the work, materials, payrolls, and records of personnel, invoices of material and other relevant data and records of this contract. All material and workmanship (if not otherwise designated) shall be subject to inspection, examination, and tests at any and at all times during the manufacture and/or construction, and at any and all places where such manufacture or construction is carried on in accordance with the Standard Specifications. Without additional charge, the Contractor shall furnish promptly all reasonable facilities, labor, and material necessary to make tests so required, safe and convenient.

If at any time before final acceptance of the entire work the Engineer considers necessary or advisable any examination of any portion of the work already completed, by removing or tearing out the same, the Contractor shall upon request furnish promptly all necessary facilities, labor, and materials. If such work is found to be defective in any material respect due to material or faulty construction by the Contractor or any subcontractor, or if any work shall be covered over without approval of the engineer (whether or not the same shall be defective), the Contractor shall be liable for the expense of such examination and of satisfactory reconstruction.

If, however, such approval and consent shall have been given and if such work is found to meet the requirements of this contract, the Contractor shall be compensated for the extent of such examination and reconstruction at the cost of "Time and Materials" including equipment and labor, and/or item quantities as bid.

10.2.1 Costs for Tests:
The selection of laboratories and/or agencies for the inspection and tests of supplies, materials, or equipment shall be subject to the direction of the Engineer. If inspection, tests, or analysis of the materials or equipment should disclose that said material or equipment requires rejection, then the cost of said inspection, test, or analysis shall be borne by the Contractor, and said cost shall be deducted from the Contractor's current estimate by the Engineer. If supplies, material, or equipment shall be found acceptable, the cost of said inspection, tests, or analysis shall be borne by the Town.

10.3 Handling and Distribution:
The Contractor shall handle, haul, and distribute all materials and all surplus materials on the different portions of the work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work; and shall be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the work. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.
10.4 Inspection of Work Away from the Site:
If work to be done away from the construction site is to be inspected on behalf of the Town during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

10.5 Storage of Materials and Equipment:
All excavated materials, construction equipment and materials and equipment to be incorporated in the work shall be placed so as not to injure any part of the work or existing facilities and so that free access can be had at all times to all parts of the work and to all public utility installations in the vicinity of the work. Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants, and occupants.

ARTICLE 11 – DRAWINGS, SPECIFICATIONS, AND SCHEDULES

11.1 Contractor's Shop and Working Drawings:
The Contractor shall submit for approval (in reproducible form unless otherwise specified) shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated for the contract, and materials and equipment for which such drawings are specifically requested. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing, when it is customary to do so. When the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the contract. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc. may be submitted for approval in place of shop and working drawings. In such case, requirements shall be as specified for shop and working drawings, insofar as applicable, except that the submission shall be in quadruplicate.

The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings. No material or equipment shall be purchased or fabricated for the contract until the required shop and working drawings have been submitted as herein above provided and approved as conforming to the contract requirements. All such materials and equipment and the work involved in their installation or incorporated into the work shall then be as shown in and represented by said drawings. Until the necessary approval has been given, the Contractor shall not proceed with any portion of the work such as the construction of foundations, the design or details of which are dependent upon the design or details of work, materials, equipment, or other features for which approval is required.

All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning approved drawings to them. Unless otherwise approved, all shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop or working drawings. All
drawings shall be clearly marked with the names of the Town, Contractor, and building, equipment or structure to which the drawing applies and shall be accompanied by a letter of transmittal giving a list of the drawing number and the names mentioned above.

Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the drawings and specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval and then shall be submitted to the Engineer. Other drawings shall be returned for correction.

The approval of shop and working drawings, etc. will be general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc. necessary for proper fitting and construction of the work as required in the contract and for achieving the result and performance specified hereunder. Should the Contractor submit for approval, equipment that requires modifications to the structures, piping, layout, etc. detailed on the drawings, he shall also submit for approval, details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the Town, shall do all work necessary to make such modifications.

The marked-up reproducible of the shop and working drawings or one marked-up copy of catalog cuts will be returned to the Contractor. The Contractor shall furnish additional copies of such drawings or catalog cuts when so requested.

11.2 Coordination of Plans/Specifications

Any requirement on the plans or in these Specifications, Special Notes/Provisions shall be equally binding on the Contractor. In case of conflict, the plans shall take precedence over the Specifications. Special Notes/Provisions shall take precedence over Plans and Specifications.

11.3 Dimensions of Existing Structures:

Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

11.4 Work To Conform:

During its progress, and on its completion, the work shall conform truly to the lines, levels, and grades indicated on the drawings or given by the Engineer and shall be built in a thoroughly substantial and workmanlike manner, in strict accordance with the drawings, specifications, and other contract documents and the directions given from time to time by the Engineer.

11.5 Planning and Progress Schedules:

Before starting the work and from time to time during its progress as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the work and the various steps he intends to take. Within two (2) days
after the date of starting work, the Contractor shall prepare and submit to the Engineer a written schedule fixing the respective dates for the start and completion of various parts of the work. The Contractor shall update the schedule on a monthly basis and submit each schedule to the Engineer for review, approval, and change where necessary during the progress of the work.

11.6 Precautions During Adverse Weather
During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the work may be properly done and satisfactory in all respects. When required, protection shall be provided by the use of plastic sheets, tarpaulins, wood and building paper shelters or other approved means. The Engineer may suspend construction operations at any time when, if in his sole judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be.
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SECTION II – SPECIAL PROVISIONS
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Note: This Table of Contents has been prepared for the convenience of those using this contract with the sole express purpose of locating quickly the information contained herein; and no claims shall arise due to omissions, additions, deletions, etc., as this Table of Contents shall not be considered part of the contract.

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All construction under this contract shall adhere to and comply with the Department of Transportation, Form 817, "Standard Specifications for Roads, Bridges, Facilities and Incidental Construction," including the most recent supplements thereto dated January 2018, unless otherwise specified in these provisions.

In Form 817, where the words "State of Connecticut," "Department," "ConnDOT," or "CTDOT" appear, it shall be interpreted to mean "Town of New Milford" as if inserted therein.

The following Special Provisions and Sections of CTDOT Form 817 are hereby incorporated and made part of this contract. CTDOT Form 817, "Standard Specifications for Roads, Bridges, Facilities and Incidental Construction," including the most recent supplements thereto dated July 2017 shall be referred to as "Standard Specifications" herein.

NOTICE TO CONTRACTOR – WORK SCHEDULE

The Contractor is required to submit a schedule of work to be completed to the Engineer and obtain approval from the Engineer on the schedule prior to commencing work and shall update the schedule monthly. Should construction occur at a rate different from that indicated in the approved schedule, the Contractor shall submit a revised work schedule to the Engineer for approval.

NOTICE TO CONTRACTOR – COORDINATION OF WORK

The Contractor shall coordinate his/her work with any utility companies and other contractors working within the project area.

NOTICE TO CONTRACTOR – FINAL ROADWAY GRADES

The Contractor shall ensure that the final grades of the roadway and adjacent topography provide positive drainage. The work involved in establishing the final roadway grades shall be included in the lump sum price for Construction Staking.

NOTICE TO CONTRACTOR – PERMITS

Inland Wetlands and Watercourses permit applications have been submitted for Long Mountain Road and Squire Hill Road. The Contractor will be provided a copy of the approved permit once issued.
NOTICE TO CONTRACTOR – TOWN OF NEW MILFORD DISCLAIMER

Town of New Milford Request for Proposals and other information and documents that are obtained through the Internet, World Wide Web sites, or sources other than the Town of New Milford's website are not to be construed to be official information for the purposes of proposals or conducting other business with the Town.

It is the responsibility of each firm and all other interested parties to obtain all proposal-related information and documents from the Town of New Milford's website and/or official sources within the Town.

Persons and/or entities that reproduce and/or make such information available by any means are not authorized by the Town to do so and may be liable for claims resulting from the dissemination of unofficial, incomplete, and/or inaccurate information.

NOTICE TO CONTRACTOR – CONTRACT TIME AND LIQUIDATED DAMAGES

Work shall be completed and ready for final inspection as follows:

- Squire Hill Road – 120 calendar days. All work is to be substantially complete on or before November 30, 2018.
- Long Mountain Road – 120 calendar days. All ledge is to be removed on or before November 30, 2018. All work is to be substantially complete on or before August 2019. If Bid Alternate No. 1 (Long Mountain Road ledge removal from Sta. 98+20 to 101+40 Left) is selected, the Contractor will be allowed to perform this work after December 1, 2018, in the additional allotted calendar days identified in Section 3.6.1 of the Contract Agreement.

Liquidated damages charge to apply will be One Thousand Dollars ($1,000) per calendar day.

NOTICE TO CONTRACTOR – MATERIAL TRANSFER VEHICLE

A Material Transfer Vehicle is not required for this project.

NOTICE TO CONTRACTOR – NOISE POLLUTION

The Contractor shall take measures to control the noise intensity caused by his construction operations and equipment, including but not limited to equipment used for drilling, pile driving, blasting, excavation, or hauling.

All methods and devices employed to minimize noise shall be subject to the continuing approval of the Engineer and in accordance with the Town of New Milford.
NOTICE TO CONTRACTOR – FIRE DEPARTMENT, POLICE, AND EMERGENCY MEDICAL SERVICES

The Contractor shall contact the Fire Department, Police, and Emergency Medical Services prior to work and establish coordination necessary as to disruption of services during construction.

NOTICE TO CONTRACTOR – POLICE SERVICES

The Contractor shall be responsible for contacting the Town of Milford Police Department and coordinating and requesting the necessary police services. The Contractor shall provide the Town the schedule for review at least once a week.

The Contractor shall ensure that all cancellations of police services are done in time, as agreed upon by the Police Department, to avoid the Town being charged for unused police services. The Contractor will be responsible for all costs associated with late cancellations.

NOTICE TO CONTRACTOR – SAFEGUARDING OF RESIDENCES AND PEDESTRIANS

The Contractor shall maintain and protect traffic operations at all driveways and provide adequate sight lines. The Contractor shall not restrict sight lines with construction equipment when not actively working. The Contractor shall provide and maintain safe pedestrian operations on existing sidewalks or temporary bituminous walks at all times during and after construction hours. The Contractor shall provide adequate protection between work area and pedestrian sidewalk activities as directed by the Engineer.

NOTICE TO CONTRACTOR – CONSTRUCTION STAGING AREA

The Contractor shall submit for review and approval a plan and description for the proposed construction staging area. The plan and description must comply with Town Zoning Regulations and site plan approval requirements and shall be submitted to the Town Engineer within 7 calendar days after the firm is awarded the contract.

The following are to be included in the plan and/or description:

- Location and type of erosion control measures (if required)
- Antitracking pad location(s)
- Location and type of security fence (if required)
- Location and type of stockpiles stored on site
- Location and type of hazardous materials stored on site
- Location and type of equipment stored on site
- Location and type of vehicles stored on site
- Times and days in which construction activities will use the staging area
• Estimated number of trips in and out of the staging area
• Date the staging area will become active
• Date the staging area will be removed and returned to original conditions

NOTICE TO CONTRACTOR - PROCUREMENT OF MATERIALS

Upon award, the Contractor shall proceed with shop drawings, working drawings, procurement of materials, and all other submittals required to complete the work in accordance with the contract documents.

NOTICE TO CONTRACTOR - VEHICLE EMISSIONS

All motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent state and federal regulations relative to exhaust emission controls and safety.

The Contractor shall establish staging zones for vehicles that are waiting to load or unload at the contract area. Such zones shall be located where the emissions from the vehicles will have minimum impact on abutters and the general public.

Idling of delivery and/or dump trucks or other equipment shall not be permitted during periods of nonactive use, and it should be limited to 3 minutes in accordance with the Regulations of Connecticut State Agencies Section 22a-174-18(b)(3)(c):

No mobile source engine shall be allowed "to operate for more than three (3) consecutive minutes when the mobile source is not in motion, except as follows:

i. When a mobile source is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,

ii. When it is necessary to operate defrosting, heating, or cooling equipment to ensure the safety or health of the driver or passengers,

iii. When it is necessary to operate auxiliary equipment that is located in or on the mobile source to accomplish the intended use of the mobile source,

iv. To bring the mobile source to the manufacturer's recommended operating temperature,

v. When the outdoor temperature is below 20 degrees Fahrenheit (20 F),

vi. When the mobile source is undergoing maintenance that requires such mobile source be operated for more than three (3) consecutive minutes, or

vii. When a mobile source is in queue to be inspected by U.S. military personnel prior to gaining access to a U.S. military installation.
All work shall be conducted to ensure that no harmful effects are caused to adjacent sensitive receptors. Sensitive receptors include but are not limited to hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Engine exhaust shall be located away from fresh air intakes, air conditioners, and windows.

A Vehicle Emissions Mitigation plan will be required for areas where extensive work will be performed in close proximity (less than 50 feet [15 meters]) to sensitive receptors. No work will proceed until a sequence of construction and a Vehicle Emissions Mitigation Plan are submitted in writing to the Engineer for review and all comments are addressed prior to the commencement of any extensive construction work in close proximity (less than 50 feet [15 meters]) to sensitive receptors. The mitigation plan must address the control of vehicle emissions from all vehicles and construction equipment.

If any equipment is found to be in noncompliance with this specification, the Contractor will be issued a Notice of Noncompliance and given a 24-hour period in which to bring the equipment into compliance or remove it from the project. If the Contractor then does not comply, the Engineer shall withhold all payments for the work performed on any item(s) on which the nonconforming equipment was utilized for the time period in which the equipment was out of compliance.

Any costs associated with this "Vehicle Emissions" notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the Contractor for compliance with this notice.

NOTICE TO CONTRACTOR – SALVAGE

The Contractor shall remove and salvage the existing catch basin grates as directed by the Engineer. Care shall be taken not to damage salvaged items during removal and handling. The salvaged material shall be securely banded to pallets and properly stored until delivered and unloaded by the Contractor to the following Town of New Milford facility:

New Milford Public Works
6 Young's Field Road
New Milford, Connecticut 06776
Contact: Mr. Daniel Stanton, P.E.
Telephone: (860) 355-6040

The Contractor shall notify the above a minimum of 48 hours prior to delivery of salvaged material. Delivery of pallets shall be on flat-bed truck to facilitate removal by forklift at the Town of New Milford facility.
NOTICE TO CONTRACTOR – BITUMINOUS CONCRETE
COMPACITION TESTING REQUIREMENTS

The Town of New Milford may choose to exempt the Contractor from taking corings of bituminous concrete pavement to determine the density of the compacted bituminous concrete material as outlined in Section 4.06 – Bituminous Concrete. In lieu of performing corings, the Town of New Milford shall request the Contractor to perform in-place nuclear density compaction tests for bituminous concrete.

In the event the in-place nuclear density tests results for bituminous concrete pavement are unsatisfactory to the Town of New Milford, the Contractor shall be required to take coring of bituminous concrete pavement to determine the density of the compacted bituminous concrete material.

All costs associated with obtaining cores for acceptance of testing and dispute resolution and testing the core sample including laboratory service costs are included in the general cost of the work.

NOTICE TO CONTRACTOR – PROPERTY BOUNDS

The Contractor shall exercise due care when working around all property bounds which are to remain. Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced and/or realigned by a CT-licensed land surveyor as directed by the Engineer at the Contractor's expense.

NOTICE TO CONTRACTOR – PROTECTION OF EXISTING UTILITIES

Existing utilities shall be maintained during construction except as specifically stated herein and/or noted on the plans and as coordinated with the utilities. The Contractor shall verify the location of underground, structure-mounted, and overhead utilities. Construction work within the vicinity of utilities shall be performed in accordance with current safety regulations.

The Contractor shall notify "Call Before You Dig" (dial 811 or go to www.cbyd.com) for the location of public utility in accordance with Section 16-345 of the Regulations of the Department of Utility Control.

Representatives of the various utility companies shall be provided access to the work by the Contractor.

Contractors are cautioned that it is their responsibility to verify locations, conditions, and field dimensions of all existing features as actual conditions may differ from the information shown on the plans or contained elsewhere in the contract documents.
The Contractor shall notify the Engineer prior to the start of work and shall be responsible for all coordination with the Town of New Milford. The Contractor shall allow the Engineer complete access to the work.

The Contractor shall be liable for all damages or claims received or sustained by any persons, corporations, or property in consequence of damage to the existing utilities, their appurtenances, or other facilities caused directly or indirectly by the operations of the Contractor.

Any damage to any existing private and public utility, including signal equipment and appurtenances, as a result of the Contractor's operations shall be repaired to the utilities' and Engineer's satisfaction at no cost to the Town or the Utilities, including all materials, labor, etc. required to complete the repairs.

The Contractor's attention is directed to the requirements of Section 1.07.13 – "Contractor's Responsibilities for Adjacent Property and Services."

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., water, sanitary, gas, electric ducts, communication ducts, etc., will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation as noted above.

The Contractor shall notify the utility representatives prior to the start of work.

**NOTICE TO CONTRACTOR – QUALITY OF WORK**

It is the Contractor's responsibility to perform the work of this Contract in accordance with the contract plans and specifications and as directed by the Engineer. The Town reserves the right to withhold payment for any quantity of work which, in the opinion of the Engineer and/or the Town, does not meet the contract requirements. Any and all improvements, or parts thereof, constructed as part of this contract, which in the Engineer and/or the Town's opinion, do not conform to the contract plans and specifications and have resulted in an unacceptable product will not be measured for payment until corrected by the Contractor at the Contractor's own expense.

Upon receiving notification from the Town that such work has been identified as unacceptable, the Contractor shall immediately proceed to either repair or remove and replace the unacceptable work as directed by the Engineer and/or the Town.

When, in the opinion of the Engineer and/or the Town, the corrective work has been completed and accepted, the original pay items will be measured for payment.
NOTICE TO CONTRACTOR – SUBMITTALS FOR IMPORTED AGGREGATES

In accordance with the requirements in these special provisions and the CTDOT Form 817, specifically the Materials Section, the contractor is hereby notified of the requirement to provide submittals which include tests on the gradation, abrasion, soundness, and any other parameters specified for the various aggregate materials proposed for use on this project. The cost for such testing shall be the sole responsibility of the Contractor. The tests must be current and based on a specific source location/pile. No material shall be imported until the Engineer issues a written approval. The Contractor shall also provide testing and documentation of the imported and stockpiled material to confirm consistency with the approved submittals and compliance with these Special Provisions and Standard Specifications of CTDOT Form 817.

NOTICE TO CONTRACTOR – TRAFFIC CONTROL

Any Flagger utilized by the Contractor to control traffic during construction shall be a "certified" card-carrying Flagger per the requirements of the Connecticut Department of Transportation. Certification must be received through training programs approved by CTDOT. The Town inspector or engineer may periodically check their credentials. Flaggers shall be provided by the Contractor doing the work, and all costs shall be in accordance with the Special Provisions and Standard Specifications of CTDOT Form 817.

NOTICE TO CONTRACTOR – CONTRACTOR TRAINING REQUIREMENT FOR 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

In accordance with Connecticut General Statute 31-53b and Public Act No. 08-83, the Contractor is required to furnish proof that any person performing the work of a mechanic, laborer, or worker pursuant to the classifications of labor under section 31-53 has completed a course of at least 10 hours in duration in construction safety and health approved by the Federal Occupational Safety and Health Administration or has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least 10 hours of training in accordance with 29 CFR 1910.268.

Proof of compliance with the provisions of the statute shall consist of a student course completion card issued by the federal Occupational Safety and Health Administration or other such proof as deemed appropriate by the Town of New Milford, dated no earlier than 5 years prior to the commencement of the project. Each employer shall affix a copy of the construction safety course completion card for each applicable employee to the first certified payroll submitted to the Town of New Milford on which the employee's name first appears.

Any employee required to complete a construction safety and health course as required that has not completed the course shall have a maximum of fourteen (14) days to complete the course.
the employee has not been brought into compliance, they shall be removed from the project until such time as they have completed the required training.

This section does not apply to employees of public service companies, as defined in section 16-1 of the 2008 supplement to the General Statutes, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

Any costs associated with this notice shall be included in the general cost of the contract. In addition, there shall be no time granted to the Contractor for compliance with this notice. The Contractor's compliance with this notice and any associated regulations shall not be grounds for claims as outlined in Section 1.11 – "Claims."

NOTICE TO CONTRACTOR - DUST CONTROL

It shall be the Contractor's responsibility to keep the existing roadway clean and provide adequate dust control by whatever means are necessary, to the satisfaction of the Town and the Engineer. This shall include water, calcium chloride, or any sweeping required either by mechanical means or hand sweeping if the use of a mechanical sweeper is not feasible.

NOTICE TO CONTRACTOR – VERIFICATION OF PLAN DIMENSIONS, FIELD MEASUREMENTS, AND PROPOSED FINISHED GRADES

The Contractor is responsible for verifying all dimensions before any work is begun. Dimensions of the existing structures and drainage facilities shown on the plans are for general reference only; they are not guaranteed. The plans were compiled using Town GIS, as-built, and surveyed mapping and convey intent with respect to proposed elevations and grading. The Contractor shall take all field measurements necessary to assure proper fit of the finished work and shall assume full responsibility for their accuracy. When shop drawings and/or working drawings based on field measurements are submitted for approval and/or review, the field measurements shall also be submitted for reference by the reviewer.

In the field, the Contractor shall examine and verify all existing and given conditions and dimensions with those shown on the plans. If field conditions and dimensions differ from those shown on the plans, the Contractor shall use the field conditions and dimensions and make the appropriate changes to those shown on the plans as approved by the Engineer. All field conditions and dimensions shall be so noted on the drawings submitted for approval.

There shall be no claim made against the Town by the Contractor for work pertaining to modifications required by any difference between actual field conditions and those shown by the details and dimensions on the contract plans. The Contractor will be paid at the unit price bid for the actual quantities of completed and accepted work performed, as indicated by the various items in the Contract.
Final top of grate, top of frame, and invert elevations shall be confirmed prior to installation. There will be NO separate payment for the temporary setting of structures prior to establishment of finished grade. The Town will NOT pay restocking fees for drainage structures returned to the vendor. There will be NO payment for the adjusting of catch basin and manhole tops following fine grading.

In general, limits of turf establishment and driveway reconstruction shall be dictated by the least amount of disturbance required to complete the roadway work in accordance with the intent conveyed by the plans and specifications. Actual limits of driveway reconstruction and turf establishment must be coordinated with and approved by the Engineer prior to initiating that work.

NOTICE TO CONTRACTOR - SUPPORT OF EXISTING UTILITY POLES WITHIN THE PROJECT LIMITS

The Contractor shall be aware that there may be a need to support utility poles within the project limits during excavation operations. Coordination with the appropriate pole custodian will be required by the Contractor as to means and methods of support. The Contractor shall incorporate the cost of all utility pole support within the cost of the project. There will be no direct payment associated with this item.

NOTICE TO CONTRACTOR – TEMPORARY ACCESS TO AREA MERCHANTS, BUSINESSES, AND RESIDENCES

Access to all businesses and residences must be maintained at all times. The Contractor shall coordinate his/her work, provide safe and ready means of ingress and egress to all stores and shops, public and private professional offices, and any other businesses or residences in the project area, both day and night, for the duration of the project. As required by the Engineer, the Contractor shall install and maintain temporary ramps at driveways. Installing, maintaining, and removing the temporary ramps shall be paid for under "Maintenance and Protection of Traffic." The Contractor shall provide each abutter a minimum of 24-hour notice prior to beginning construction on private driveway entrances.

NOTICE TO CONTRACTOR – SHOP DRAWINGS

The Contractor shall submit electronic copies (Adobe Acrobat) of all shop drawings to the Engineer for review and approval prior to ordering or installing the items.

NOTICE TO CONTRACTOR – SAWCUTS

Existing pavement to remain shall be sawcut at all openings for utility work, for new or reset curb, and at all joints with proposed full-depth asphalt pavement, as shown on the plans or as directed by the Engineer. All joints are to be sealed after wearing course is down. The cost of
sealing the joints shall be incidental to the contract unit cost per linear foot of "Cut Bituminous Concrete Pavement."

NOTICE TO CONTRACTOR – TREE REMOVAL

The Contractor is required to contact the Town's Tree Warden prior to any removal. The Contractor will be responsible for flagging all public trees to be removed. The Engineer will then review the trees to insure conformance to the plans. The Town will then post the trees, with a 10-day notice/waiting period required. If the tree removal is protested, an appeal process with a Public Hearing will be held prior to the tree removal.

NOTICE TO CONTRACTOR – CTDOT HORIZONTAL CURVE SAFETY PROGRAM

Please note that, as a result of a recent safety study conducted by CTDOT, there will be horizontal curve treatments implemented along Long Mountain Road, which are anticipated to be completed in 2019. Horizontal curve improvements will include new signage and centerline striping and are NOT part of this contract.

NOTICE TO CONTRACTOR – EVERSOURCE/FRONTIER UTILITY POLE RELOCATIONS AND CONDUIT INSTALLATION

The Contractor shall coordinate with Eversource and Frontier regarding utility pole relocations and new conduit installation beneath and across the roadway at specific locations. The Contractor shall stake out the proposed edge of pavement at each utility pole to be relocated, as shown on the plans or directed by the Engineer. There shall be no separate payment for this work, but the cost shall be included in the item “Construction Staking”.

New conduit locations will generally be adjacent to utility poles with existing risers, direct bury wires or overhead wires servicing residences/buildings on the opposite side of the road than the utility pole. Eversource and/or Frontier shall notify the Contractor of locations where conduit is to be installed. Installation of the conduit (6” PVC, 24” cover minimum) shall be performed by Eversource or Frontier during roadway excavation and prior to subbase installation.

NOTICE TO CONTRACTOR – CT DEPARTMENT OF LABOR – WAGE RATES

CT Department of Labor – Wage Rates will be issued as an addendum prior to the bid opening.
SECTION 1.01 – DEFINITION OF TERMS AND PERMISSIBLE ABBREVIATIONS

Article 1.01.01 is amended as follows:

All references to Commissioner, Department, Engineer and State anywhere within the “Standard Specifications for Roads, Bridges, and Incidental Construction” or within the Supplemental Specifications or Special Provisions shall be interpreted to mean the Town of New Milford or a duly authorized agent of the Town. Any question or ambiguity regarding any definitions shall be brought to the immediate attention to the Town.

Town: The Town of New Milford, party of the first part to the contract, acting directly or through its agents or employees.

Contract Unit Price: The cost per established unit for each construction item as written in the Proposal Forms.

Special Provisions: Additions and revisions to the Standard and Supplemental Specifications covering conditions specific to this individual project.

The words “as described”, “as required”, “as permitted”, “as directed”, or phrases of like effect or import as used herein shall mean that the direction, requirement, permission or allowance of the Engineer is intended, and similarly the words “approved”, “reasonable”, “suitable”, “properly”, “satisfactory”, or words of like effect or import, unless otherwise particularly specified herein shall mean approved, reasonable, suitable, properly or satisfactory in the judgment of the Engineer.

SECTION 1.02 – PROPOSAL REQUIREMENTS AND CONDITIONS

Delete the entire section. See Article 3 – Bidding Requirements and Forms.
SECTION 1.07 - LEGAL RELATIONS AND RESPONSIBILITIES

Work under this item shall conform to the applicable provisions of Article 1.07.07 – Public Convenience and Safety of the Standard Specifications Form 817 amended as follows:

Add the following:

The Contractor shall provide the necessary access for emergency vehicles and school busses through the work zones to abutting properties at all times.

Sweeping and cleaning of surfaces beyond the limits of construction required for dust control or 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.

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation that will provide less than a 10-foot travel lane along any project roadway.

**Article 1.07.13 – Contractor’s Responsibility for Adjacent Property and Service**

Add the following:

Utility pole relocations are required as part of this project, so timely coordination with Eversource Energy and Frontier Communications is imperative.

The Contractor, in constructing or installing facilities alongside or near drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls, vaults, or other structures shall sustain them securely in place. The Contractor shall coordinate with the officers and agents of the various utility companies and municipal departments to assure that the services of these structures are maintained. The Contractor shall also be responsible for the repair or replacement, at no additional cost to the Town, of any damage to such structures caused by construction operations. The Contractor is responsible to 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 utility owner’s direction. Pipes or other structures damaged by the operation of the Contractor may be repaired by the utility owner which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation from the Town.

If during construction there is an existing utility and/or structure found to be in conflict with the proposed work under this Contract, the Contractor shall protect and maintain the services to the utilities and structures and shall notify the Engineer of the conflict. The Engineer will, as soon as possible, identify the utilities to be relocated or other such activities deemed suitable for resolution.
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 of the work involved in protecting or repairing property as specified in this Section shall be included in the prices paid for the various Contract items of work, and no additional compensation will be allowed.

Prior to opening an excavation, effort shall be made to determine whether underground installations will be encountered and, if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

The following company and representative shall be contacted by the Contractor to coordinate the protection of their utilities on this project 30 days prior to the start of any work on this project involving their utilities:

Charter Communications Entertainment I, LLC dba Charter Communications of Western Conn.
Mr. Keith Cournoyer,
Construction Supervisor
207 Tuckie Road
North Windham, CT 06256
PHONE: (860) 456-8346 EXT: 53029
E-MAIL: Keith.Cournoyer@charter.com

Frontier
Ms. Lynne DeLucia,
Engineering
1441 North Colony Road
Meriden, CT 06450-4101
PHONE: (203) 238-5000 Mobile: 860-967-4389
E-MAIL: Lynne.m.anastasio@ftr.com

Mr. Gary Swanson B.S.M.E.
Telecommunications Specialist
Outside Network Engineer
555 Lakewood Rd
Waterbury, CT 06704-2420
PHONE: (203) 575-6112
E-MAIL: gary.k.swanson@ftr.com
Mr. Robert Shepard  
Telecom. Spec-ONE  
555 Lakewood Rd  
Waterbury, CT 06704-2420  
PHONE: (203) 575-6703  Mobile: (203) 819-0087  
E-MAIL: robert.c.shepard@ftr.com

Eversource Energy – Electric Distribution  
Mr. Thomas Woronik  
Supervisor - Construction Engineering  
22 East High Street  
East Hampton, CT 06424  
PHONE: (860) 267-3891  
E-MAIL: Thomas.Woronik@eversource.com

Mr. Walter Moskaluk  
Field Engineering/Design  
20 Barnabas Road  
Newtown, CT 06470  
PHONE: (203) 270-5830  Mobile: (203) 524-5347  
E-MAIL: Walter.Moskaluk@eversource.com

Town of New Milford  
Mr. Daniel Stanton  
Town Engineer  
10 Main Street  
New Milford, CT 06776  
PHONE: (860) 355-6040  
E-MAIL: dstanton@newmilford.org

Mr. Michael Zarba  
Director of Public Works  
10 Main Street  
New Milford, CT 06776  
PHONE: (860) 355-6040  
E-MAIL: mzarba@newmilford.org

Disclaimer: The Contractor shall verify the completeness and accuracy of the information provided above.
SECTION 1.08 - PROSECUTION AND PROGRESS

Section 1.08 - Prosecution and Progress is amended as follows:

Article 1.08.03 – Prosecution of Work of the Standard Specifications Form 817 is amended as follows:

Add the following:

Before starting any work under this Contract, the Contractor shall prepare, and submit to the Engineer for approval, a minimum of 15 days in advance, a plan illustrating the Typical Traffic Management Plan for all roadways to be reclaimed/reconstructed. This plan shall illustrate typical use and layout of construction signs, drums, and other traffic control devices to be employed during each time period of work to maintain traffic and access to abutting properties. The Contractor must obtain approval of the Typical Traffic Management Plan from the Engineer prior to commencing work on the specified roadways.

All appropriate Maintenance and Protection of Traffic devices are to be installed prior to commencing construction operations.

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

The Contractor shall notify all public safety agencies at least 48 hours prior to beginning any construction operation which will provide less than a 10-foot travel lane along any project roadway.

Article 1.08.04 - Limitation of Operations is supplemented by the following:

In order to provide for traffic operations as outlined in the special provision "Maintenance and Protection of Traffic", the Contractor will not be permitted to perform any work which will interfere with normal traffic operation on any project road during the following periods:

On the following Legal Holidays:

New Year’s Day
Martin Luther King Day
Lincoln’s Birthday
Washington’s Birthday
Good Friday
Memorial Day
Independence Day
Labor Day
Columbus Day
Veterans Day
Thanksgiving Day
Day Following Thanksgiving
Christmas Day

Also any other day between the hours of 5:00 pm and 7:00 am, unless approved otherwise by the Town.

The Contractor will not be allowed to perform any work on Saturday or Sunday, unless approved otherwise by the Town.

All construction activities, including the loading and unloading of materials and equipment, shall be limited to Monday through Friday, 7:00 a.m. to 5:00 p.m., unless approved otherwise by the Town.

The Contractor is further advised that once the bituminous surface of a project roadway has been removed or reclaimed, it shall be the Contractor’s responsibility to immediately proceed with the necessary earthwork and grading to establish a base that is of the shape and strength to effectively receive traffic at the end of each work day. Suitable base for traffic shall include: 1) reclaimed segments of roadway where a minimum of six inches of pulverized or reclaimed asphalt and gravel base remains in place following reclamation and has been shaped and graded to permit positive drainage and rolled/compacted to the satisfaction of the Engineer to permit vehicle loads; or 2) segments of roadway that have been excavated to proposed subgrade, backfilled with compacted reclaimed material as subbase, and where processed aggregate base has been placed and compacted in accordance with the contract documents. No traffic shall be permitted on the exposed subgrade.

The Contractor shall be limited in the length and area of roadway to be excavated each work day. The extent of length or area excavated each day shall in no case exceed the limits for which a suitable base for traffic can be established by the end of each work day. The Contractor shall not be permitted to excavate more than 500 linear feet of roadway per work day unless it can be demonstrated that a suitable base for traffic can be established by the end of each work day on a consistent and on-going basis as judged by the Engineer.

Roadways will NOT be allowed to be left unpaved for greater than 14 calendar days unless specific written authorization has been requested from, and received by, the Engineer. If said roadway is not paved with binder course within the specified 14-calendar day limit, the Engineer shall notify the Contractor of the deficient condition and the Contractor shall cease all other construction activities until the subject roadway is properly prepared and the specified overlays completed.

The Contractor shall further schedule construction operations to minimize the period of time that vehicle traffic is placed upon any binder/intermediate or leveling overlay course. Prior to the construction of subsequent bituminous courses, any damage noted by the Engineer on the previously placed bituminous courses shall be repaired as directed by the Engineer at the Contractor’s expense. Binder/intermediate courses will NOT be allowed to be left for greater than 45 calendar days unless specific written authorization has been requested from, and received by, the Engineer. If said roadway is not paved with wearing course within the specified 45-calendar day limit, the Engineer shall notify the Contractor of the deficient condition and the Contractor shall cease all other construction activities.
construction activities until the subject roadway’s wearing course is completed.

The Contractor shall notify the Engineer 24 hours in advance of the commencement of any paving operations. The purpose of this notice period is to allow ample time to conduct pre-paving condition inspection, obtain approval to pave and to secure paving inspection and testing personnel.

Local detours shall be implemented in accordance with the contract documents.

Access to local property and businesses must be maintained at all times unless prior arrangements are made with property owners or business proprietors.

Provisions shall be made for the safe passage of school buses and emergency vehicles without delay. The contractor shall communicate on an on-going basis with school officials and emergency personnel for the project duration.

All temporary connections to abutting driveways and existing roadways must be accomplished in a satisfactory manner prior to the end of the work day. Excavation and installation of subbase must be accomplished full width for the proposed roadway.

**Other Limitations**

Longitudinal dropdowns greater than 2 inches will not be allowed during those periods when the roadway is restored to bi-directional traffic either during or at the end of each work day.

Where dropdowns occur between newly completed work, partially completed work, and/or existing paved areas, a gradual transition shall be established with appropriate signage to warn motorists of “Bump” (or other acceptable sign legend). Transitions shall be passable for low clearance vehicles and shall not result in any vehicles “bottoming out.”

The cost of furnishing, installing and removing any temporary material or any earthwork or grading required for transitions to establish safe travel conditions shall be included in the contract lump sum for "Maintenance and Protection of Traffic."

All temporary concrete barriers, other protective systems and traffic control devices as called for by the contract or ordered by the Engineer must be on-hand and available in sufficient quantity for immediate installation prior to any stage change.

1481-53-05-jn1218-spec 05 - section 1.08.docx
SECTION 4.06 - BITUMINOUS CONCRETE
Section 4.06 is being deleted in its entirety and replaced with the following:

4.06.01—Description: Work under this section shall include the production, delivery and placement of a non-segregated, smooth and dense bituminous concrete mixture brought to proper grade and cross section. This section shall also include the method and construction of longitudinal joints. The Contractor shall furnish the Owner with a Quality Control Plan as required in Article 4.06.03.

Materials certificates must be submitted in accordance with CDOT Form 817. Compaction testing, as well as other required testing ordered by the Engineer, shall be performed in accordance with CDOT Form 817.

The terms listed below as used in this specification are defined as:

Bituminous Concrete: A concrete material that uses a bituminous material (typically asphalt) as the binding agent and stone and sand as the principal aggregate components. Bituminous concrete may also contain any of a number of additives engineered to modify specific properties and/or behavior of the concrete material. For the purposes of this Specification, references to bituminous concrete apply to all of its sub-categories.

<table>
<thead>
<tr>
<th>Official Mix Designation</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bituminous Concrete Class 1</td>
<td></td>
</tr>
<tr>
<td>Bituminous Concrete Class 2</td>
<td></td>
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<tr>
<td>Bituminous Concrete Class 3</td>
<td></td>
</tr>
</tbody>
</table>

Course: A lift or multiple lifts comprised of the same bituminous concrete mixture placed as part of the pavement structure.

Density Lot: All material placed in a single lift and as defined in Article 4.06.03.

Disintegration: Wearing away or fragmentation of the pavement. Disintegration will be evident in the following forms: Polishing, weathering-oxidizing, scaling, spalling, raveling, potholes or loss of material.

Lift: An application of a bituminous concrete mixture placed and compacted to a specified thickness in a single paver pass.

Marshall: A bituminous concrete mix design used in mixtures designated as "Bituminous Concrete Class ( )".

Production Lot: All material placed per day during a continuous daily paving operation. Quality Assurance (QA): All those planned and systematic actions necessary to provide confidence that a product or facility will perform as designed.
Quality Control (QC): The sum total of activities performed by the vendor (Producer, Manufacturer, and Contractor) to ensure that a product meets contract specification requirements.

Segregation: A non-uniform distribution of a bituminous concrete mixture in terms of volumetrics, gradation or temperature.

4.06.02—Materials: All materials shall conform to the requirements of Section M.04.

1. Materials Supply: The bituminous concrete mixture must be from one source of supply and originate from one Plant unless authorized by the Owner. The bituminous concrete mixture shall be produced at an approved Connecticut DOT Plant. The Contractor shall provide proof of current DOT plant approval status. Bituminous Concrete plant QC plan requirements are defined in Section M.04.

4.06.03—Construction Methods:

1. Material Documentation: All vendors producing bituminous concrete must have their truck-weighing scales, storage scales, and mixing plant automated to provide a detailed ticket.

Delivery tickets must include the following information:
   a. Project name printed on ticket.
   b. Name of producer, identification of plant, and specific storage bin (silo) if used.
   c. Date and time of day.
   d. Mixture Designation If RAP is used, the plant printouts shall include RAP dry weight, percentage and daily moisture content. Class 3 mixtures for machine-placed curbing must state "curb mix only".
   e. Net weight of mixture loaded into truck (When RAP is used, RAP moisture shall be excluded from mixture net weight).
   f. Gross weight (Either equal to the net weight plus the tare weight or the loaded scale weight).
   g. Tare weight of truck – Daily scale weight.
   h. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
   i. Truck number for specific identification of truck.
   j. Individual aggregate, RAP, and virgin asphalt high/target/low weights shall be printed on batch plant tickets (For drum plants and silo loadings, the plant printouts shall be printed out at 5 minute intervals maintained by the vendor for a period of three years after the completion of the project).
   k. For every mixture designation the running daily total delivered and sequential load number.

The net weight of mixture loaded into the truck must be equal to the cumulative measured weight of its components.
The Contractor must notify the Owner immediately if, during the production day, there is a malfunction of the weighing or recording system in the automated plant or truck-weighing scales. Manually written tickets containing all required information will be allowed for one hour, but for no longer, provided that each load is weighed on State-approved scales. The Owner reserves the right to monitor the plant's bituminous concrete mixture production for batching and/or weighting operation.

2. **Transportation of Mixture:** Trucks with loads of bituminous concrete being delivered to the projects must not exceed the statutory or permitted load limits referred to as gross vehicle weight (GVW).

The mixture shall be transported from the mixing plant in trucks that have previously been cleaned of all foreign material and that have no gaps through which mixture might inadvertently escape. The Contractor shall take care in loading trucks uniformly so that segregation is minimized. Loaded trucks shall be tightly covered with waterproof covers acceptable to the Owner. Mesh covers are prohibited. The front and rear of the cover must be fastened to minimize air infiltration. The Contractor shall assure that all trucks are in conformance with this specification. Trucks found not to be in conformance shall not be allowed to be loaded until re-inspected to the satisfaction of the Owner.

Truck body coating and cleaning agents must not have a deleterious effect on the transported mixture. The use of solvents or fuel oil, in any concentration, is strictly prohibited for the coating of the inside of truck bodies. When acceptable coating or agents are applied, truck bodies shall be raised immediately prior to loading to remove any excess agent in an environmentally acceptable manner.

3. **Paving Equipment:** The Contractor shall have the necessary paving and compaction equipment at the project site to perform the work. All equipment shall be in good working order and any equipment that is worn, defective or inadequate for performance of the work shall be repaired or replaced by the Contractor to the satisfaction of the Owner. During the paving operation, the use of solvents or fuel oil, in any concentration, is strictly prohibited as a release agent or cleaner on any paving equipment (i.e., rollers, pavers, transfer devices, hand tools, etc.).

Refueling of equipment is prohibited in any location on the paving project where fuel might come in contact with bituminous concrete mixtures already placed or to be placed. Solvents for use in cleaning mechanical equipment or hand tools shall be stored clear of areas paved or to be paved. Before any such equipment and tools are cleaned, they shall be moved off the paved or to be paved area; and they shall not be returned for use until after they have been allowed to dry.
Pavers: Each paver shall have a receiving hopper with sufficient capacity to provide for a uniform spreading operation and a distribution system that places the mix uniformly, without segregation. The paver shall be equipped with and use a vibratory screed system with heaters or burners. The screed system shall be capable of producing a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screed units as part of the system shall have auger extensions and tunnel extenders as necessary. Automatic screed controls for grade and slope shall be used at all times unless otherwise authorized by the Owner. The controls shall automatically adjust the screed to compensate for irregularities in the preceding course or existing base. The controls shall maintain the proper transverse slope and be readily adjustable, and shall operate from a fixed or moving reference such as a grade wire or floating beam.

Rollers: All rollers shall be self-propelled and designed for compaction of bituminous concrete. Roller types shall include steel-wheeled, pneumatic or a combination thereof and may be capable of operating in a static or dynamic mode. Rollers that operate in a dynamic mode shall have drums that use a vibratory or oscillatory system or combination of. The vibratory system achieves compaction through vertical amplitude forces. Rollers with this system shall be equipped with indicators that provide the operator with amplitude, frequency and speed settings/readouts to measure the impacts per foot during the compaction process. The oscillatory system achieves compaction through horizontal shear forces. Rollers with this system shall be equipped with frequency indicators. Rollers can operate in the dynamic mode using the oscillatory system on concrete structures such as bridges and catch basins if at the lowest frequency setting.

Pneumatic tire rollers shall be self-propelled and equipped with wide-tread compaction tires capable of exerting an average contact pressure from 60 to 90 pounds per square inch uniformly over the surface, adjusting ballast and tire inflation pressure as required. The Contractor shall furnish evidence regarding tire size; pressure and loading to confirm that the proper contact pressure is being developed and that the loading and contact pressure are uniform for all wheels.

4. Seasonal Requirements: All paving, including placement of temporary pavements, shall be divided into two seasons, In-Season and Extended Season. In-Season paving shall occur from May 1 – October 31, and Extended Season shall occur from November 1 – April 30. The following requirements shall apply unless otherwise authorized or directed by the Owner:

- Bituminous concrete mixes shall not be placed when the air or subbase temperature is below 40°F regardless of the season.
- The Contractor shall not schedule paving operations during the Extended Season without prior approval from the Owner. The Contractor shall also provide to the Owner an “Extended Season Paving Plan” as outlined below as part of the Extended Season approval process:
  - An “Extended Season Paving Plan” shall be submitted to the Owner a minimum of two (2) weeks prior to the Contractor’s anticipated paving operations and shall address minimum delivered mix temperature, maximum paver speed, enhanced
rolling patterns and the method to balance mixture delivery and placement operations. Extended Season paving shall not commence until the Owner has approved the "Extended Season Paving Plan".

- The final lift of bituminous concrete shall not be placed between November 1 and April 30. The Owner, at his discretion, may consider a request from the Contractor to allow placing the top course bituminous concrete if it is deemed to be in the best interest of the project.

- There will be no additional compensation in relation to when bituminous concrete is placed.

5. Transitions for Roadway Surface: Transitions shall be formed at any point on the roadway where the pavement surface deviates, vertically, from the uniform longitudinal profile as specified on the plans. Whether formed by milling or by bituminous concrete mixture, all transition lengths shall conform to the criteria below unless otherwise specified.

Permanent Transitions: A permanent transition is defined as any transition that remains as a permanent part of the work. All permanent transitions, leading and trailing ends shall meet the following length requirements:

a) Posted speed limit is greater than 35 MPH: 30 feet per inch of vertical change (thickness)
b) Posted speed limit is 35 MPH or less: 15 feet per inch of vertical change (thickness).
c) Bridge Overpass and underpass transition length will be 75 feet either
   (1) Before and after the bridge expansion joint, or
   (2) Before or after the parapet face of the overpass.

In areas where it is impractical to use the above described permanent transition lengths the use of a shorter permanent transition length may be permitted when approved by the Owner.

Temporary Transitions: A temporary transition is defined as a transition that does not remain a permanent part of the work. All temporary transitions shall meet the following length requirements:

a) Posted speed limit is greater than 35 MPH
   (1) Leading Transitions = 15 feet per inch of vertical change (thickness)
   (2) Trailing Transitions = 6 feet per inch of vertical change (thickness)

b) Posted speed limit is 35 MPH or less
   (1) Leading and Trailing = 4 feet per inch of vertical change (thickness)

Note: Any temporary transition to be in-place over the winter shutdown period, holidays, or during extended periods of inactivity (more than 7 calendar days) shall conform to the “Permanent Transition” requirements shown above and shall be approved by the Owner prior to implementation.

6. Spreading and Finishing of Mixture: Prior to the placement of the bituminous concrete, the underlying base course shall be brought to the plan grade and cross section within the allowable tolerance. Immediately before placing the mixture, the area to be surfaced shall be cleaned by sweeping or by other means acceptable to the Owner. The bituminous concrete mixture shall not
be placed whenever the surface is wet or frozen. The temperature of the bituminous concrete mixture at time of placement must be between 265°F. to 325°F. except that the minimum temperature will be 290°F. when the mixture is placed during the Extended Season.

The mix temperature may be verified by the Owner at the time and location of placement by means of a probe or infrared type of thermometer to confirm conformance with this specification.

Placement: The bituminous concrete mixture shall be placed and compacted to provide a smooth, dense surface with a uniform texture and no segregation at the specified thickness and dimensions indicated in the plans and specifications.

When unforeseen weather conditions prevent further placement of the mix, the Owner is not obligated to accept or place the bituminous concrete mixture that is in transit from the plant or already at the project site awaiting placement.

In advance of paving, traffic control requirements as stipulated under the relevant sections of the Contract Documents shall be set up daily, maintained throughout placement, and shall not be removed until all associated work including density testing is completed.

The Contractor shall inspect the newly placed pavement for defects in the mixture or placement before rolling is started. Any deviation from standard crown or sections shown on the plans, or nonconforming to adjacent existing conditions, shall be immediately remedied by placing additional mixture or removing surplus mixture prior to commencing compaction operations. Such defects shall be corrected to the satisfaction of the Owner.

Where it is impractical due to physical limitations to operate the paving equipment, the Owner may permit the use of other methods or equipment. Where hand spreading is permitted, the mixture shall be placed by means of suitable shovels and other tools, and in a uniformly loose layer at a thickness that will result in a completed pavement meeting the designed grade and elevation. Where hand spreading is permitted by the Owner, it shall not relieve the Contractor of his responsibility to comply with all compaction requirements. The Contractor shall use such equipment as may be necessary to ensure proper compaction has been attained in areas of hand spreading without damage to nearby or adjacent structures/amenities or completed work.

Placement Tolerances: Each lift of bituminous concrete placed at a uniform specified thickness shall meet the following requirements for thickness and area. Any pavement exceeding these limits shall be subject to removal and replacement. Lift tolerances will not relieve the Contractor from the responsibility of meeting the final designed grades and cross sections.
The Contractor shall provide copies of all bituminous concrete delivery slips to the Owner for each daily section of pavement placed to determine the theoretical thickness of the in place material as follows:

\[
\text{Theoretical Thickness} = \frac{T}{A_a} \times 0.0575
\]

Where:  
\( T \) = Actual tons in place  
\( A_a \) = Actual area (SY)  
Yield factor for calculation = 0.0575 Tons/ SY/ inch

**Thickness**- When the thickness of the lift of mixture is less than that shown on the plans beyond the tolerances shown in Table 4.06-3, the Contractor, shall remove the deficient section and replace it with the specified thickness of material of the same class and to the dimensions as specified in the Contract Documents at their own cost.

**TABLE 4.06-3 Thickness Tolerances**

<table>
<thead>
<tr>
<th>Mixture Designation</th>
<th>Lift Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 4 and S1</td>
<td>+ ⅜ inch*</td>
</tr>
<tr>
<td>Class 1, 2 and 12</td>
<td>+ ¼ inch*</td>
</tr>
</tbody>
</table>

*There is no negative lift tolerance, the minimum lift thickness shall be equal to the designed thickness indicated on plans.

When requested by the Owner, if quality or thickness is a disputed issue then, the Contractor, will provide pavement cores as another means to confirm the pavement thicknesses at no additional cost to the Owner. If the Contractor does not provide cores within 72 hours from the Owner request, then the Owner reserves the right to hire a third party to provide core samples to verify thickness. The cost of which will be deducted from the Contractor's progress payments and/or retainage.

**Longitudinal Joint Construction:** All joints shall be straight and true to adjacent improvements. During placement of multiple lifts of bituminous concrete, the longitudinal joint shall be constructed in such a manner that it is located at least 6 inches from the joint in the lift immediately below. The Contractor shall plan his daily paving operation so that each paving length is the full width of area being paved. No exposed longitudinal joint edges will be allowed unless authorized by the Owner. Prior to placing the completing pass (hot side), an application of tack coat must be applied to the exposed edge of the preceding paving pass of bituminous concrete regardless of time elapsed between paver passes. The in-place time allowance described in Sub article "Tack Coat Application" below does not apply to joint construction.

**Transverse Joints:** All transverse joints shall be formed by saw-cutting a sufficient distance back from the previous run, existing bituminous concrete pavement, or bituminous concrete driveways to expose the full thickness of the lift. Tack coat shall be applied on any cold joint immediately prior to additional bituminous concrete mixture placement.

**Tack Coat Application:** A thin uniform coating of tack coat shall be applied to the pavement immediately before overlaying and be allowed sufficient time to break (set). All surfaces in
contact with the bituminous concrete that have been in place longer than 3 calendar days shall have an application of tack coat. The tack coat shall be applied by a non-gravity pressurized spray system that results in uniform overlapping coverage at an application rate of 0.03 to 0.05 gallons per square yard for a non-milled surface and an application rate of 0.05 to 0.07 gallons per square yard for a milled surface. For areas where both milled and un-milled surfaces occur, the tack coat shall be an application rate of 0.03 to 0.05 gallons per square yard. The Owner must approve the equipment and the method of measurement prior to use. The material for tack coat shall not be heated in excess of 160°F and shall not be further diluted. Under no circumstances shall tack coat be applied to surfaces damp to the touch or over standing water. In the event of unforeseen weather conditions, the application of tack coat shall stop until the surface to receive tack coat is dry. The Owner is not obligated to accept any bituminous concrete mixture or tack coat that is placed on/in wet conditions.

**Tack Coat Application Rate Verification:** The Contractor shall provide daily tack coat delivery tickets to the Owner for verification of application rates.

Daily Delivery tickets must include the following information:

- a. Project name printed on ticket.
- b. Name and location of supplier,
- c. Date and time of day.
- d. Product type.
- e. 1st Gross weight - the loaded scale weight before application of tack coat material.
- f. 2nd Gross weight - the loaded scale weight upon completion of tack coat material application.
- g. Tare weight of truck – Daily scale weight.
- h. Project number, purchase order number, name of Contractor (if Contractor other than Producer).
- j. Truck number for specific identification of truck.

**Compaction:** The Contractor shall compact the mixture to an average density between 92.0 and 97.0 percent. All roller marks shall be eliminated without displacement, shoving, cracking, or aggregate breakage.

The Contractor shall only operate rollers in the dynamic mode using the oscillatory system at the lowest frequency setting on concrete structures such as bridges and catch basins. The use of the vibratory system on concrete structures is prohibited. Rollers operating in the dynamic mode shall be shut off when reversing directions.

If the Owner determines that the use of compaction equipment in the dynamic vibratory mode may damage highway components, utilities, or adjacent property, the Contractor shall provide alternate compaction equipment. The Owner may allow the Contractor to operate rollers in the dynamic mode using the oscillatory system at the lowest frequency setting. These allowances will not relieve the Contractor from meeting pavement compaction requirements. Compaction testing, as well as other testing required by the Engineer, shall be performed in accordance with CT DOT Form 817.
Surface Requirements: The pavement surface of any lift shall meet the following requirements for smoothness and uniformity. Any irregularity of the surface exceeding these requirements shall be corrected by the Contractor at his expense:

   a) Smoothness- Each lift of the surface course shall not vary more than ¼ inch from a Contractor-supplied 10 foot straightedge. For all other lifts of bituminous concrete, the tolerance shall be ⅜ inch. Such tolerance will apply to all paved areas regardless of placement methods, i.e. hand spreading.

   b) Uniformity- The paved surface shall not exhibit segregation, rutting, cracking, disintegration, flushing or vary in composition as determined by the Owner.

7. Contractor Quality Control (QC) Requirements for Placement: The Contractor shall be responsible for maintaining adequate quality control procedures throughout the placement operations. Therefore, the Contractor must ensure that the materials, mixture and work provided by Subcontractors, Suppliers and Producers also meet contract specification requirements.

A Quality Control Plan (QCP) shall be submitted for any project with a proposed tonnage greater than 2,500 tons of Bituminous Concrete and/or when the paving operation is scheduled to occur during the Extended Season with prior approval from the Owner.

Quality Control Plan: When required, prior to placement, the Contractor shall submit a QCP to the Owner for approval. The QCP shall be submitted at the pre-construction meeting or a minimum 30 days prior to any production or paving. Work covered by the QCP shall not commence until the Owner’s comments have been incorporated into the QCP and approved. The QCP shall detail every aspect of the placement process and if required, include a separate section on Extended Season paving as described in Section 4. “Seasonal Requirements”. The QCP must address the actions, inspection, minimum frequency of testing/sampling and testing necessary to keep the production and placement operations in control, to determine when an operation has gone out of control, and to respond to correct the situation in a timely fashion. The QCP shall also include details on when and who will communicate with personnel at the bituminous concrete plant to determine when immediate changes to the production or placement processes are needed, and to implement the required changes.

Approval of the QCP does not relieve the Contractor of his responsibility to comply with the project specifications and in accordance with the Contract Documents.

Quality Control Inspection, Sampling and Testing: The Contractor shall perform all quality control sampling and testing, provide inspection, and exercise management control to ensure that bituminous concrete production and placement conforms to the requirements of these specifications.

   a) Records of Inspection and Testing: For each day of placement, the Contractor shall document all test results and inspections on forms approved by the Owner. The document
shall be certified by the Quality Control Manager or his representative that the information in the document is accurate, and that all work complies with the requirements of the contract.

8. **Density Testing of Bituminous Concrete:** The Contractor shall monitor and confirm density utilizing a nuclear density gauge of all bituminous concrete placed daily regardless of the quantity. Testing shall be performed by a NETTCP certified HMA Paving Inspector from a certified independent CT testing laboratory. The minimum frequency of testing shall be as follows.

<table>
<thead>
<tr>
<th>Daily Production Tons</th>
<th>MAT Number of Sub-Lots</th>
<th>JOINT Number of Sub-Lots/ Joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 500</td>
<td>1 per 100</td>
<td>1 per 100</td>
</tr>
<tr>
<td>500 to 1,500</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Greater than 1,500</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

The Contractor shall submit complete laboratory certified test reports and accurate density inspection reports to the Owner within 48 hours following the daily paving operations. The documents shall be submitted in a manner acceptable to the Owner.

9. **Corrective Work Procedures:** Any portion of the completed pavement that does not meet the requirements of the Contract Documents shall be corrected at the expense of the Contractor. Any corrective courses placed as the final wearing surface shall not be less than 1½ inches in thickness after compaction.

If pavement placed by the Contractor does not meet the requirements of the Contract Documents, and the Owner requires its replacement or correction, the Contractor shall:

a) Propose a corrective procedure to the Owner for review and approval prior to any corrective work commencing. The proposal shall include:
   - Limits of pavement to be replaced or corrected, indicating stationing or other landmarks that are readily distinguishable.
   - Proposed work schedule.
   - Construction method and sequence of operations.
   - Methods of maintenance and protection of traffic.
   - Material sources.
   - Names and telephone numbers of supervising personnel.

In the event the Contractor proposes to perform corrective work during the “Extended Season”, the Contractor shall provide an “Extended Season Paving Plan” and adhere to all seasonal requirements within this specification.

b) Perform all corrective work in accordance with the Contract and the approved corrective procedure.

10. **Protection of the Work:** The Contractor shall protect all sections of the newly finished pavement from damage that may occur as a result of the Contractor’s operations for the duration
of the Project. Prior to the Owner’s authorization to open the pavement to traffic, the Contractor is responsible for the protection of the pavement from all damage.

4.06.04—Method of Measurement and Basis of Payment:

1. Bituminous Concrete Class (): The furnishing and placing of bituminous concrete will be measured and paid for per ton of "Bituminous Concrete, Class ()" accepted by the Engineer and in accordance with this special provision and Section M.04.

   - All costs associated with constructing longitudinal and transverse joints shall be included in this item. No separate payment shall be made.

2. Transitions for Roadway Surface: The installation of temporary and permanent transitions will not be measured for payment and shall be included in the Bituminous Concrete Class () item. The installation and removal of a bond breaker, and the removal and disposal of any temporary transition formed by milling or with bituminous concrete pavement will not be measured for payment and shall be included in the Bituminous Concrete Class () item.

3. Cut Bituminous Concrete Pavement: The quantity of cut bituminous concrete pavement will be measured and paid for in accordance with Article 2.02.04.

4. Material for Tack Coat: The quantity of tack coat will be measured and paid for by the number of gallons furnished and applied on the Project and approved by the Engineer.

Method of Measurement:

   a. Container Method- Material furnished in a container will be measured to the nearest ½ gallon. The volume will be determined by either measuring the volume in the original container by a method approved by the Engineer or using a separate graduated container capable of measuring the volume to the nearest ½ gallon. The container in which the material is furnished must include the description of material, including lot number or batch number and manufacturer or product source.

   b. Truck Method- The Engineer will establish a weight per gallon of the bituminous material based on the specific gravity at 60°F for the material furnished. The number of gallons furnished will be determined by weighing the material on scales furnished by and at the expense of the Contractor.
<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bituminous Concrete, Class ( )</td>
<td>ton</td>
</tr>
<tr>
<td>Material for Tack Coat</td>
<td>gal.</td>
</tr>
<tr>
<td>Asphalt Adjustment Cost</td>
<td>est.</td>
</tr>
</tbody>
</table>

**NOTE**

The Owner may at any time during the course of the work perform QA testing that he deems necessary to assure conformance to this special provision and CDOT Form 817. Any deficiencies found through these actions shall be immediately corrected by the Contractor at no additional cost to the Owner. The cost associated with the re-testing of areas where corrective work was performed will be deducted from the Contractor's progress and/or retainage.

Any pavement deficiencies, corrective work and/or QC/QA issues need to be resolved prior to payment for the work under this section.
SECTION M.04 - BITUMINOUS CONCRETE

Section M.04 is being deleted in its entirety and replaced with the following:

M.04.01—Bituminous Concrete Materials and Facilities
M.04.02—Mix Design and Job Mix Formula (JMF)
M.04.03—Production Requirements

NOTE: This is not a Connecticut Department of Transportation (CDOT) project, so there will be no testing by CDOT for this project. All references regarding CDOT testing shall be deleted and replaced with the material producers and/or supplier’s requirements, specifications and procedures. Bituminous Concrete shall be tested and inspected as ordered by the Engineer, Owner or his representatives.

Only bituminous concrete material from CDOT approved producers and/or suppliers shall be used on this project.

M.04.01—Bituminous Concrete Materials and Facilities: Each source of material, and facility or plant used to produce and test bituminous concrete must be qualified on an annual basis by the Engineer. Test Procedures and Specifications referenced herein are in accordance with the latest AASHTO and ASTM Standard Test Procedures and Specifications. Such references when noted with an (M) have been modified by the Engineer and are detailed in Table M.04.03-7.

The Contractor shall submit to the Engineer all sources of coarse aggregate, fine aggregate, mineral filler, PG binder, and if applicable any additives such as but not limited to anti-strip, warm mix, and polymer modifiers. The Contractor shall submit a Safety Data Sheet (SDS) for each grade of binder, and additive to be used on the Project. The Contractor shall not change any material sources without prior approval of the Engineer.

An adequate quantity of each size aggregate, mineral filler, bitumen, and additives, shall be maintained at the bituminous concrete plant site at all times while the plant is in operation to ensure that the plant can consistently produce bituminous concrete mixtures that meet the job mix formula (JMF) as specified in Article M.04.02. The quantity of such material shall be reviewed by the Engineer on an individual plant basis and is dependent upon the plant's daily production capacity. A total quantity of any material on site that amounts to less than one day’s production capacity may be cause for the job mix formula to be rejected.

1. Coarse Aggregate:
   a. Requirements: The coarse aggregate shall consist of clean, hard, tough, durable fragments of crushed stone or crushed gravel of uniform quality. Aggregates from multiple sources of supply must not be mixed or stored in the same stockpile.

   b. Basis of Approval: The request for approval of the source of supply shall include a washed sieve analysis in accordance with AASHTO T 27. The Gsa, Gsb, and Pw shall be determined in accordance with AASHTO T 85. The coarse aggregate must not contain more than 1% crusher dust, sand, soft disintegrated pieces, mud, dirt, organic and other injurious materials. When tested for abrasion using AASHTO T 96, the aggregate loss
must not exceed 40%. When tested for soundness using AASHTO T 104 with a magnesium sulfate solution, the coarse aggregate must not have a loss exceeding 10% at the end of 5 cycles.

For all bituminous mixtures, materials shall also meet the coarse aggregate angularity criteria as specified in Tables M.04.02-2 thru M.04.02-4 for blended aggregates retained on the #4 sieve when tested according to ASTM D 5821. The amount of aggregate particles of the coarse aggregate blend retained on the #4 sieve that are flat and elongated shall be determined in accordance with ASTM D 4791 and shall not exceed 10% by weight when tested to a 5:1 ratio, as shown in Tables M.04.02-2 thru M.04.02-4.

2. Fine Aggregate:
   a. Requirements: The fine aggregate from each source quarry/pit deposit shall consist of clean, hard, tough, rough-surfaced and angular grains of natural sand; manufactured sand prepared from washed stone screenings; stone screenings, slag or gravel; or combinations thereof, after mechanical screening or manufactured by a process approved by the Engineer. The Contractor is prohibited from mixing two or more sources of fine aggregate on the ground for the purpose of feeding into a plant.

   All fine aggregate shall meet the listed criteria shown in items #1 thru #7 of Table M.04.01-1. Table M.04.01-1 indicates the quality tests and criteria required for all fine aggregate sources. Individually approved sources of supply shall not be mixed or stored in the same stockpile. The fine aggregates must be free from injurious amounts of clay, loam, and other deleterious materials.

<table>
<thead>
<tr>
<th>Item</th>
<th>Title</th>
<th>AASHTO Protocol(s)</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grading</td>
<td>T 27 &amp; T 11</td>
<td>100% Passing 3/8 inch 95% Passing the #4 min.</td>
</tr>
<tr>
<td>2</td>
<td>Absorption</td>
<td>T 84</td>
<td>3% maximum</td>
</tr>
<tr>
<td>3</td>
<td>Plasticity limits</td>
<td>T 90</td>
<td>0 or not detectable</td>
</tr>
<tr>
<td>4</td>
<td>L.A. Wear</td>
<td>T 96</td>
<td>50% maximum (fine agg. particle size # 8 and above)</td>
</tr>
<tr>
<td>5</td>
<td>Soundness by Magnesium Sulfate</td>
<td>T 104</td>
<td>20% maximum @ 5 cycles</td>
</tr>
<tr>
<td>6</td>
<td>Clay Lumps and Friable Particles</td>
<td>T 112</td>
<td>3% maximum</td>
</tr>
<tr>
<td>7</td>
<td>Deleterious Material</td>
<td>As determined by the Engineer</td>
<td>Organic or inorganic calcite, hematite, shale, clay or clay lumps, friable materials, coal-lignite, shells, loam, mica, clinkers, or organic matter (wood, etc.). - Shall not contain more than 3% by mass of any individual listed constituent and not more than 5% by mass in total of all listed constituents.</td>
</tr>
<tr>
<td>8</td>
<td>Petrographic Analysis</td>
<td>ASTM C 295</td>
<td>Terms defined in Section M.04.01-2c.</td>
</tr>
</tbody>
</table>
b. Basis of Approval:  A Quality Control Plan for Fine Aggregate (QCPFA) provided by
the Contractor shall be submitted for review and approval for each new source documenting
how conformance to Items 1 through 7 as shown in Table M.04.01-1 is monitored. The
QCPFA must be resubmitted any time the process, location or manner of how the fine
aggregate (FA) is manufactured changes, or as requested by the Engineer. The QCPFA must
include the locations and manufacturing processing methods. The QCPFA for any source
may be suspended by the Engineer due to the production of inconsistent material.

The Contractor shall submit all test results to the Engineer for review. The Contractor
shall also include a washed sieve analysis in accordance with AASHTO T 27/T 11. Any
fine aggregate component or final combined product shall have 100% passing the 3/8
inch sieve and a minimum of 95% passing the # 4. The Gsa, Gsb, and Pwa shall be
determined in accordance with AASHTO T 84.

The Contractor will be notified by the Engineer if any qualified source of supply fails any
portion of Table M.04.01-1. One retest will be allowed for the Contractor to make
corrections and/or changes to the process. If, upon retest, the material does not meet the
requirements of items 1-7, additional testing will be required in accordance with item 8.

The Contractor may provide a Petrographic analysis of the material performed by a third
party acceptable to the Engineer at its’ own expense. The Contractor shall submit the
results of the analysis with recommended changes to the manufacturing process to the
Engineer. The Contractor shall submit fine aggregate samples for testing by the Engineer
after the recommended changes have been made.

The Contractor may request the use of such fine aggregate on select project(s) for certain
applications of bituminous concrete pavement. Such material will be monitored for a
period no less than 48 months, at no cost to the State. Terms of any evaluation and
suitable application will be determined by the Engineer.

3. Mineral Filler:
   a. Requirements: Mineral filler shall consist of finely divided mineral matter such as rock
dust, including limestone dust, slag dust, hydrated lime, hydraulic cement, or other
accepted mineral matter. At the time of use it shall be freely flowing and devoid of
agglomerations. Mineral filler shall be introduced and controlled at all times during
production in a manner acceptable to the Engineer.

   b. Basis of Approval: The request for approval of the source of supply shall include the
location, manufacturing process, handling and storage methods for the material. Mineral
filler shall conform to the requirements of AASHTO M 17.

4. Performance Graded Asphalt Binder:
   a. General:
      i. Liquid PG binders shall be uniformly mixed and blended and be free of contaminants
         such as fuel oils and other solvents. Binders shall be properly heated and stored to
         prevent damage or separation.
      ii. The blending at mixing plants of PG binder from different suppliers is strictly
          prohibited. Contractors who blend PG binders will be classified as a supplier and will
be required to certify the binder in accordance with AASHTO R 26(M). The binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29. The Contractor shall submit a Certified Test Report and bill of lading representing each delivery in accordance with AASHTO R 26(M). The Certified Test Report must also indicate the binder specific gravity at 77°F; rotational viscosity at 275°F and 329°F and the mixing and compaction viscosity-temperature chart for each shipment.

iii. The Contractor shall submit the name(s) of personnel responsible for receipt, inspection, and record keeping of PG binder materials. Contractor plant personnel shall document specific storage tank(s) where binder will be transferred and stored until used, and provide binder samples to the Engineer upon request. The person(s) shall assure that each shipment (tanker truck) is accompanied by a statement certifying that the transport vehicle was inspected before loading and was found acceptable for the material shipped and that the binder will be free of contamination from any residual material, along with two (2) copies of the bill of lading.

iv. Basis of Approval: The request for approval of the source of supply shall list the location where the material will be manufactured, and the handling and storage methods, along with necessary certification in accordance with AASHTO R 26(M). Only suppliers/refineries that have an approved “Quality Control Plan for Performance Graded Binders” formatted in accordance with AASHTO R 26(M) will be allowed to supply PG binders to Department projects.

b. Neat Performance Grade (PG) Binder:
   i. PG binder shall be classified by the supplier as a “Neat” binder for each lot and be so labeled on each bill of lading. Neat PG binders shall be free from modification with: fillers, extenders, reinforcing agents, adhesion promoters, thermoplastic polymers, acid modification and other additives such as re-refined motor oil, and shall indicate such information on each bill of lading and certified test report.

   ii. The asphalt binder shall be PG 64S-22.

c. Modified Performance Grade (PG) Binder:
   Unless otherwise noted, the asphalt binder shall be Performance Grade PG 64E-22 asphalt modified solely with a Styrene-Butadiene-Styrene (SBS) polymer. The polymer modifier shall be added at either the refinery or terminal and delivered to the bituminous concrete production facility as homogenous blend. The stability of the modified binder shall be verified in accordance with ASTM D7173 using the Dynamic Shear Rheometer (DSR). The DSR G*/sin(δ) results from the top and bottom sections of the ASTM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report. The binder shall meet the requirements of AASHTO M 332 (including Appendix X1) and AASHTO R 29.

d. Warm Mix Additive or Technology:
i. The warm mix additive or technology must be listed on the NEAUPG Qualified Warm Mix Asphalt (WMA) Technologies List at the time of bid, which may be accessed online at http://www.neaupg.uconn.edu/wma_info.html.

ii. The warm mix additive shall be blended with the asphalt binder in accordance with the manufacturer’s recommendations.

iii. The blended binder shall meet the requirements of AASHTO M 332 and shall be graded or verified in accordance with AASHTO R 29 for the specified binder grade. The Contractor shall submit a Certified Test Report showing the results of the testing demonstrating the binder grade. In addition, it must include the grade of the virgin binder, the brand name of the warm mix additive, the manufacturer’s suggested rate for the WMA additive, the water injection rate (when applicable) and the WMA Technology manufacturer’s recommended mixing and compaction temperature ranges.

5. Emulsified Asphalts:
   a. General:
      i. Emulsified asphalts shall be homogeneous and be free of contaminants such as fuel oils and other solvents. Emulsions shall be properly stored to prevent damage or separation.

      ii. The blending at mixing plants of emulsified asphalts from different suppliers is strictly prohibited. Contractors who blend emulsified asphalts will be classified as a supplier and will be required to certify the emulsion in accordance with AASHTO PP 71. The emulsified asphalt shall meet the requirements of AASHTO M 140(M) or AASHTO M 208 as applicable.

   b. Supplier Approval:
      i. The request for approval of the source of supply shall list the location where the material is manufactured, the handling and storage methods, and certifications in accordance with AASHTO PP 71. Only suppliers that have an approved “Quality Control Plan for Emulsified Asphalt” formatted in accordance with AASHTO PP 71 will be allowed to supply emulsified asphalt to Department projects.

      ii. The supplier shall submit to the Division Chief a Certified Test Report representing each lot in accordance with AASHTO PP 71. The Certified Test Report shall include test results for each specified requirement for the grade delivered and shall also indicate the density at 60°F. Additionally, once a month one split sample for each emulsified asphalt grade shall be submitted.

   c. Basis of Approval
      i. Each shipment of emulsified asphalt delivered to the project site shall be accompanied with the corresponding SDS and Certified Test Report listing Saybolt viscosity, residue by evaporation, penetration of residue, and weight per gallon at 60°F.

      ii. Anionic emulsified asphalts shall conform to the requirements of AASHTO M-140(M). Materials used for tack coat shall not be diluted and meet grade RS-1 or RS-1H. When ambient temperatures are 80°F and rising, grade SS-1 or SS-IH may be substituted if permitted by the Engineer.
iii. Cationic emulsified asphalt shall conform to the requirements of AASHTO M-208. Materials used for tack coat shall not be diluted and meet grade CRS-1. The settlement and demulsibility test will not be performed unless deemed necessary by the Engineer. When ambient temperatures are 80°F and rising, grade CSS-1 or CSS-Lh may be substituted if permitted by the Engineer.

6. Reclaimed Asphalt Pavement (RAP):
   a. Requirements: RAP shall consist of asphalt pavement constructed with asphalt and aggregate reclaimed by cold milling or other removal techniques approved by the Engineer. For bituminous concrete mixtures containing RAP, the Contractor shall submit a JMF in accordance with Article M.04.02 to the Engineer for review.
   
   b. Basis of Approval: The RAP material will be accepted on the basis of one of the following criteria:
      i. When the source of all RAP material is from pavements previously constructed on Department projects, the Contractor shall provide a materials certificate listing the detailed locations and lengths of those pavements and that the RAP is only from those locations listed.
      
      ii. When the RAP material source or quality is not known, the Contractor shall test the material and provide the following information along with a request for approval to the Engineer at least 30 calendar days prior to the start of the paving operation. The request shall include a material certificate stating that the RAP consists of aggregates that meet the specification requirements of sub articles M.04.01-1 through 3 and that the binder in the RAP is substantially free of solvents, tars and other contaminants. The Contractor is prohibited from using unapproved material on Department projects and shall take necessary action to prevent contamination of approved RAP stockpiles. Stockpiles of unapproved material shall remain separate from all other RAP materials at all times. The request for approval shall include the following:

      1. A 50-pound sample of the RAP to be incorporated into the recycled mixture.
      2. A 25-pound sample of the extracted aggregate from the RAP.
      3. A statement that RAP material has been crushed to 100% passing the \( \frac{1}{2} \) inch sieve and remains free from contaminants such as joint compound, wood, plastic, and metals.

7. Crushed Recycled Container Glass (CRCG):
   a. Requirements: The Contractor may propose to use clean and environmentally-acceptable CRCG in an amount not greater than 5% by weight of total aggregate.
   
   b. Basis of Approval: The Contractor shall submit to the Engineer a request to use CRCG. The request shall state that the CRCG contains no more than 1% by weight of contaminants such as paper, plastic and metal and conform to the following gradation:
Special Provisions SP-37 Section M.04

<table>
<thead>
<tr>
<th>CRCG Grading Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sieve Size</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>3/8-inch</td>
</tr>
<tr>
<td>No. 4</td>
</tr>
<tr>
<td>No. 200</td>
</tr>
</tbody>
</table>

8. **Joint Seal Material:**
   a. **Requirements:** Joint seal material shall be a hot-poured rubber compound intended for use in sealing joints and cracks in bituminous concrete pavements. Joint seal material must meet the requirements of ASTM D 6690 – Type 2.

9. **Recycled Asphalt Shingles (RAS)**
   a. **Requirements:** RAS shall consist of processed asphalt roofing shingles from post-consumer asphalt shingles or from manufactured shingle waste. The RAS material under consideration for use in bituminous concrete mixtures must be certified as being asbestos free and shall be entirely free of whole, intact nails. The RAS material shall meet the requirements of AASHTO MP 23.

   The producer shall test the RAS material to determine the asphalt content and the gradation of the RAS material. The producer shall take necessary action to prevent contamination of RAS stockpiles.

10. **Plant Requirements:**
   a. **Mixing Plant and Machinery:** The mixing plant used in the preparation of the bituminous concrete shall comply with AASHTO M 156/ASTM D 995 for a Batch Plant or a Drum Dryer Mixer Plant, and be approved by the Engineer.

   b. **Storage Silos:** For all mixes, the Contractor may use silos for short-term storage of mixtures with prior notification and approval of the Engineer. A silo must have heated cones and an unheated silo cylinder if it does not contain a separate internal heating system. Prior approval must be obtained for storage times greater than those indicated. When multiple silos are filled, the Contractor shall discharge one silo at a time. Simultaneous discharge of multiple silos is not permitted.

<table>
<thead>
<tr>
<th>Type of silo cylinder</th>
<th>Maximum storage time for all classes (hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Surge</td>
<td>4</td>
</tr>
<tr>
<td>Unheated – Non-insulated</td>
<td>8                     Mfg Recommendations</td>
</tr>
<tr>
<td>Unheated – Insulated</td>
<td>18                                      Mfg Recommendations</td>
</tr>
<tr>
<td>Heated – No inert gas</td>
<td>TBD by the Engineer</td>
</tr>
</tbody>
</table>

   c. **Documentation System:** The mixing plant documentation system shall include equipment for accurately proportioning the components of the mixture by weight and in the proper order, controlling the cycle sequence and timing the mixing operations. Recording equipment shall monitor the batching sequence of each component of the mixture and produce a printed record of these operations on each delivery ticket, as specified herein. Material feed controls shall be automatically or manually adjustable to provide proportions within the tolerances listed below for any batch size.
An asterisk (*) shall be automatically printed next to any individual batch weight(s) exceeding the tolerances in ASTM D 995 section 8.7.3. The entire batching and mixing interlock cut-off circuits shall interrupt and stop the automatic batching operations when an error exceeding the acceptable tolerance occurs in proportioning.

There must be provisions so that scales are not manually adjusted during the printing process. In addition, the system shall be interlocked to allow printing only when the scale has come to a complete rest. A unique printed character (m) shall automatically be printed on the truck and batch plant printout when the automatic batching sequence is interrupted or switched to auto-manual or full manual during proportioning. For each day's production, each project shall be provided a clear, legible copy of these recordings on each delivery ticket.

d. **Aggregates**: The Contractor shall ensure that aggregate stockpiles are managed to provide uniform gradation and particle shape, prevent segregation and cross contamination in a manner acceptable to the Engineer. For drum plants only, the Contractor shall determine the percent moisture content at a minimum, prior to production and half way through production.

e. **Mixture**: The dry and wet mix times shall be sufficient to provide proper coating (minimum 95% as determined by AASHTO T 195(M)) of all particles with bitumen and produce a uniform mixture.

The Contractor shall make necessary adjustments to ensure all types of bituminous concrete mixtures contain no more than 0.5% moisture throughout when tested in accordance with AASHTO T 329.

f. **RAP**: The Contractor shall indicate the percent of RAP, the moisture content (as a minimum determined twice daily prior to production and halfway through production), and the net dry weight of RAP added to the mixture on each delivery ticket. For each day of production, the production shall conform to the job mix formula and RAP percentage and no change shall be made without the prior approval of the Engineer.

g. **Asphalt Binder**: The last day of every month, a binder log shall be submitted when the monthly production for the Department exceeds 5000 tons. Blending of PG binders from different suppliers or grades at the bituminous concrete production facility is strictly prohibited.

h. **Warm mix additive**: For mechanically foamed WMA, the maximum water injection rate shall not exceed 2.0% water by total weight of binder and the water injection rate shall be constantly monitored during production.

i. **Field Laboratory**: The Contractor shall furnish the Engineer an acceptable field laboratory at the production facility to test bituminous concrete mixtures during production. The field laboratory shall have a minimum of 300 square feet, have a potable water source and drainage in accordance with the CT Department of Public Health Drinking Water Division, and be equipped with all necessary testing equipment as well as a PC, printer, and telephone with a dedicated hard-wired phone line. In addition, the
PC shall have a high speed internet connection with a minimum upstream of 384 Kbps and a functioning web browser with unrestricted access to https://ctmail.ct.gov. This equipment shall be maintained in clean and good working order at all times and be made available for use by the Engineer.

The laboratory shall be equipped with a suitable heating system capable of maintaining a minimum temperature of 65°F. It shall be clean and free of all materials and equipment not associated with the laboratory. Windows shall be installed to provide sufficient light and ventilation. During summer months adequate cooling or ventilation must be provided so the indoor air temperature shall not exceed the ambient outdoor temperature. Light fixtures and outlets shall be installed at convenient locations, and a telephone shall be within audible range of the testing area. The laboratory shall be equipped with an adequate workbench that has a suitable length, width, and sampling tables, and be approved by the Engineer.

The quantity of all equipment and supplies necessary to perform the tests must be sufficient to initiate and complete the number of tests identified in Table M.04.03-2 for the quantity of mixture produced at the facility on a daily basis. The Contractor shall ensure that the Laboratory is adequately supplied at all times during the course of the project with all necessary testing materials and equipment.

The Contractor shall maintain a list of laboratory equipment used in the acceptance testing processes including but not limited to, balances, scales, manometer/vacuum gauge, thermometers, gyratory compactor, clearly showing calibration and/or inspection dates, in accordance with AASHTO R 18. The Contractor shall notify the Engineer if any modifications are made to the equipment within the field laboratory. The Contractor shall take immediate action to replace, repair, and/or recalibrate any piece of equipment that is out of calibration, malfunctioning, or not in operation.

**M.04.02—Mix Design and Job Mix Formula (JMF)**

1. **Curb Mix:**
   a. **Requirements:** When curb mix is specified, the Contractor shall develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation, binder content and air voids as shown in Table M.04.02-1. The Contractor may use RAP in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer.

   b. **Basis of Approval:** The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

   The Contractor shall test the mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209. If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced.
An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

### TABLE M.04.02 – 1:
**Master Ranges for Curb Mix Mixtures**

| Notes: (a) Compaction Parameter N_{50}gyration N_{des}. (b) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164 or AASHTO T 308.  
Mix | Curb Mix | Production Tolerances from JMF target |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade of PG Binder content %</td>
<td>PG 64S-22 6.5 - 9.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Sieve Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td># 200</td>
<td>3.0 – 8.0 (b)</td>
<td>2.0</td>
</tr>
<tr>
<td># 50</td>
<td>10 - 30</td>
<td>4</td>
</tr>
<tr>
<td># 30</td>
<td>20 - 40</td>
<td>5</td>
</tr>
<tr>
<td># 8</td>
<td>40 - 70</td>
<td>6</td>
</tr>
<tr>
<td># 4</td>
<td>65 - 87</td>
<td>7</td>
</tr>
<tr>
<td>½&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/8 &quot;</td>
<td>95 - 100</td>
<td>8</td>
</tr>
<tr>
<td>½&quot;</td>
<td>100</td>
<td>8</td>
</tr>
<tr>
<td>¾&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

**Mixture Temperature**

<table>
<thead>
<tr>
<th>Binder</th>
<th>Aggregate</th>
<th>Mixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>325°F maximum</td>
<td>280-350° F</td>
<td>265-325° F</td>
</tr>
</tbody>
</table>

**Mixture Properties**

| VOID % | 0 – 4.0 (a) |

2. **Marshall Method - Class 1, 2, 3, 4, 5, 5A, 5B and 12:**  
   a. **Requirements:** When specified, the Marshall method shall be employed to develop a bituminous concrete mix design that includes a JMF consisting of target values for gradation and bitumen content for each class of bituminous concrete designated for the
project in accordance with the latest Asphalt Institute’s MS-2 manual. Each class of bituminous concrete must meet the requirements as shown in Table M.04.02-1.

b. **Basis of Approval:** The Contractor shall submit to the Engineer a request for approval of the JMF annually in accordance with one of the methods described herein. Prior to the start of any paving operations, the JMF and production percentage of bitumen must be accepted by the Engineer, and the Contractor must demonstrate the ability to meet the accepted JMF and production percentage of bitumen for each class of mixture. Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

The Engineer will test each class of mixture for compliance with the submitted JMF and Table M.04.02-1. The maximum theoretical density (Gmm) will be determined by AASHTO T 209(M). If the mixture does not meet the requirements, the JMF shall be adjusted within the ranges shown in Table M.04.02-1 until an acceptable mixture is produced. All equipment, tests and computations shall conform to the Marshall method in accordance with AASHTO T 245(M).

An accepted JMF from the previous operating season may be acceptable to the Engineer provided that there are no changes in the sources of supply for the coarse aggregate, fine aggregate, recycled material (if applicable) and the plant operation had been consistently producing acceptable mixture.

The Contractor shall not change sources of supply after a JMF has been accepted. Before a new source of supply for materials is used, a new JMF shall be submitted to the Engineer for approval.

c. **Marshall Mixture (Virgin):** For bituminous concrete mixtures that contain no recycled material, the limits prescribed in Table M.04.02-1 govern. The Contractor shall submit to the Engineer for approval, a JMF with the individual fractions of the aggregate expressed as percentages of the total weight of the mix and the source(s) of all materials. The JMF shall indicate two bitumen contents; the JMF target percentage and a production percentage (actual amount added to mix) of bitumen for each mix class by total weight. For surface course Class 1, a 0.45 power gradation chart shall also be submitted on which is plotted the percentage passing each sieve. The JMF shall also indicate the target temperature of completed mixture as it is dumped from the mixer and tested in accordance with Article M.04.03.

d. **Marshall Mixtures with RAP:** In addition to subarticles M.04.02 – 1a through c, RAP in bituminous concrete shall comply with requirements stated in Article M.04.01, and as stated herein. Upon approval of the Engineer, a maximum of 15% RAP may be used with no binder grade modification. RAP material shall not be used with any other recycling option.

The Contractor may increase the RAP percentage in 5% increments up to a maximum of 30% provided a new JMF is accepted by the Engineer. The following information shall be included in the JMF submittal:

- Gradation and asphalt content of the RAP.
- Percentage of RAP to be used.
- Virgin aggregate source(s).
- Total binder content based on total mixture weight.
- Production pull percentage of added virgin binder based on total mixture weight.
- Gradation of combined bituminous concrete mixture (including RAP).
- Grade of virgin added, if greater than 15% of total mix weight.

e. Marshall Mixture with CRCG: In addition to subarticle M.04.02 – 1a through c, for bituminous concrete that contains CRCG, the Contractor shall submit a materials certificate to the Engineer stating that the mixture and its components comply with requirements stated in subarticle M.04.01 - (6). Additionally, 1% hydrated lime, or other accepted non-stripping agent, shall be added to all mixtures containing CRCG. CRCG material shall not be used with any other recycling option.

3. Cold Patch Method - Class 5, 5A, 5B:
   a. Requirements: This mixture must be capable of being stockpiled and workable at all times. A non-stripping agent accepted by the Engineer shall be used in accordance with manufacturer's recommendations. The Contractor shall take necessary steps to ensure that this mixture uses aggregate containing no more than 1% moisture and is not exposed to any rain, snow, or standing water for a period of 6 hours after being mixed. This mixture shall be mixed and stockpiled at the point of production on a paved surface at a height not greater than 4 feet during the first 48 hours prior to its use.

      i. Class 5A mixture shall have 3/8 to ½ inch polypropylene fibers that have been approved by the Engineer added at a rate of 6 pounds per ton of mixture.
      ii. Class 5B mixture shall have ¼ inch polyester fibers that have been approved by the Engineer added at the rate of 2 1/2 pounds per ton of mixture.
      iii. Class 5 mixture shall not contain fibers.

   b. Basis of Approval: The aggregates, fibers and binder (MC-250) shall meet the requirements as specified in sub articles M.04.01-1 through 4 and in Table M.04.02-1. The use of recycled material is not permitted with these classes of bituminous concrete. Mixtures not conforming to the binder content as shown in Table M.04.02-1 shall be subject to rejection. There is a two test minimum per day of production. Mixtures not conforming to the gradation as shown in Table M.04.02-1 shall be subject to payment adjustment as specified in Section 4.06.
### TABLE M.04.02 – MASTER RANGES FOR MARSHALL BITUMINOUS-CONCRETE MIXTURES

**Notes:**
(a) 75 blow (Marshall Criteria).
(b) 3-6% when used for a roadway wearing surface.
(c) For divided highways with 4 or more lanes, a stability of 1500 lbs is required.
(d) Contains an accepted non-stripping compound.
(e) To help prevent stripping, the mixed material will be stockpiled on a paved surface and at a height not greater than 4 feet during the first 48 hours.
(f) As determined by AASHTO T 245(M).
(g) The percent passing the #200 sieve shall not exceed the percentage of bituminous asphalt binder determined by AASHTO T 164 or AASHTO T 308(M).
(h) Mixture with 5% or more aggregate retained on ¾” sieve.
(i) Mixtures finer than condition (h) above.
(j) Class 5 mixture shall contain no fibers. Class 5A mixture shall have ⅜” to ½ inch polypropylene fibers that have been previously accepted by the Engineer added at a minimum rate of 6 pounds per ton of mixture. Class 5B mixture shall have ¼ inch polyester fibers that have been previously accepted by the Engineer added at the minimum rate of 2 ½ pounds per ton of mixture.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>1</th>
<th>2</th>
<th>3 (Curb Mix)</th>
<th>4</th>
<th>5 (e)(j)</th>
<th>5A (e)(j)</th>
<th>5B (e)(j)</th>
<th>JMF % Tol. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade of PG Binder content %</td>
<td>PG 64-22 5.0 – 6.5</td>
<td>PG 64-22 5.0 – 8.0</td>
<td>PG 64-22 6.5 – 9.0</td>
<td>PG 64-22 4.0 – 6.0</td>
<td>PG 64-22 7.5 – 10.0</td>
<td>MC-250 (d) 6.0 – 7.5</td>
<td>MC-250 (d) 6.0 – 7.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Sieve Size</td>
<td>Percent Passing (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># 200</td>
<td>3.0 – 8.0 (g)</td>
<td>3.0 – 8.0 (g)</td>
<td>3.0 – 8.0 (g)</td>
<td>0.0 – 5.0 (g)</td>
<td>3.0 – 10.0 (g)</td>
<td>0.0 – 2.5</td>
<td>0.0 – 2.5</td>
<td>0.0 – 2.5</td>
</tr>
<tr>
<td># 50</td>
<td>6 – 26</td>
<td>8 – 26</td>
<td>10 – 30</td>
<td>5 – 18</td>
<td>10 – 40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># 8</td>
<td>28 – 50</td>
<td>40 – 64</td>
<td>40 – 70</td>
<td>20 – 40</td>
<td>60 – 95</td>
<td>10 – 45</td>
<td>10 – 45</td>
<td>10 – 45</td>
</tr>
<tr>
<td># 4</td>
<td>40 – 65</td>
<td>55 – 80</td>
<td>65 – 87</td>
<td>30 – 55</td>
<td>80 – 95</td>
<td>40 – 100</td>
<td>40 – 100</td>
<td>40 – 100</td>
</tr>
<tr>
<td>⅓”</td>
<td>60 – 82</td>
<td>90 – 100</td>
<td>95 – 100</td>
<td>42 – 66</td>
<td>98 – 100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>½”</td>
<td>70 – 100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⅛”</td>
<td>90 – 100</td>
<td>100</td>
<td>60 – 80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1”</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additionally, the fraction of material retained between any two consecutive sieves shall not be less than 4%.

<table>
<thead>
<tr>
<th>Mixture Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binder</td>
</tr>
<tr>
<td>Aggregate</td>
</tr>
<tr>
<td>Mixtures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mixture Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOIDS - %</td>
</tr>
<tr>
<td>Stability (f) lbs. min.</td>
</tr>
<tr>
<td>FLOW (f) in.</td>
</tr>
<tr>
<td>VMA % - min.</td>
</tr>
</tbody>
</table>
M.04.03—Production Requirements:

1. Standard Quality Control Plan (QCP) for Production:

The QCP for production shall describe the organization and procedures which the Contractor shall use to administer quality control. The QCP shall include the procedures used to control the production process, to determine when immediate changes to the processes are needed, and to implement the required changes. The QCP must detail the inspection, sampling and testing protocols to be used, and the frequency for each.

Control Chart(s) shall be developed and maintained for critical aspect(s) of the production process as determined by the Contractor. The control chart(s) shall identify the material property, applicable upper and lower control limits, and be updated with current test data. As a minimum, the following quality characteristics shall be included in the control charts: percent passing #4 sieve, percent passing #200 sieve, binder content, air voids, Gmm and VMA. The control chart(s) shall be used as part of the quality control system to document variability of the bituminous concrete production process. The control chart(s) shall be submitted to the Engineer the first day of each month.

The QCP shall also include the name and qualifications of a Quality Control Manager. The Quality Control Manager shall be responsible for the administration of the QCP, including compliance with the plan and any plan modifications.

The Contractor shall submit complete production testing records to the Engineer within 24 hours in a manner acceptable to the Engineer.

The QCP shall also include the name and qualifications of any outside testing laboratory performing any QC functions on behalf of the Contractor. The QCP must also include a list of sampling & testing methods and frequencies used during production, and the names of all Quality Control personnel and their duties.

Approval of the QCP does not imply any warranty by the Engineer that adherence to the plan will result in production of bituminous concrete that complies with these specifications. The Contractor shall submit any changes to the QCP as work progresses.

2. Acceptance Sampling & Testing Methods: Acceptance samples of mixtures shall be obtained from the hauling vehicles and tested by the Contractor at the facility during each day's production.

The hauling vehicle from which samples are obtained shall be selected using stratified – random sampling based on the total estimated tons of production in accordance with ASTM D 3665, except that the first test shall be randomly taken from the first 151 tons or as directed by the Engineer.
The number of sub lots and tests required per sub lot is based on the total estimated tons of production per day as indicated in Table M.04.03-1. Quantities of the same type/level mix per plant may be combined daily for multiple state projects to determine the number of sub lots. The payment adjustment for air voids and liquid binder will be calculated per sub lot as described in Section 4.06.

An acceptance test shall not be performed within 150 tons of production from a previous acceptance test unless approved by the Engineer. Quality Control tests are not subject to this restriction. Unless otherwise tested, a minimum of one (1) acceptance test shall be performed for every four days of production at a facility for each type/level mix (days of production may or may not be consecutive days).

The Contractor shall submit all acceptance tests results to the Engineer within 24 hours or prior to the next day’s production. All acceptance test specimens and supporting documentation must be retained by the Contractor. Verification testing will be performed by the Engineer on the retained specimens in accordance with the Department’s QA Program for Materials.

Should the Engineer be unable to verify the Contractor’s acceptance test result(s) due to a failure of the Contractor to retain acceptance test specimens or supporting documentation, the Contractor shall review its quality control plan, determine the cause of the nonconformance and respond in writing within 24 hours to the Engineer describing the corrective action taken at the plant. In addition the Contractor must provide supporting documentation or test results to validate the subject acceptance test result(s). The Engineer may invalidate any positive adjustments for material corresponding to the acceptance test(s). Failure of the Contractor to adequately address quality control issues at a facility may result in suspension of production for the project at that facility.

Contractor personnel performing acceptance sampling and testing must be present at the facility prior to, and during production, and be certified as a NETTCP HMA Plant Technician or Interim HMA Plant Technician and be in good standing. Production of material for use on this project must be suspended by the Contractor if such personnel are not present.

Technicians found by the Engineer to be non-compliant with NETTCP or Department policies may be removed by the Engineer from participating in the acceptance testing process for this project until their actions can be reviewed.

Anytime during production that testing equipment becomes inoperable, production can continue for a maximum of 1 hour. The Contractor shall obtain box sample(s) in accordance with Table M.04.03-1 to satisfy the daily acceptance testing requirement for the quantity shipped to the project. The box sample(s) shall be tested once the equipment issue has been resolved to the satisfaction of the Engineer. Production beyond 1 hour may be considered by the Engineer. Production will not be permitted beyond that day until the subject equipment issue has been resolved.
Table M.04.03 – 1: Acceptance Testing Frequency per Type/Level/Plant

<table>
<thead>
<tr>
<th>Daily quantity produced in tons (lot)</th>
<th>Number of Sub Lots/Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 150</td>
<td>0, Unless requested by the Engineer</td>
</tr>
<tr>
<td>151 to 600</td>
<td>1</td>
</tr>
<tr>
<td>601 to 1,200</td>
<td>2</td>
</tr>
<tr>
<td>1,201 to 1,800</td>
<td>3</td>
</tr>
<tr>
<td>1,801 or greater</td>
<td>1 per 600 tons or portions thereof</td>
</tr>
</tbody>
</table>

i. Marshall Mix Acceptance Sampling and Testing Procedures: When the Marshall mix design is specified, the following acceptance procedures and AASHTO test methods shall be used:

Table M.04.03 – 2: Marshall Acceptance Test Procedures

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AASHTO T 30(M)</td>
<td>Mechanical Analysis of Extracted Aggregate</td>
</tr>
<tr>
<td>2</td>
<td>AASHTO T 40(M)</td>
<td>Sampling Bituminous Materials</td>
</tr>
<tr>
<td>3</td>
<td>AASHTO T 308(M)</td>
<td>Binder content by Ignition Oven method (adjusted for aggregate correction factor)</td>
</tr>
<tr>
<td>5</td>
<td>AASHTO T 209(M)</td>
<td>Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures</td>
</tr>
<tr>
<td>6</td>
<td>AASHTO T 269(M)</td>
<td>Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures</td>
</tr>
<tr>
<td>7</td>
<td>AASHTO T 329</td>
<td>Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method</td>
</tr>
</tbody>
</table>

a. Cessation of Supply: Marshall Mix Production shall cease for the Project from any facility that consistently fails to produce mixture that meets the JMF and volumetric properties. The criteria for ceasing the supply of a class of mixture from any plant are as follows:

i. Off-Test Status: The results of AASHTO T 164 or AASHTO T 308(M) and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. The Contractor will be notified that a plant is "off test" for a class of mixture when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that class of mixture.

ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the “off test” adjusted payment.
iii. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change on classes 1, 2, 3, 4 and 12 as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

iv. The Engineer may cease supply of mixture from the plant when the test results from three non-consecutive samples of a class of mixture are not within the JMF tolerances or the test results from two non-consecutive samples not within the master range indicated in Table M.04.02-1 during any one production period, due to inconsistent production.

v. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.

b. Adjustments for Off Test Mixture under Cessation of Supply: The bituminous concrete plant shall cease supplying to the project:

i. When the test results from three consecutive samples are “off test” and not within the JMF tolerances or,

ii. The test results from two consecutive samples are “off test” and not within the ranges indicated in Table M.04.02 – 1 or,

iii. When the percent of material passing the minus #200 sieve material exceeds the percent of extracted bitumen content for three consecutive samples during any production period of the values stated in Table M.04.02-1:
   a. The quantity of mixtures shipped to the project determined to be “off test” and outside the tolerances will be tabulated by the Engineer and will be adjusted in accordance with Section 4.06.
   b. Following cessation, a trial production period will be required at the plant for that class of mixture. Use of that class of mixture from that plant will be prohibited on the Project until the plant has demonstrated the ability to consistently produce acceptable mixture.
   c. When the Engineer has accepted the mixtures from the trial production period, the use of that mixture on the Project may resume.

3. Curb Mix Acceptance Sampling and Testing Procedures:

Curb Mixes shall be tested by the Contractor at a frequency of one test per every 250 tons of cumulative production, regardless of the day of production.
When these mix designs are specified, the following acceptance procedures and AASHTO test methods shall be used:

### TABLE M.04.03 – 2: Curb Mix Acceptance Test Procedures

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AASHTO T 30(M)</td>
<td>Mechanical Analysis of Extracted Aggregate</td>
</tr>
<tr>
<td>2</td>
<td>AASHTO T 168</td>
<td>Sampling of Bituminous Concrete</td>
</tr>
<tr>
<td>3</td>
<td>AASHTO T 308</td>
<td>Binder content by Ignition Oven method (adjusted for aggregate correction factor)</td>
</tr>
<tr>
<td>4</td>
<td>AASHTO T 209(M)</td>
<td>Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures</td>
</tr>
<tr>
<td>5</td>
<td>AASHTO T 329</td>
<td>Moisture Content of Hot-Mix Asphalt (HMA) by Oven Method</td>
</tr>
</tbody>
</table>

a. **Determination of Off-Test Status:**
   
   i. The test results of AASHTO T 308 and T 30(M) will be used to determine if the mixture is within the tolerances shown in Table M.04.02-1. Curb Mixtures are considered “off test” when the test results indicate that any single value for bitumen content or gradation are not within the tolerances shown in Table M.04.02-1 for that mixture. If the mix is “off test”, the Contractor must take immediate actions to correct the deficiency and a new acceptance sample shall be tested on the same day or the following day of production.

   ii. When multiple plants and silos are located at one site, mixture supplied to one project is considered as coming from one source for the purpose of applying the “off test” status.

   iii. The Engineer may cease supply from the plant when test results from three consecutive samples are not within the JMF tolerances or the test results from two consecutive samples not within the master range indicated in Table M.04.02-1 regardless of production date.

b. **JMF Changes**
   
   i. If a test indicates that the bitumen content or gradation are outside the tolerances, the Contractor may make a single JMF change as allowed by the Engineer prior to any additional testing. A JMF change shall include the date and name of the Engineer that allowed it. Consecutive test results outside the requirements of Table M.04.02-1 JMF tolerances may result in rejection of the mixture.

   ii. Any modification to the JMF shall not exceed 50% of the JMF tolerances indicated in Table M.04.02-1 for any given component of the mixture without approval of the Engineer. When such an adjustment is made to the bitumen, the corresponding production percentage of bitumen shall be revised accordingly.
<table>
<thead>
<tr>
<th>AASHTO Standard Specification</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 140</td>
<td>Emulsified Asphalt grade RS-1H shall meet all the requirements of the emulsified asphalt grade RS-1 except for the penetration requirement of the residue that will change from 100 to 200 penetration units (0.1 mm) to 40 to 90 penetration units (0.1 mm).</td>
</tr>
<tr>
<td>M 320</td>
<td>1. Mass change for PG 64-22 shall be a maximum loss of 0.5% when tested in accordance with AASHTO T 240. 2. The two bottles used for the mass change determination may be re-heated and used for further testing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AASHTO Standard Method of Test</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>T 27</td>
<td>Section 7.7 Samples are not washed</td>
</tr>
<tr>
<td>T 30</td>
<td>Section 7.2 thru 7.4 Samples are not routinely washed for production testing</td>
</tr>
<tr>
<td>T 168</td>
<td>Samples are taken at one point in the pile. Samples from a hauling vehicle are taken from only one point instead of three as specified.  Selection of Samples: Sampling is equally important as the testing, and the sampler shall use every precaution to obtain samples that are truly representative of the bituminous mixture.  Box Samples: In order to enhance the rate of processing samples taken in the field by construction or maintenance personnel the samples will be tested in the order received and data processed to be determine conformance to material specifications and to prioritize inspections by laboratory personnel.</td>
</tr>
<tr>
<td>T 195</td>
<td>Section 4.3 only one truck load of mixture is sampled. Samples are taken from opposite sides of the load.</td>
</tr>
<tr>
<td>T 209</td>
<td>Section 7.2 The average of two bowls is used proportionally in order to satisfy minimum mass requirements.  8.3 Omit Pycnometer method.</td>
</tr>
<tr>
<td>T 283</td>
<td>When foaming technology is used, the material used for the fabrication of the specimens shall be cooled to room temperature, and then reheated to the manufactures recommended compaction temperature prior to fabrication of the specimens.</td>
</tr>
<tr>
<td>T 308</td>
<td>In addition to the standard testing procedure, the Department has adopted a procedure that addresses a correction factor that is calculated using the composite aggregate percentages (Composite Aggregate Correction Factor Method (CACF)).  The aggregate is burned in compliance with the standard AASHTO procedure Method A exclusively. All modifications are listed for this method only. A2.2 and A2.3 Omit</td>
</tr>
</tbody>
</table>
A2.4 Omit. Replace with: Determine an aggregate gradation for each aggregate component “blank” in accordance with T30.

A2.5 Omit. Replace with: The individual aggregate samples are to be dried in an oven at a maximum temperature of 148 ± 5°C (300 ± 9°F) to a constant weight. RAP samples are to be oven dried at a maximum temperature of 110 ± 5°C (230 ± 9°F) to a constant weight. RAP samples will be burned for total binder content only and not to arrive at a correction factor for a mixture.

A2.6 and A2.7 and A2.8 Omit.

A2.8.1 Omit Note 2

A2.9 Omit. Replace with: Perform a gradation analysis on the residual aggregate in accordance with T30 and compare it to the gradation performed prior to burning.

A2.9.1 and A2.9.2 Omit

The correction factors for each size aggregate are provided by the Contractor to the Engineer prior to the Annual Plant Inspection. The Engineer may verify the correction factors. The Composite Aggregate Correction Factor (CACF) for any mixture may be calculated by summing the result of the correction factor for each individual aggregate multiplied by the percentage of that aggregate in the overall mixture.

(Note: All correction factors must be re-calculated every time the percentage of any aggregate changes within the mixture.)

If the average corrected Pb content from the ignition oven differs by 0.3% or more from the average bituminous concrete facility production weigh ticket in five (5) consecutive tests regardless of the production date (moving average), the Contractor shall immediately investigate, determine an assignable cause and correct the issue. When two consecutive moving average differences are 0.3% or more, the Engineer may require a new correction factor calculation for all the aggregate components in the mix.

In addition to the standard testing procedure, the Department has adopted a procedure that addresses the time involved between sampling the hot-mix asphalt specimen and the beginning of the test.

6.3 Omit. Replace with: The test specimen must be ready to be placed in an approved ignition furnace for testing within ten minutes of being obtained from the hauling vehicle and the test shall start immediately after.

<p>| T 331 | 6.1 Cores are dried to a constant mass prior to testing using a core-dry machine. |</p>
<table>
<thead>
<tr>
<th>Reference</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 26</td>
<td>Quality Control Plans must be formatted in accordance with AASHTO R 26, certifying suppliers of performance-graded asphalt binders, Section 9.0, Suppliers Quality Control Plan, and “NEAUPG Model PGAB QC Plan.”</td>
</tr>
<tr>
<td></td>
<td>1. The Department requires that all laboratory technician(s) responsible for testing PG-binders be certified or Interim Qualified by the New England Transportation Technician Certification Program (NETTCP) as a PG Asphalt Binder Lab Technician.</td>
</tr>
<tr>
<td></td>
<td>2. Sampling of asphalt binders should be done under the supervision of qualified technician. NECTP “Manual of Practice,” Chapter 2 Page 2-4 (Key Issues 1-8).</td>
</tr>
<tr>
<td></td>
<td>3. All laboratories testing binders for the Department are required to be accredited by the AASHTO Materials Reference Laboratory (AMRL).</td>
</tr>
<tr>
<td></td>
<td>4. Sources interested in being approved to supply PG-binders to the Department by use of an “in-line blending system,” must record properties of blended material, and additives used.</td>
</tr>
<tr>
<td></td>
<td>5. Each source of supply of PG-binder must indicate that the binders contain no additives used to modify or enhance their performance properties. Binders that are manufactured using additives, modifiers, extenders etc., shall disclose the type of additive, percentage and any handling specifications/limitations required.</td>
</tr>
<tr>
<td></td>
<td>6. All AASHTO M 320 references shall be replaced with AASHTO M 332.</td>
</tr>
<tr>
<td></td>
<td>7. Each year, in April and September, the supplier shall submit test results for two BBR testing at two different temperatures in accordance with AASHTO R 29.</td>
</tr>
</tbody>
</table>

Suppliers shall provide AASHTO M 332 testing results and split samples at a minimum of once per lot.
R 35  | **Volumetric Calculations of VMA and Correction Factor**

VMA<sub>a</sub> - Voids in Mineral Aggregate from (V<sub>a</sub> + V<sub>be</sub>) the mix:

A. VMA calculated from the mix shall be determined in accordance with *Formula 5.16.1A*. It can be correlated that the VMA calculated from AASHTO R-35 is equivalent to VMA<sub>a</sub> when the Pb<sub>a</sub> x (100-Pbt) / 100 is known and substituted for A<sub>cf</sub>, as shown in *Formula 5.16.1A (ii)*. Test results from VMA<sub>a</sub> shall therefore be required to meet all contract specifications. Values of VMA<sub>a</sub> that are out of specifications during production may be cause for the contractor to determine assignable reason, take corrective action, and modify the Job Mix Formula (JMF), as needed. Continued VMA<sub>a</sub> data that is out of specifications may be cause for the Engineer to order cessation of supply.

*Formula 5.16.1A*. Determining the VMA of bituminous concrete by the mix or air voids & effective binder method:

\[
VMA_a = V_a + \left[ \frac{\left( G_{mbd} \times (P_b - A_{cf}) \right)}{G_b} \right]
\]

Where:  
- VMA<sub>a</sub> = VMA calculated from plant production mix (V<sub>a</sub> + V<sub>be</sub>)  
- G<sub>mbd</sub> = Bulk specific gravity as determined by AASHTO T 166(M)  
- Pb<sub>t</sub> = Total Binder Content (corrected) by AASHTO T 308(M)  
- A<sub>cf</sub> = Absorption correction factor provided by Contractor (refer to B. i and ii)

B. Determining the bituminous concrete mix binder correction factor for each class by use of percent absorption of water by AASHTO T 84/85, AASHTO M 323 and D<sub>f</sub> method. This value shall be performed by the Contractor during the mix design only and submitted as a JMF value. Two methods for determining the A<sub>cf</sub> are shown, although method (i) will be the desired method to be used. Both methods are equivalent when the Gsa, Gsb and Pwa are recent and valid for the mix.

1. \[ A_{cf} = Df \times Pwa \times (100 - Pb_t) / 100 \]
2. \[ A_{cf} = (Pb_a \text{ from annual JMF submittal}) \times (100 - Pb_t) / 100 \]

Where:  
- D<sub>f</sub> = as determined by *Formula 5.16.1B*.  
- Pwa = as determined by AASHTO T 84/85  
- Pb<sub>a</sub> = as determined by AASHTO M 323 (from annual JMF submittal)  
- D<sub>f</sub> (Density Factor): The Contractor shall calculate the bituminous concrete
mix design $D_f$ (derived from formula X1.2 APPENDIX X1 of AASHTO R 35) for each class of material, in accordance with *Formula 5.16.1B*.

*Formula 5.16.1B.* Determining the Density Factor ($D_f$) of mix design bituminous concrete:

$$ D_f = \left( \frac{Gse - Gsb}{Gsa - Gsb} \right) $$

Where:

- $D_f$ = Density Factor or multiplier determined by AASHTO R-35(M)
- $Gse$ = Effective Specific Gravity determined by AASHTO M-323 at plant
- $Gsa$ = Apparent Specific Gravity determined by AASHTO T 84/85 of mix design
- $Gsb$ = Bulk Specific Gravity determined by AASHTO T 84/85 of mix design
ITEM #0201001A – CLEARING AND GRUBBING

All of the provisions of Section 2.01 of the Standard Specifications shall apply, except as amended and/or supplemented herein:

2.01.01 – Description: Add the following:
Also included in this work shall be the removal of existing curbing, and removal and resetting of existing stone/block walls, fences, mailboxes, newspaper boxes, edging, landscape beds, plantings, pavers, paver sidewalks, boulders/rocks, signs or ornamental items, as shown on the contract drawings or directed by the Engineer. Mailboxes shall be reset to United States Postal Service (USPS) Standards.

Iron pins and/or monuments disturbed by construction activities shall also be included and shall be reset by a Connecticut licensed surveyor.

Two weeks prior to the start of any clearing operations the contractor shall notify the Town in writing.

The Contractor will be required to protect all trees, columns, fences, mailboxes, signs, etc. to remain, throughout the duration of the work.

Materials: Material required to backfill holes left by tree stumps shall conform to the requirements of Section 2.13.02, Granular Fill, of the CTDOT Standard Specifications Form 817.

2.01.03 – Construction Methods: add the following:
The removal of individual trees shall be carried out in a safe, workmanlike manner. This shall include the removal and disposal of all branches and stumps, and proper backfilling and compacting of all affected areas. The Contractor shall take extra care to protect overhead and underground utilities, private property, etc. Work under this item shall be performed by a properly licensed, insured tree removal firm, approved by the Engineer and authorized to work within the Town of Enfield.

Add the following to the end of the section:

All ornamental items on properties within the project limits including but not limited to cobble stones, stone walls, fences, mailboxes, newspaper boxes, edging, pavers, paver sidewalks, planters, mulch, railroad ties, etc…disturbed by clearing and grubbing and roadway excavation shall be removed and reset, to the satisfaction of the Engineer.

All items described above to be reset shall be removed, stored and reset as shown on the plans or directed by the Engineer. Any damage caused by the Contractor's activities shall be repaired or replaced by the Contractor, to equal or better than condition, at no additional cost.

Removal and relocation of existing signs shall be in accordance with Section 12.06.03 of the Standard Specifications.
**Basis of Payment:** supplement as follows:

All costs incidental to the removal and resetting of ornamental items will be included in the price for "Clearing and Grubbing". Included in the lump sum price shall be: all the work described above, which may be necessary to properly complete the project, unless the work is included under another project pay item; the removal of existing curbing, and the removal and resetting of existing cobble stones, stone walls, fences, mailboxes, newspaper boxes, edging, landscape beds, plantings, pavers, paver sidewalks, boulders/rocks, signs, mulch, railroad ties or other ornamental items as required by the plans or as directed; and the removal and disposal of any other trees, stumps, etc. required to be removed; and the resetting of iron pins and/or monuments. This item shall also include all equipment, tools, labor and materials incidental to the work described.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>Clearing and Grubbing</td>
<td>LS</td>
</tr>
</tbody>
</table>

1481-53-05-jn1218-spec 0201001a - clearing and grubbing.doc
ITEM #0202452A - TEST PIT

Description: This work shall consist of the excavation of test pits where necessary to locate or examine utilities, subsurface structures, pipes, soils, groundwater, or any other obstacles or conditions.

This work shall consist of the satisfactory removal of all materials including, but not limited to, sawcutting pavements and sidewalks, pavement and sidewalk removal, excavation, shoring and bracing, water removal from within pit, stockpiling, satisfactory disposal of surplus or unsuitable material, backfilling, compacting, pavement repair, sidewalk repair, etc.

Test pits shall be dug as necessary for the Contractor to determine subsurface conditions as indicated on the Contract Drawings or as directed by the Owner’s Representative.

This work shall include the coordination with the affected utility companies. Any damage caused by the Contractor or Subcontractors, as determined by the Engineer, shall be corrected by the Contractor in accordance with these specifications.

Materials: All materials shall be provided by the Contractor and shall meet the current standards of the affected service.

Construction Methods: Coordinate excavation of test pits with respective utility company, or other owners having facilities in the vicinity. Check with "Call Before You Dig" (dial 811) before digging.

Give sufficient notice and allow ample delay time for others to perform necessary work.

Notify the Owner’s Representative one-week in advance of digging each test pit.

Perform all work in conformance with applicable safety codes.

Sawcut pavement, sidewalk, curbs, or other hard surface materials in neat and straight line. Excavate pits, providing clean-cut vertical sides. Provide sheeting, bracing, and dewatering wherever necessary.

Dig test pits ensuring that underground utilities or structures are not damaged. The Contractor shall excavate by hand methods where necessary to ensure that underground utilities or structures are not damaged. It shall be the Contractor's sole responsibility for any damages incurred during excavation operations. Any damages shall be repaired or replaced by the Contractor to the satisfaction of the Owner/Responsible Agency/Owner’s Representative at the Contractor's own expense.

The Contractor shall measure and record the size, configuration, exact horizontal and vertical location of all utilities, pipes or other obstacles uncovered in the pits. Submit information in written or sketch form to the Owner’s Representative and respective utility companies for review. Notify the Owner’s Representative of any revealed conflicts which may require design
revisions, relocations and/or adjustments as early as possible to avoid unnecessary delays. No work shall be started within areas of conflict until so authorized.

Protect each pit with steel plates, other coverings, fences, barriers or other appropriate materials as deemed necessary.

Do not backfill pits until authorized. Compact backfill materials to at least 95% of maximum density to the subgrade elevation or as otherwise directed.

The surface of test pit areas shall be restored to a condition equal or better than original as approved by the Owner’s Representative.

**Method of Measurement:** When previously approved by the Engineer, the item, Test Pit will be measured for payment by the number of test pits performed on the project. An estimate of cost shall be provided to the engineer prior to performing test pits.

Corrective work required repairing damage caused by the Contractor or its Subcontractors shall not be measured for payment.

**Basis of Payment:** The item, “Test Pit”, will be paid for at the Contract unit price each for “Test Pit”, which price shall include all materials, equipment, labor and tools necessary for or incidental to the satisfactory completion if this work.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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<tbody>
<tr>
<td>Test Pit</td>
<td>EA</td>
</tr>
</tbody>
</table>

1481-53-05-jn1218-spec 0202452a - test pit.doc
ITEM #0219011A – SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN

Description: This work shall consist of furnishing, installing, cleaning, maintaining, replacing, and removing sedimentation control at catch basins at the locations and as shown on the plans and as directed by the engineer.

Materials: Sack shall be manufactured from a specially designed woven polypropylene geotextile sewn by a double needle machine, using a high strength nylon thread. Sack shall be manufactured by one of the following or an approved equal:

Siltsack®
SI Geosolutions:
www.sigeosolutions.com
(800)621-0444

Dandy Sack™
Dandy Products Inc.
P.O. Box 1980
Westerville, Ohio 43086
Phone: 800-591-2284
Fax: 740-881-2791
Email: dlc@dandyproducts.com
Website: www.dandyproducts.com

FLeXstorm Inlet Filters
Inlet & Pipe Protection
24137 W. 111th St - Unit A
Naperville, IL 60564
Telephone: (866) 287-8655
Fax: (630) 355-3477

The sack will be manufactured to fit the opening of the catch basin or drop inlet. Sack will have the following features: two dump straps attached at the bottom to facilitate the emptying of sack and lifting loops as an integral part of the system to be used to lift sack from the basin. The sack shall have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, the sack should be emptied, cleaned and placed back into the basin.

Construction Methods: Installation, removal, and maintenance shall be per manufacturer instructions and recommendations.

Method of Measurement: Sedimentation Control at Catch Basin will be measured as each installed, maintained, accepted, and removed. There will be no separate measurement for maintenance or replacement associated with this item.
**Basis of Payment:** Sedimentation Control at Catch Basin will be paid for at the contract unit price each complete in place and accepted, which price shall include all maintenance throughout construction, materials, equipment, tools, and labor incidental thereto.

<table>
<thead>
<tr>
<th>Description</th>
<th>Pay Unit</th>
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<tbody>
<tr>
<td>Sedimentation Control at Catch Basin</td>
<td>EA</td>
</tr>
</tbody>
</table>

1481-53-05-jn1218-spec 0219011a - sed. control sys..doc
ITEM #0403869A – COLD RECLAIMED ASPHALT PAVEMENT

Description:
Work under this Section shall consist of the in-place recycling of existing pavement and base, to the depth shown on the plans. This item shall include all earthwork including but not limited to excavation, hauling, stockpiling, and installation of reclaimed material as roadway subbase. This item shall also include fine grading and compaction of reclaimed material once installed, after subgrade is formed. Where necessary, final elevation of reclaimed aggregate may be modified (raised, lowered or modified with additional processed aggregate) to meet required design dimensions/elevations, only as ordered by the Engineer. Removal of excess reclaimed material from the site shall also be included. The Contractor is responsible for disposing of excess reclaim material off-site in a legal manor.

Materials:
Materials for reclaimed asphalt pavements shall consist of existing pavements and bases to the depth shown on the plans. When it is necessary to improve the base or raise the grade line, additional base material may be specified by the Engineer.

If it is necessary to raise or lower any utilities or underdrains, the trench backfill material will meet Section M.02.05 or have the approval of the Engineer. If a rejuvenator is used during the final mixing operation, the material used shall be approved by the Engineer.

Samples of material will be obtained by the Materials Testing Laboratory as often as deemed necessary by the Assistant Manager of Materials Testing.

Construction Methods:
Prior to the start of the pavement rehabilitation, all utilities and drainage systems shall be relocated as necessary.

Methods, equipment, tools, and any machinery to be used during construction shall be approved by the Engineer prior to the start of the Project. Prior to the actual pulverization of the pavement, drop inlets or catch basins that might be affected shall be sufficiently barricaded so as to prevent silt or runoff from plugging the drainage system.

If a rejuvenator is used, an approved metering device shall be used to ensure the accuracy of the amount of rejuvenator used.

Compaction shall be achieved by the use of a vibratory roller having the capability of producing high amplitude and low frequency vibrations. The compaction shall be a minimum of ninety-five percent (95%) of the Proctor wet density (AASHTO T-180D).

Method of Measurement:
The cold reclaimed asphalt pavement work will be measured for payment in square yards (square meters). The thickness will be as indicated on the plans, or as ordered by the Engineer and within +2 in and -1 in.
Measurement to determine the thickness will be made by the Engineer at intervals of 500 ft. or less. If deficient thicknesses are found, additional measurements considered necessary by the Engineer will be taken to determine the limits of the deficiency. Areas not within allowable tolerance shall be corrected, as ordered by the Engineer, without additional compensation to the Contractor.

Additional base material, as required, shall be processed aggregate and paid for separately.

**Basis of Payment:**
This work will be paid for at the Contract unit price per square yard (square meter) for "Cold Reclaimed Asphalt Pavement," which price shall include reclamation, excavation, hauling, stockpiling, installation of reclaimed material as roadway subbase, fine grading and compaction of reclaimed material, removal of excess reclaimed material from the site, and all other materials (except additional processed aggregate), equipment, tools, and labor incidental thereto.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>Cold Reclaimed Asphalt Pavement</td>
<td>SY</td>
</tr>
</tbody>
</table>
ITEM #0406999A - ASPHALT ADJUSTMENT COST

Description: The Asphalt Adjustment Cost will be based on the variance in price for the performance-graded binder component of hot mix asphalt (HMA), Polymer Modified Asphalt (PMA), and Ultra-Thin Bonded Hot-Mix Asphalt mixtures completed and accepted during the Contract.

The Asphalt Price is available on the Department of Transportation website at:

http://www.ct.gov/dot/asphaltadjustment

Construction Methods:
An asphalt adjustment will be applied only if all of the following conditions are met:

I. For HMA and PMA mixtures:
   a. The HMA or PMA mixture for which the adjustment would be applied is listed as a Contract item with a pay unit of tons.
   b. The total quantity for all HMA and PMA mixtures in the Contract or individual purchase order (Department of Administrative Service contract awards) exceeds 1000 tons or the Project duration is greater than 6 months.
   c. The difference between the posted Asphalt Base Price and Asphalt Period Price varies by more than $5.00 per ton.

II. For Ultra-Thin Bonded HMA mixtures:
   a. The Ultra-Thin Bonded HMA mixture for which the adjustment would be applied is listed as a Contract item.
   b. The total quantity for Ultra-Thin Bonded HMA mixture in the Contract exceeds:
      i. 800 tons if the Ultra-Thin Bonded HMA item has a pay unit of tons.
      ii. 30,000 square yards if the Ultra-Thin Bonded HMA item has a pay unit of square yards.
   c. The difference between the posted Asphalt Base Price and Asphalt Period Price varies by more than $5.00 per ton.
   d. No Asphalt Adjustment Cost will be applied to the liquid emulsion that is specified as part of the Ultra- Thin Bonded HMA mixture system.

III. Regardless of the binder used in all HMA or PMA mixtures, the Asphalt Adjustment Cost will be based on PG 64-22.

The Connecticut Department of Transportation (CTDOT) will post on its website, the average per ton selling price (asphalt price) of the performance-graded binder. The average is based on the high and low selling price published in the most recent available issue of the Asphalt Weekly Monitor® furnished by Poten & Partners, Inc. under the “East Coast Market – New England, New Haven, Connecticut area,” F.O.B. manufacturer’s terminal.
The selling price furnished from the Asphalt Weekly Monitor ® is based on United States dollars per standard ton (US$/ST).

**Method of Measurement:**

| Formula: | HMA x \[\frac{\text{PG\%}}{100}\] x \[(\text{Period Price} - \text{Base Price})\] = $ ____ |

where

- **HMA:**
  1. For HMA, PMA, and Ultra-Thin Bonded HMA mixtures with pay units of tons:
     The quantity in tons of accepted HMA, PMA, or Ultra-Thin Bonded HMA mixture measured and accepted for payment.
  2. For Ultra-Thin Bonded HMA mixtures with pay units of square yards:
     The quantity of Ultra-Thin Bonded HMA mixture delivered, placed, and accepted for payment, calculated in tons as documented according to the Material Documentation provision (Construction Methods, paragraph G) of the Ultra-Thin Bonded HMA Special Provision.
- **Asphalt Base Price:** The asphalt price posted on the CTDOT website 28 days before the actual bid opening posted.
- **Asphalt Period Price:** The asphalt price posted on the CTDOT website during the period the HMA or PMA mixture was placed.
- **PG\%:** Performance-Graded Binder percentage
  1. For HMA or PMA mixes:
     - PG\% = \(4.5\) for HMA S1 and PMA S1
     - PG\% = \(5.0\) for HMA S0.5 and PMA S0.5
     - PG\% = \(6.0\) for HMA S0.375, PMA S0.375, HMA S0.25 and PMA S0.25
  2. For Ultra-Thin Bonded HMA mixes:
     - PG\% = Design % PGB (Performance Graded Binder) in the approved job mix formula, expressed as a percentage to the tenth place (e.g. 5.1%)

The asphalt adjustment cost shall not be considered as a changed condition in the Contract as result of this provision since all bidders are notified before submission of bids.

**Basis of Payment:** The "Asphalt Adjustment Cost" will be calculated using the formula indicated above. A payment will be made for an increase in costs. A deduction from monies due the Contractor will be made for a decrease in costs.

The sum of money shown on the Estimate and in the itemized proposal as "Estimated Cost" for this item will be considered the bid price although the adjustment will be made as described above. The estimated cost figure is not to be altered in any manner by the bidder. If the bidder should alter the amount shown, the altered figure will be disregarded and the original cost figure will be used to determine the amount of the bid for the Contract.

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>Asphalt Adjustment Cost</td>
<td>EST</td>
</tr>
</tbody>
</table>
ITEM #0507001A – TYPE “C” CATCH BASIN (COMPLETE)

All the applicable provisions of Section 5.07 of the Standard Specifications shall apply, except as amended or supplemented herein:

5.07.01 – Description: Replace with the following:
Work shall include the installation of drainage structures in conformity with the lines, grades and dimensions and details shown on the plans or directed by the Engineer. This work shall also include the sawcutting and removal of existing pavement, trench excavation, removal of existing drainage structures, backfill, compaction and temporary pavement repair, as shown on the plans, and all work and materials necessary for the complete installation of the storm drainage structures.

5.07.03 – Construction Methods: add the following:
Trench excavation shall be in accordance with Section 2.05.03 of the Standard Specifications.

5.07.04 – Method of Measurement: Add the following:
Sawcutting, excavation, removal of existing drainage structures, backfill material, compaction, and temporary pavement repair will not be measured for payment, but shall be included in the cost of the structure.

5.07.05 – Basis of Payment: Replace with the following:
This work will be paid for at the Contract unit price for each catch basin installed complete in place, including all materials, equipment, tools and labor incidental thereto.

There shall be no separate payment for sawcutting, removal of pavement, trench excavation, removal of existing drainage structures, backfill, compaction, temporary pavement repair, the plugging of existing pipes, connecting existing pipe to new drainage structures, or for connecting existing footing drains, roof drains, underdrains, or other connections encountered in the field, but the cost thereof shall be included in the contract unit price of the structure.

Pay Item                                      Pay Unit
Type “C” Catch Basin (Complete)               EA

1481-53-05-jn1218-spec 0507001a - catchbasins.doc
ITEM #0507006A – TYPE “C” CATCH BASIN TOP (COMPLETE)
ITEM #0507224A – TYPE “C-L” CATCH BASIN TOP (COMPLETE)

All of the provisions of Section 5.07 of the Standard Specifications shall apply, except as amended and/or supplemented herein:

Article 5.07.01 - Description: Add the following:
This item shall include furnishing and installing a new catch basin top, including frame and grate, of the type specified on the plans, including rebuilding existing catch basins with block and mortar and all other required materials, and setting the new top to finished grade at the locations and to the dimensions and details shown on the plans or as ordered by the Engineer.

Article 5.07.04 – Method of Measurement: Add the following:
Catch basin tops will be measured for payment per each top installed complete, including sawcutting excavation, removal and replacement of pavement, pervious material, backfill, block, mortar, all necessary modifications to the catch basin walls, and setting the top to finished grade.

Article 5.07.05 – Basis of Payment: Add the following:
The cost for this work shall be paid for at the contract unit price per each "Type “C” Catch Basin Top" or “Type “C-L” Catch Basin Top”, complete in place, which price shall include the new catch basin top, frame and grate, sawcutting, excavation, temporary or permanent pavement repair, pervious material, backfill, block, mortar, all modifications to existing catch basin walls, setting the new top to finished grade, and all materials, equipment, tools and labor incidental thereto.

<table>
<thead>
<tr>
<th>Description</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>Type “C” Catch Basin Top</td>
<td>EA</td>
</tr>
<tr>
<td>Type “C-L” Catch Basin Top</td>
<td>EA</td>
</tr>
</tbody>
</table>

1481-53-05-jn1218-spec 0507791a - cb tops.doc
ITEM #0651011A – 12” R.C. PIPE (COMPLETE)
ITEM #0651012A – 15” R.C. PIPE (COMPLETE)
ITEM #0651051A – 12” R.C. PIPE CLASS V (COMPLETE)
ITEM #0651052A – 15” R.C. PIPE CLASS V (COMPLETE)
ITEM #0651656A – 12” C.P. PIPE – TYPE S (COMPLETE)
ITEM #0651657A – 15” C.P. PIPE – TYPE S (COMPLETE)
ITEM #0651658A – 18” C.P. PIPE – TYPE S (COMPLETE)
ITEM #0651660A – 18” C.P. PIPE – TYPE P (COMPLETE)

All the applicable provisions of Section 6.51 of the Standard Specifications shall apply, except as amended or supplemented herein:

6.51.01 – Description: Replace with the following:
This work shall consist of furnishing and installing new pipe of the type, size, and length called for on the plans or as ordered by the Engineer. This work shall also include sawcutting, removal of existing pavement, trench excavation, removal of existing drainage pipe, bedding, backfill, compaction, temporary pavement repair, and all work and materials necessary for the construction and installation of storm drainage pipe.

6.51.03 – Construction Methods: add the following:
Trench excavation shall be in accordance with Section 2.05.03 of the Standard Specifications.

6.51.04 – Method of Measurement: Replace with the following:
This work will be measured for payment by the actual number of linear feet of pipe of the type and size specified, completed, accepted and measured in place along the invert, regardless of depth.

Sawcutting, pavement removal, trench excavation, removal of existing drainage pipe, pipe bedding, backfill, compaction, and temporary pavement repair will not be measured for payment but shall be included in the cost of the pipe.

6.51.05 – Basis of Payment: This work will be paid for at the contract unit price per linear foot of pipe of the type and size specified, completed, accepted and measured in place along the invert, which price shall include sawcutting, pavement removal, trench excavation, removal of existing drainage pipe, pipe bedding, backfill, compaction, temporary pavement repair, and all materials, equipment, tools and labor incidental thereto.

There shall be no direct payment for the plugging of existing pipes or connecting new pipe to a run of existing pipe or a drainage structure, but the cost thereof shall be included in the contract unit prices of the bid items.
<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>12” R.C. Pipe (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>15” R.C. Pipe (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>12” R.C. Pipe Class V (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>15” R.C. Pipe Class V (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>12” C.P. Pipe – Type S (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>15” C.P. Pipe – Type S (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>18” C.P. Pipe – Type S (Complete)</td>
<td>LF</td>
</tr>
<tr>
<td>18” C.P. Pipe – Type P (Complete)</td>
<td>LF</td>
</tr>
</tbody>
</table>
ITEM #0703012A – MODIFIED RIPRAP

All of the provisions of Section 7.03 of the Standard Specifications shall apply, supplemented as follows:

Article 7.03.01 - Description: Add the following:
This item shall include non-woven geotextile fabric beneath modified riprap as shown on the plans or directed by the Engineer.

Article 7.03.02 – Materials: Add the following:
Geotextile fabric shall meet the requirements of Article 7.55.02 and Section M.08.01-19.

Article 7.03.03 – Construction Methods: Add the following:
Geotextile fabric shall be installed in accordance with Article 7.55.03.

Article 7.03.04 – Method of Measurement: Add the following:
Geotextile fabric shall not be measured separately for payment and shall be included in the contract unit price for “Modified Riprap”.

Article 7.03.05 – Basis of Payment:
Geotextile fabric shall not be paid for separately and shall be included in the contract unit price for “Modified Riprap”.

<table>
<thead>
<tr>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified Riprap</td>
<td>CY</td>
</tr>
</tbody>
</table>
ITEM #0704001A – GABION RETAINING WALL (COMPLETE)

All of the provisions of Section 7.04 of the Standard Specifications shall apply, except as amended and/or supplemented herein:

7.04.01 – Description: Add the following:
This item shall also include structure excavation; backfill; granular fill backfill and leveling pad; filter fabric; and all other materials, equipment, tools, and labor incidental thereto for the complete construction of the gabion wall, as shown on the plans and as directed by the Engineer.

7.04.02 – Materials: Add the following:

Gabions shall be Maccaferri Terramesh, or approved equal.

Granular Fill shall meet the requirements of Section 2.13.02 and Article M.02.01 of the Standard Specifications.

Filter fabric (geotextile) shall be Typar-3401, or Linq 140EX, or approved equal.

7.04.03 – Construction Methods: Add the following:

Structure excavation shall be in accordance with Section 2.03.03 of the Standard Specifications.

The granular fill leveling pad for the structure shall exceed the width of the gabion baskets by 6 in. min., or as shown on the plans. If rock is encountered in the excavation, it shall be removed to provide a level area.

Granular fill shall be installed in accordance with Section 2.13.03 of the Standard Specifications.

Backfill shall be placed in such a manner as to avoid any damage or disturbance to the wall materials. Any wall materials which become damaged or disturbed during backfill placement shall be either removed, replaced, or corrected at the Contractor's expense.

The maximum lift thickness after compaction shall not exceed 10 inches. The Contractor shall decrease this lift thickness, if necessary, to obtain the specified density.

Compaction within 3 feet of the gabion baskets shall be achieved by at least three passes of a lightweight mechanical tamper, roller, or vibratory system. The specified lift thickness shall be adjusted as warranted by the type of compaction equipment actually used. Heavy compaction equipment shall not be used to compact backfill within 3 feet of the gabion baskets.

7.04.04 – Method of Measurement: Replace with the following:
This work will be paid for on a lump sum basis and will not be measured for payment.
7.04.05 – Basis of Payment:  Replace with the following:
This work will be paid for at the contract lump sum for "Gabion Retaining Wall (Complete)," which price shall include structure excavation; backfill; granular fill backfill and leveling pad; filter fabric; and all other materials, equipment, tools, and labor incidental thereto for the complete construction of the gabion wall, as shown on the plans and as directed by the Engineer.

If ledge or large boulders (greater than 1 cubic yard) are encountered during structure excavation, the payment for its removal will be made under the item "Rock Excavation."
ITEM #0922503A – GRAVEL DRIVEWAY

Description: This item shall consist of excavating, removing, and disposing of existing gravel, concrete, or bituminous concrete and installing, reconstructing, and/or repairing gravel driveways with processed aggregate to the contract limit line or locations shown on the plans in accordance with these specifications.

Materials: Materials for this work shall conform to the following requirements:

Gravel for driveways shall be processed aggregate and shall conform to the requirements of Article 3.05.02 of the Standard Specification.

Construction Methods:

Excavation, including removal of any existing driveway, shall be made to the required depth below the finished grade, as shown on the plans. All soft and yielding material shall be removed and replaced with suitable material.

Processed aggregate for the gravel driveways shall be uniformly spread to the required depth and thoroughly compacted with a roller with a mass of not less than 500 pounds.

The sides of the driveway shall be backfilled with suitable material thoroughly compacted and finished flush with the top of the driveway. All surplus material shall be removed and the site left in a neat and presentable condition to the satisfaction of the Engineer. In sections inaccessible to the roller, the base course, surface course, and backfill shall be hand-tamped with tampers weighing not less than 12 pounds, the face of which shall not exceed 50 square inches in area.

Method of Measurement: This work will be measured for payment by the actual number of square yards of complete and accepted gravel driveway installed.

Basis of Payment: This work will be paid for at the contract unit price per square yard for "Gravel Driveway," complete in place, which price shall include all excavation as specified above, backfill, disposal of surplus material, processed aggregate, and all equipment, tools, labor and materials incidental thereto.

<table>
<thead>
<tr>
<th>Description</th>
<th>Pay Unit</th>
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<tbody>
<tr>
<td>Gravel Driveway</td>
<td>SY</td>
</tr>
</tbody>
</table>

1481-53-05-jn1218-spec 0922503a - gravel dvwy.docx
ITEM #0950019A – TURF ESTABLISHMENT – LAWN

All of the provisions of Section 9.50 of the Standard Specifications shall apply as amended or supplemented by the following:

Article 9.50.02 - Materials: Replace the seed mix portion of M.13.04 as follows:
Metro Select Seed Mix
Pure Seed:

50% Turf type Perennial Ryegrass
20% Shamrock Kentucky Bluegrass
15% Foxfire Creeping Red Fescue
15% Brittany or Shadow II Chewings Fescue

Under no circumstances should annual Ryegrass, Italian Rye or any other seed be added to the seed mixture.

Article 9.50.03 - Construction Methods: Replace the first paragraph with the following:
Construction methods shall be those established as agronomically acceptable and feasible and that are approved by the Engineer. Rate of application shall be field determined in Pure Live Seed (PLS) based on the minimum purity and minimum germination of the seed obtained. Calculate the PLS for each seed species in the mix. Adjust the seeding rate for the above composite mix, based on 1 lb. per 175sf. The seed shall be mulched in accordance with Article 9.50.03.

Article 9.50.04 - Basis of Payment: Add the following:
This work will be paid for at the contract unit price per square yard for "Turf Establishment - Lawn" which price shall include all materials maintenance, equipment, tools, labor, and work incidental thereto.

Pay Item Pay Unit
Turf Establishment - Lawn SY
ITEM #0971001A – MAINTENANCE AND PROTECTION OF TRAFFIC

9.71.01 - Description: Add the following:
The cost for implementation of the detour, furnishing, installing and relocating Construction Signs, Temporary Precast Concrete Barrier Curb, Drums, Cones, Construction Barricades, Barricade Warning Lights, temporary construction fencing, etc., as necessary, to safely maintain traffic operations through and around the project site shall be included in this item.

The cost for providing the services of Trafficpersons (Uniformed Flaggers) in accordance with Section 9.70 of the Standard Specifications, as approved by the Engineer, shall be included in this item.

Water, sweeping or calcium chloride for dust control that is required as a result of temporary gravel roadways, or as directed by the Engineer, shall be included in this item.

The Contractor shall maintain and protect traffic as follows and as limited in the Special Provision "Section 1.08 - Prosecution and Progress."

All Project Roadways
The Contractor shall be permitted to close the project roadways when actively working in the roadway. The contractor shall implement the detour in accordance with the contract documents.

The Contractor shall maintain and protect a minimum of one lane for alternating one way traffic on a paved or compacted gravel travel path not less than 10 feet in width or as approved by the Engineer. Gravel travel path shall be compacted reclaimed material or compacted processed aggregate base. Traffic shall be maintained in accordance with the Traffic Control Plans and details. Due to corridor constraints, 10 foot wide lanes are acceptable instead of 11 foot wide lanes shown in the Traffic Control Plans and details.

During AM Peak travel periods (7AM to 9AM) and PM Peak travel periods (3PM to 5PM) the Contractor shall make all necessary accommodations for school buses and other local traffic to safely navigate the project corridor. The Contractor shall coordinate with Emergency Personnel, Schools and the Bus Company regarding actual school bus pick-up and drop-off in the AM and PM, and also accommodate school delays and early dismissals, as necessary.

For alternating one-way traffic operations the Contractor shall utilize certified flagger(s) and shall have in place appropriate signage. The length of the alternating one-way traffic operation shall not exceed 500 feet (excluding tapers) unless otherwise approved by the Engineer.

Excepted therefrom will be those periods, during the allowable periods, when the Contractor will be allowed to halt traffic for a period of time approved by the Engineer in advance.

Driveways
The Contractor shall maintain access to and egress from all driveways throughout the project limits unless the Contractor has first negotiated alternate arrangements with the property owners or as otherwise noted on the plans. Driveway construction shall be coordinated with the property owners. At a minimum, temporary graded surfaces shall consist of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer. If a temporary closure of
a residential driveway is necessary, the Contractor shall coordinate with the owner to determine the time period of the closure. The cost for installation and maintenance of all such temporary access measures shall be included in the Maintenance and Protection of Traffic item.

9.71.03 - Construction Method: Add the following:

Trafficperson (Uniformed Flagger) shall be implemented in accordance with Section 9.70.03 of the Standard Specifications.

Pavement Markings
During construction, the Contractor shall maintain all pavement markings on paved surfaces on all roadways throughout the limits of the project.

Final Pavement Markings
The Contractor shall install permanent Epoxy Resin Pavement Markings in accordance with Section 12.10 entitled “Epoxy Resin Pavement Markings, Symbols, and Legends” after such time as determined by the Engineer.

Use of Traffic Drums and Traffic Cones
Traffic drums or cones shall be used to delineate open trenches, raised catch basins and other hazards.

TRAFFIC CONTROL DURING CONSTRUCTION OPERATIONS (English Version)
The following guidelines shall assist field personnel in determining when and what type of traffic control patterns to use for various situations. These guidelines shall provide for the safe and efficient movement of traffic through work zones and enhance the safety of work forces in the work area.

Traffic Control Patterns:
Traffic control patterns shall be used when a work operation requires that all or part of any vehicle or work area protrudes onto any part of a travel lane or shoulder. For each situation, the installation of traffic control devices shall be based on the following:

- Speed and volume of traffic
- Duration of operation
- Exposure to hazards

Traffic control patterns shall be uniform, neat and orderly so as to command respect from the motorist.

In the case of a horizontal or vertical sight restriction in advance of the work area, the traffic control pattern shall be extended to provide adequate sight distance for approaching traffic.

Signing
The Contractor shall maintain all existing signs throughout the project limits during the duration of the project. The Contractor shall temporarily relocate existing signs and sign supports as many times as deemed necessary and install temporary sign supports and foundations if necessary and as directed by the Engineer. The temporary relocation of any existing signs and supports, the furnishing, installation and removal of any temporary supports and foundations,
and the installation and relocation of temporary signs shall be paid for under the item "Maintenance and Protection of Traffic."

When all work is completed, the Contractor shall remove and relocate existing signs to new posts at the permanent locations, as shown on the plans, which shall be paid for under "Clearing and Grubbing."

**Signing Patterns**
The Contractor shall erect and maintain all temporary signing patterns in accordance with the traffic control plans contained herein, unless directed or approved otherwise by the Engineer. Proper distances between advance warning signs and proper taper lengths are mandatory.

These signs shall be post-mounted on breakaway sign supports or installed on portable sign supports. These signs are to remain for two weeks, after which the signs and sign supports are to be removed.

**Placement of Signs:**
Signs must be placed in such a position to allow motorists the opportunity to reduce their speed prior to the work area. Signs shall be installed on the same side of the roadway as the work area.

**TABLE I – MINIMUM TAPER LENGTHS**

<table>
<thead>
<tr>
<th>POSTED SPEED LIMIT MILES PER HOUR</th>
<th>MINIMUM TAPER LENGTH IN FEET FOR A SINGLE LANE CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 OR LESS</td>
<td>180</td>
</tr>
<tr>
<td>35</td>
<td>250</td>
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<tr>
<td>40</td>
<td>320</td>
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<td>50</td>
<td>600</td>
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<tr>
<td>55</td>
<td>660</td>
</tr>
<tr>
<td>65</td>
<td>780</td>
</tr>
</tbody>
</table>

**SECTION 1. WORK ZONE SAFETY MEETINGS**

1.a) Prior to the commencement of work, a work zone safety meeting will be conducted with representatives of the Town Engineer, Municipal Police, the Contractor (Project Superintendent) and the Traffic Control Subcontractor (if different than the prime Contractor) to review the traffic operations, lines of responsibility, and operating guidelines which will be used on the project. Other work zone safety meetings during the course of the project should be scheduled as needed.

1.b) A Work Zone Safety Meeting Agenda shall be developed and used at the meeting to outline the anticipated traffic control issues during the construction of this project. The agenda should include:

- Review Project scope of work and time
- Review Section 1.08, Prosecution and Progress
- Review Section 9.70, Trafficpersons
- Review Section 9.71, Maintenance and Protection of Traffic
- Review Contractor’s schedule and method of operations.
• Review areas of special concern
• Open discussion of work zone questions and issues
• Discussion of review and approval process for changes in contract requirements as they relate to work zone areas

SECTION 2. GENERAL
2.a) If the required minimum number of signs and equipment are not available; the traffic control pattern shall not be installed.

2.b) The Contractor shall have back-up equipment (signs, cones/drums, etc.) available at all times in case of mechanical failures, etc. The only exception to this is in the case of sudden equipment breakdowns in which the pattern may be installed but the Contractor must provide replacement equipment within 24 hours.

2.c) Failure of the Contractor to have the required minimum number of signs, personnel and equipment, which results in the pattern not being installed, shall not be a reason for a time extension or claim for loss time.

2.d) In cases of legitimate differences of opinion between the Contractor and the Inspection staff, the Inspection staff shall err on the side of safety. The matter shall be brought to the District Office for resolution immediately or, in the case of work after regular business hours, on the next business day.

SECTION 3. INSTALLING AND REMOVING TRAFFIC CONTROL PATTERNS
3.a) Lane Closures shall be installed beginning with the advanced warning signs and proceeding forward toward the work area.

3.b) Lane Closures shall be removed in the reverse order, beginning at the work area, or end of the traffic control pattern, and proceeding back toward the advanced warning signs.

3.c) Stopping traffic may be allowed:
   • During paving, etc. where, in the middle of the operation, it is necessary to flip the pattern to complete the operation on the other half of the roadway and traffic should not travel across the longitudinal joint or difference in roadway elevation.
   • To move slow moving equipment across live traffic lanes into the work area.

3.d) Under certain situations when the safety of the traveling public and/or that of the workers may be compromised due to conditions such as traffic volume, speed, roadside obstructions, or sight line deficiencies, as determined by the Engineer and/or Police, traffic may be briefly impeded while installing and/or removing the advanced warning signs and the first ten traffic cones/drums only. Appropriate measures shall be taken to safely slow traffic.

3.e) The Contractor must adhere to using the proper signs, placing the signs correctly, and ensuring the proper spacing of signs.
3.f) Prior to installing a pattern, any conflicting existing signs shall be covered with an opaque material. Once the pattern is removed, the existing signs shall be uncovered.

SECTION 4. USE OF TRAFFIC DRUMS AND TRAFFIC CONES

4.a) Traffic drums shall be used for taper channelization on limited-access roadways, ramps, and turning roadways and to delineate raised catch basins and other hazards.

4.b) Traffic drums shall be used in place of traffic cones in traffic control patterns that are in effect for more than a 36-hour duration.

4.c) Traffic Cones less than 42 inches in height shall not be used on limited-access roadways or on non-limited access roadways with a posted speed limit of 45 mph and above.

4.d) Typical spacing of traffic drums and/or cones shown on the Traffic Control Plans in the Contract are maximum spacings and may be reduced to meet actual field conditions as required.
NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN A, THEN AN ADDITIONAL SIGN A SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS A, A, AND B SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.

5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LINES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10 SIGN P SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

<table>
<thead>
<tr>
<th>POSTED SPEED LIMIT (MILES PER HOUR)</th>
<th>MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 OR LESS</td>
<td>180' (55m)</td>
</tr>
<tr>
<td>35</td>
<td>250' (75m)</td>
</tr>
<tr>
<td>40</td>
<td>320' (100m)</td>
</tr>
<tr>
<td>45</td>
<td>540' (165m)</td>
</tr>
<tr>
<td>50</td>
<td>600' (180m)</td>
</tr>
<tr>
<td>55</td>
<td>660' (200m)</td>
</tr>
<tr>
<td>60</td>
<td>780' (240m)</td>
</tr>
</tbody>
</table>

METRIC CONVERSION CHART (1" = 25mm)

<table>
<thead>
<tr>
<th>ENGLISH</th>
<th>METRIC</th>
<th>ENGLISH</th>
<th>METRIC</th>
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</thead>
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<tr>
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<td>300mm</td>
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<td>1050mm</td>
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<tr>
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<td>450mm</td>
<td>48&quot;</td>
<td>1200mm</td>
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<td>66&quot;</td>
<td>1650mm</td>
<td>96&quot;</td>
<td>2400mm</td>
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</table>

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

APPROVED

PRINCIPAL ENGINEER
SERIES 16 SIGNS

CONSTRUCTION AHEAD
ROAD USE RESTRICTED
STATE LIABILITY LIMITED

GENERAL STATUTES SEC 13-115, 13-145
COMMISSIONER OF TRANSPORTATION

16-E 80-160 84" x 60"
16-H 80-1606 60" x 42"
16-M 80-1613 30" x 24"

CONSTRUCTION AHEAD
SIDEWALK USE RESTRICTED
STATE LIABILITY LIMITED

GENERAL STATUTES SEC 13-115, 13-145
COMMISSIONER OF TRANSPORTATION

16-S 80-1619 48" x 30"

THE 16-S SIGN SHALL BE USED ON ALL PROJECTS THAT REQUIRE SIDEWALK RECONSTRUCTION OR RESTRICT PEDESTRIAN TRAVEL ON AN EXISTING SIDEWALK.

SERIES 16 SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TRAFFIC CONTROL PATTERNS TO ALLOW MOTORISTS THE OPPORTUNITY TO AVOID A WORK ZONE, SERIES 16 SIGNS SHALL BE INSTALLED ON ANY MAJOR INTERSECTING ROADWAYS THAT APPROACH THE WORK ZONE, ON LIMITED-ACCESS HIGHWAYS, THESE SIGNS SHALL BE LOCATED IN ADVANCE OF THE NEAREST UPSTREAM EXIT RAMP AND ON ANY ENTRANCE RAMPS PRIOR TO OR WITHIN THE WORK ZONE LIMITS.

THE LOCATION OF SERIES 16 SIGNS CAN BE FOUND ELSEWHERE IN THE PLANS OR INSTALLED AS DIRECTED BY THE ENGINEER.

SIGNS 16-E AND 16-H SHALL BE POST-MOUNTED.
SIGN 16-E SHALL BE USED ON ALL EXPRESSWAYS,
SIGN 16-H SHALL BE USED ON ALL RAMPS, OTHER STATE ROADWAYS, AND MAJOR TOWN/CITY ROADWAYS.
SIGN 16-M SHALL BE USED ON OTHER TOWN ROADWAYS.

REGULATORY SIGN "ROAD WORK AHEAD, FINES DOUBLED"

THE REGULATORY SIGN "ROAD WORK AHEAD FINES DOUBLED" SHALL BE INSTALLED FOR ALL WORK ZONES THAT OCCUR ON ANY STATE HIGHWAY IN CONNECTICUT WHERE THERE ARE WORKERS ON THE HIGHWAY OR WHEN THERE IS OTHER THAN EXISTING TRAFFIC OPERATIONS.

THE "ROAD WORK AHEAD FINES DOUBLED" REGULATORY SIGN SHALL BE PLACED AFTER THE SERIES 16 SIGN AND IN ADVANCE OF THE "ROAD WORK AHEAD" SIGN.

"END ROAD WORK" SIGN
THE LAST SIGN IN THE PATTERN MUST BE THE "END ROAD WORK" SIGN.

END ROAD WORK

31-1906 3.5'

ROAD WORK AHEAD FINES DOUBLED

CONSTRUCTION TRAFFIC CONTROL PLAN REQUIRED SIGNS

CONNECTICUT DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING & CONSTRUCTION

Scale: None

APPROVED Charles S. Naylor
PRINCIPAL ENGINEER
2012/06/01 11:36:03/09

Special Provisions SP-79

ITEM #0971001A
WORK IN TRAVEL LANE AND SHOULDER
TWO LANE HIGHWAY
ALTERNATING ONE-WAY TRAFFIC OPERATIONS

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FLAGGER SHALL MOTION WITH THE FREE HAND FOR ROAD USERS TO PROCEED.

C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.
Article 9.71.05 – Basis of Payment is supplemented by the following:

9.71.05 – Basis of Payment: Add the following:
The contract lump sum price for "Maintenance and Protection of Traffic" shall also include furnishing, installing, and removing the material for the temporary traversable slope in those areas where a longitudinal dropdown exists.

If there is no method for payment for the temporary transition in those areas where a transverse dropdown exists, then the contract lump sum price for the "Maintenance and Protection of Traffic" shall also include furnishing, installing, and removing the material for the temporary transition.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include temporarily relocating existing signs and sign supports as many times as deemed necessary and furnishing, installing, and removing temporary sign supports and foundations if necessary during construction of the project.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include any temporary adjustments or modifications required to the permanent drainage structures, including but not limited to the resetting of catch basin and manhole tops as necessary, to facilitate temporary drainage measures prior to final paving.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation and maintenance of all temporary access to all residential properties, including but not limited to temporary graded surfaces consisting of subbase, processed aggregate base, granular fill, or other suitable materials approved by the Engineer.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include furnishing, installing and relocating Construction Signs, Temporary Precast Concrete Barrier Curb, Traffic Drums, Traffic Cones, Construction Barricades, Barricade Warning Lights, temporary construction fencing, and all other additional materials, means and methods to maintain public safety. All temporary traffic control items shall comply with the requirements of the Standard Specifications.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include Trafficperson (Uniformed Flagger). Trafficperson (Uniformed Flagger) will not be measured for payment.

The contract lump sum price for “Maintenance and Protection of Traffic” shall also include water, sweeping and calcium chloride for dust control that is required as a result of temporary gravel roadways or as directed by the Engineer.

The contract lump sum price for "Maintenance and Protection of Traffic" shall also include the cost for installation, maintenance and removal of all temporary pavement markings, as required by the specifications, throughout the duration of the project.

Pay Item
Maintenance and Protection of Traffic

Pay Unit
LS
ITEM #0975002A – MOBILIZATION AND PROJECT CLOSEOUT

All the applicable provisions of Section 9.75 of the Standard Specifications shall apply, except as amended or supplemented herein:

9.75.01 - Description: Add the following:
This item shall include the cost to furnish and install an anti-tracking pad at the staging/stockpile area. This item shall also include a construction field office, which is solely at the Contractor’s discretion. This project does not require a field office, but the Contractor is allowed to furnish and install one if they choose to do so. The Contractor is responsible for negotiating with landowners and obtaining a staging/stockpile/field office location prior to commencement of work. The staging/stockpile/field office location shall be approved by the Town prior to initiation of mobilization. See “NTC-Construction Staging Area” for information regarding construction staging area plan requirements, submissions and approvals.

9.75.02 - Materials: Add the following:
Anti-Tracking pad materials shall be in accordance with Section 2.11.02 of the Standard Specifications.

9.75.03 – Construction Methods: Add the following:
Anti-Tracking pad shall be installed in accordance with Section 2.11.03 of the Standard Specifications.

9.75.04 – Method of Measurement: Add the following:
Construction Field Office and Anti-Tracking pad shall not be measured for payment and shall be included in the lump sum cost of "Mobilization and Project Closeout."

9.75.05 – Basis of Payment: Add the following:
Construction Field Office and Anti-Tracking pad shall not be measured for payment and shall be included in the lump sum cost of "Mobilization and Project Closeout."

Pay Item Pay Unit
Mobilization and Project Closeout LS

1481-53-05-jn1218-spec 0975002a - mobilization.doc
ITEM # 1700001A – SERVICE CONNECTIONS (ESTIMATED COST)

Description: This work shall consist of disconnection, alteration, and reconnection of those existing utility services owned by property owners at locations necessary to complete this project and as ordered by the Engineer. This work shall include the coordination with the affected utility companies and customers. Any damage caused by the Contractor or Subcontractors, as determined by the Engineer, shall be corrected by the Contractor in accordance with this specification.

Materials: All materials shall be provided by the Contractor and shall meet the current standards of the affected service.

Construction Methods: The Contractor shall perform all work in coordination with the Utility Company and affected property owner and as directed by the Engineer. Certain work may require use of a licensed and/or certified tradesman when such work is required by local and/or state codes.

Any utility customer's service interruption shall be done in a way that minimizes adverse impacts to the customer and affected utility.

Any work and materials supplied by the utility companies shall be on a billable basis to the Contractor.

Method of Measurement: The work and materials shall be measured for payment as provided for under Article 1.04.05 Extra Work.

The sum of money shown on the estimate and in the itemized proposal as "Estimated Cost" for this work will be considered the price bid even though payment will be made only for actual work performed. The estimated cost figure is not to be altered in any manner by the bidder. Should the bidder alter the amount shown, the altered figure will be disregarded and the original price will be used to determine the total amount for the contract.

Corrective work required to repair damage caused by the Contractor or its Subcontractors shall not be measured for payment.

Basis of Payment: This work will be paid as Extra Work.

Pay Item Pay Unit
Service Connections (Estimated Cost) Estimated Cost
SECTION III – APPENDICES

- Appendix A – Transportation Design Standards
- Appendix B – CT Department of Labor – Wage Rates
- Appendix C – Contract Signature Page
- Appendix D – Additional Documents
### Appendix A – Transportation Design Standards

TOWN OF NEW MILFORD  
TECHNICAL STANDARDS AND PUBLICATIONS  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION

<table>
<thead>
<tr>
<th>PUBLISHING AGENCY</th>
<th>DESIGN STANDARD TITLE / EDITION / DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AASHTO</strong> - American Association of State Highway &amp; Transportation Officials, Washington, DC</td>
<td></td>
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<tr>
<td><strong>AI</strong> - Asphalt Institute, College Park, MD</td>
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<tr>
<td><strong>TRB</strong> - Transportation Research Board—National Research Council, Washington, DC</td>
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<tr>
<td><strong>FHWA</strong> - U.S. Department of Transportation—Federal Highway Administration, Washington, DC</td>
<td></td>
</tr>
<tr>
<td><strong>PCA</strong> - Portland Cement Association, Skokie, IL</td>
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</tbody>
</table>
  - *Design and Control of Concrete Mixtures*, 2002, 14th edition |
| **ITE** - Institute of Transportation Engineers, Washington, DC |  
| **OSHA** – Occupational Safety and Health Standards for the Construction Industry, US Department of Labor, Washington, DC. |  
  - 29 CFR Part 1926 (US Federal Version) |
| **CT DOT** - Connecticut Department of Transportation, Newington, CT |  
  - *Standard Specifications for Roads, Bridges, Facilities and Incidental Construction*, Form 817, 2016, including January 2018 supplements  
  - *Drainage Manual 2000*, plus revisions through December 2003  
| **CT DEEP** - Connecticut Department of Energy & Environmental Protection, Hartford, CT |  
  - *Erosion & Sedimentation Guidelines*, 2002 |
| **US DOJ** – United States Department of Justice |  
  - ADA Accessibility Guidelines for Buildings and Facilities (ADAAG), 2004, w/ amendments thru 2005  
  **Note:** Including any revisions, updates, approved changes, addendums, etc. as may be incorporated into the official documents listed. |
Appendix B – CT Department of Labor – Wage Rates

http://www.ctdol.state.ct.us/wgwkstnd/forms/prevwgfm.htm
Appendix C - Contract Signature Page

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in three (3) counterparts. One counterpart each has been delivered to Owner, Contractor, and Engineer. All portions of the Contract Documents have been signed, initialed, or identified by Owner and Contractor or identified by Engineer on their behalf.

The CONTRACTOR hereby agrees to commence work under this Contract on or before a date to be specified in a written "Notice to Proceed" of the OWNER and to fully complete the Reconstruction of Long Mountain Road and Squire Hill Road within the time limit specified in Article 2 of this Contract Agreement. The CONTRACTOR further agrees to pay, as liquidated damages, the sum specified in Article 2.1.1.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Contract, subject to additions and deductions as provided in Article 2.2 of this Contract Agreement, and to make payments on account thereof as provided in Article 4 of this Contract Agreement.

This Agreement is dated _____.

OWNER:

Town of New Milford

By: Pete Bass
Title: Mayor

[CORPORATE SEAL]

Attest: Daniel Stanton
Title: Town Engineer
Address for giving notices: 10 Main St
New Milford, CT 06776

CONTRACTOR:

By: ____________________________
Title: ____________________________

[CORPORATE SEAL]

Attest: ____________________________
Title: ____________________________
Address for giving notices: ____________________________

Agent for service of process: ____________________________

(If Contractor is a corporation or a partnership, attach evidence of authority to sign.)
Appendix D - Documents

Attached are the following:

- Boring Logs
- Squire Hill Road – Horizontal Survey Control Point Sketches
BORING LOGS
### TABLE 1
SUMMARY OF SUBSURFACE EXPLORATIONS
PROPOSED RECONSTRUCTION OF SQUIRE HILL ROAD AND LONG MOUNTAIN ROAD
NEW MILFORD, CONNECTICUT

<table>
<thead>
<tr>
<th>TEST BORING DESIGNATION</th>
<th>THICKNESS OF ASPHALT (IN.)</th>
<th>PERCENT PASSING 200 SIEVE (SOIL IMMEDIATELY BELOW ASPHALT)</th>
<th>BOTTOM OF FILL DEPTH (IN.)</th>
<th>BOTTOM OF TOPSOIL/ORGANICS DEPTH (IN.)</th>
<th>TOP OF GLACIAL TILL DEPTH (IN.)</th>
<th>TOP OF WEATHERED ROCK DEPTH (IN.)</th>
<th>BOTTOM OF EXPLORATION DEPTH (IN.)</th>
<th>OBSERVED GROUNDWATER LEVELS DURING ADVANCEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SQUIRE HILL ROAD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMI-B1</td>
<td>10.0</td>
<td>10%-20%</td>
<td>36</td>
<td>NE</td>
<td>36</td>
<td>NE</td>
<td>60</td>
<td>59</td>
</tr>
<tr>
<td>MMI-B2</td>
<td>8.0</td>
<td>35%-50%</td>
<td>8</td>
<td>NE</td>
<td>8</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B3</td>
<td>10.0</td>
<td>54.6%*</td>
<td>10</td>
<td>NE</td>
<td>10</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B4</td>
<td>8.0</td>
<td>0%-10%</td>
<td>16</td>
<td>NE</td>
<td>16</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B5</td>
<td>10.0</td>
<td>Greater than 50%</td>
<td>10</td>
<td>NE</td>
<td>10</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B6</td>
<td>8.0</td>
<td>Greater than 50%</td>
<td>8</td>
<td>NE</td>
<td>8</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B7</td>
<td>8.5</td>
<td>23.4%*</td>
<td>16</td>
<td>NE</td>
<td>16</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B8</td>
<td>11.0</td>
<td>20%-35%</td>
<td>23</td>
<td>NE</td>
<td>23</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B9</td>
<td>8.5</td>
<td>0%-10%</td>
<td>17</td>
<td>NE</td>
<td>17</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B10</td>
<td>9.5</td>
<td>0%-10%</td>
<td>16</td>
<td>NE</td>
<td>16</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B11</td>
<td>10.0</td>
<td>0%-10%</td>
<td>18</td>
<td>NE</td>
<td>18</td>
<td>NE</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>MMI-B12</td>
<td>8.0</td>
<td>0%-10%</td>
<td>24</td>
<td>NE</td>
<td>24</td>
<td>NE</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td>MMI-B13</td>
<td>7.0</td>
<td>17.7%*</td>
<td>36</td>
<td>NE</td>
<td>36</td>
<td>NE</td>
<td>60</td>
<td>42</td>
</tr>
<tr>
<td>MMI-B14</td>
<td>12.0</td>
<td>0%-10%</td>
<td>18</td>
<td>NE</td>
<td>18</td>
<td>NE</td>
<td>60</td>
<td>48</td>
</tr>
<tr>
<td><strong>LONG MOUNTAIN ROAD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMI-B15</td>
<td>4.5</td>
<td>0%-10%</td>
<td>36</td>
<td>NE</td>
<td>NE</td>
<td>36</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B16</td>
<td>6.0</td>
<td>0%-10%</td>
<td>36</td>
<td>NE</td>
<td>36</td>
<td>48</td>
<td>52</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B17</td>
<td>8.0</td>
<td>0%-10%</td>
<td>16</td>
<td>NE</td>
<td>16</td>
<td>24</td>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>MMI-B18</td>
<td>7.0</td>
<td>20%-35%</td>
<td>18</td>
<td>36</td>
<td>36</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B19</td>
<td>5.0</td>
<td>0%-10%</td>
<td>16</td>
<td>23</td>
<td>NE</td>
<td>NE</td>
<td>27</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B20</td>
<td>5.5</td>
<td>0%-10%</td>
<td>36</td>
<td>48</td>
<td>48</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B21</td>
<td>7.0</td>
<td>0%-10%</td>
<td>16</td>
<td>NE</td>
<td>NE</td>
<td>16</td>
<td>36</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B22</td>
<td>8.0</td>
<td>0%-10%</td>
<td>32</td>
<td>45</td>
<td>45</td>
<td>NE</td>
<td>60</td>
<td>42</td>
</tr>
<tr>
<td>MMI-B23</td>
<td>5.0</td>
<td>10.3%*</td>
<td>39</td>
<td>NE</td>
<td>39</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B24</td>
<td>6.0</td>
<td>10%-20%</td>
<td>36</td>
<td>42</td>
<td>42</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B25</td>
<td>4.5</td>
<td>0%-10%</td>
<td>30</td>
<td>42</td>
<td>42</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B26</td>
<td>4.5</td>
<td>0%-10%</td>
<td>18</td>
<td>NE</td>
<td>18</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B27</td>
<td>8.0</td>
<td>20%-35%</td>
<td>30</td>
<td>NE</td>
<td>30</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B28</td>
<td>4.5</td>
<td>0%-10%</td>
<td>18</td>
<td>NE</td>
<td>18</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B29</td>
<td>12.0</td>
<td>0%-10%</td>
<td>16</td>
<td>20</td>
<td>20</td>
<td>NE</td>
<td>51</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B30</td>
<td>8.5</td>
<td>47.4%*</td>
<td>9</td>
<td>NE</td>
<td>9</td>
<td>NE</td>
<td>29</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B31</td>
<td>6.0</td>
<td>Greater than 50%</td>
<td>6</td>
<td>NE</td>
<td>6</td>
<td>NE</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B32</td>
<td>5.0</td>
<td>0%-10%</td>
<td>18</td>
<td>NE</td>
<td>NE</td>
<td>18</td>
<td>60</td>
<td>NE</td>
</tr>
<tr>
<td>MMI-B33</td>
<td>5.0</td>
<td>Greater than 50%</td>
<td>5</td>
<td>16</td>
<td>NE</td>
<td>16</td>
<td>60</td>
<td>NE</td>
</tr>
</tbody>
</table>

**NOTES:**
1) All depths and thicknesses are approximate.
2) Percent passing the 200 sieve for soil directly below the existing pavement is based off of Burmister field classifications. Percentages with an (*) indicate laboratory testing results. See test boring logs for depths and soil descriptions.
3) 'NE' indicates 'not encountered'.
4) Groundwater levels were measured during exploration advancement and therefore are not indicative of stabilized groundwater conditions.
5) Test borings were performed between November 1, 2017 & November 3, 2017 by SITE, LLC of Beacon Falls, CT.
## TEST BORING LOG

**PROJECT:** Squire Hill Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO.:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 1, 2017  
**CONTRACTOR:** SITE, LLC  
**FOREMAN:** J. DeAngelis  
**INSPECTOR:** R. Henderson  
**GROUND SURFACE ELEVATION:**

### EQUIPMENT:

<table>
<thead>
<tr>
<th>SIZE OD (IN.)</th>
<th>AUGER CASING</th>
<th>SAMPLER</th>
<th>COREBRL</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>S.S.A/H.S.A</td>
<td>3in./2in.</td>
<td>--</td>
<td>1-Nov</td>
<td>--</td>
<td>±4’11”</td>
</tr>
</tbody>
</table>

### DATE & TIME

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6”</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>20</td>
<td>Top 10&quot;: ASPHALT. Bottom 2&quot;: Gray fine to coarse SAND, little fine to coarse Gravel, little Silt.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>S-2</td>
<td>16</td>
<td>S-1: Top 5&quot;: Gray fine to coarse SAND, little fine to coarse Gravel, little Silt. Bottom 15&quot;: Brown fine to coarse SAND and fine to coarse GRAVEL, little Silt. (Mica)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>S-2: Loose, dark brown SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

### REMARKS:

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### COHESIONLESS SOILS

<table>
<thead>
<tr>
<th>N = 0 - 4 = VERY LOOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-10 = LOOSE</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
</tr>
<tr>
<td>50+ = VERY DENSE</td>
</tr>
</tbody>
</table>

### COHESIVE SOILS

<table>
<thead>
<tr>
<th>N = 0-2 = VERY SOFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-4 = SOFT</td>
</tr>
<tr>
<td>4-8 = MEDIUM</td>
</tr>
<tr>
<td>8-15 = STIFF</td>
</tr>
<tr>
<td>30+ = HARD</td>
</tr>
</tbody>
</table>

### SAMPLE TYPE

- C = ROCK CORE
- S = SPLIT SPOON
- UP = UNDISTURBED PISTON
- UT = UNDISTURBED THINWALL

### PROPORTIONS

- trace = <10%
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%
### TEST BORING LOG

**PROJECT:** Squire Hill Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 1, 2017

**GROUND SURFACE ELEVATION:**

**EQUIPMENT:**
- **AUGER:** S.S.A/H.S.A  
- **CASING:** S.S.  
- **SAMPLER:** S.S.A/H.S.A  
- **COREBRL:** S.S.

**GROUNDWATER DEPTH (FT.):**
- **DATE:** 1-Nov
- **TIME:** None

**UT = UNDISTURBED THINWALL TEST BORING LOG**

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BOWS PER 6”</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>10</td>
<td>12</td>
<td>Top 8”: ASPHALT. Bottom 4”: Dark brown fine to medium SAND and SILT, trace fine to coarse Gravel. S-1: Dark brown fine to medium SAND and SILT, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>47</td>
<td>40/2”</td>
<td>GLACIAL TILL</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>16</td>
<td>12</td>
<td>S-2: Medium dense, dark brown fine to medium SAND and SILT, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>7</td>
<td>7</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>N</th>
<th>0-4 = VERY LOOSE</th>
<th>4-10 = LOOSE</th>
<th>10-30 = MEDIUM DENSE</th>
<th>30-50 = DENSE</th>
<th>50+ = VERY DENSE</th>
</tr>
</thead>
</table>

**COHESIVE SOILS**

| N  | 0-2 = VERY SOFT | 2-4 = SOFT | 4-8 = MEDIUM | 8-15 = STIFF | 30+ = HARD |

**SAMPLE TYPE**

| C  | ROCK CORE | S  | SPLIT SPOON | UP = UNDISTURBED PISTON | UT = UNDISTURBED THINWALL |

**PROPORTIONS**

- trace = <10%
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%
### TEST BORING LOG

**PROJECT:** Squire Hill Road  
**BORING NO.:** MMI-B3  
**SHEET:** 1 of 1

**LOCATION:** New Milford, Connecticut  
**CONTRACTOR:** SITE, LLC

**PROJ. NO:** 1481-53  
**FOREMAN:** J. DeAngelis

**CLIENT:** Town of New Milford  
**INSPECTOR:** R. Henderson

**DATE:** November 1, 2017  
**GROUND SURFACE ELEVATION:**

---

**EQUIPMENT:**

<table>
<thead>
<tr>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBRL</th>
<th>GROUNDWATER DEPTH (FT.)</th>
<th>WATER DEPTH</th>
<th>TYPE OF RIG</th>
<th>TRUCK</th>
</tr>
</thead>
</table>

**SIZE OD (IN.)**

| 4     | --     | 3in./2in. | --     | 1-Nov                  | None        | 11-Nov     |       |

**HMR. WT (LB.)**

| --    | --     | 140      | --     |                        |             |            |       |

**HMR. FALL (IN.)**

| --    | --     | 30       | --     |                        |             |            |       |

---

**LABORATORY TESTING**

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

**BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)**

**DEPTH (FT.)**

<table>
<thead>
<tr>
<th>STRATUM DESCRIPTION</th>
<th>ELEV. (FT.)</th>
<th>Remark</th>
</tr>
</thead>
</table>

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>N = 0 - 4 = VERY LOOSE</th>
<th>N = 0 - 2 = VERY SOFT</th>
<th>C = ROCK CORE</th>
<th>trace = &lt;10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-10 = LOOSE</td>
<td>2 - 4 = SOFT</td>
<td>S = SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>4 - 8 = MEDIUM</td>
<td>U = UNDISTURBED PISTON</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>5 - 15 = STIFF</td>
<td>UT = UNDISTURBED THINWALL</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50+ = VERY DENSE</td>
<td>30+ = HARD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks:**

1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.
# Test Boring Log

**Project:** Squire Hill Road  
**Location:** New Milford, Connecticut  
**Proj. No:** 1481-53  
**Client:** Town of New Milford  
**Date:** November 1, 2017  
**Type of Rig:** Truck  
**Equipment:**  
- Auger: S.S.A/H.S.A  
- Casing: S.S  
- Sampler: S.S/A/H.S.A  
- Corebrl:  
  - Date: 1-Nov  
  - Time: None  
**Groundwater Depth (ft):** None  
**Rig Model:** CME-75  

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Number</th>
<th>Recovery (IN)</th>
<th>Blows PER 6&quot;</th>
<th>Soil and Rock Classification-Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>16</td>
<td>15</td>
<td>Top 8&quot;: ASPHALT. Bottom 4&quot;: Black fine to medium SAND and ASPHALT fragments, little fine to coarse Gravel, trace Silt.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>12</td>
<td>9</td>
<td>S-1: Top 4&quot;: Black fine to medium SAND and ASPHALT fragments, little fine to coarse Gravel, trace Silt. Bottom 12&quot;: Moist, brown SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>18</td>
<td>7</td>
<td>S-2: Loose, brown SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>4</td>
<td></td>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**  
1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.

## Soil and Rock Classification-Description

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Description</th>
<th>Depth (Ft.)</th>
<th>Elevation (Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLACIAL TILL</td>
<td>Bottom 12&quot;: Moist, brown SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
<td>±5.0'</td>
<td></td>
</tr>
</tbody>
</table>

**Cohesionless Soils**

<table>
<thead>
<tr>
<th>Size OD (IN)</th>
<th>Water Depth</th>
<th>Type of Rig</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>None</td>
<td>Truck</td>
</tr>
</tbody>
</table>

**Cohesive Soils**

<table>
<thead>
<tr>
<th>Type</th>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0-4 = VERY LOOSE</td>
<td>Rock Core</td>
<td>trace = &lt;10%</td>
</tr>
<tr>
<td>4-10 = LOOSE</td>
<td>Split Spoon</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>Undisturbed Piston</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>Undisturbed Thinwall</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50+ = VERY DENSE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Laboratory Testing**

- None
### TEST BORING LOG

**PROJECT:** Squire Hill Road  
**BORING NO.:** MMI-B5  
**LOCATION:** New Milford, Connecticut  
**CONTRACTOR:** SITE, LLC  
**PROJ. NO:** 1481-53  
**FOREMAN:** J. DeAngelis  
**CLIENT:** Town of New Milford  
**INSPECTOR:** R. Henderson  
**DATE:** November 1, 2017  
**GROUND SURFACE ELEVATION:**

**EQUIPMENT:**  
- **AUGER:** S.5A/H.S.A  
- **CASING:** S.5  
- **SAMPLER:** --  
- **COREBRL:** --  
- **DATE:** 1-Nov  
- **TIME:** --  
- **WATER DEPTH:** None  
- **TYPE OF RIG:** Truck  

**SIZE OD (IN.)**  
- 4 in./2 in.  

**HMR. WT (LB.)**  
- 140 lb.  

**HMR. FALL (IN.)**  
- 30 in.  

**LABORATORY TESTING**

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>20</td>
<td>12</td>
<td>Top 8&quot;: ASPHALT. Middle 2&quot;: Black stained SAND, strong chemical odor. Bottom 2&quot;: Brown Clayey SILT, some fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>S-1: Brown Clayey SILT, some fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>7</td>
<td>S-2: Medium dense, brown Clayey SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>20</td>
<td>6</td>
<td>S-2: Medium dense, brown Clayey SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>5</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**  
1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROCK CORE</td>
<td>trace = &lt;10%</td>
</tr>
<tr>
<td>SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>UNDISTURBED PILOT</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>UNDISTURBED THINWALL</td>
<td>and = 35% - 50%</td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>BURMISTER SYSTEM (SOIL)</th>
<th>U.S. CORPS OF ENGINEERS SYSTEM (ROCK)</th>
<th>STRATUM</th>
<th>ELEV. (FT.)</th>
<th>DEPTH (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td></td>
<td></td>
<td>0.83'</td>
<td>1</td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td></td>
<td></td>
<td>5.0'</td>
<td>2</td>
</tr>
</tbody>
</table>

**Remarks:**

- Bottom of Exploration ±5.0 feet
## TEST BORING LOG

**PROJECT:** Squire Hill Road  
**BORING NO.:** MMI-B6  
**SHEET:** 1 of 1

**LOCATION:** New Milford, Connecticut  
**CONTRACTOR:** SITE, LLC  
**PROJ. NO:** 1481-53  
**FOREMAN:** J. DeAngelis  
**CLIENT:** Town of New Milford  
**INSPECTOR:** R. Henderson  
**DATE:** November 1, 2017  
**GROUND SURFACE ELEVATION:**

<table>
<thead>
<tr>
<th>EQUIPMENT:</th>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBRL</th>
<th>GROUNDWATER DEPTH (FT.)</th>
<th>TYPE OF RIG: Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>S.S./H.S.A</td>
<td>--</td>
<td>--</td>
<td>5.5</td>
<td>--</td>
<td>None</td>
</tr>
<tr>
<td>SIZE OD (IN.)</td>
<td>4</td>
<td>--</td>
<td>--</td>
<td>3in./2in.</td>
<td>--</td>
<td>1-Nov</td>
</tr>
<tr>
<td>HMR. WT (LB.)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>140</td>
<td>1-Nov</td>
</tr>
<tr>
<td>HMR. FALL (IN.)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>30</td>
<td>1-Nov</td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

**BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)**

**DEPTH (FT.):**

**STRATUM DESCRIPTION:**

**ELEV. (FT.):**

### Remarks:
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### COHESIONLESS SOILS

- N = 0 - 4 = VERY LOOSE
- 4 - 10 = LOOSE
- 10 - 30 = MEDIUM DENSE
- 30 - 50 = DENSE
- 50 + = VERY DENSE

### COHESIVE SOILS

- N = 0 - 2 = VERY SOFT
- 2 - 4 = SOFT
- 4 - 8 = MEDIUM
- 8 - 15 = STIFF
- 30 + = HARD

### SAMPLE TYPE

- C = ROCK CORE
- S = SPLIT SPOON
- UP = UNDISTURBED PISTON
- UT = UNDISTURBED THINWALL

### PROPORTIONS

- trace = <10%
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%

---

<table>
<thead>
<tr>
<th><strong>Depth (FT)</strong></th>
<th><strong>Sample Recovery (IN)</strong></th>
<th><strong>Blows per 6&quot;</strong></th>
<th><strong>Soil Type</strong></th>
<th><strong>Remarks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>21</td>
<td>10</td>
<td>FILL</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>21</td>
<td>11</td>
<td>GLACIAL TILL</td>
</tr>
<tr>
<td>3</td>
<td>S-1</td>
<td>21</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>19</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>S-2</td>
<td>19</td>
<td>6</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

---

**Bottom of Exploration ±5.0 feet**
**TEST BORING LOG**

- **PROJECT:** Squire Hill Road
- **LOCATION:** New Milford, Connecticut
- **PROJ. NO.:** 1481-53
- **CLIENT:** Town of New Milford
- **DATE:** November 1, 2017
- **GROUND SURFACE ELEVATION:**

### Equipment

<table>
<thead>
<tr>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBR.</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
<th>TYPE OF RIG</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.S.A/H.S.A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>1-Nov</td>
<td>None</td>
<td></td>
<td>Truck</td>
</tr>
</tbody>
</table>

### Boring Details

- **SIZE OD (IN.):** 4
- **HMR. WT (LB.):** --
- **HMR. FALL (IN.):** --

### Soil and Rock Classification

#### Samples

- **S-1:** Top 4": Light gray fine to coarse SAND, some Silt, little to coarse Gravel. Bottom 18": Brown Clayey SILT and fine to medium Sand, trace fine to coarse Gravel.
- **S-2:** Medium dense, brown Clayey SILT, little fine to coarse Sand, trace fine to coarse Gravel.

#### Laboratory Testing

<table>
<thead>
<tr>
<th>STRATUM DESCRIPTION</th>
<th>ELEV. (FT.)</th>
<th>DEPTH (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td>1.33'</td>
<td>1</td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td>5.0'</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Remarks

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

---

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>N</th>
<th>0-4 = VERY LOOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-10</td>
<td>LOOSE</td>
</tr>
<tr>
<td>10-30</td>
<td>MEDIUM DENSE</td>
</tr>
<tr>
<td>30-50</td>
<td>DENSE</td>
</tr>
<tr>
<td>50 +</td>
<td>VERY DENSE</td>
</tr>
</tbody>
</table>

**COHESIVE SOILS**

<table>
<thead>
<tr>
<th>N</th>
<th>0-2 = VERY SOFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-4</td>
<td>SOFT</td>
</tr>
<tr>
<td>4-8</td>
<td>MEDIUM</td>
</tr>
<tr>
<td>8-15</td>
<td>STIFF</td>
</tr>
<tr>
<td>30 +</td>
<td>HARD</td>
</tr>
</tbody>
</table>

**SAMPLE TYPE**

| C = ROCK CORE |
| S = SPLIT SPOON |
| UP = UNDISTURBED PISTON |
| UT = UNDISTURBED THINWALL |

**PROPORTIONS**

- trace = <10%
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%
## TEST BORING LOG

**PROJECT:** Squire Hill Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 1, 2017

**GROUND SURFACE ELEVATION:**

<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBLR</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>S.S./H.S.A</td>
<td>--</td>
<td>S.S.</td>
<td>--</td>
<td>1-Nov</td>
<td>--</td>
<td>None</td>
</tr>
<tr>
<td>SIZE OD (IN.)</td>
<td>4</td>
<td>--</td>
<td>3in./2in.</td>
<td>--</td>
<td>1-Nov</td>
<td>--</td>
<td>None</td>
</tr>
<tr>
<td>HMR. WT (LB.)</td>
<td>--</td>
<td>--</td>
<td>140</td>
<td>--</td>
<td>1-Nov</td>
<td>--</td>
<td>None</td>
</tr>
<tr>
<td>HMR. FALL (IN.)</td>
<td>--</td>
<td>--</td>
<td>30</td>
<td>--</td>
<td>1-Nov</td>
<td>--</td>
<td>None</td>
</tr>
</tbody>
</table>

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>22</td>
<td>9</td>
<td>Top 1&quot;: ASPHALT. Bottom 1&quot;: Gray fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>6</td>
<td>7</td>
<td>Bottom 1&quot;: Gray fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>18</td>
<td>6</td>
<td>S-2: Brown Clayey SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>10</td>
<td>6</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

**COHESIVE SOILS**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.92'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.0'</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>BURMISTER SYSTEM (SOIL)</th>
<th>U.S. CORPS OF ENGINEERS SYSTEM (ROCK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top 1&quot;: ASPHALT.</td>
<td>Bottom 1&quot;: Gray fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>S-1: Top 1&quot;: Gray fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td>S-2: Brown Clayey SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
</tr>
</tbody>
</table>

**LABORATORY TESTING**

<table>
<thead>
<tr>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>22</td>
<td>9</td>
<td>Top 1&quot;: ASPHALT. Bottom 1&quot;: Gray fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>S-1</td>
<td>6</td>
<td>7</td>
<td>Bottom 1&quot;: Gray fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>S-2</td>
<td>18</td>
<td>6</td>
<td>S-2: Brown Clayey SILT, some fine to medium Sand, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>S-2</td>
<td>10</td>
<td>6</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.
# Test Boring Log

## Details
- **Project:** Squire Hill Road
- **Location:** New Milford, Connecticut
- **Proj. No:** 1481-53
- **Client:** Town of New Milford
- **Date:** November 1, 2017

## Equipment
- **Auger:** S.S./H.S.A
- **Casing:** S.S.
- **Sampler:** --
- **Core Brm.:** --

## Groundwater Depth (ft.)

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Number</th>
<th>Recovery (in)</th>
<th>Blows Per 6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
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<td>6</td>
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<td>7</td>
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<td>8</td>
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</tr>
<tr>
<td>9</td>
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<td></td>
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<td>10</td>
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<td>15</td>
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<td>16</td>
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<td>17</td>
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<td>18</td>
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<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Soil and Rock Classification-Description
- **Burmister System (Soil):**
- **U.S. Corps of Engineers System (Rock):**

### Top 8.5": ASPHALT. Bottom 3.5": Brown fine to coarse SAND, little fine to coarse Gravel, trace Silt.
- **S-1:** Top 5": Brown fine to coarse SAND, little fine to coarse Gravel, trace Silt. Bottom 17": Brown Clayey SILT, little fine to medium Sand, trace fine to coarse Gravel.
- **S-2:** Moist, medium dense, brown Clayey SILT, little fine to medium Sand, trace fine Gravel.

### Remarks:
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

## Laboratory Testing

<table>
<thead>
<tr>
<th>Size OD (in.)</th>
<th>HMR. WT (LB.)</th>
<th>HMR. Fall (in.)</th>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>140</td>
<td>--</td>
<td>RC</td>
<td>N = 0 - 4 = Very Loose 10 - 30 = Medium Dense 30 - 50 = Dense 50+ = Very Dense</td>
</tr>
<tr>
<td>3.3</td>
<td>22</td>
<td>30</td>
<td>SS</td>
<td>N = 0 - 2 = Very Soft 2 - 4 = Soft 4 - 8 = Medium 8 - 15 = Stiff 30+ = Hard</td>
</tr>
<tr>
<td>3.0</td>
<td>140</td>
<td>--</td>
<td>S</td>
<td>C = Rock Core S = Split Spoon UP = Undisturbed Piston UT = Undisturbed Thin Wall</td>
</tr>
<tr>
<td>2.5</td>
<td>140</td>
<td>--</td>
<td>S</td>
<td>Trace = &lt;10% Little = 10% - 20% Some = 20% - 35% And = 35% - 50%</td>
</tr>
</tbody>
</table>

## Lab Test Results

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Stratum Description</th>
<th>Elevation (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fill</td>
<td>1.42'</td>
</tr>
<tr>
<td>2</td>
<td>Glacial Till</td>
<td>5.0'</td>
</tr>
</tbody>
</table>

### Bottom of Exploration ±5.0 feet
## Test Boring Log

**Project:** Squire Hill Road  
**Location:** New Milford, Connecticut  
**Proj. No.:** 1481-53  
**Client:** Town of New Milford  
**Date:** November 1, 2017

**Groundwater Depth (ft.):**

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Number</th>
<th>Recovery (in)</th>
<th>Blows per 6&quot;</th>
<th>Soil and Rock Classification-Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>18</td>
<td>8</td>
<td>Top 9.5&quot;: ASPHALT. Bottom 2.5&quot;: Gray fine to coarse SAND, little fine to coarse Gravel.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>18</td>
<td>10</td>
<td>S-1: Top 4&quot;: Gray fine to coarse SAND, little fine to coarse Gravel, trace Silt. Bottom 14&quot;: Brown fine to medium SAND, little Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>18</td>
<td>4</td>
<td>S-2: Medium dense, brown SILT and fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>18</td>
<td>6</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

**Remarks:**

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### Soil and Rock Classification
- **Cohesionless Soils**
  - **N = 0 - 4 = Very Loose**
  - **4 - 10 = Loose**
  - **10 - 30 = Medium Dense**
  - **30 - 50 = Dense**
  - **50+ = Very Dense**

- **Cohesive Soils**
  - **N = 0 - 2 = Very Soft**
  - **2 - 4 = Soft**
  - **4 - 8 = Medium**
  - **8 - 15 = Stiff**
  - **15+ = Hard**

### Sample Type
- **C = Rock Core**
- **S = Split Spoon**
- **UP = Undisturbed Piston**
- **UT = Undisturbed Thinwall**

### Proportions
- **trace = <10%**
- **little = 10% - 20%**
- **some = 20% - 35%**
- **and = 35% - 50%**

**Equipment:**
- **Auger:** S.S/AH.S.A  
- **Casing:** 5.5  
- **Sampler:** 3in./2in.  
- **Corebrl.:** --  
- **Groundwater Depth (ft.):** --  
- **Date:** 1-Nov

**Remarks:**

1. Augered to depths ±1.0 feet bgs.
## TEST BORING LOG

**PROJECT:** Squire Hill Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 2, 2017  
**GROUND SURFACE ELEVATION:**  

**EQUIPMENT:**  
- **AUGER**  
- **CASING**  
- **SAMPLER**  
- **COREBRL**  
- **GROUNDWATER DEPTH (FT.)**  
- **TYPE OF RIG:** Truck

<table>
<thead>
<tr>
<th>SIZE OD (IN.)</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2-Nov</td>
<td>140</td>
<td>±4.0'</td>
</tr>
</tbody>
</table>

**HMR. WT (LB.)**  
- 140

**HMR. FALL (IN.)**  
- 30

**Remarks:**  
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### SOIL AND ROCK CLASSIFICATION-DESCRIPTION

<table>
<thead>
<tr>
<th>STRATUM</th>
<th>DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>ELEV. (FT)</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td></td>
<td>1.5'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td></td>
<td></td>
<td>4.0' G.W.T</td>
<td></td>
</tr>
<tr>
<td>Bottom of Exploration</td>
<td>±5.0 feet</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SOILS AND ROCKS

- **COHESIONLESS SOILS**  
  - **N = 0 - 4 = VERY LOOSE**  
  - **4-10 = LOOSE**  
  - **10-30 = MEDIUM DENSE**  
  - **30-50 = DENSE**  
  - **50 += VERY DENSE**

- **COHESIVE SOILS**  
  - **N = 0 - 2 = VERY SOFT**  
  - **2 - 4 = SOFT**  
  - **4 - 8 = MEDIUM**  
  - **8 -15 = STIFF**  
  - **30 += HARD**

- **SAMPLE TYPE**  
  - **C = ROCK CORE**  
  - **S = SPLIT SPOON**

<table>
<thead>
<tr>
<th>type</th>
<th>proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>trace</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>little</td>
<td>10% - 20%</td>
</tr>
<tr>
<td>some</td>
<td>20% - 35%</td>
</tr>
<tr>
<td>and</td>
<td>35% - 50%</td>
</tr>
</tbody>
</table>
# Test Boring Log

**Project:** Squire Hill Road  
**Boring No.:** MMI-B12  
**Location:** New Milford, Connecticut  
**Contractor:** SITE, LLC  
**Client:** Town of New Milford  
**Inspector:** R. Henderson  
**Site:** 99 Realty Drive, Cheshire, CT 06410  
**Date:** November 2, 2017  
**Groundwater Depth:** ±4.0'  
**Type of Rig:** Truck  
**Rig Model:** CME-75  

## Equipment

<table>
<thead>
<tr>
<th>Type</th>
<th>Auger</th>
<th>Casing</th>
<th>Sampler</th>
<th>Corebrl</th>
<th>Groundwater Depth (ft.)</th>
<th>Water Depth</th>
<th>Ground Surface Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.S./H.S.A</td>
<td>--</td>
<td>1.5</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>±4.0'</td>
<td>--</td>
</tr>
</tbody>
</table>

## Depth

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Sample Number</th>
<th>Recovery (in)</th>
<th>Blows per 6&quot;</th>
<th>Soil and Rock Classification-Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>24</td>
<td>13</td>
<td>Top 8&quot;: ASPHALT. Bottom 4&quot;: Brown fine to coarse SAND, some fine to coarse GRAVEL, trace Silt.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>24</td>
<td>10</td>
<td>S-1: Top 5&quot;: Brown fine to coarse SAND, some fine to coarse GRAVEL, trace Silt. Middle 7&quot;: Brown fine to medium SAND, trace Silt, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>3</td>
<td>S-1</td>
<td>24</td>
<td>8</td>
<td>Bottom 12&quot;: Brown Clayey SILT and fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>18</td>
<td>2</td>
<td>S-2: Loose, brown/gray Clayey SILT, some fine to medium Sand, little fine Gravel.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>3</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

## Remarks:

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

## Cohesionless Soils

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0 - 4 = VERY LOOSE</td>
</tr>
<tr>
<td>4 - 10 = LOOSE</td>
<td></td>
</tr>
<tr>
<td>10 - 30 = MEDIUM</td>
<td></td>
</tr>
<tr>
<td>30 - 50 = DENSE</td>
<td></td>
</tr>
<tr>
<td>50 + = VERY DENSE</td>
<td></td>
</tr>
</tbody>
</table>

## Cohesive Soils

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0 - 2 = VERY SOFT</td>
</tr>
<tr>
<td>2 - 4 = SOFT</td>
<td></td>
</tr>
<tr>
<td>4 - 8 = MEDIUM</td>
<td></td>
</tr>
<tr>
<td>8 - 16 = STIFF</td>
<td></td>
</tr>
<tr>
<td>30 + = HARD</td>
<td></td>
</tr>
</tbody>
</table>

## Sample Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>ROCK CORE</td>
</tr>
<tr>
<td>S</td>
<td>SPLIT SPOON</td>
</tr>
<tr>
<td>UP</td>
<td>UNDISTURBED PISTON</td>
</tr>
<tr>
<td>UT</td>
<td>UNDISTURBED THINWALL</td>
</tr>
</tbody>
</table>

## Proportions

<table>
<thead>
<tr>
<th>Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trace</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>Little</td>
<td>10% - 20%</td>
</tr>
<tr>
<td>Some</td>
<td>20% - 35%</td>
</tr>
<tr>
<td>And</td>
<td>35% - 50%</td>
</tr>
</tbody>
</table>

---
PROJECT: Squire Hill Road  
LOCATION: New Milford, Connecticut  
PROJ. NO: 1481-53  
CLIENT: Town of New Milford  
DATE: November 2, 2017  
GROUND SURFACE ELEVATION:  

<table>
<thead>
<tr>
<th>EQUIPMENT:</th>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBL</th>
<th>GROUNDWATER DEPTH (FT.)</th>
<th>TYPE OF RIG: Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE OD (IN.)</td>
<td>4</td>
<td>--</td>
<td>3in./2in.</td>
<td>--</td>
<td>2-Nov</td>
<td>±3.5'</td>
</tr>
<tr>
<td>HMR. WT (LB.)</td>
<td>--</td>
<td>--</td>
<td>140</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>HMR. FALL (IN.)</td>
<td>--</td>
<td>--</td>
<td>30</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

**BORMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)**

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>16</td>
<td>5</td>
<td>Top 7&quot;: ASPHALT. Bottom 5&quot;: Gray/brown fine to coarse SAND, some fine to coarse Gravel, little Silt.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>16</td>
<td>8</td>
<td>S-1: Gray/brown fine to coarse SAND, some fine to coarse Gravel, little Silt. (Mica)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>16</td>
<td>4</td>
<td>S-2: Loose, gray Clayey SILT and fine to medium Sand, trace fine Gravel.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>16</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>S-2</td>
<td>16</td>
<td>3</td>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
</tr>
</tbody>
</table>

**COHESIONLESS SOILS**

| N = 0 - 4 = VERY LOOSE | N = 0 - 2 = VERY SOFT | C = ROCK CORE | trace = <10% |
| 4 - 10 = LOOSE         | 2 - 4 = SOFT          | S = SPLIT SPOON | little = 10% - 20% |
| 10 - 30 = MEDIUM DENSE | 4 - 8 = MEDIUM        | UP = UNDISTURBED PISTON | some = 20% - 35% |
| 30 - 50 = DENSE        | 8 - 15 = STIFF        | UT = UNDISTURBED THINWALL | and = 35% - 50% |
| 50 + = VERY DENSE      | 30 + = HARD           |                |                |

**COHESIVE SOILS**

| Remarks: 1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon. |
## TEST BORING LOG

**PROJECT:** Squire Hill Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 2, 2017  
**GROUND SURFACE ELEVATION:**

### EQUIPMENT:

<table>
<thead>
<tr>
<th>AUGER TYPE</th>
<th>CASING</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.S/H.S.A</td>
<td>5.5</td>
</tr>
</tbody>
</table>

### DATE & TIME:

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Nov</td>
<td></td>
<td>±4.0'</td>
</tr>
</tbody>
</table>

### GROUNDWATER DEPTH (FT.)

<table>
<thead>
<tr>
<th>DEPTH (FT.)</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td></td>
</tr>
</tbody>
</table>

### TYPE OF RIG:

- **Truck**

### EQUIPMENT:

- **RIG MODEL:** CME-75

### SOIL AND ROCK CLASSIFICATION-DESCRIPTION

<table>
<thead>
<tr>
<th>STRATUM</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>Top 6&quot;: Brown fine to coarse SAND and fine to coarse Gravel, trace Silt. Bottom 16&quot;: Brown/gray Clayey SILT and fine to medium Sand, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>S-2</td>
<td>Loose, brown/gray Clayey SILT, some fine to medium Sand, trace fine Gravel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEPTH (FT.)</th>
<th>STRATUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5'</td>
<td>FILL</td>
</tr>
<tr>
<td>4.0'</td>
<td>G.W.T.</td>
</tr>
</tbody>
</table>

### SOIL AND ROCK CLASSIFICATION-DESCRIPTION

<table>
<thead>
<tr>
<th>SOIL CLASSIFICATION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BURMISTER SYSTEM (SOIL)</td>
<td>U.S. CORPS OF ENGINEERS SYSTEM (ROCK)</td>
</tr>
</tbody>
</table>

### LABORATORY TESTING

<table>
<thead>
<tr>
<th>DEPTH (FT.)</th>
<th>STRATUM</th>
<th>ELEV. (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FILL</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>GLACIAL TILL</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
</tr>
</tbody>
</table>

### SOIL PROPORTIONS

- **N** = 0 - 4 = VERY LOOSE
- **10-30** = MEDIUM DENSE
- **30-50** = DENSE
- **50+** = VERY DENSE

### Remarks:

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

---

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>SAMPLE TYPE</th>
<th>PROPORTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>C = ROCK CORE</td>
<td>trace = &lt;10%</td>
</tr>
<tr>
<td>S = SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>UP = UNDISTURBED PISTON</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>UT = UNDISTURBED THINWALL</td>
<td>and = 35% - 50%</td>
</tr>
</tbody>
</table>
# TEST BORING LOG

**PROJECT:** Long Mountain Road

**LOCATION:** New Milford, Connecticut

**PROJ. NO:** 1481-53

**CLIENT:** Town of New Milford

**DATE:** November 2, 2017

**GROUND SURFACE ELEVATION:**

---

**EQUIPMENT:**

<table>
<thead>
<tr>
<th>AUGER TYPE</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBL</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.S/A/H.S.A</td>
<td>--</td>
<td>3 in./2 in.</td>
<td>--</td>
<td>2-Nov</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

**RIG MODEL:** CME-75

**TYPE OF RIG:** Truck

---

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>ELEV. (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>20</td>
<td>16</td>
<td>FILL 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24</td>
<td>20</td>
<td>3.0'</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>16</td>
<td>8</td>
<td>WEATHERED 5.0'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>16</td>
<td>ROCK</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>16</td>
<td>8</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>13</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

---

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>CONSISTENCY</th>
<th>SAMPLE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0-2 = VERY SOFT</td>
<td>C = ROCK CORE</td>
</tr>
<tr>
<td>2-4 = SOFT</td>
<td>S = SPLIT SPOON</td>
</tr>
<tr>
<td>4-8 = MEDIUM</td>
<td>UP = UNDISTURBED PISTON</td>
</tr>
<tr>
<td>8-15 = STIFF</td>
<td>UT = UNDISTURBED THINWALL</td>
</tr>
<tr>
<td>15 + = HARD</td>
<td></td>
</tr>
</tbody>
</table>

**COHESIVE SOILS**

<table>
<thead>
<tr>
<th>CONSISTENCY</th>
<th>PROPORTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0-4 = VERY LOOSE</td>
<td>trace &lt;10%</td>
</tr>
<tr>
<td>4-10 = LOOSE</td>
<td>little 10% - 20%</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>some 20% - 35%</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>and 35% - 50%</td>
</tr>
<tr>
<td>50+ = VERY DENSE</td>
<td></td>
</tr>
</tbody>
</table>

---

**LABORATORY TESTING**

---

**NOTES:**

---

**CONTACT:**

99 Realty Drive
Cheshire, CT 06410
(203) 271-1773
## Test Boring Log

**Project:** Long Mountain Road  
**Location:** New Milford, Connecticut  
**Proj. No.:** 1481-53  
**Client:** Town of New Milford  
**Date:** November 2, 2017  
**Ground Surface Elevation:**

**Equipment:**
- **Auger:** S.S./H.S.A
- **Casing:** S.S.
- **Sampler:** H.S.A
- **Corebrl.:** 3in./2in.

**Groundwater Depth (ft.):** None

**Type of Rig:** Truck

**Depth (ft.)** | **Sample** | **Recovery (in.)** | **Blows per 6"** | **Soil and Rock Classification-Description**
--- | --- | --- | --- | ---
1 | S-1 | 12 | 11 | Top 6": ASPHALT. Bottom 6": Brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt.
2 | S-1 | 20 | 21 | S-1: Top 6": Light brown fine to coarse SAND and WEATHERED ROCK fragments, trace Silt. (Mica) Bottom 6": Brown fine to coarse SAND and SILT, little fine Gravel, trace Roots. (Mica)
3 | S-2 | 6 | 3 | S-2: Top 4": Orange/brown SILT, some fine to coarse Gravel, little fine to medium Sand. Bottom 2": Gray WEATHERED ROCK fragments, little fine to coarse Sand, trace Silt. (Mica)
4 | | 4 | 40/4" | Bottom of Exploration ±4.33 feet

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

**Laboratory Testing**

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Stratum Description</th>
<th>Elev. (ft.)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FILL</td>
<td>3.0'</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>GLACIAL TILL</td>
<td>4.0'</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>WEATHERED ROCK</td>
<td>4.33'</td>
<td></td>
</tr>
</tbody>
</table>

**Cohesionless Soils**

- N = 0 - 10 = VERY LOOSE
- 11 - 20 = LOOSE
- 21 - 30 = MEDIUM DENSE
- 31 - 50 = DENSE
- 50+ = VERY DENSE

**Cohesive Soils**

- N = 0 - 2 = VERY SOFT
- 2 - 4 = SOFT
- 4 - 8 = MEDIUM
- 8 - 15 = STIFF
- 15+ = HARD

**Sample Type**

- C = Rock Core
- S = Split Spoon
- UP = Undisturbed Piston
- UT = Undisturbed Thinwall

**Proportions**

- COHESIONLESS SOILS: trace = <10%
- COHESIVE SOILS: little = 10% - 20%
- SAMPLE TYPE: some = 20% - 35%
- PROPORTIONS: and = 35% - 50%
## TEST BORING LOG

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 2, 2017  
**GROUND SURFACE ELEVATION:**  

### EQUIPMENT:

<table>
<thead>
<tr>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBRL</th>
<th>TYPE</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>--</td>
<td>S.S.A/H.S.A</td>
<td>--</td>
<td>--</td>
<td>S.S.A/H.S.A</td>
<td>2-Nov</td>
<td>--</td>
<td>±1.8'</td>
</tr>
</tbody>
</table>

### GROUNDWATER DEPTH (FT.)

| RIG MODEL: CME-75 |

### TYPE OF RIG:

- Truck

### TYPE

- WATER DEPTH
- SIZE OD (IN.)
- HMR. WT (LB.)
- HMR. FALL (IN.)

### SOIL AND ROCK CLASSIFICATION-DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH (FT.)</th>
<th>STRATUM DESCRIPTION</th>
<th>ELEV. (FT.)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FILL</td>
<td>1.25'</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>GLACIAL TILL</td>
<td>2.0'</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>WEATHERED ROCK</td>
<td>2.83'</td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.
3. Visible bedrock outcroppings

### COHESIONLESS SOILS

- N = 0 - 4 = VERY LOOSE
- 4-10 = LOOSE
- 10-30 = MEDIUM DENSE
- 30-50 = DENSE
- 50+ = VERY DENSE

### COHESIVE SOILS

- N = 0 - 2 = VERY SOFT
- 2 - 4 = SOFT
- 4 - 8 = MEDIUM
- 8 - 15 = STIFF
- 15+ = HARD

### SAMPLE TYPE

- C = ROCK CORE
- S = SPLIT SPOON
- UP = UNDISTURBED PISTON
- UT = UNDISTURBED THINWALL

### PROPORTIONS

- trace <10%
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%
## Test Boring Log

### Project Details
- **Project:** Long Mountain Road
- **Location:** New Milford, Connecticut
- **Proj. No.:** 1481-53
- **Client:** Town of New Milford
- **Date:** November 2, 2017

### Site Information
- **Contractor:** SITE, LLC
- **Foreman:** J. DeAngelis
- **Inspector:** R. Henderson
- **Ground Surface Elevation:**

### Equipment
- **Type:** Auger casing sampler corebl.
- **Date:** 2-Nov
- **Time:** 140
- **Water Depth:** None
- **Rig Model:** CME-75

### Soil and Rock Classification-Description

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Number</th>
<th>Recovery (IN)</th>
<th>Blows Per 6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>S-2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>S-2</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

- **Remarks:** 1. Augered to depths ±1.0 feet bgs.
- 2. First split spoon sample was taken using a 3in. OD. split spoon.

### Soil and Rock Classification

- **Burmister System (Soil):**
  - Top 2.5": ASPHALT. Middle 4.5": Black stained SAND, strong chemical odor.
  - Bottom 5": Brown fine to medium SAND, some Silt, trace fine to coarse Gravel.
  - S-1: Top 6": Brown fine to medium SAND, some Silt, trace fine to coarse Gravel. Bottom 14": Brown SILT, some fine to medium Sand, little fine Gravel.
  - S-2: Medium dense, gray/brown fine to medium SAND, some Silt, little fine to coarse Gravel.

- **US Corps of Engineers System (Rock):**
  - Bottom of Exploration ±5.0 feet

### Laboratory Testing

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Stratum Description</th>
<th>Elev. (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fill</td>
<td>1</td>
</tr>
<tr>
<td>1.5'</td>
<td>Topsoil</td>
<td>2</td>
</tr>
<tr>
<td>3.0'</td>
<td>Glacial TILL</td>
<td>3</td>
</tr>
</tbody>
</table>

### Coarse Soil Analysis

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 8</td>
<td>S = Split Spoon</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10 - 30</td>
<td>U = Undisturbed Piston</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30 - 50</td>
<td>T = Undisturbed Thinwall</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50 +</td>
<td>C = Rock Core</td>
<td>trace = &lt;10%</td>
</tr>
</tbody>
</table>
**TEST BORING LOG**

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 2, 2017  
**DATE & TIME:** 2-NOV 140  
**WATER DEPTH:** None  
**RIG MODEL:** CME-75  
**GROUNDWATER DEPTH:** Truck

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>10</td>
<td>15</td>
<td>Top 5&quot;: ASPHALT. Middle 3&quot;: Brown fine to coarse SAND, some fine to coarse Gravel, trace Silt. Bottom 4&quot;: Light brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>15</td>
<td>50/5&quot;</td>
<td>S-1: Top 4&quot;: Light brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt. Bottom 6&quot;: Dark gray fine to medium SAND, little Silt, trace fine Gravel, organic odor. Auger Refusal at ±2'3&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRATUM</th>
<th>DESCRIPTION</th>
<th>ELEV. (FT.)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td></td>
<td>1.33</td>
<td></td>
</tr>
<tr>
<td>TOPSOIL</td>
<td></td>
<td>1.92</td>
<td></td>
</tr>
<tr>
<td>INFERRED BEDROCK</td>
<td></td>
<td>2.25</td>
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</tbody>
</table>

**Remarks:** 1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.

<table>
<thead>
<tr>
<th>COHESIONLESS SOILS</th>
<th>COHESIVE SOILS</th>
<th>SAMPLE TYPE</th>
<th>PROPORTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0 - 4 = VERY LOOSE</td>
<td>N = 0 - 2 = VERY SOFT</td>
<td>C = ROCK CORE</td>
<td>trace &lt;10%</td>
</tr>
<tr>
<td>4-10 = LOOSE</td>
<td>2 - 4 = SOFT</td>
<td>S = SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>4 - 8 = MEDIUM</td>
<td>UP = UNDISTURBED PISTON</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>8 - 15 = STIFF</td>
<td>UT = UNDISTURBED TINWALL</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50 + = VERY DENSE</td>
<td>30 + = HARD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**TEST BORING LOG**

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 2, 2017

**GROUND SURFACE ELEVATION:**

**EQUIPMENT:**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBL</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
<th>TYPE OF RIG: Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S.S/H.S.A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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</tbody>
</table>

**SIZE OD (IN.)**

<table>
<thead>
<tr>
<th>SIZE OD (IN.)</th>
<th>4</th>
<th>3in./2in.</th>
<th>2-Nov</th>
<th>None</th>
</tr>
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</table>

**HMR. WT (LB.)**

<table>
<thead>
<tr>
<th>HMR. WT (LB.)</th>
<th>--</th>
<th>140</th>
<th>--</th>
<th>--</th>
</tr>
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</table>

**HMR. FALL (IN.)**

<table>
<thead>
<tr>
<th>HMR. FALL (IN.)</th>
<th>--</th>
<th>30</th>
<th>--</th>
<th>--</th>
</tr>
</thead>
</table>

**GROUNDBORING DEPTH (FT.)**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>SAMPLE</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>16</td>
<td>16</td>
<td>Top 5.5&quot;: ASPHALT. Bottom 3.5&quot;: Dark brown fine to coarse SAND, some fine to coarse Gravel, trace Silt.</td>
</tr>
<tr>
<td>2</td>
<td>S-2</td>
<td>14</td>
<td>9</td>
<td>S-2: Loose, Top 7&quot;: Dark gray SILT with Organic Fibers, some fine to medium Sand, trace fine Gravel, organic odor. Bottom 7&quot;: Brown fine to medium SAND and SILT, trace fine Gravel. (Mica)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>5</td>
<td>5</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

- **BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)**

**DEPTH (FT.)**

<table>
<thead>
<tr>
<th>STRATUM DESCRIPTION</th>
<th>ELEV. (FT.)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TOPSOIL</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**COHESIONLESS SOILS**

- **N = 0-4 = VERY LOOSE**
- **4-10 = LOOSE**
- **10-30 = MEDIUM DENSE**
- **30-50 = DENSE**
- **50+ = VERY DENSE**

**COHESIVE SOILS**

- **N = 0-2 = VERY SOFT**
- **2-4 = SOFT**
- **4-8 = MEDIUM**
- **8-15 = STIFF**
- **30+ = HARD**

**SAMPLE TYPE**

- **C = ROCK CORE**
- **S = SPLIT SPOON**
- **UP = UNDISTURBED PILOT**
- **UT = UNDISTURBED THINWALL**

**PROPORTIONS**

- trace = <10%
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%

**Remarks:**

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

**Groundwater Depth (FT.)**

<table>
<thead>
<tr>
<th>WATER DEPTH</th>
<th>TYPE OF RIG: Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

**Equipment:**

- **RIG MODEL:** CME-75
- **RIG MODEL:** Truck

**Cheshire, CT 06410**

**99 Realty Drive**

**Contractor:** SITE, LLC

**Inspector:** R. Henderson

**Project No.:** 1481-53

**Location:** New Milford, Connecticut

**Client:** Town of New Milford

**Date:** November 2, 2017
**TEST BORING LOG**

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 2, 2017

**GROUND SURFACE ELEVATION:**

**AUGER CASING SAMPLER COREBRL**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>S.S/A/H.S.A</th>
<th>--</th>
<th>S.5</th>
<th>--</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
<th>GROUNDWATER DEPTH (FT.)</th>
<th>TYPE OF RIG: Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE OD (IN.)</td>
<td>4</td>
<td>--</td>
<td>3in./2in.</td>
<td>--</td>
<td>2-Nov</td>
<td>None</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMR. WT (LB.)</td>
<td>--</td>
<td>--</td>
<td>140</td>
<td>--</td>
<td>--</td>
<td></td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMR. FALL (IN.)</td>
<td>--</td>
<td>--</td>
<td>30</td>
<td>--</td>
<td>--</td>
<td></td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DEPTH (FT) | SAMPLE NUMBER | RECOVERY (IN) | BLOWS PER 6" | SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Sample</th>
<th>Recovery</th>
<th>Blows Per 6&quot;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>24</td>
<td>15</td>
<td>Top 4&quot;: ASPHALT. Middle 3&quot;: Black stained SAND, strong chemical odor. Bottom 5&quot;: Dark brown fine to coarse SAND, some fine to coarse Gravel, trace Silt.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>44</td>
<td>44</td>
<td>Middle 2&quot;: Dark brown fine to coarse SAND, some fine to coarse Gravel, trace Silt. Bottom 20&quot;: Brown TOPSOIL and WEATHERED ROCK fragments.</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>N = 0 - 4 = VERY LOOSE</th>
<th>N = 0 - 2 = VERY SOFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-10 = LOOSE</td>
<td>2 - 4 = SOFT</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>4 - 8 = MEDIUM</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>8 - 15 = STIFF</td>
</tr>
<tr>
<td>50 + = VERY DENSE</td>
<td>30 + = HARD</td>
</tr>
</tbody>
</table>

**COHESIVE SOILS**

<table>
<thead>
<tr>
<th>N = 0 - 2 = VERY SOFT</th>
<th>N = 0 - 2 = VERY SOFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 8 = MEDIUM</td>
<td>4 - 8 = MEDIUM</td>
</tr>
<tr>
<td>8 - 15 = STIFF</td>
<td>8 - 15 = STIFF</td>
</tr>
<tr>
<td>30 + = HARD</td>
<td>30 + = HARD</td>
</tr>
</tbody>
</table>

**SAMPLE TYPE**

| C = ROCK CORE         | S = SPLIT SPOON        | U = UNDISTURBED PISTON |
|                       |                       | UT = UNDISTURBED THINWALL |

**PROPORTIONS**

| trace =<10%           | little = 10% - 20%    | some = 20% - 35%           |
|                       |                        | and = 35% - 50%            |

** remarks:**

1. None
### Test Boring Log

**Project:** Long Mountain Road  
**Location:** New Milford, Connecticut  
**Client:** Town of New Milford  
**Date:** November 2, 2017

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Number</th>
<th>Recovery (IN)</th>
<th>Blows PER 6&quot;</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>24</td>
<td>15</td>
<td>Top 3&quot;: ASPHALT. Middle 5&quot;: Black stained SAND, strong chemical odor. Bottom 4&quot;: Dark brown fine to coarse SAND, some fine to coarse GRAVEL, trace Silt.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>9</td>
<td>12</td>
<td>S-1: Top 6&quot;: Light brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt. Middle 14&quot;: Gray fine to medium SAND, Silt, trace fine GRAVEL. Bottom 4&quot;: Black SILT with Organic Fibers, trace fine to medium GRAVEL.</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>16</td>
<td>1</td>
<td>S-2: Dense, Top 6&quot;: Black SILT with Organic Fibers, some fine to coarse SAND, trace fine GRAVEL. Bottom 10&quot;: Gray STONE FRAGMENTS, little fine to coarse SAND, trace Silt.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>28</td>
<td>19</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.

**Soil and Rock Classification:**

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Cohesionless Soils</th>
<th>Cohesive Soils</th>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 0 - 4 = VERY LOOSE</td>
<td>N = 0 - 2 = VERY SOFT</td>
<td>C = ROCK CORE</td>
<td>trace &lt;10%</td>
</tr>
<tr>
<td></td>
<td>4-10 = LOOSE</td>
<td>2 - 4 = SOFT</td>
<td>S = SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td></td>
<td>10-30 = MEDIUM DENSE</td>
<td>4 - 8 = MEDIUM</td>
<td>UP = UNDISTURBED PISTON</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td></td>
<td>30-50 = DENSE</td>
<td>8 - 15 = STIFF</td>
<td>UT = UNDISTURBED THINWALL and</td>
<td>35% - 50%</td>
</tr>
<tr>
<td></td>
<td>50+ = VERY DENSE</td>
<td>30+ = HARD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Laboratory Testing:**

- **S-2:** 16
- **S-1:** 24
# TEST BORING LOG

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 3, 2017  
**GROUND SURFACE ELEVATION:**  
**TYPE OF RIG:** Truck  
**EQUIPMENT:**  
- AUGER: S.S./H.S.A  
- CASING: 3.5  
- SAMPLER: 3.5  
- COREBRL: 30  
- GROUNDWATER DEPTH (FT.):  
- WATER DEPTH: None  
- RIG MODEL: CME-75  
**SIZE OD (IN.):** 4  
**HMR. WT (LB.):** 140  
**HMR. FALL (IN.):** --  
**Remarks:** 1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.

---

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>STRATUM DESCRIPTION</th>
<th>ELEV. (FT)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>24</td>
<td>21</td>
<td>Top 5&quot;: ASPHALT. Bottom 7&quot;: Brown fine to coarse SAND and fine to coarse GRAVEL, trace S</td>
<td>1</td>
<td>FILL</td>
</tr>
<tr>
<td>2</td>
<td>S-2</td>
<td>16</td>
<td>5</td>
<td>S-1: Top 19&quot;: Brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt. Bottom 5&quot;: Gray fine to medium SAND, little Silt, trace fine Gravel</td>
<td>2</td>
<td>GLACIAL TILL</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>8</td>
<td>S-2: Medium dense, Top 3&quot;: Gray fine to medium SAND, little Silt, trace fine Gravel. Bottom 13&quot;: Brown/orange Clayey SILT, little fine Gravel, little fine to coarse Sand.</td>
<td>3.25'</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>5.0'</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>8</td>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**  
- BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)  
  - Top 5": ASPHALT. Bottom 7": Brown fine to coarse SAND and fine to coarse GRAVEL, trace S  
  - S-1: Top 19": Brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt. Bottom 5": Gray fine to medium SAND, little Silt, trace fine Gravel  
  - S-2: Medium dense, Top 3": Gray fine to medium SAND, little Silt, trace fine Gravel. Bottom 13": Brown/orange Clayey SILT, little fine Gravel, little fine to coarse Sand.  

**COHESIONLESS SOILS**  
- N = 0 - 4 = VERY LOOSE  
- 4-10 = LOOSE  
- 10-30 = MEDIUM DENSE  
- 30-50 = DENSE  
- 50 + = VERY DENSE  

**COHESIVE SOILS**  
- N = 0 - 2 = VERY SOFT  
- 2 - 4 = SOFT  
- 4 - 8 = MEDIUM  
- 8 - 15 = STIFF  
- 30 + = HARD  

**SAMPLE TYPE**  
- C = ROCK CORE  
- S = SPLIT SPOON  
- UP = UNDISTURBED PISTON  
- UT = UNDISTURBED THINWALL  

**PROPORTIONS**  
- trace = <10%  
- little = 10% - 20%  
- some = 20% - 35%  
- and = 35% - 50%
**TEST BORING LOG**

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford

---

**DATE:** November 3, 2017  
**EQUIPMENT:** AUGER  
**CASING:** S.S/H.S.A  
**SAMPLER:** S.S.  
**COREBRL:** S.A/H.S.A  
**GROUNDWATER DEPTH (FT.):** None  
**TYPE OF RIG:** Truck  
**RIG MODEL:** CME-75

---

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Recovery (In)</th>
<th>Blows Per 6&quot;</th>
<th>Burmister System (Soil)</th>
<th>U.S. Corps of Engineers System (Rock)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>12</td>
<td>17</td>
<td>4-10 = LOOSE</td>
<td>2-4 = SOFT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35</td>
<td>10-30 = MEDIUM DENSE</td>
<td>4-8 = MEDIUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>30-50 = DENSE</td>
<td>5-15 = STIFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>50 + = VERY DENSE</td>
<td>30 + = HARD</td>
</tr>
<tr>
<td>S-2</td>
<td>16</td>
<td>8</td>
<td>Top 6&quot;: ASPHALT. Bottom 6&quot;: Dark brown fine to medium SAND, little Silt, little fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>S-1: Dark brown fine to medium SAND, little Silt, little fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8</td>
<td>S-2: Moist, medium dense, Top 6&quot;: Dark brown/Black Silt and fine to medium SAND, little fine to coarse Gravel. Bottom 10&quot;: Brown fine to coarse SAND, some Silt, trace fine to coarse Gravel.</td>
<td></td>
</tr>
</tbody>
</table>

---

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.
3. Top 6": ASPHALT. Bottom 6": Dark brown fine to medium SAND, little Silt, little fine to coarse Gravel.
4. S-1: Dark brown fine to medium SAND, little Silt, little fine to coarse Gravel.
5. S-2: Moist, medium dense, Top 6": Dark brown/Black Silt and fine to medium SAND, little fine to coarse Gravel. Bottom 10": Brown fine to coarse SAND, some Silt, trace fine to coarse Gravel.
6. Bottom of Exploration ±5.0 feet

---

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0 - 4 = VERY LOOSE</td>
<td>trace &lt; 10%</td>
</tr>
<tr>
<td>4-10 = LOOSE</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50 + = VERY DENSE</td>
<td></td>
</tr>
</tbody>
</table>

---

**COHESIVE SOILS**

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0 - 2 = VERY SOFT</td>
<td></td>
</tr>
<tr>
<td>2 - 4 = SOFT</td>
<td></td>
</tr>
<tr>
<td>4 - 8 = MEDIUM</td>
<td></td>
</tr>
<tr>
<td>5 - 15 = STIFF</td>
<td></td>
</tr>
<tr>
<td>30 + = HARD</td>
<td></td>
</tr>
</tbody>
</table>
### Test Boring Log

**Project:** Long Mountain Road  
**Location:** New Milford, Connecticut  
**Proj. No:** 1481-53  
**Client:** Town of New Milford  
**Date:** November 3, 2017  
**Ground Surface Elevation:**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Auger</th>
<th>Casing</th>
<th>Sampler</th>
<th>Corebrl</th>
<th>Groundwater Depth (ft.)</th>
<th>Type of Rig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>S.S./H.S.A</td>
<td>3 in./2 in.</td>
<td>140</td>
<td>30</td>
<td>None</td>
<td>Truck</td>
</tr>
<tr>
<td>Size OD (in.)</td>
<td>4</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>3-Nov</td>
<td></td>
</tr>
<tr>
<td>HMR. WT (LB.)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>HMR. FALL (IN.)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

---

**Equipment:** Auger Casing Sampler Corebrl  
**Date:** 3-Nov  
**Time:** 140  
**Water Depth:** None  
**Rig Model:** CME-75  
**Type of Rig:** Truck

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Number</th>
<th>Recovery (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>Soil and Rock Classification-Description</th>
<th>Stratum Description</th>
<th>ELEV (FT)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>18</td>
<td>25</td>
<td>Top 4.5&quot;: ASPHALT. Bottom 7.5&quot;: Brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt.</td>
<td>FILL</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>18</td>
<td>24</td>
<td>S-1: Top 6&quot;: Brown fine to coarse SAND and fine to coarse GRAVEL, trace Silt. Middle 8&quot;: Gray fine to medium SAND and SILT, trace fine to coarse Gravel. Bottom 4&quot;: Grayblack SILT, some fine to medium Sand, trace fine Gravel.</td>
<td>TOPSOIL</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>16</td>
<td>16</td>
<td>S-2: Medium dense, Top 6&quot;: Grayblack SILT with Organic Fibers, some fine to medium Sand, trace fine Gravel. Bottom 10&quot;: Brown/orange SILT, some fine to medium Sand, trace fine Gravel. (Mica)</td>
<td>GLACIAL TILL</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
<td>5.0</td>
<td></td>
</tr>
</tbody>
</table>

**COHESIONLESS SOILS**  
- N = 0 - 4 = VERY LOOSE  
- 4 - 10 = LOOSE  
- 10 - 30 = MEDIUM DENSE  
- 30 - 50 = DENSE  
- 50 + = VERY DENSE

**COHESIVE SOILS**  
- N = 0 - 2 = VERY SOFT  
- 2 - 4 = SOFT  
- 4 - 8 = MEDIUM  
- 8 - 15 = STIFF  
- 30 + = HARD

**Sample Type**  
- C = ROCK CORE  
- S = SPLIT SPOON  
- UP = UNDISTURBED PISTON  
- UT = UNDISTURBED THINWALL

**Proportions**  
- trace = <10%  
- little = 10% - 20%  
- some = 20% - 35%  
- and = 35% - 50%

**Remarks:**
1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.
**TEST BORING LOG**

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 3, 2017  
**GROUND SURFACE ELEVATION:**  

<table>
<thead>
<tr>
<th>EQUIPMENT:</th>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBRL</th>
<th>GROUNDWATER DEPTH (FT.)</th>
<th>TYPE OF RIG:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>S.S.A/H.S.A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>DATE</td>
</tr>
<tr>
<td>SIZE OD (IN.)</td>
<td>4</td>
<td>--</td>
<td>3in./2in.</td>
<td>--</td>
<td>3-Nov</td>
<td>None</td>
</tr>
<tr>
<td>HMR. WT (LB.)</td>
<td>--</td>
<td>--</td>
<td>140</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>HMR. FALL (IN.)</td>
<td>--</td>
<td>--</td>
<td>30</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>STRATUM</th>
<th>DESCRIPTION</th>
<th>ELEV. (FT.)</th>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td>Top 4.5&quot;: ASPHALT. Middle 5&quot;: Light brown/white fine to coarse SAND, some fine to coarse Gravel, little Silt. S-1: Top 6&quot;: Dark brown fine to coarse Sand, some fine to coarse Gravel, little Silt. Bottom 16&quot;: Orange fine to coarse SAND, little fine to coarse Gravel, little Silt.</td>
<td>1.5'</td>
<td>1</td>
<td>S-1</td>
<td>22</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td>S-2: Medium dense, brown/orange fine to coarse Sand, little fine to coarse Gravel, little Silt.</td>
<td>5.0'</td>
<td>2</td>
<td>S-2</td>
<td>19</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

**Remarks:**  
1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3in. OD. split spoon.  

**COHESIONLESS SOILS**  
N = 0 - 4 = VERY LOOSE  
4-10 = LOOSE  
10-30 = MEDIUM DENSE  
30-50 = DENSE  
50 + = VERY DENSE

**COHESIVE SOILS**  
N = 0 - 2 = VERY SOFT  
2 - 4 = SOFT  
4 - 8 = MEDIUM  
8 - 15 = STIFF  
30 + = HARD

**SAMPLE TYPE**  
C = ROCK CORE  
S = SPLIT SPOON  
UP = UNDISTURBED PISTON  
UT = UNDISTURBED THINWALL

**PROPORTIONS**  
trace = <10%  
little = 10% - 20%  
some = 20% - 35%  
and = 35% - 50%
# TEST BORING LOG

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>22</td>
<td>15</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**

<table>
<thead>
<tr>
<th>STRATUM</th>
<th>DESCRIPTION</th>
<th>ELEV. (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td>Bottom of Exploration ±5.0 feet</td>
<td>1</td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td>Bottom 5&quot;: Brown/orange fine to coarse SAND, some Weathered Rock Fragments, trace Silt.</td>
<td>2.5'</td>
</tr>
<tr>
<td></td>
<td>Bottom 4&quot;: Brown/gray fine to medium SAND, some Silt, little fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S-1: Top 17&quot;: Brown/grey fine to medium SAND, some Silt, little fine to coarse Gravel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bottom 5&quot;: Brown/orange fine to coarse SAND, some Weathered Rock Fragments, trace Silt.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S-2: Medium dense, brown/orange fine to coarse SAND, some fine to coarse Gravel, trace Silt.</td>
<td></td>
</tr>
</tbody>
</table>

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>N = 0-4 = VERY LOOSE</th>
<th>N = 4-10 = LOOSE</th>
<th>N = 10-30 = MEDIUM DENSE</th>
<th>N = 30-50 = DENSE</th>
<th>N = 50+ = VERY DENSE</th>
</tr>
</thead>
</table>

**COHESIVE SOILS**

<table>
<thead>
<tr>
<th>C = ROCK CORE</th>
<th>S = SPLIT SPOON</th>
<th>UP = UNDISTURBED PISTON</th>
<th>UT = UNDISTURBED THINWALL</th>
</tr>
</thead>
</table>

**SAMPLE TYPE**

| trace | <10% |
| trace | little 10% - 20% |
| trace | some 20% - 35% |
| trace | and 35% - 50% |

**PROPORTIONS**

---

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 3, 2017  
**GROUND SURFACE ELEVATION:**

---

**EQUIPMENT:**

- **TYPE:** bs/a/hs/a  
- **DATE:** 3-Nov  
- **TIME:** 140  
- **WATER DEPTH:** None

---

**GROUNDWATER DEPTH (FT.):**

- **TYPE OF RIG:** Truck

---

**COHESIONLESS SOILS**

- N = 0-4 = VERY LOOSE
- N = 4-10 = LOOSE
- N = 10-30 = MEDIUM DENSE
- N = 30-50 = DENSE
- N = 50+ = VERY DENSE

**COHESIVE SOILS**

- C = ROCK CORE
- S = SPLIT SPOON
- UP = UNDISTURBED PISTON
- UT = UNDISTURBED THINWALL

**SAMPLE TYPE**

- trace
- little = 10% - 20%
- some = 20% - 35%
- and = 35% - 50%

---

**Remarks:**

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.
# Test Boring Log

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 3, 2017  
**INSPECTOR:** R. Henderson  
**FOREMAN:** J. DeAngelis  
**CONTRACTOR:** SITE, LLC  
**SITE:** 99 Realty Drive, Cheshire, CT 06410  
**PHONE:** (203) 271-1773

### Equipment
- **Type:** S.S/A/H.S.A  
- **Depth:** FT  
- **Date:** Nov 3, 2017

### Groundwater Depth (FT.)

<table>
<thead>
<tr>
<th>Depth (FT.)</th>
<th>Sample Recovery (IN)</th>
<th>Blows Per 6&quot;</th>
<th>Soil and Rock Classification-Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21</td>
<td>14</td>
<td>Top 4.5&quot;: ASPHALT. Bottom 7.5&quot;: Dark gray fine to coarse SAND, some fine to coarse Gravel, trace Silt.</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>2</td>
<td>S-1: Top 6&quot;: Dark gray fine to coarse SAND, some fine to coarse Gravel, trace Silt. Bottom 15&quot;: Brown SILT and fine to medium SAND, trace fine to coarse Gravel. (Mica)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>10</td>
<td>S-2: Medium dense, brown fine to medium SAND, little Silt, little fine to coarse Gravel.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>3</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### Soil and Rock Classification-Description

<table>
<thead>
<tr>
<th>Depth (FT.)</th>
<th>Stratum Description</th>
<th>Elevation (FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fill</td>
<td>1.5'</td>
</tr>
<tr>
<td>5</td>
<td>Glacial till</td>
<td>5.0'</td>
</tr>
</tbody>
</table>

###Laboratory Testing

#### Cohesionless Soils
- N = 0-4 = Very Loose
- 4-10 = Loose
- 10-30 = Medium Dense
- 30-50 = Dense
- 50+ = Very Dense

#### Cohesive Soils
- N = 0-2 = Very Soft
- 2-4 = Soft
- 4-8 = Medium
- 8-15 = Stiff
- 30+ = Hard

#### Sample Type
- C = Rock Core
- S = Split Spoon
- UP = Undisturbed Piston
- UT = Undisturbed Thinwall

#### Proportions
- Trace = <10%
- Little = 10% - 20%
- Some = 20% - 35%
- And = 35% - 50%
**TEST BORING LOG**

**PROJECT:** Long Mountain Road  
**BORING NO.:** MMI-B29  
**SHEET:** 1 of 1  
**LOCATION:** New Milford, Connecticut  
**CONTRACTOR:** SITE, LLC  
**PROJ. NO:** 1481-53  
**FOREMAN:** J. DeAngelis  
**CLIENT:** Town of New Milford  
**INSPECTOR:** R. Henderson  
**DATE:** November 3, 2017  
**GROUND SURFACE ELEVATION:**

**EQUIPMENT:**  
- **AUGER**  
- **CASING**  
- **SAMPLER**  
- **COREBRL.**

<table>
<thead>
<tr>
<th>SIZE OD (IN.)</th>
<th>AUGER</th>
<th>CASING</th>
<th>SAMPLER</th>
<th>COREBRL.</th>
<th>DATE</th>
<th>TIME</th>
<th>WATER DEPTH</th>
<th>TYPE OF RIG</th>
<th>RIG MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>--</td>
<td>3 in./2 in.</td>
<td>--</td>
<td>--</td>
<td>3-Nov</td>
<td>--</td>
<td>None</td>
<td>Truck</td>
<td>CME-75</td>
</tr>
</tbody>
</table>

**HMR. WT (LB.)**  
- --  
- --  
- --  

**HMR. FALL (IN.)**  
- --  
- --  
- --  

**GROUNDWATER DEPTH (FT.)**

<table>
<thead>
<tr>
<th>DEPTH (FT.)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>21</td>
<td>15</td>
<td>Top 12&quot;: ASPHALT.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>20</td>
<td>20</td>
<td>S-1: Top 4&quot;: Dark brown to coarse SAND and fine to coarse GRAVEL, trace Silt.</td>
</tr>
<tr>
<td>3</td>
<td>S-1</td>
<td>21</td>
<td>21</td>
<td>Middle 4&quot;: Dark brown/black SILT and fine to medium SAND, trace fine Gravel.</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>16</td>
<td>16</td>
<td>Bottom 13&quot;: STONE FRAGMENTS, some fine to medium Sand, little Silt.</td>
</tr>
<tr>
<td>5</td>
<td>S-2</td>
<td>22</td>
<td>29</td>
<td>S-2: Brown SILT, little fine to medium SAND, trace fine Gravel.</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>Bottom of Exploration ±4.25 feet</td>
</tr>
</tbody>
</table>

**Remarks:**  
1. Augered to depths ±1.0 feet bgs.  
2. First split spoon sample was taken using a 3 in. OD. split spoon.  
3. Split Spoon Sampler Slipping at an Angle.

**SOIL AND ROCK CLASSIFICATION-DESCRIPTION**  
- **BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)**
- **DEPT (FT.)**  
- **STRATUM DESCRIPTION**  
- **ELEV. (FT.)**  
- **Remark**

**COHESIONLESS SOILS**  
- **N = 0 - 4 = VERY LOOSE**  
- **4 - 10 = LOOSE**  
- **10 - 30 = MEDIUM DENSE**  
- **30 - 50 = DENSE**  
- **50 + = VERY DENSE**

1.33' FILL  
1.66' TOPSOIL  
4.25' GLACIAL TILL

**COHESIVE SOILS**  
- **N = 0 - 2 = VERY SOFT**  
- **2 - 4 = SOFT**  
- **4 - 8 = MEDIUM**  
- **8 - 15 = STIFF**  
- **15 + = HARD**

**SAMPLE TYPE**  
- **C = ROCK CORE**  
- **S = SPLIT SPONG**  
- **UP = UNDISTURBED PISTON**  
- **UT = UNDISTURBED THINWALL**

**PROPORTIONS**  
- **trace = <10%**  
- **little = 10% - 20%**  
- **some = 20% - 35%**  
- **and = 35% - 50%**
## Test Boring Log

### General Information
- **Project:** Long Mountain Road
- **Location:** New Milford, Connecticut
- **Proj. No.:** 1481-53
- **Clinet:** Town of New Milford
- **Date:** November 3, 2017
- **Inspector:** R. Henderson
- **Contactor:** SITE, LLC

### Groundwater Depth
- **Type of Rig:** Truck
- **Rig Model:** CME-75

### Equipment
- **Auger:** S.S/A/H.S/A
- **Casing:** 3 in./2 in.
- **Sampler:** 3 in.
- **Core BL:**

### Boring Details

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Sample Number</th>
<th>Recovery (IN)</th>
<th>Blows per 6&quot;</th>
<th>Soil and Rock Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>22</td>
<td>3</td>
<td>Fill</td>
<td>0.71'</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>22</td>
<td>6, 3</td>
<td>Glacial Till</td>
<td>2.42'</td>
</tr>
</tbody>
</table>

### Remarks
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### Soil and Rock Classification

#### Cohesionless Soils
- **N = 0 - 4 = VERY LOOSE**
- **4-10 = LOOSE**
- **10-30 = MEDIUM DENSE**
- **30-50 = DENSE**
- **50 + = VERY DENSE**

#### Cohesive Soils
- **N = 0 - 2 = VERY SOFT**
- **2 - 4 = SOFT**
- **4 - 8 = MEDIUM**
- **8 - 15 = STIFF**
- **15 + = HARD**

#### Sample Type
- **C = ROCK CORE**
- **S = SPLIT SPOON**
- **UP = UNDISTURBED PISTON**
- **UT = UNDISTURBED THINWALL**

#### Proportions
- Trace = <10%
- Little = 10% - 20%
- Some = 20% - 35%
- Hard = 35% - 50%

### Remarks for Soil and Rock Classifications
- Top 4": ASPHALT. Middle 4.5": Black stained SAND, strong chemical odor.
- Bottom 3.5": Reddish brown Clayey SILT and fine to medium Sand, trace fine Gravel.
- S-1: Top 17": Moist, reddish brown Clayey SILT and fine to medium Sand, trace fine Gravel.
  (Bounce, rock fragments in tip of spoon).
- Bottom of Exploration ±2.42 feet
## Test Boring Log

**Project:** Long Mountain Road  
**Location:** New Milford, Connecticut  
**Proj. No:** 1481-53  
**Client:** Town of New Milford  
**Date:** November 3, 2017  
**Ground Surface Elevation:**

### Equipment

<table>
<thead>
<tr>
<th>Type</th>
<th>Auger</th>
<th>Casing</th>
<th>Sampler</th>
<th>Corebl</th>
<th>Groundwater Depth (ft)</th>
<th>Water Depth</th>
<th>Type of Rig</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.A/H.S.A</td>
<td>--</td>
<td>S.5</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>3-Nov</td>
<td>Truck</td>
</tr>
</tbody>
</table>

### Size OD (in.)

- 4 in.

### HMR. Wt (lb.)

- 140

### HMR. Fall (in.)

- 30

### Laboratory Testing

- None

### Soil and Rock Classification-Description

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILL</td>
<td>Top 6&quot;: ASPHALT. Bottom 6&quot;: Brown SILT and fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>GLACIAL TILL</td>
<td>S-1: Brown SILT and fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td></td>
<td>S-2: Medium dense, gray/orange fine to medium SAND, some fine to coarse Gravel, little Silt. (Mica)</td>
</tr>
<tr>
<td>Bottom of Exploration ±5.0 feet</td>
<td></td>
</tr>
</tbody>
</table>

### Remarks:

1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

### Soil and Rock Classifications

- Cohesionless Soils:
  - N = 0-3 = Very Loose
  - 3-6 = Loose
  - 6-20 = Medium Dense
  - 20-50 = Dense
  - 50+ = Very Dense

- Cohesive Soils:
  - N = 0-2 = Very Soft
  - 2-4 = Soft
  - 4-8 = Medium
  - 8-16 = Stiff
  - 16+ = Hard

### Sample Type

- C = Rock Core
- S = Split Spoon
- U = Undisturbed Piston
- U = Undisturbed Thinwall

### Proportions

- Trace = <10%
- Little = 10% - 20%
- Some = 20% - 35%
- And = 35% - 50%

---

**Sample Table:**

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Recovery (in)</th>
<th>Blows Per 6&quot;</th>
<th>Depth (ft)</th>
<th>STRATUM</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>20</td>
<td>14 - 36 - 9 - 11</td>
<td>1</td>
<td>GLACIAL TILL</td>
<td>S-1: Brown SILT and fine to medium SAND, trace fine to coarse Gravel.</td>
</tr>
<tr>
<td>S-2</td>
<td>16</td>
<td>8 - 13 - 14 - 12</td>
<td>2</td>
<td>GLACIAL TILL</td>
<td>S-2: Medium dense, gray/orange fine to medium SAND, some fine to coarse Gravel, little Silt. (Mica)</td>
</tr>
</tbody>
</table>

Bottom of Exploration ±5.0 feet
### TEST BORING LOG

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6&quot;</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S-1</td>
<td>18</td>
<td>6</td>
<td>Top 5&quot;: ASPHALT.</td>
</tr>
<tr>
<td></td>
<td>S-1</td>
<td>13</td>
<td>13</td>
<td>Bottom 12&quot;: Brown/orange WEATHERED ROCK FRAGMENTS. some fine to medium Sand, trace Silt.</td>
</tr>
<tr>
<td></td>
<td>S-1</td>
<td>18</td>
<td>13</td>
<td>S-2: Very dense, Top 10&quot;: Brown/orange WEATHERED ROCK FRAGMENTS and fine to medium SAND, trace Silt. Bottom 6&quot;: STONE FRAGMENTS.</td>
</tr>
<tr>
<td>4</td>
<td>S-2</td>
<td>16</td>
<td>13</td>
<td></td>
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<tr>
<td>5</td>
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<td>23</td>
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<td>6</td>
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<td>36</td>
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<td>7</td>
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<tr>
<td>22</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.

---

<table>
<thead>
<tr>
<th>COHESIONLESS SOILS</th>
<th>COHESIVE SOILS</th>
<th>SAMPLE TYPE</th>
<th>PROPORTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 0 - 4 = VERY LOOSE</td>
<td>N = 0 - 2 = VERY SOFT</td>
<td>C = ROCK CORE</td>
<td>trace = &lt;10%</td>
</tr>
<tr>
<td>4 - 10 = LOOSE</td>
<td>2 - 4 = SOFT</td>
<td>S = SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10 - 30 = MEDIUM DENSE</td>
<td>4 - 8 = MEDIUM</td>
<td>UP = UNDISTURBED PISTON</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30 - 50 = DENSE</td>
<td>3 - 15 = STIFF</td>
<td>UT = UNDISTURBED THINWALL</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50 + = VERY DENSE</td>
<td>30 + = HARD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## TEST BORING LOG

**PROJECT:** Long Mountain Road  
**LOCATION:** New Milford, Connecticut  
**PROJ. NO:** 1481-53  
**CLIENT:** Town of New Milford  
**DATE:** November 3, 2017  
**GROUND SURFACE ELEVATION:**

**EQUIPMENT:**
- **AUGER:** S.S.A/H.S.A  
- **CASING:** S.5  
- **SAMPLER:**  
- **COREBRL:**  

**GROUNDWATER DEPTH (FT.):**

**TYPE OF RIG:** Truck  
**RIG MODEL:** CME-75  
**EQUIPMENT:** GROUNDWATER DEPTH (FT.):

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>SAMPLE NUMBER</th>
<th>RECOVERY (IN)</th>
<th>BLOWS PER 6'</th>
<th>SOIL AND ROCK CLASSIFICATION-DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S-1</td>
<td>14</td>
<td>12</td>
<td>Top 5&quot;: ASPHALT. Bottom 7&quot;: Dark brown SILT and fine to coarse SAND, little fine to coarse Gravel.</td>
</tr>
<tr>
<td>2</td>
<td>S-1</td>
<td>24</td>
<td>24</td>
<td>Bottom 10&quot;: WEATHERED ROCK FRAGMENTS, little fine to coarse Sand, trace Silt.</td>
</tr>
<tr>
<td>3</td>
<td>S-2</td>
<td>22</td>
<td>22</td>
<td>S-2: Dense, Top 6&quot;: STONE FRAGMENTS. Bottom 16&quot;: Brown fine to medium SAND, some Weathered Rock Fragments, little Silt.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>19</td>
<td>16</td>
<td>Bottom of Exploration ±5.0 feet</td>
</tr>
<tr>
<td>5</td>
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</tr>
<tr>
<td>22</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**COHESIONLESS SOILS**

<table>
<thead>
<tr>
<th>N = 0 - 4 = VERY LOOSE</th>
<th>N = 0 - 2 = VERY SOFT</th>
<th>C = ROCK CORE</th>
<th>trace = &lt;10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-16 = LOOSE</td>
<td>2 - 4 = SOFT</td>
<td>S = SPLIT SPOON</td>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>10-30 = MEDIUM DENSE</td>
<td>4 - 8 = MEDIUM</td>
<td>UP = UNDISTURBED PISTON</td>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>30-50 = DENSE</td>
<td>8 -15 = STIFF</td>
<td>UT = UNDISTURBED THINWALL</td>
<td>and = 35% - 50%</td>
</tr>
<tr>
<td>50 + = VERY DENSE</td>
<td>30 + = HARD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COHESIVE SOILS**

| N = 0 - 2 = VERY SOFT | C = ROCK CORE | trace = <10% |

**SAMPLE TYPE**

<table>
<thead>
<tr>
<th>PROPORTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>trace = &lt;10%</td>
</tr>
<tr>
<td>little = 10% - 20%</td>
</tr>
<tr>
<td>some = 20% - 35%</td>
</tr>
<tr>
<td>and = 35% - 50%</td>
</tr>
</tbody>
</table>

**Remarks:**
1. Augered to depths ±1.0 feet bgs.
2. First split spoon sample was taken using a 3in. OD. split spoon.
SQUIRE HILL ROAD –
HORIZONTAL SURVEY CONTROL POINT SKETCHES