

FY-2010

Paving Projects

Bid Specifications

Bid No. 10-07

City of Rochester

Contract Administrator:
Director of Public Works
City of Rochester
45 Old Dover Rd.
Rochester, NH 03867

July 17, 2009

The Project

The following is a summary of the proposed project to be performed under the terms and conditions of this document. It is intended that the municipality will issue a separate contract with the project detailed using the line items defined in the Bid Schedule. It is also intended that the successful Contractor will bill the municipality directly and the municipality is responsible for paying the Contractor for services provided as specified in the contract.

The following project descriptions are for illustrative purposes only and do not commit the Owners to perform the work described or to limit work performed under the terms, conditions and specification contained in this document to only those projects described below. The Owner reserves the right to change project scopes either by adding additional work or eliminating some of the work described prior to the issuance of Purchase Orders against the signed contract.

City of Rochester

1. On the following street, cold plane 1-inch in depth and place asphalt according to NHDOT specification Sections 401, 403, 410, and 417¹. Any traffic signal loop detectors destroyed as a result of cold planing operations will be replaced as part of this contract. Additionally, all fixed steel castings, except the drainage catch basins, must be lowered or removed during cold planing operations and then reset flush with the finished pavement. Drainage catch basins will be set ½-inch below finished pavement. Removal and resetting of castings will be paid for only once per casting. All castings when reset shall be set using a Portland Cement Based mortar or concrete. Pay item assumes the removal and resetting of casting as one item. No paving over structures will be permitted. All operations will occur during normal working hours. Note location of current pavement markings and replace in kind in consultation with the City Engineer.
 - Salmon Falls Road from the intersection of Whitehall Road to the intersection of Stonewall Drive-approximately 9,375 linear feet
2. On the following street, reclaim the entire depth of pavement, add crushed gravel and shim as necessary at the direction of the city engineer, fine grade and compact existing reclaimed pavement area, pave with an average of 2.0" of ¾" bituminous concrete base and 1.0" of ½" bituminous concrete wearing surface with hot mix asphalt applied according to NHDOT specifications Sections 401, 403, and 410. Reconstruct roadside ditches, by excavating a 6-foot wide roadside ditches where they already occur. Remove and replace mailboxes as necessary. Roadside ditches shall be loamed and seeded if longitudinal slope is less than 4 percent. Line roadside ditches with jute matting (Excelsior Single Net

¹ From Standard Specifications for Road and Bridge Construction, as published by the State of New Hampshire Department of Transportation, 2002 edition.

by Eco-systems, Inc. or similar) on those streets having a 3 percent grade or more for erosion protection. Line ditches with suitable geotextile and then armor ditch with riprap consisting of an erosion stone with a d50 diameter of 6 inches, or as directed by the City Engineer in slopes greater than 5 percent. Install 2' wide gravel shoulders to pavement elevation for full length of street up to the pavement edge on those streets without curbing.

In all areas where there is curbing, the finished grade of the street shall be such so there is a minimum of 6-inch curb reveal and a maximum of 7.5-inch curb reveal. The road surface shall have a smooth vertical transition in areas that are curbed and not curbed. All fixed steel castings, except the drainage catch basins, must be lowered or removed during reclaiming operations and then reset flush with the finished pavement, at both the time the binder course is installed and when the wearing course is installed. The drainage catch basins will be set 1/2-inch below finished pavement, at both the time the binder course is installed and when the wearing course is installed. Pay item assumes the removal and resetting at all elevations of casting as one item regardless of how many times it is removed and reset. No paving over structures will be permitted.

- Oak Street from the intersection of Rte. 125 to the intersection of Gear Road-approximately 6,250 linear feet
3. On the following streets reclaim the entire depth of pavement, add crushed gravel and shim as necessary at the direction of the city engineer, fine grade and compact existing pavement, pave with an average of 2 1/2 -inches of 3/4" bituminous concrete base and 1 1/2-inches of 1/2" bituminous concrete wearing surface with hot mix asphalt applied according to NHDOT specifications Sections 401, 403, and 410. Install 2' wide gravel shoulders to pavement elevation for full length of street up to the pavement edge on those streets without curbing. In all areas where there is curbing, the finished grade of the street shall be such so there is a minimum of 6-inch curb reveal and a maximum of 7.5-inch curb reveal. The road surface shall have a smooth vertical transition in areas that are curbed and not curbed. All fixed steel castings, except the drainage catch basins, must be lowered or removed during reclaiming operations and then reset flush with the finished pavement, at both the time the binder course is installed and when the wearing course is installed. The drainage catch basins will be set 1/2-inch below finished pavement, at both the time the binder course is installed and when the wearing course is installed. Pay item assumes the removal and resetting at all elevations of casting as one item regardless of how many times it is removed and reset. No paving over castings will be permitted.
- Rte 125 approximately 520 feet north of Old Dover Road to approximately 350 feet south of Brock Street-approximately 2,000 linear feet.
4. Depending on available funding, the City reserves the right to add more streets during the course of the contract as long as the new streets are added prior to

March 31, 2010. The contractor shall hold the unit prices bid on any streets added. All work shall be completed according to the schedule contained herein.

Notice to Contractors
City of Rochester
FY 2010 Paving Projects

1. Receipt of Bids The City of Rochester, New Hampshire, (OWNER) will accept sealed bids at the Business Office, 31 Wakefield Street, Rochester, New Hampshire until 2:30 p.m. (local time) on August 6, 2009, at which time the bids will be opened and read aloud. The envelopes containing the bids must be sealed and designated as CITY OF ROCHESTER FY-2010 PAVING PROJECT – Bid No 10-07. The bid opening shall be public and open to all parties.
2. Project Summary The proposed work will consist of pavement maintenance / of the specified roads within the limits of the City of Rochester. Work will include where specified either:
 - Reclamation of existing pavements and resurfacing or shims / overlays of existing street / road pavements and related miscellaneous and restoration work.
 - Cold planing of existing pavements to a specified depth below the existing pavement and resurfacing with bituminous concrete.
 - Overlay streets specified with a one-inch or one and one-half inch layer of bituminous concrete, as directed by the OWNER. Asphalt shims may be required to ensure an even paved surface following consultation with the OWNER.

Erosion/sedimentation control, dust control, and traffic control shall also be maintained throughout the project duration.

3. Specifications - Specifications and bid / contract documents may be obtained at the Business Office by calling (603) 335-7602 or visiting the business office at 31 Wakefield Street in Rochester, New Hampshire 03867. All questions concerning the specifications and bid / contract documents shall be directed to the City Engineer, City of Rochester Public Works
4. Construction Schedule -The successful bidder shall commence work under this contract on or before a date to be specified in the "Notice to Proceed" and complete the segments as described in the following table. Project is to be fully completed not later than July 15, 2010, with interim time milestones throughout the contract.

Construction Schedule*

STREET/ ROAD	RECLAIM & FINE GRADE or COLD PLAIN (as applicable)	APPLICATION OF BINDER COURSE	APPLICATION OF WEARING COARSE	Notes
Rte 125 – south of Brock to south of Lowell	September 15, 2009	September 22, 2009	September 30, 2009	Surface temperature must be more than 50 degrees during entire application*
Oak Street - entirety	May 30, 2010	June 30, 2010	July 15, 2010	
Salmon Falls Road – Stonewall to Whitehall	September 15, 2009		September 30, 2009	Surface temperature must be more than 50 degrees during entire application*

* Temperature permitting, the city engineer will not permit wearing coarse applications at pavement or ambient temperatures that are not according to NH DOT Specifications.

5. **Award of Contract** - **The Owner reserves the right to reject any and all Bids and to waive any irregularity in Bidding.** The successful Bidder(s) will be required to furnish the necessary Bonds and Insurance Certificates.
6. **Performance Bond** -The successful Bidder(s) shall execute a Performance Bond in the amount of one hundred percent (100%) of the Bid Price. The Bidder, Owner and a Surety Company shall execute Bond.
7. **Payment Bond** - The successful bidder shall provide a Payment Bond in the amount of one hundred percent (100%) of the Bid Price, executed between the Bidder, Owner and a Surety Company.
8. **Bid Bond** - All bids must be submitted with a Bid Bond in the amount of ten percent (10%) of the Bid Price executed between the Bidder and a Surety Company.

BID PROPOSAL

Proposal of

(Hereinafter called "BIDDER"), organized and existing under the laws of the State of _____

doing business as

Corporation, Partnership, or an Individual

To the City of Rochester (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the FY Paving Project in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and fully complete according to the schedule herein. BIDDER further agrees that at the Owner's option, the Owner may award split the contract and award the contract to more that one bidder if the owner believes that the schedule set for this contract cannot be met employing only one contractor. The contract may be split on a neighborhood-by-neighborhood basis.

BIDDER hereby agrees to meet the schedule outlined in Article 10 of the General Conditions, or be subject to the penalties outlined in said article if schedule is not adhered to.

BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA:

BIDDER agrees to perform all the work described in the CONTRACT DOCUMENTS for the following unit prices or lump sum

BID SCHEDULE

Item No.	Approximate Quantity	Brief Description of Item With Unit Bid Price in Words	Unit Bid Price In Figures	Amount in Figures
1.	27,700 sq. yd.	Asphalt reclamation The sum of _____ _____ per sq. yd.		
2.	27100 sq. yd.	Cold planing of asphalt pavement The sum of _____ _____ per sq.yd.		
3.	450 cu. Yd.	Crushed Gravel Fill for base and shoulder, the sum of _____ _____ per cu. Yd.		
4.	7500 tons	Bituminous Concrete Full Width New - on streets and in thickness specified _____ per ton		
5.	27,700 sq. yd.	Soil Compaction and Fine Grading, the sum of _____ _____ per sq. yd.		
6.	450 ton	Hand Paving Driveway Aprons, the sum of _____ _____ per ton		
7.	72,500 LF	Pavement Striping, the sum of _____ per linear foot		
8.	100 sq. ft.	Pavement Markings, the sum of _____ per square foot		
9.	1200 cu. Yd.	Gravel Shoulders, the sum of _____ per cu. yd.		
10.	3000 LF	Saw Cut Pavement, the sum of _____ per linear foot		
11.	12 ea.	Mobilization, the sum of _____ per occurrence		
12	700 hours	Traffic Control, flaggers, the sum of _____ per hour		
13	120 hours.	Traffic Control, Uniformed Officer and vehicle the sum of _____ fifty-two dollars and 50 cents _____ per hour		\$ 6,300 (to be carried)

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14	14 each	Install and program new traffic signal loop detectors destroyed in either pavement reclamation or cold plan operation, the sum of _____ per loop detector		
15	1 lump sum	Traffic Control, including signs, variable message boards and necessary devices, the sum of _____		
16	140 each	Resetting of existing castings and structures to proper elevation, the sum of _____ per unit		
17.	200 gallon	Application of calcium chloride as needed for dust control while street is reclaimed _____ per gallon		
18.	1,000 LF	Rehabilitation of Ditch Lines, the sum of _____ per LF		
19.	17,625LF	Pavement Joint Adhesive		
20.	30 each	Mailbox Removal and Resetting, the sum of _____ per mailbox assembly		
BID ALTERNATE				

Total Bid: The sum of (in words)

(in figures) \$ _____
 (Amounts are to be shown in both words and figures. In case of discrepancy, the amounts shown in words will govern_

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc. to cover the finished work of the several kinds called for.

The Bidder understands that the owner reserves the right to reject any or all bids and to waive any informalities in bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn, for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver a surety bond of bonds as required by the general Conditions. The bid security attached in the sum of _____ (\$ _____) is to become the property of the owner in the event the contract and bond are not executed within the time set forth, as liquidated damages for the delay and the additional expense to the owner caused thereby.

SUBMITTED ON _____, 20__

Name of Contractor _____

Address _____

Telephone: _____ Fax No. _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Complete the following questions relative to bidder's qualifications. All questions must be answered and the data given must be clear and comprehensive. This form must be notarized. If necessary, add separate sheets.

1. Name of Bidder:
2. Permanent Main Office Address:
3. When Incorporated:
4. Where Incorporated:
5. How many years have you been engaged in the contracting business under your present firm name?
6. Contracts on hand: (Attach list showing project title, project location, gross amount of each contract and the approximate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to complete work awarded to you? YES NO
If yes, where, when and why?
9. Have you ever defaulted on a contract? YES NO
If so, where, when and why?

10. List the more important projects recently done by your company, stating approximate cost for each, the month / year completed, primary Owners contact / telephone number.
11. List your major equipment AVAILABLE FOR THIS CONTRACT. (Attach equipment schedule if necessary.)
12. Experience in construction work similar in importance to this project.
13. With what banks do you do business? Do you grant the OWNER permission to contact this (these) institutions? YES NO
14. If your answer to Number 13 is NO, please explain why.
15. How do you intend to meet the schedule described in the Scope of Work?
16. If you intend to hire subcontractors to do any part of the work, please specify whom?

NAME OF BIDDER

BY: _____
Authorized Signature

Name

Title

STATE OF ()
() SS.
COUNTY OF ()

I, _____, a Notary Public in and for said County,
in the State aforesaid, DO HEREBY CERTIFY that

_____, personally known to me to be the same person
whose name is subscribed to the foregoing instrument, appeared before me this day in
person, and acknowledged that they signed, sealed and delivered the said instrument
as their free and voluntary act, for the uses and purposes therein set forth.

GIVEN under my hand and Seal this _____ day of _____, 2009.

Notary Public

My Commission Expires

GENERAL INFORMATION TO BIDDERS

1. Contract Documents and Definitions
2. Proposal Format
3. Printed Form of Proposal
4. Omissions, Discrepancies, Questions, and Addenda
5. Postponement of Date for Presenting and Opening Proposals
6. Prices
7. Acceptance or Rejection of Proposals
8. Bidder's Qualifications
9. Low Bidder and Acceptance Of The Proposal
10. Schedule
11. Execution of Contract and Damages for Failure to Execute
12. Specifications Format
13. Manufacturer's Experience
14. Safety and Health Regulations
15. U.S.D.O.T. Compliance
16. Additional Work

1. CONTRACT DOCUMENTS AND DEFINITIONS

The Contract Documents that will form the Contract are as defined in the General Conditions. Bidders must examine each of the Contract Documents, visit the location of the work, and inform themselves of the difficulties attending the execution of the work prior to the submission of their Proposals. The Contractor shall give attention to the definitions included in the Contract Documents.

2. PROPOSAL FORMAT

The Contract Documents request proposals for an individual contract. The intent is to allow the Owner to evaluate the bids and to make decisions in the best interest of the community.

3. PRINTED FORM OF PROPOSAL

All Bids must be made upon the attached form of "Bid Proposal" and should give a unit price in figures and a total price for each item; and must be signed and acknowledged by the Bidder, in accordance with the directions in the Proposal.

4. OMISSIONS, DISCREPANCIES, QUESTIONS, AND ADDENDA

Should a Bidder find discrepancies in or omissions from the Contract Documents or is in doubt as to their meaning, the Bidder should at once notify the Owner. In general, no answer will be given to the prospective Bidders in reply to an oral question if the question involves the equality or use of products or methods other than those specifically designated or described on the Drawings or in the Specifications. All information given to Bidders by means other than set forth in the Contract Documents is given informally and shall not be used as the basis of a claim-against the Owner.

Omissions, discrepancies, and questions must be submitted in writing to the Owner at least five (5) working days before the date for receipt of bids. If a question involves the equality or use of products or methods not specifically designated or described on the Drawings or in the Specifications, it must be accompanied by Drawings, Specification, or other data in sufficient detail to enable the Owner to determine the equality or suitability of the product or method. In general, the Owner will neither approve nor disapprove particular products prior to the opening of the bids; such products will generally be considered only when offered by the Contractor for incorporation into the work after the award and signing of the Contract.

The Owner will prepare Addenda to address all questions received and answers provided. At least three (3) days prior to the bid opening date and time, Addenda will be sent to each of Bidder who has taken out the Contract Documents.

5. POSTPONEMENT OF DATE FOR PRESENTING AND OPENING PROPOSALS

The Owner reserves the right to postpone the date for presentation and opening of Proposals and will give notice of such postponement to each prospective Bidder.

6. PRICES

In the event of discrepancies between the price totals quoted in the Proposal and the unit price figures, the unit price figures shall control. The price is to include the furnishing of all material, plant, equipment, tools, labor, and other facilities required for the completion of the work except as may be otherwise expressly provided in the Contract Documents. The Contractor shall prepare his prices for the Proposal based on the equipment named in the Specifications. After the award of the Contract, if the Contractor desires to use equipment or methods other than those specified or shown in these documents, the Contractor shall submit data to prove equality, submit reason for change, submit the amount of credit (if any) to the Contract Price, provide Owner documentation for any changes required to arrive at a decision as to the suitability of the substitution.

7. ACCEPTANCE OR REJECTION OF PROPOSALS

The Owner reserves the right to reject any or all Proposals for any reason, or to accept any bid which it deems to be in its best interest. Any Proposal, which is incomplete, obscure, or irregular, may be rejected; any Proposal having erasures or corrections in the price sheet may be rejected; any Proposal that omits a bid on any one or more items may be rejected; and any Proposal accompanied by an insufficient or irregular certified check or Bid Bond may be rejected. The use of unbalanced bids is prohibited and will be rejected.

If the Bidder submits a Proposal before the deadline time for submission, the Bidder may, in writing, modify his original Proposal for submission. No oral, telephone, or telegraph modifications will be considered.

8. BIDDER'S QUALIFICATIONS

It is the purpose of the Owner not to award this Contract to any Bidder who does not furnish evidence satisfactory to the Owner that the Bidder has the ability, skill, integrity and experience in this class of work and has sufficient capital and plant to enable the successful and complete execution of this contract within the specified time.

In determining the skill, ability, and integrity of the responsible and eligible Bidders the following elements will be considered: Whether the Bidder has (a) previously defaulted on, failed to perform properly, or failed to complete on time contracts of similar nature; (b) habitually and without just cause neglected payment for material or to employees; (c) a permanent place of business; (d) adequate plant and equipment to do the Work properly; (e) a suitable financial status to meet the obligations incident to the Work; (f) appropriate technical experience; (g) labor force that can work in harmony with all other elements of

labor employed; (h) sufficient bonding capacity; and, (i) adequate superintendence.

9. **LOW BIDDER AND ACCEPTANCE OF THE PROPOSAL**

Except where the Owner exercised its right to reject any or all Proposals, the Contract will be awarded to the lowest responsible and qualified Bidder(s).

Within thirty (30) days after opening the Proposals the Owner will prepare a Notice of Intent to Award signed by a duly authorized representative of the Owner. This Notice of Intent to Award shall bind the successful Bidder to execute the Contract approval.

Notice of Approval and formal acceptance of the Proposal will be made in writing to the successful Bidder. A duly authorized representative of the Owner will sign the Notice of Approval.

The rights and obligations provided for in the Contract shall become effective and binding upon the Parties only with its formal execution by the Owner.

10. **SCHEDULE**

Time is of the essence. Contractor shall adhere to the milestones depicted on Page 5. If the schedule cannot be met as outlined, the OWNER will impose penalties in the amount of a **REDUCTION OF THE UNIT PRICE BID** for line item no. 4 - bituminous concrete according to the following

Time lapsed beyond scheduled milestone	Bid Reduction in dollars per ton
Less than one week	\$0.50 per ton for street in question
One to two weeks	\$0.75 per ton for street in question
Two weeks to one month	\$1.50 per ton per ton for street in question
More than one month	\$3.00 per ton per ton for street in question
Delay such that paving milestone scheduled for CY-2009 is pushed back to CY-2010 or scheduled for CY-2010 is pushed back to CY-2011	\$7.00 per ton per ton for street in question

The basis on whether a penalty is imposed is solely at the discretion of the City Engineer. The City Engineer has the right to waive assessment of the penalties specified above for the following reasons:

- a) If the contractor has begun work in plenty of time to complete the project according to the milestone listed and there is mechanical failure to a vital piece of equipment and another can not be brought to the site to complete the work on that day, provided work is resumed and completed during the next business day.
- b) Weather conditions are such that work cannot be completed in a manner that is in accordance with NHDOT specifications, provided that the work is completed the first business day in which the work can be completed in

weather conditions that are in compliance with Paragraph 3.5.2 of Section 401 of NHDOT specifications.

- c) The OWNER has changed the schedule at its sole discretion because it was deemed by the owner to be in its self-interest to do so. The OWNER will notify the contractor of such occurrences as soon as they are known.

- 11. **EXECUTION OF CONTRACT AND DAMAGES FOR A FAILURE TO EXECUTE**
Any Bidder whose Proposal shall be accepted will be required to execute the Contract within five (5) days after notice that the Contract has been awarded to him. Failure or neglect to do so shall constitute a breach of the agreement affected by the acceptance of the Proposal.

The damages to the Owner for such a breach shall include loss from the interference with his construction program and other items. The Owner will retain the amount of the certified check or Bid Bond accompanying the Proposal of such Bidder as liquidated damages for such breach. In the event any Bidder whose Proposal shall be accepted shall fail or refuse to execute the Contract hereinbefore provided, the Owner may, at his option, determine that such Bidder has abandoned the Contract and thereupon his Proposal and the acceptance thereof shall be null and void and the Owner will be entitled to liquidated damages as above provided.

- 12. **SPECIFICATIONS FORMAT**
The Specifications are generally in the format of the New Hampshire Department of Transportation's Standard Specification for Road and Bridge Construction, 2002 edition.

- 13. **MANUFACTURER'S EXPERIENCE**
Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period may be considered if the equipment supplier or manufacturer is willing to provide a bond or cash deposit for the duration of the specified time period which will guarantee replacement of the equipment in the event of failure.

- 14. **SAFETY AND HEALTH REGULATIONS**
This project is subject to all of the Safety and Health Regulations (29 CRF Part 1926 and all subsequent amendments) as promulgated by the U.S. Department of Labor on June 24, 1974. Contractors are urged to become familiar with the requirements of these regulations.

- 15. **U.S.D.O.T. COMPLIANCE**
The Contractor shall be in compliance with the U.S. Department of Transportation's Federal Motor Carrier Safety Regulations, Parts 49CFR382 and

49CFR383. The Contractor shall maintain compliance with those regulations from date of contract award to project completion.

16. **ADDITIONAL WORK**

The OWNER has the right to add more streets to be paved during the term of this contract, if there are additional funds available that can be dedicated to paving. If OWNER requires the CONTRACTOR pave additional streets, the OWNER will pay the CONTRACTOR according to the unit bid prices contained in this contract. If the OWNER requires the CONTRACTOR to conduct work that is outside the scope of work contained herein (e.g. pavement reclamation and pave, cold plane and pave, overlay, ditch reestablishment), the OWNER will negotiate unit prices for the out of scope work with the CONTRACTOR and prepare a change order to the contract that outlines the work to be done, its value, and unit prices of items, not otherwise contained herein.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

as Principal, and

as Surety, are hereby held and firmly bound unto The City of Rochester as OWNER in the penal sum of _____ for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that whereas the Principal has submitted to The City of Rochester a certain BID attached hereto and hereby made a part hereof to enter into a contract in writing, for the FY-2010 Paving Projects.

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attachment hereto (properly completed in accordance with said BID) and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal (L.S.)

Surety

By: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570) and be authorized to transact business in the state where the project is located.

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20____ by and between The City of Rochester, NH hereinafter called "OWNER" and _____ doing business as (an individual,) or (a partnership,) or (a corporation) hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the FY-2010 Paving Projects, hereafter called the PROJECT, as shown in the Notice to Proceed and as specified herein.
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within 5 (five) calendar days after the date of the NOTICE TO PROCEED and will complete according to the schedule herein,
4. The CONTRACTOR hereby agrees to meet the schedule outlined in Section 4 of the Notice to Contractors, or be subject to the penalties outlined in article 10 of the General Conditions if schedule is not adhered to.
5. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the unit prices as shown in the BID schedule.
6. The term "CONTRACT DOCUMENTS" means all documents contained in the FY 2010 Paving Projects dated July 17, 2009, and the following addenda:

No. _____	dated _____,	2 ____.
No. _____	dated _____,	2 ____.
No. _____	dated _____,	2 ____.
No. _____	dated _____,	2 ____.
No. _____	dated _____,	2 ____.
No. _____	dated _____,	2 ____.
7. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the Contract Documents in such amounts as required by the CONTRACT DOCUMENTS.
8. The OWNER may at its sole option add more city streets to be paved within the time frame of this contract. The OWNER consult with the CONTRACTOR to set a schedule for the added streets. The OWNER will pay for the additional work using the unit prices as bid and agreed to under this agreement, unless otherwise provided in the General Conditions.
9. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in four (4) copies, each of which shall be deemed an original on the date first above written.

(SEAL)

ATTEST:

Name _____

Title _____

(SEAL)

Name _____

Title _____

OWNER:

FOR THE CITY OF ROCHESTER

By _____
Name

Title _____

CONTRACTOR:

By _____

Name _____

Address _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal
(Corporation, Partnership, or individual)
and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the City of Rochester, NH, 31 Wakefield St., Rochester, NH 03867 hereinafter called OWNER, in the penal sum of _____ Dollars, \$(_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____ 2_____, a copy of which is hereto attached and made a part hereof for the construction of FY-2010 Paving Project.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts
(number)
each one of which shall be deemed an original, this the _____ day of
_____ 2_____.

ATTEST:

(Principal)

(Principal Secretary)

(SEAL)

By: _____

(Address)

(Witness as to Principal)

(Address)

(Surety)

By: _____
(Attorney-in-fact)

ATTEST

(Witness as to Surety)

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract.

If Principal is a Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

PAYMENT BOND

(In accordance with NH R.S.A., Chapter 447)

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal
(Corporation, Partnership, or Individual)
and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the City of Rochester, New Hampshire, 31 Wakefield St., Rochester, NH 03867 hereinafter called OWNER, in the penal sum of

_____ Dollars, \$(_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____ 2_____, a copy of which is hereto attached and made a part hereof FY-2010 Paving Project.

NOW, THEREFORE, if the Principal shall promptly make payment to any persons, firms, SUBCONTRACTORS, and corporations having any claim for labor performed or furnished, for equipment hired, including trucks, for material used and for fuels, lubricants, power, tools, hardware and supplies purchased by the Principal and used in carrying out the contract, and for labor and parts furnished upon the order of the Principal for the repair of equipment used in carrying out the contract, in accordance with the provisions of RSA 447:15, 16, 17 and 18, and satisfy all claims and demands incurred under such contract, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the notice required under this BOND to obtain benefits under this obligation by any person, firm, or corporation having any claim for labor performed, materials, machinery, tools, equipment or supplies, shall extend for a period of ninety (90) days after completion and acceptance of the work as provided in said contract with the OWNER. Such notice shall consist of a statement of the claim and must be filed in the office of the Clerk of the Superior Court of the County within which the contract shall be principally performed. The Clerk of the Superior Court is required to send a copy of the statement of claim by mail to the Principal and Surety hereunder. Any person, firm, or corporation shall within one (1) year after filing such claim file a petition in the Superior Court for the County within which the contract shall be principally performed to enforce the claim in accordance with the provisions and requirements of RSA 447:18.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Principal shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts
(number)
each one of which shall be deemed an original, dated this the _____ day
of _____ 2_____.

ATTEST:

(Principal Secretary)

(Principal)

(SEAL)

By: _____
(Name and Title)

(Address)

(Witness as to Principal)

(Address)

(Surety)

ATTEST:

By: _____
(Attorney-in-fact)

(Witness as to Surety)

(Address)

NOTE: Date of BOND must not be prior to date of Contract. If Principal is a Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

NOTICE OF AWARD

To: Name
Street Address
City, State, Zip Code

PROJECT Description: FY-2010 Paving Projects.

The OWNER has considered the BID submitted by you for the above-described WORK in response to its Advertisement for Bids dated _____, and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$ _____ dollars

- ✓ You have been awarded the entire contract and are expected to meet the terms and schedules as stipulated in the contract documents. You will be paid according to the line item prices bid in accordance with the measurement and payment schedule described in these bid documents, unless modified by the penalty clauses of the contract for failure to meet the schedule specified unless modified in writing by the City Engineer or Commissioner of Public Works.

You are required by the Information for Bidders to execute the Agreement and furnish the required CONTRACTOR's Performance BOND, Payment BOND and certificates of insurance within five (5) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said BONDS within five (5) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 2009

(Owner)

By _____

Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged.

by _____

this the _____ day of _____, 2____.

By _____

Title _____

NOTICE TO PROCEED

To:
Date:

Project: City of Rochester FY-2010 Paving Projects

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 2____, on or before _____, 2____, and you are to fully complete the WORK within NINETY (90) consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 2____.

The Contract provides for an assessment of the sum of \$750 as liquidated damages for each consecutive calendar day after the established Contract completion date that the WORK remains incomplete after September 1, 2010 in addition to the penalties described in Section 10 of the General Information to Bidders.

Dated this _____ day of _____, 2____.

(Owner)
By _____
Title _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED
is hereby acknowledged by

this the _____ day
of _____, 2____

By _____
Title _____

SPECIFICATIONS

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MEASUREMENT AND PAYMENT

PART 1.00 GENERAL

1.01 DESCRIPTION

- A. This section describes the measurement and payment for the Work to be completed under each bid item in the Proposal. Work specified but not specifically designated as a Proposal Item is considered incidental.
- B. Payment Procedures are described in the Agreement, General Conditions, Purchase Orders, and / or as determined during the Pre-construction meeting.
- C. All pay items include mobilization and demobilization, restoration of growth, erosion control, traffic control, restoration of growth, and miscellaneous work and cleanup necessary for the successful completion of work described in these specifications.
- D. Payment will be based on the actual amount of work accepted and for the actual amount of materials in place, as shown by the final measurements.

1.02 SCOPE OF PAYMENT

- A. Payments to the contractor will be made for the actual quantities of the contract items performed and accepted in accordance with the Contract Documents. Upon completion of the construction, if these actual quantities show either an increase or decrease from the quantities given in the bid form, the contract units prices still prevail, unless a penalty is assessed by the owner for not adhering to the prescribed schedule.
- B. The contractor shall accept in compensation, as herein provided, in full payment for furnishing all materials, labor, tools, equipment, and incidentals necessary to the completed work and for performing all work contemplated and embraced by the contract also for all loss or damage arising from the nature of the work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the work until its final acceptance by the Owner, and for all risks of every description connected with the prosecution of the work, except as provided herein, also for all expenses incurred in consequence of the suspension of the work herein authorized.
- C. The payment of any partial estimate or of any retained percentage except by and under the approved final invoice, in no way shall affect the obligation of the contractor or repair or renew any defective parts of the construction or to be responsible for all damage due to such defects.

1.03 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

- A. When alterations in the quantities of work not requiring supplemental agreements, as herein before provided for, are ordered and performed, the contractor shall accept payment in full at the contract price for the actual quantities of work done. No allowance will be made for anticipated profits. Increase or decrease work involving supplemental agreements will be paid for as stipulated in such agreements.

1.04 OMITTED ITEMS

- A. Should any items contained in the bid form be found unnecessary for the proper completion of the work contracted, the owner may eliminate such items from the contract, and such action shall in no way invalidate the contract, and no allowance will be made for items so eliminated in making final payment to the contractor.

1.05 PARTIAL PAYMENTS

- A. Partial payments shall be made monthly as the work progresses as pay requisitions are received from the contractor.

1.06 DESCRIPTION OF PAY ITEMS

- A. Item 1 - Asphalt Reclamation
 - 1. Method of Measurement: The quantity of pavement reclamation and road reconstruction to be paid for under this item shall be measured as the actual area of pavement reclaimed and road reconstruction in square yards accepted by the engineer as complete and in place over the full depth of pavement thickness, regardless of pavement thickness.
 - 2. Basis for Payment: Payment to complete pavement reclamation and shall be at the unit price per square yard as stated in the Bid Proposal. Payment under this item includes all equipment, labor, scarifying, pulverizing, excavation, handling, rough grading, of reclaimed material, placement additional gravel materials as required to meet the reclaim material specification and else necessary to complete the item. Though not anticipated, pavement reclamation at night may be required at the OWNER's option. No separate payment will be made for any costs of project lighting or overtime necessary due to night operations. All costs associated with nighttime operations is incidental.

3. Measurement for payment for bituminous concrete reclamation shall be the actual number of square yards as determined by in-place measurement, as measured jointly by the Contractor and Contract Monitor/Inspection Engineer and accepted by the OWNER.

B. Item 2 - Cold Planing of Asphalt Pavement -

1. Method of Measurement: Cold planing of asphalt pavement as ordered by the owner will be measured by the square yard as determined by actual surface measurements of the lengths and widths of the asphalt areas removed. The nominal depth of material to be removed is as specified in other sections of this document. If a depth is not specified, the depth to be removed will be one inch unless modified by the OWNER.
2. Basis of Payment: The accepted quantities of cold planing of asphalt surfaces to the nominal depth specified, will be paid for according to the contract unit price per square yard. Though not anticipated, cold Planing at night may be required at the OWNER's option. No separate payment will be made for any costs of project lighting or overtime necessary due to night operations. All costs associated with nighttime operations is incidental.

C. Item 3 - Crushed Gravel Fill for Base and Shoulder

1. Method of Measurement: Roadbed base course of crushed gravel or crushed aggregate for shoulders, crushed stone base course will be the cubic meter contract pay quantity of compacted material placed within the defined roadway in place as specified by the OWNER.

Crushed gravel for shoulder leveling will be measured by the cubic yard determined by using 80 percent of the loose volume material measured in vehicles in accordance with Section 109.01 of NHDOT Standard Specification for Road and Bridge Construction.

Gravel and crushed gravel for leveling of driveway aprons will be measured by the cubic yard of compacted materials placed at the direction of OWNER.

2. Basis of Payment: The contract pay quantities, plus or minus quantity modifications authorized by the OWNER of roadbed base course materials of crushed gravel or crushed aggregate for shoulders or crushed stone for base course will be paid for at the contract unit price per cubic yard complete in place. The accepted quantities of gravel or crushed gravel for driveway aprons and crushed gravel for shoulder leveling will be paid for at the contract unit price per cubic yard in place.

The conversion factor for converting between tons and cubic yards shall be 1.5 tons per 1 cubic yard.

D. Item 4 - Bituminous Concrete Full Width

1. Method of Measurement - Plant mix bituminous pavement mixture will be measured by the ton to the nearest 0.1 ton, and in accordance with Section 109.01 of NHDOT Standard Specification for Road and Bridge Construction. That quantity will be the weight used in the accepted pavement, and no deduction will be made for the weight of bituminous material or additives in the mixture. Plant mix bituminous pavement, removed because of faulty workmanship or contamination.
2. Basis of Payment - The accepted quantities of hot bituminous pavement will be paid for at the contract price per ton for the bituminous mixture, complete in place. Emulsified asphalt for tack coat required will be subsidiary to the paving items. Measurement for payment shall be by the actual number of tons in place based on either load slips collected and verified in the field by the Contract Monitor or Inspection Engineer. Payment includes bituminous concrete material, hauling, placing, compacting, sweeping, cleaning, and all else necessary to complete the items. (Analogous to Pay Item 403.11¹)
3. Though not anticipated on the streets listed, paving at night may be required, at the OWNER's option. No separate payment will be made for any costs of project lighting or overtime necessary due to night operations. All costs associated with nighttime operations are incidental.
4. Liquid Asphalt Price Adjustment - In the event there are excessively large variations in the price of liquid asphalt during the contract period, the City will participate in the adjustment in the market price of liquid asphalt, according to the following procedure:
 - a. The liquid asphalt price published by the New Hampshire Department of Transportation Bureau of Construction for the month that bids are opened will be reference price for liquid asphalt. No adjustments will be made to the bid price for pay items no. 4 or no. 6 on the bid form if the price of liquid asphalt fluctuates either higher or lower than the reference price by 15 percent or less.
 - b. In the event the price of liquid asphalt as published by the NHDOT Bureau of Construction in any given month fluctuates from reference price, the city will adjust the per ton

price for the month that asphalt is applied using the following formula. Appropriate Bid Price (item 4 or 6) + (monthly market asphalt price-reference price)*0.055.

- c. As an example. Bid price = \$50.00/ton; reference price = \$450.00/ton of liquid asphalt; In month XXX, liquid asphalt price=\$650.00/ton. – Paving mix adjustment is $\$50.00 + (650 - 450) * 0.055$ = Adjusted price becomes \$61.00/ton
- d. Conversely, if the market price of liquid asphalt declines by more than 15 percent from the reference price, the City will expect a credit in the bid price of bid items 4 and 6 using the same formula.

E. Item 5 – Soil Compaction (Base Preparation) and Fine Grading of Road Base

- 1. Method of Measurement - Base preparation, which includes compaction of reclaimed material and road base gravels, and fine grading will be measured by the square yard.
- 2. Basis of Payment - The accepted quantities will be paid for at the unit price per square yard and will include supplying the equipment necessary to complete the tasks including at least a 10 - ton vibratory roller and grader.

F. Item 6 - Hand Paving Driveway Aprons

- 1. Method of Measurement - Plant mix bituminous pavement mixture will be measured by the ton to the nearest 0.1 ton, and in accordance with Section 109.01 of NHDOT Standard Specification for Road and Bridge Construction. That quantity will be the weight used in the accepted pavement, and no deduction will be made for the weight of bituminous material or additives in the mixture. Plant mix bituminous pavement, removed because of faulty workmanship or contamination.
- 2. Basis of Payment - The accepted quantities of hot bituminous pavement will be paid for at the contract price per ton for the bituminous mixture, complete in place. Emulsified asphalt for tack coat required will be subsidiary to the paving items. Measurement for payment shall be by the actual number of tons in place based on either load slips collected and verified in the field by the Contract Monitor or Inspection Engineer. Payment includes bituminous concrete material, hauling, placing, compacting, sweeping, cleaning, and all else necessary to complete the items. (Analogous to Pay Item 403.12¹)

G. Item 7 - Pavement Striping

1. Method of Measurement - Retroreflective pavement marking lines of the type and width specified by the owner will be measured by the linear foot to the nearest foot of length of marking applied. Double yellow lines and combination solid/broken lines will be measured as separate lines according to the length of each individual marking applied.

Retroreflective pavement marking symbols or words of the type specified will be measured by the square foot, to the nearest 0.1 square foot of area applied, based on established areas where existing pavement markings occurred prior to the obscuring the existing pavement by either reclaiming, cold planing, or overlaying.

Measurement for payment shall be as jointly measured and approved by the Contractor and Contract Monitor/Inspection Engineer based on existing field conditions

2. Basis of Payment - The accepted quantities of retroreflective pavement marking lines of the type and width specified will be paid for at the contract unit price per linear foot complete in place. The accepted quantities of retroreflective pavement marking symbol or words of the type specified will be paid at the contract unit price per square foot complete in place.

H. Item 8 – Pavement Markings

1. Method of Measurement - Retroreflective pavement marking symbols or words of the type specified will be measured by the square foot, to the nearest 1 square foot of area applied, based on established areas where existing pavement markings occurred prior to the obscuring the existing pavement by either reclaiming, cold planing, or overlaying or in locations specified by the OWNER.

Measurement for payment shall be as jointly measured and approved by the Contractor and Contract Monitor/Inspection Engineer based on existing field conditions

2. Basis of Payment - The accepted quantities of retroreflective pavement marking lines of the type and width specified will be paid for at the contract unit price per linear foot complete in place.

I. Item 9 – Gravel Shoulders

1. Method of Measurement Crushed gravel for shoulder leveling will be measured by the cubic yard determined by using 80 percent of the loose volume material measured in vehicles in accordance with Section 109.01 of NHDOT Standard Specification for Road and Bridge Construction.

Gravel and crushed gravel for leveling of driveway aprons will be measured by the cubic yard of compacted materials placed at the direction of OWNER.-

2. Basis of Payment - The contract pay quantities, plus or minus quantity modifications authorized by the OWNER of roadbed base course materials of crushed gravel or crushed aggregate for shoulders or crushed stone for base course will be paid for at the contract unit price per cubic yard complete in place. The accepted quantities of gravel or crushed gravel for driveway aprons and crushed gravel for shoulder leveling will be paid for at the contract unit price per cubic yard in place. The conversion factor for converting between tons and cubic yards shall be 1.5 tons per 1 cubic yard.

J. Item 10 - Saw Cut Pavement

1. Method of Measurement - Sawed pavement of the type specified will be measured by the linear foot.
2. Basis of Payment - The accepted quantity of sawed pavement will be paid for at the contract unit price per linear foot. (Analogous to Pay Item 628.2¹)

K. Item 11 - Mobilization

1. Method of Measurement - Lump sum based on bringing and removing the necessary equipment to each location at each stage of the pavement process. A separate mobilization can be paid for the following:
 - a. Pavement Removal and Base Preparation (milling machine, grader, and vibratory rollers)
 - b. Paving Machine and necessary trucking for application of base pavement
 - c. Paving Machine and necessary trucking for application of wearing pavement
 - d. Relocation of above equipment to non-contiguous locations.

Mobilization of small rollers and necessary trucking for hand paving operations and excavators or backhoes for ditching and/or excavation and resetting of castings is incidental. No additional mobilizations will be paid for this equipment

2. Basis of Payment - Mobilizations will be paid on a lump sum basis and is based on the cost to move the necessary equipment to a neighborhood to reclaim, cold plane, fine grade and apply the binder course of pavement. An additional mobilization will be paid to bring equipment back to a neighborhood to apply the wearing course of pavement at a later date.

L. Item 12 - Traffic Control - Flaggers

1. Method of Measurement - Uniformed officers, uniformed officers with vehicles, and flaggers will be measured by the actual numbers of hours authorized, as determined by the contract monitor/inspection engineer. The contractor may furnish additional traffic control personnel at his expense but only those agreed upon by the OWNER will be measured for payment.

It is assumed that at least one flagger will be required on any street at all times. Additional flaggers will be authorized as conditions warrant subject to the approval of the City Engineer or his/her representative. A minimum of two flaggers will be required for work done on any arterial or collector street that carries more than 1500 vehicles per day, or in locations where in the opinion of the OWNER, there is the potential for a hazard to motorists, pedestrians, or workers due to the work being performed.

2. Basis of Payment - The hours authorized for flaggers will be paid for at the contract unit price per hour.

M. Item 13 – Officers –

1. Method of Measurement - Uniformed officers, informed officers with vehicles, will be measured by the actual numbers of hours authorized, as determined by the contract monitor/inspection engineer. The contractor's schedule for utilizing uniformed officers; uniformed officers with vehicles, and flaggers shall be agreed upon cooperatively by the OWNER. The contractor may furnish additional traffic control personnel at his expense but only those agreed upon by the OWNER will be measured for payment.

It is assumed that uniformed officers with police vehicles and flaggers will be required on streets that carry more than 4000 vehicles per day; when in the opinion of the deputy police chief and agreed to by the ENGINEER; and in all instances where operations are occurring during night time hours.

2. Basis of Payment - The hours authorized for uniformed officers with vehicles will be paid for at the invoice value plus a 25-percent markup to cover police administrative expenses. The invoice may include salary, fringe benefits, overtime, and charges for care and maintenance of equipment and uniforms. Payment of the amount set amount in the proposal will not be on a lump sum basis, but only the dollar value as authorized will be paid.
3. The value is already set by the City of Rochester and will be carried as part of the contract.

N. Item 14 - Replacement of Traffic Signal Loop Detectors

1. Method of Measurement - Traffic signal loop detectors rendered in operable will be measured as a unit.
2. Basis of Payment - The accepted quantity of traffic signal loop detectors will be paid for at the contract lump sum price complete in place and operational.

O. Item 15 - Traffic Control - Maintenance of Traffic.

1. Method of Measurement - Maintenance of traffic will be measured as a unit for the project.
2. Basis of Payment - Maintenance of traffic will be paid for at the contract lump sum price for the project. Equal partial payments of this item for each street completed is authorized. Replacement of and traffic control devices will be at the contractor's expense.

P. Item 16 - Resetting of Castings and Structures

1. Method of Measurement - Resetting of castings will be the cost to remove, lower, install of blanks from all castings owned and maintained by the OWNER within the paved areas of the street in preparation for pavement removal. These castings include catch basin grates, drainage and sewer manholes, water service shutoff valves, and water gate valve boxes. Resetting of castings and

structures will be paid for on a unit basis per casting moved as agreed upon by the contract monitor/inspection engineer, but will not exceed the number of structures shown in the water/sewer service books maintained by the owner.

It is expected that the casting will need to be moved during reclaim/cold planing operations, and then raised to its proper locations when the binder course is applied, when the binder course will be exposed over a winter (where applicable), and then set flush with the pavement surface when the at the application of the wearing course.

Basis of Payment - Resetting of castings will be paid for on a unit price basis per casting moved regardless of how many times it is moved during a paving evolution. Payment will only occur after the application of the final pavement wearing surface so that the contract monitor/inspection engineer sees the casting and ensures is set at the proper elevation.

Q. Item 17 – Calcium Chloride

1. Method of Measurement- Use of Calcium Chloride shall be at the price per gallon material applied as agreed upon by the contract monitor/inspection engineer. OWNER will pay for the application of calcium chloride only after the OWNER has consented to its application on a street or in a neighborhood.
2. Basis of Payment - Payment will be the actual material cost of calcium chloride applied. The material cost of calcium chloride will be paid for as item no. 17, however the labor and equipment necessary for material application of all dust control measure including, but not limited to calcium chloride or water will be subsidiary

R. Item 18 – Excavation of Ditch Lines

1. Method of Measurement - Excavation, embankment-in-place, embankment-in-place surplus, stockpile surplus, borrow, impervious material, rehandling surcharge material may be measured by the cubic yard in accordance with section 109.01 of reference 1.
2. Basis of Payment - The accepted quantities of excavation and embankment, of the type specified, will be paid for at the contract price per cubic yard for each of the pay items listed below that is included in the contract, with the following stipulations:

Topsoil removal will be paid for as common excavation. Payment of excavation will be full payment for excavating, transporting and stockpiling/disposing topsoil at approved locations.

Roadside ditches adjoining excavated areas will be paid for as common, rock, or unclassified excavation, as appropriate, unless such ditches are shown on the plans or ordered to be paid for under another item.

S. Item 19 – Pavement Joint Adhesive

1. Method of Measurement – Payment will be for a unit cost for application of a rubberized pavement joint along the cold joint at the centerline of the road and in a multilane roadway, between each mat joint. Installation will be per NHDOT specification 403.6 and on the wearing course only.

Contractor will be compensated per linear foot of pavement joint adhesive applied.

T. Item 20 – Mailbox Assembly Removal and Resetting

1. Method of Measurement – Payment will be for a unit cost for removal and resetting of each mailbox assembly including post(s) and associated mailbox(es). Any mailbox structure that has two or more physical mailboxes mounted to a single post structure will be counted as one mailbox assembly.

Contractor will not be compensated if the mailbox assembly is destroyed during its removal necessitating the installation of a new mailbox assembly. Costs associated with a new replacement mailbox assembly are incidental.

2. Basis of Payment – Will be a unit cost for each mailbox assembly that is removed and reset one time. Interim settings to facilitate the receipt of mail while operations are occurring will be incidental. Installation of replacement assemblies destroyed during the removal process are considered incidental. The accepted quantities of excavation and embankment, of the type specified, will be paid for at the contract price per cubic yard for each of the pay items listed below that is included in the contract, with the following stipulations:

FY-2010 Paving Projects

¹ Refers to the New Hampshire Department of Transportation Standard Specification for Road and Bridge Construction, 1997 edition

RECLAIM BITUMINOUS CONCRETE PAVEMENT

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide scarifying, if necessary, and pulverizing of the existing bituminous concrete pavement material and gravel base to a minimum depth of nine inches (9") or at least two inches (2") below the pavement thickness as required, or ordered by the OWNER.

1.02 QUALITY ASSURANCE

- A. Standards shall be the NHDOT Standard Specifications for Bridges and Highway Construction, Section 306.

1.03 JOB CONDITIONS

- A. Weather limitations shall be as indicated in NHDOT "Standard Specifications", Section 306.3.11.2.
- B. Reclaim pavements under reasonably dry conditions to prevent siltation.

1.04 EQUIPMENT

- A. Equipment required for this Section must have the capability of changing forward speed and the depth of cut; be equipped with four wheel drive; perform in forward and reverse; have a cutting rotor with a minimum width of 8'; capable of cutting and pulverizing in both the up and down directions; and have a minimum capability of pulverizing to a minimum depth of 12".

PART 2.00 PRODUCTS

2.01 GENERAL

- A. The reclaimed material shall consist of the pulverized existing pavement and blended with the underlying gravel base with additional crushed gravel, as determined by the Contract Monitors.
- B. The pavement depths may vary along the length of the roadways of the Project.
- C. Reclaim material shall conform to the following gradation of finished materials:

<u>Sieve Size</u>	<u>Percent Passing By Weight</u>
3"	100
1-1/2"	80-100
3/4"	55-90
#4	40-70
#200	3-10 (Total Sample)

- D. Conform to Section 02223- Roadway Excavation, Backfill, and Compaction, 2.01 E. and Section 304 of the NHDOT "Standard Specifications" for additional crushed gravel gradation.
- E. Conform to NHDOT "Standard Specifications" for liquid calcium chloride (CaCl₂).
- F. Gradation shall be determined by AASHTO T164.

PART 3.00 EXECUTION

3.01 PREPARATION

- A. Lower or remove all utility castings, if necessary, prior to the start of any work. Protect specific utilities to assure access to water mains, gravity sewers, storm drainage and any other utility during construction.
- B. The limits of pavement reclamation are generally from pavement edge to pavement edge or as directed by the Contract Monitors. The CONTRACTOR will furnish controls to govern grading and crowning the reclaimed materials within the required limit
- C. Pulverize or scarify pavements and base gravel to provide a reasonably consistent reclaimed material.
- D. Process reclaimed pavement using scarifying or planing mill equipment, a traveling rotary hammermill or other alternate reclaimer equipment. Rock crushers shall not be allowed as alternate equipment.
- E. Care should be exercised to save all pavement materials for reclaiming, if trenches are constructed prior to the reclaiming process.

3.02 RECLAIM PROCESS

- A. The Owners reserve the right to determine the method to be used based on conditions presented during the initial pass of the reclaim machinery.

3.02.1 METHOD A – SUITABLE SUBBASE

- A. The reclaim process shall consist of two (2) passes with the reclaim machinery. During the second reclaim pass, liquid calcium chloride (CaCl_2) shall be applied at a rate of 0.25 gallon per square yard. The reclaim material shall then be fine graded and compacted. After the finish grade has been established, a final application of liquid calcium shall be made at a rate of 0.25 gallons per square yard.
- B. Blend in existing driveway aprons using excess reclaimed materials and or additional gravel as needed.
- C. Excess reclaimed materials, if any, shall remain the property of the OWNER. The OWNER will direct the CONTRACTOR on the storage location.

3.02.2 METHOD B – UNSUITABLE SUBBASE

- A. The reclaim process shall consist of one (1) pass with the reclaim machinery. The reclaim material shall then be graded and compacted.
- B. Place 6" of 1 ½" crushed gravel subbase over the reclaimed pavement, grade to provide a 2% crown and compact. After fine grading to finish grade has been completed, an application of liquid calcium chloride shall be made at a rate of 0.25 gallons per square yard.
- C. Blend in existing driveway aprons with 1 ½" crushed gravel as needed or as determined by the Contract Monitors.
- D. COMPACTION
- E. Compaction of roadway gravels shall be done with an approved vibratory roller, producing a dynamic force of at least 27,000 pounds in a 12-inch lift unless otherwise specified by the owner.
- F. Compaction of roadway crushed ledge rock shall be done with an approved vibratory roller producing a dynamic force of 27,000 pounds in a 12-inch lift.
- G. Rolling and shaping of successive roadway gravel base lifts shall be done parallel to roadway centerline and continue until each layer conforms to the required grade and cross-section.

BITUMINOUS CONCRETE PAVEMENT

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide bituminous concrete pavement as specified herein.

1.02 QUALITY ASSURANCE

- A. Standards shall be the New Hampshire Standard Specifications for Bridges and Highway Construction, Division 400, hereinafter referred to as NHDOT "Standard Specifications".
- B. Pavement supplier and Plant shall be as specified in NHDOT "Standard Specifications" Section 401.3.1.

1.03 SUBMITTALS

- A. Material certificates shall be signed by producer and CONTRACTOR stating that each material complies with specified requirements.
- B. Design mix provisions for each type of pavement specified to be submitted 7 days in advance of paving.
- C. Certified weigh slips submitted for each truckload of bituminous concrete materials delivered and placed.

1.04 JOB CONDITIONS

- A. Weather limitations shall be as indicated in NHDOT "Standard Specifications" Section 401.3.5.
 - 1. Base course placement shall be placed at ambient temperature above 40 degrees F.
 - 2. Wearing course placement shall be at ambient temperature above 50 degrees F.

PART 2.00 PRODUCTS

2.01 GRAVEL SUBBASE

- A. Refer to Section 02616 Reclaim Bituminous Concrete Pavement and Section 02223 - Roadway Excavation, Backfill and Compaction.

2.02 ASPHALT CEMENT

- A. Grade as specified to comply with Section 702 of the NHDOT "Standard Specifications".

2.03 BITUMINOUS CONCRETE PAVEMENTS

- A. Comply with the material requirements NHDOT "Standard Specifications", Section 401.
- B. Base Courses (Binder): Type-B.
- C. Wearing Course: Type-E.
- D. Shims: Type-F.
- E. Overlay: Type-E.
- F. Sidewalk (1 course): Type-E
- G. Walkway (1 course): Type-E
- H. Driveway Aprons: Type-E (Hand placed)

2.04 BITUMINOUS TACK COAT

- A. Comply with NHDOT "Standard Specifications" Section 410.
- B. Grade: RS-1.

PART 3.00 EXECUTION

3.01 PREPARATION

- A. Prior to application of shims / overlays and wearing pavement ensure all pavements are clean and free of debris by sweeping.
- B. Prior to application of wearing surface, raise utility casings to final grade. Between raising and the application of pavement, the edge of the utility casing will be painted with fluorescent orange paint.

3.01 SUBBASE

- A. Aggregate subbase shall be installed in accordance with Section 02616 Reclaim Bituminous Concrete Pavement and Section 02223 - Roadway Excavation, Backfill and Compaction; or NHDOT "Standard Specification", Sections 203 and 304.

3.02 BITUMINOUS CONCRETE PAVEMENT

- A. Transverse joints with existing pavement shall be cut back at a depth sufficient to allow placement of new pavement at the specified depth.
- B. All utility covers and edges of existing pavement shall be painted with a suitable bituminous coating.
- C. Pavement courses shall be spread continuously by a suitable paving machine to line, grade and thickness specified.
- D. Paving machines and compaction rollers shall meet the minimum requirements of the NHDOT "Standard Specifications", Section 401.3.6.
- E. Permanent Bituminous Concrete base course shall be placed to a compacted thickness as noted in the Section entitled "The Projects" or as directed by the CONTRACT MONITORS. In areas that have been reclaimed, the base course pavement shall be placed no later than seven (7) days following final completion of the reclamation process.
- F. Permanent Bituminous Concrete wearing course shall be placed to a compacted thickness as noted in the Section entitled "The Projects" or as directed by the CONTRACT MONITORS.
- G. Sidewalk Bituminous Concrete single course shall be placed to a compacted thickness as noted in the Section 02775 or as directed by the CONTRACT MONITORS.

3.03 BITUMINOUS TACK COAT

- A. Apply tack coat, as required or at the direction of the CONTRACT MONITORS, immediately prior to paving against curbing, gutters, manholes and existing pavement for adequate bond.
- B. Tack coat generally not required on new base pavement courses. Apply to existing weathered pavement at a rate of 0.5 to 2.0 gallons per square yard.

RETROREFLECTIVE PAVEMENT MARKINGS.

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. This work shall consist of furnishing, placing, and removing white or yellow retroreflective paint pavement markings, preformed retroreflective tape pavement markings, and retroreflective thermoplastic pavement markings as ordered by the OWNER.

1.02 QUALITY ASSURANCE

- A. Standards shall be the New Hampshire Standard Specifications for Bridges and Highway Construction, Division 600, hereinafter referred to as NHDOT "Standard Specifications".

PART 2.00 MATERIALS

2.01 Paint

- A. Paint shall conform to 708-NH 4.11 White Traffic Paint or 708-NH 4/12 Yellow Traffic Paint or current standard as adopted by NHDOT.
- B. Glass Beads shall conform to 708-NH 4.13 and shall be Type 1 with a moisture resistant coating.

PART 3.00 CONSTRUCTION REQUIREMENTS

3.02 GENERAL

- A. All application of pavement markings shall be in accordance with Section 632 of NHDOT Standard Specifications for Road and Bridge Construction, subsection 3.
- B. Only collector roads and arterials will have pavement markings applied. The following streets that are subject to this contract are considered either collector roads or arterials.
- Salmon Falls Road
 - Route 125 (Gonic Road, Columbus Avenue)
 - Oak Street

- C. Stop bars shall be painted at stop signs of all streets following the application of the wearing course of pavement.
- D. Pavement markings will be required on all collectors and arterial streets following the binder course, if the OWNER's intent is to have the binder pavement exposed during the winter months. Pavement markings will also be required following the application of the wearing course of pavement.
- E. The contractor will be required to note the location and patterns of pavement markings existing before the markings are removed or obliterated and shall replicate them following the application of pavement, unless a modification is ordered by the OWNER.
- F. All collector and arterial streets shall have fog lines applied, if they are not present already.

COLD PLANING

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. This work shall consist of the removal of existing bituminous pavement, by planing or milling type equipment, to the depth specified by the OWNER.

PART 2.00 EQUIPMENT

- A. Equipment used for planing of bituminous surfaces shall be a power-operated rotary planing or milling machine capable of uniformly removing the existing bituminous surface.

PART 3.00 CONSTRUCTION REQUIREMENTS

- A. Operations shall be in accordance with the New Hampshire Standard Specifications for Bridges and Highway Construction, Section 417.

TRAFFIC CONTROL, FLAGGERS/UNIFORMED OFFICERS

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. This work shall consist of furnishing qualified uniformed officers, with or without vehicles, or flaggers as required to direct traffic through or around the work or as ordered.
- B. The contractor may perform this item with his own forces, uniformed officers, a commercial security firm or subcontractors. Commercial security firms and subcontractors shall comply fully with section 108.01 of the NHDOT Standard Specification for Road and Bridge Construction, including Equal Employment Opportunity, Payroll and Minimum Wages as applicable.
- C. When Uniformed Officers are required, they shall be obtained from the City of Rochester Police Department. If the Rochester Police department declines to provide any officers, then uniformed officers shall be obtained from the Strafford County Sheriff's office.

PART 2.00 EQUIPMENT

- A. Vehicles for use with uniformed officers shall be official police vehicles with associated equipment including blue flashing lights and appropriate police markings as provided by the City of Rochester's police department.
- B. Traffic paddles and flagger equipment shall conform to those described in the MUTCD or the New Hampshire Traffic Control Handbook as appropriate.
- C. Two way radios for uniformed officers and flaggers shall be dependable, providing clear communication at all times between radio operators.

PART 3.00 CONSTRUCTION REQUIREMENTS

- A. Operations shall be in accordance with the New Hampshire Standard Specifications for Bridges and Highway Construction, Section 618.
- B. The contractor will be responsible for supplying at least one flagger for each street on which work is being performed.

- C. At least two flaggers to control traffic approaching in each direction shall be used on all arterial and collector streets and all streets, which have an average daily traffic, count of more than 1500 vehicles per day.
- D. At least one uniform officer with police vehicle will be required when work performed on all streets with more than 4000 vehicles per day. These streets include but are not limited to the following:
 - Walnut Street
 - Airport Drive at Intersection with Rochester Hill Road (Route 108)
 - Autumn Street at Intersection with Salmon Falls Road
 - Chesley Hill Road at Intersection with Washington Street (Route 202)

ROADWAY EXCAVATION, BACKFILL AND COMPACTION -

PART 1.00 GENERAL

1.01 DESCRIPTION

A. Work included in this Section:

1. Clearing, grubbing and stripping of Work areas.
2. Excavating (roadway and drainage trenches), stockpiling and handling of common fill materials.
3. Disposal and handling of unsuitable materials.
4. Placing, shaping and compacting of fill areas (roadway and drainage trenches).
5. Grading and fine grading of subbase for roadways and parking areas.
6. Placement, fine grading and compacting of crushed gravel surface, slopes and shoulders in roadways and parking areas.
7. Excavating, shaping and compacting of drainage ditches.

B. Related Work Specified Elsewhere:

1. Erosion Control -
2. Restoration of Growth -

1.03 QUALITY ASSURANCE

- A. Compaction testing shall be conducted as indicated in Section 01400. The OWNER shall pay for aggregate gradation analyses. The OWNER shall pay moisture maximum density tests and compaction test fees. The CONTRACTOR shall pay retesting for any failed tests.
- B. Surfaces under paved areas shall be shaped to grade, line and cross-section within 1/2-inch positive or negative tolerance relative to subgrade elevations.
- C. Reference Standard shall be the New Hampshire Standard Specifications for Bridge and Highway Construction, hereinafter called NHDOT "Standard Specifications".

1.04 SUBMITTALS

- A. Test reports of results of material gradations.
- B. Compaction test reports.

1.05 JOB CONDITIONS

- A. Site information data on subsurface conditions are not intended as representations or warranties of accuracy or continuity between borings or test pits. It is expressly understood that the OWNER will not be responsible for interpretations or conclusions drawn therefrom by the CONTRACTOR. The CONTRACTOR may make additional test borings or test pits with prior approval of the Contract Monitors. Payment for exploratory excavations approved by the Contract Monitors shall be paid for under the contract unit price.
- B. Exploratory test pits shall be excavated as directed by the Contract Monitors. Comply with the requirements for backfilling and compacting under this Section.
- C. Dust Control shall be practiced in work areas and adjacent off-site stockpile areas. Dust shall be controlled by water or calcium chloride.
- D. Traffic Control shall be maintained by the use of approved barricades, lights and signs to protect life and property until work areas are filled and graded to a condition acceptable, to the Contract Monitors, for traffic.

PART 2.00 MATERIALS

2.01 DEFINITIONS

- A. Common Excavation or Fill shall consist of all excavation other than rock excavation that is not specifically classified. Common Fill shall be free of trees, roots, frozen matter or rubble where the greatest stone size does not exceed six inches (6") in greatest dimension. It shall be capable of being readily spread and compacted.
- B. Unsuitable Material shall consist of deposits of saturated or unsaturated mixtures of soils and organic matter not suitable for foundation material regardless of moisture content.

Unsuitable material shall also consist of any material containing excessive plastic clay, vegetation, debris, pavement, stones or boulders over six inches (6") in greatest dimension, which, in the opinion of the ENGINEER, will not provide a suitable foundation or subgrade.

- C. Bank run Gravel is characterized as hard, durable stone with coarse to fine sand. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
6"	100%
No. 4	25-70%
*No. 200	0-12%
*(Based on the fraction passing No. 4)	

- D. Sand shall consist of clean, sharp mineral particles free of organic matter. Sieve size as follows:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
6"	100%
No. 4	70-100%
*No. 200	0-12%

*(Based on the fraction passing No. 4)

- E. Coarse Crushed Bank run Gravel particle size limits are as follows:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
3 inch	100%
2 inch	95-100%
1 inch	55-85%
No. 4	27-52%
*No. 200	0-12%

*(Based on fraction passing No. 4)

- F. Fine Crushed Bank run Gravel particle size limits are as follows:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
2 inch	100%
1 inch	90 - 100%
No. 4	30 - 60%
No. 100	0 - 12%
No. 200	0 - 6%

- G. Crushed Stone shall be clean angular rock fragments obtained by breaking and crushing rock material. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing by Weight</u>	
	<u>3/4" Stone</u>	<u>1 1/2" Stone</u>
2 inch	--	100%
1 1/2 inch	--	30-100%
1 inch	100	0-30%
3/4 inch	95-100	0-5%
1/2 inch	0-25	--
3/8 inch	0-2	--

- H. Pea Stone shall be naturally round aggregate; 1/4" nominal size and meet ASTM C-33 stone size No. 89 specifications. Sieve analysis by weight:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
1/2 inch	100%
3/8 inch	90-100%
No. 4	20-55%
No. 8	5-30%
No. 16	0-10%
No. 50	0-5%

- I. Shoulder Stone/Hardpack particle size limits are as follows:

<u>SIEVE SIZE</u>	<u>% PASSING BY WEIGHT</u>
1-1/2 inch	100%
1 inch	90 - 100%
No. 4	30 - 65%
No. 200	0 - 10%

- J. All material not herein specified, but necessary for completion of the Work shall conform to the requirements of the New Hampshire Standard Specifications for Highway and Bridge Construction.
- K. Refill material for excavation below grade in ledge shall be coarse crushed gravel or as shown on the Drawings. For refill of unsuitable material removed at the direction of the ENGINEER, Common or Select Backfill shall be used as directed by the ENGINEER.
- L. Select backfill, where required, shall be coarse crushed gravel as specified above, unless directed otherwise by the ENGINEER.

PART 3.00 EXECUTION

3.01 EXCAVATION

- A. Common Excavation shall consist of all excavation, other than rock and boulder excavation that is not specifically classified in these Specifications.

Excavation to subgrade shall be done so that the subgrade material does not become saturated with water or contaminated with organic matter to a degree that subgrade is unstable.

Subgrade soils made unstable by error or negligence of the CONTRACTOR shall be removed and replaced by Select Backfill at the CONTRACTOR's expense.

- B. Unauthorized removal of materials beyond the indicated subgrade elevations or pay widths without authorization of the Contract Monitors, shall be refilled and otherwise corrected at the CONTRACTOR'S expense.
- C. Unsuitable material shall consist of deposits of saturated or unsaturated mixtures of soils and organic matter not suitable for foundation material regardless of moisture content. These conditions require notifying the Contract Monitors, who will make an inspection of conditions. Unsuitable materials encountered during Common Excavation shall be removed and replaced by Select Backfill, as directed by the Contract Monitors.
- D. Subgrade surfaces for roadways shall be dry and firm before placing granular surface materials. Subgrade material disturbed during excavation shall be thoroughly compacted in accordance with the schedule shown in paragraph 3.07 Compaction Requirements.
- E. Under sidewalks, sidewalks and 6" of material shall be removed and replaced with 6" of sand prior to placement of asphalt.

3.02 STABILITY OF EXCAVATIONS

- A. Slope sides of all excavations to comply with OSHA regulations and State Codes. Shore and brace trench walls where sloping is not possible because of space restrictions or instability of material excavated. Use a portable trench box to minimize trench caving and assure safety.

3.03 TRENCH DEWATERING

- A. Perform all work in the dry. Prevent surface water or groundwater from entering or remaining in trench excavations. Provide and maintain pumps or other dewatering system components necessary to convey water away from trench excavations. Do not use pipe already laid as a water conduit. Watertight plugs shall be kept in pipe at any time active pipe laying has been suspended.

Water pumped from trench excavations shall be directed away from the work area in a manner consistent with the requirements of Section 02205, Erosion Control. Pumping water into the wastewater collection system is prohibited. Exercise care that runoff and erosions from the dewatering process do not damage new improvements. Establish and maintain temporary drainage ditches to keep surface water directed away from the Work.

3.04 BACKFILL AND COMPACTION

- A. Place suitable material in layers to the required elevations as shown on the Drawings and as listed below.
- B. With pipe cushion in place and compacted, place fill layers 12" in loose depth and compact with heavy machine-operated compaction equipment. If hand-operated compaction equipment is used, place not more than 6" of loose refill material in each lift with hand sorting of rocks larger than 6" diameter. Gravel roadway base courses shall be placed in 8" maximum lifts and thoroughly compacted, as required, prior to successive lifts. Do not place backfill or fill material on surfaces that are muddy, frozen or contain frost or ice.

Place backfill materials evenly adjacent to structures to required elevations. Do not allow heavy equipment within 5 feet of structures during backfilling and compaction.

- C. Backfill excavations as promptly as Work permits, but not until completion of the following:
 - 1. Acceptance of below grade construction items.
 - 2. Inspection and recording locations of underground utilities.
 - 3. Removal of concrete formwork.
 - 4. Removal of shoring and bracing, and backfilling of voids with suitable material.

Use care in backfilling to avoid damage or displacement of underground structures, pipe, culverts, and concrete thrust blocks.

Backfill with crushed trench stone under all in-place utility pipes crossed by water main, sewer or storm drain construction. The crushed trench stone backfill shall be allowed to stand at its own angle of repose, without "haunching" or forming with common fill.

- D. Backfilling Trenches: See Trench Detail on the Drawings. Lifts in State highways shall be 8 inches in depth or as required by the Trench Permit as appended to the Specifications. Trenches in cross-country runs shall be restored to a grade 6 inches above original surface elevation.
- E. Replacement of unsuitable materials below normal grade shall be in accordance with paragraph 3.01C.

3.05 PLACING ROADWAY EMBANKMENTS

A. Fill material shall be placed in 12-inch maximum lifts the full width of the roadway. Lifts shall be thoroughly compacted to the required density prior to placing the next lift. Continuous grading and shaping shall be done simultaneously with compaction procedures to ensure uniform density throughout fill areas.

B. Embankments shall be graded to ensure run-off of water. Areas saturated by water shall be corrected as indicated in 3.01C.

C. No embankments shall be constructed on frozen earth materials. Fill materials shall be free of ice and frozen particles. When fill is free of frost and subgrade is frozen, the frozen layer may be removed prior to placement of the suitable layer.

Sustained freezing temperatures shall result in the suspension of all embankment work, unless directed otherwise by the ENGINEER.

3.06 FINE GRADING

A. Fine grading shall consist of the final grading required to level the subgrade, base and surface course to limits within the specified tolerances indicated in paragraph 1.03B.

B. Gravel base courses shall be placed in 8 inch maximum lifts and thoroughly compacted as required prior to successive lifts. Care shall be taken to prevent separation of granular materials during placement. Segregated materials shall be removed and replaced using methods calculated to reduce the separation of aggregates.

3.07 COMPACTION REQUIREMENTS

A. Compaction of roadway gravels shall be done with an approved vibratory roller, producing a dynamic force of at least 27,000 pounds in a 12-inch lift unless otherwise specified by the owner.

B. Compaction of roadway crushed ledge rock shall be done with an approved vibratory roller producing a dynamic force of 27,000 pounds in a 12-inch lift.

C. Rolling and shaping of successive roadway gravel base lifts shall be done parallel to roadway centerline and continue until each layer conforms to the required grade and cross-section.

D. For trench backfills, use methods that produce the required degree of compaction throughout the entire depth of material placed.

Remove or replace material that is too wet to compact to required density. Compaction of sand, gravel and stone aggregate shall be done with an approved vibratory roller or plate.

- E. Degree of Compaction shall be in accordance with the following minimum densities:

Fill and Backfill

<u>Location</u>	<u>Percentage of Max. Density</u>
Under Structure Foundations (i.e. Headwalls)	100%
Top 2 feet under pavement	95%
Below top 2 feet under pavement	95%
Trenches through unpaved areas	90%
Embankments	95%
Pipe Bedding	95%
Under pipes through structure walls	95%

- F. Material Density requirements shall be field determined in accordance with ASTM D1556/AASHTO T191 (Sand Cone) or ASTM D2922/AASHTO T238-239 (nuclear method). Maximum density shall be determined by ASTM D698/AASHTO T99, Standard Proctor.
- G. Frequency of testing shall be determined by the Contract Monitors based upon the Contractor's notification of completed areas. An independent laboratory will make tests. The recommended minimum number of test shall be in accordance with the following guidelines:
1. Roadway: 1 for every 100 linear feet of roadway.
 2. Highway trench (below pavement): 1 for every 200 linear feet of trench lift.

However, the Contract Monitors may modify these guidelines upon field conditions and observations.

- H. Material Density tests which indicate deficient material or the CONTRACTOR shall pay for insufficient compaction following a first failure.

The CONTRACTOR shall pay for density tests resulting from a materials change by the CONTRACTOR or repeated failures.

- I. Material that does not meet the minimum density requirements shall be reworked in accordance with the NHDOT Standard

Specifications or removed and replaced, at the Contractor's expense, with acceptable material.

3.08 DISPOSAL OF EXCESS MATERIAL

- A. Disposal of surplus materials shall be at the express direction of the Contract Monitors. Surplus excavated materials shall be stockpiled at an approved location.
 - 1. Unsuitable excavated materials such as boulders, rock, muck and fill contaminated with stumps, roots and organic debris shall be disposed of at the direction of the Contract Monitors.
 - 2. Disposal, stockpiling and re-use of excavated material shall be considered a cost incidental to Common Excavation.

3.09 MAINTENANCE

- A. Protect newly graded areas from traffic and erosion. Promptly regrade areas damaged by construction equipment. Keep free from trash and debris.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather scarify the surface, regrade and compact to the required density.

3.10 PROTECTION

- A. Guard rails, curbing, drainage grates, utility boxes, signs, mailboxes, shrubs and trees in the area of the Work shall be protected, either by guarding or temporary removal and replacement. If damage occurs, repairs shall be completed using materials equal to that existing prior to construction. Repair costs for damaged items shall be the responsibility of the CONTRACTOR.

Construction in the vicinity of utilities that endangers poles, pipes or conduits shall not proceed until the respective utility has been notified. Costs incurred as a result of the CONTRACTOR's negligence or failure to cooperate with a utility shall be borne solely by the CONTRACTOR.

Fees charged for holding of poles, temporary relocation of power, support or guarding shall be paid for by the CONTRACTOR.

REMOVING AND RESETTING OF CASTINGS

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. Removing all iron and steel castings- The contractor shall be responsible for locating and removing all metallic castings that are located within the street prior to reclaiming or cold planing any paved surface. Castings shall include but not be limited to all sewer manholes covers and their rings, drain manhole covers and their rings, catch basin grates and their support rings, and water valve gate boxes.
- B. Storing of Castings - Contractor shall be responsible for safeguarding the castings that are removed until they are reset. Any casting that is removed and becomes lost or stolen while removed shall be replaced by the contractor with a casting that meets the City's specification at no cost to the City.
- C. Resetting of Castings - Contractor shall be responsible for installing castings at the proper grade as directed below

1.02 QUALITY ASSURANCE

- A. Conform to all requirements of the City of Rochester as described in the City's Construction Standards or as directed by the City Engineer or his/her representative.
- B. The setting of all castings shall be reviewed by the City Engineer or his/her representative prior to commencement of paving operations.

1.03 SUBMITTALS

- A. The contractor shall submit a representation of the bricks that will be used to set the elevation of the castings to the City Engineer or his/her representative where necessary.

PART 2.00 PRODUCTS

2.01 MATERIALS

- A. Castings – All castings shall be removed, stored, and reset as described below, unless the owner specifies that any casting is to be replaced.

If a casting is to be replaced, the owner will furnish the castings and specify the location for where the new castings are to be installed. The contractor shall install castings that are stamped "sewer" on sewer manholes, "drain" on manholes that are part of a storm drain system.

- B. Grade Brick: Brick shall be solid, sound, hard, and have plain or smooth surfaces on both ends and on the face side, and be satisfactory to the City Engineer. Brick shall comply with A.S.T.M. Standard Specifications for Sewer Brick, Designation C32, for Grade SS, Hard Red Brick. Brick samples will be required for approval prior to incorporation in the work.

- C. Cement: Cement shall be straight Portland Cement, Type I, II, or a Type I/II. Lime mortar or Masonry cement is not to be used on structures.

- D. Sand: Sand shall be a washed masonry or concrete sand, and must conform to A.S.T.M. Designation C33 as follows:

Sieve Size	Percent Passing (by weight)
No. 8	100
No. 16	60 to 100
No. 50	15 to 35
No. 100	2 to 15
No. 200	0 to 5

PART 3.00 EXECUTION

3.01 EXECUTION

- A. Catch Basins:

- Catch basins shall be centered over the structure at an elevation that is not less than 1/8 of an inch and not more than 3/4" below finished

grade. Asphalt surface must be feathered so storm water flows preferentially into the structure.

2. If the structure is located next to a curb, the catch basin casting shall be set up against the curb with no gap between the face of the curb and the casting.
3. Where possible, 2 courses of brick are required under the structure frame, yet the adjusting course shall not exceed approximately one foot of brick - (normally 5 course maximum). Brick and Portland cement mix is the only masonry material to be used between the precast structure and the cast iron frame. The use of barrel blocks and concrete grade rings, or asphalt is not permitted. All frames, grates and covers shall be designed to handle H2O Loading.
4. If castings are set to be in an elevated condition overnight within a travel way, the exposed vertical area of the casting shall be painted on all sides with spray paint is it is visible to motorists traveling on the roadway. If the casting is elevated by more than 1", then traffic cones with retroreflective markings shall be placed on the side facing traffic. Under no circumstances shall a casting be elevated by more than 1 ¾ inches above the pavement overnight, unless protected on all sides by a barricade and there is a sign package that has been approved by the City Engineer that clearly warns motorists of the objects in the road.
5. Castings shall not remain in an elevated state in the road for more than two weeks.

B. Sewer and Drain Manholes

1. Manhole castings shall be centered over the structure at an elevation that shall not be higher than finished grade or more than 1/4" below finished grade.
2. Where possible, 2 courses of brick are required under the structure frame, yet the adjusting course shall not exceed approximately one foot of brick - (normally 5 course maximum). Brick and Portland cement mix is the only masonry material to be used between the precast structure and the cast iron frame. The use of barrel blocks and concrete grade rings, or asphalt is not permitted. All frames, grates and covers shall be designed to handle H2O Loading.
3. If castings are set to be in an elevated condition overnight within a travel way, the exposed vertical area of the casting shall be painted on all sides with spray paint is it is visible to motorists traveling on the

roadway. If the casting is elevated by more than 1", then traffic cones with retroreflective markings shall be placed on the side facing traffic. Under no circumstances shall a casting be elevated by more than 1 3/4 inches above the pavement overnight, unless protected on all sides by a barricade and there is a sign package that has been approved by the City Engineer that clearly warns motorists of the objects in the road.

4. Castings shall not remain in an elevated state in the road for more than two weeks.

C. Gate Valve Boxes:

1. Gate valve boxes shall be located and set to finished grade not sooner than the day before course of paving is to begin and shall be checked for proper adjustment before the asphalt mat is applied.
2. Gate valve boxes shall not be covered up with asphalt and shall be the responsibility of the contractor to remove any asphalt that covers them.
 3. The elevation of valve boxes shall not be higher than 1/8 inch below finished grade and not lower than 5/8 inch below finished grade.
4. If castings are set to be in an elevated condition overnight within a travel way, the exposed vertical area of the casting shall be painted on all sides with spray paint so it is visible to motorists traveling on the roadway.

D. Return of Replaced Castings:

1. All castings that are replaced shall be promptly returned by the contractor to the Department of Public Works Facility and dropped off in a location directed by the City Engineer or his/her representative for salvage.
2. All replaced castings shall remain the property of the City of Rochester. The contractor shall claim no rights to them.

EROSION CONTROL

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. Permanent erosion control shall consist of placing mulch or matting on surfaces prepared and seeded under other items, at locations directed by the Contract Monitors.
- B. Temporary erosion control shall consist of the use of haybales, or silt control fencing, as an erosion and pollution control device at locations directed by the Contract Monitors. When seeding is ordered, seed shown on control areas shall be of the type(s) specified in Section 3.01F.

1.02 QUALITY ASSURANCE

- A. Conform to all requirements of New Hampshire Department of Environmental Services permits.
- B. Verify prior to start of work, areas and requirements of erosion control and discuss with Contract Monitors / Owners.

Reference Standards for erosion control shall be Stormwater Management and Sediment Control Handbook for Developing Areas of New Hampshire, August 1992, USDA-Soil Conservation Service, Durham, New Hampshire, hereinafter called "Erosion Control Handbook".

1.03 SUBMITTALS

- A. Prepare and submit to the Owner / Contract Monitors for approval, erosion control program prior to construction start-up.

PART 2.00 PRODUCTS

2.01 MATERIALS

- A. Haybales for Erosion Control shall consist of rectangular-shaped bales of hay or straw weighing at least 40 pounds per bale. They shall be free from primary noxious weed seeds and rough or woody materials.

- B. Matting for Erosion Control shall consist of one of the following:
1. Jute mat of open weave averaging 130 pounds per 14,400-yard spindle or 1.22 pounds per linear foot of weave 48 average inches wide.
 2. Excelsior mat of wood excelsior, 35 inches minimum width, weighing 0.8 pounds per yard. Mat shall have netting attached to a single side to facilitate handling and to increase strength.
 3. Staples used as matting anchors shall be No. 11 (or heavier) plain iron wire, made from lengths of 12 inches each.
- D. Mulch shall consist of chopped or shredded stump grindings if the disturbed ditchlines are to weather over the winter prior to the establishment of seeded vegetation.
- E. Seeded areas shall be mulched with cured hay. When air-dried in the loose state, the contents of a representative bale shall lose not more than 15 percent of its resulting air-dry weight. It shall be free from weed seeds and foreign matter.
- F. Siltation fence, when required, shall be MIRAFI Environfence or approved equal. On particularly steep slopes or areas where there is a likelihood that a significant quantity of water may pass behind the siltation fence, the OWNER may require the siltation fence be reinforced on the downgradient side with chicken wire or similar wire meshed fabric acceptable to the OWNER's engineer.

PART 3.00 EXECUTION

3.01 EXECUTION

- A. Clearing:
1. Movement of woods clearing equipment should not be through running water.
 2. Equipment travel routes should be limited as much as possible to proposed roadway routes.
 3. Vehicle tracks leading to wetland areas shall be blocked against run-off and siltation by hay bale dikes or silt fencing.
 4. Organic waste and stumps shall not be buried within 100 feet of vegetated wetlands.

B. Grubbing and Stripping:

1. Stockpile excavated topsoil on-site for re-use.
2. Strip in a manner to prevent concentrated run-off. Install silt fence or hay bale dikes in an arc at run-off low-points.
3. Do not strip toward wetland areas. Work materials uphill to designated stockpile areas away from wetlands.
4. Create earth berms, dikes or silt fencing between stockpile and wetlands areas. Direct run-off to silt retention areas and treatment swales as shown on the Drawings.

C. Grading to Subgrade:

1. Complete subgrade as soon after cutting and filling as possible.
2. Grade subgrade to shed water away from wetlands areas.
3. Create temporary dikes and silt fence areas if heavy rain is expected or experienced.

D. Maintenance of Disturbed Areas:

1. Divert run-off from disturbed side slopes in cuts and fills.
2. Mulch for temporary stabilization.
3. Install, inspect and maintain erosion control fencing to trap products of erosion.
4. Use hay mulch, matting and seeding for temporary erosion control.

E. Completion of Roadways:

1. During completion of roadway gravel fine grading or pavement placement stormwater drainage entrances shall be closed when rain is threatening. Direct resulting run-off to maximize collection of sediment.
2. Direct run-off appropriately until vegetation or riprap is in-place at drainage swales.

F. Stabilization of Surface - Temporary (if applicable):

1. Stabilize surfaces with vegetation or riprap.
2. Make every effort to seed during optimum growing periods.
3. Seed: Soil conservation mix composed of 20 pounds per acre of Tall Fescue; 20 pounds per acre of Creeping Red Fescue; 2 pounds per acre of Red Top or other acceptable seeding mixture shown on the Drawings.
4. Application Rate: 42 pounds per acre (.95 pounds per 1,000 square feet) or the acceptable application rate shown on the Drawings.
5. Lime: Calcitic or dolomitic limestone applied at a rate of 2 tons per acre (100 pounds per 1,000 square feet), if deemed necessary by the ENGINEER.
6. Fertilizer: 10-20-20 applied at a rate of 300 pounds per acre (7 pounds per 1,000 square feet).

G. Stabilization of Surface - Permanent:

See Section 02831 - Restoration of Growth.

H. Seeding shall be applied by broadcast or hydro-seeding method.

1. Mulch all seeded areas within 48 hours of application. Hay properly fluffed may be applied at approximately, but not in excess of, 3 tons per acre.
2. Matings, when installed on slopes, shall be installed in accordance with Section 644.3 of New Hampshire Department of Transportation Standard Specifications for Bridge and Highway Construction.

3.02 REMOVAL OF TEMPORARY EROSION CONTROL

- A. Remove temporary hay bale, silt fence and berms once permanent soil stabilization has taken place.
- B. Remove unsuitable sediment and silt materials from the site and dispose of in a suitable manner.

END OF SECTION

RESTORATION OF GROWTH

PART 1.00 GENERAL

1.01 DESCRIPTION OF WORK

- A. Provide restoration of growth in areas cleared for Work.
- B. Repair grassed areas disturbed during the Work.

1.02 RELATED WORK:

- A. Erosion Control - Section 02205.

1.03 QUALITY CONTROL AND STANDARDS

- A. Standard products used shall bear the manufacturer's certified analysis. For other materials, provide an analysis by a recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists.
- B. Reference Standard for Work shall be New Hampshire Department of Transportation Standard Specifications for Road and Bridge Construction.

1.04 SUBMITTALS

- A. Certification of seed and fertilizer manufacturer's guaranteed analysis of materials shall be submitted in advance of starting the Work of this section.
- B. Seed analysis shall cite botanical and common names of each seed of the mixture required.
- C. Samples of loam to be used from on-site stockpile shall be submitted.

1.05 DELIVERING, STORAGE AND HANDLING

- A. Grass seed shall be delivered in original containers showing analysis, percentage of pure seed, year of production, net weight, germination rate and location of packaging.

- B. Seeding of restored areas shall be done between April 1 and June 1, and August 15 and October 21.

PART 2.00 PRODUCTS

2.01 TOPSOIL

- A. Use stockpiled topsoil from on-site areas as specified in Section 02205. When stockpiled topsoil is deficient or of insufficient quantity, provide additional topsoil as required.
- B. New topsoil shall be loose, friable material without refuse or chemicals toxic to growth. Loam shall be free of stones, lumps, stumps, roots or objects greater than two (2") inches in diameter.
- C. Topsoil shall be obtained from approved local sources. Loam obtained from bogs or wet areas shall be unacceptable.

2.02 SOIL AMENDMENTS

- A. Lime shall be calcitic or dolomitic ground agricultural limestone containing not less than 95 percent of either calcium or magnesium carbonate, or both.
 - 1. Sieve analysis shall show a minimum of 40 percent passing a No. 100 sieve; 95 percent passing a No. 8 sieve.
- B. Fertilizer shall be 10-20-20 commercial grade supplied in labeled containers.

2.03 GRASS MATERIALS (NHDOT PARK SEED TYPE 15 MIX)

- A. Grass seed shall be fresh, clean, new-crop seed and shall meet the provisions of the New Hampshire Agricultural and Vegetable Seeds Law. Seed specified in this section shall meet the following analysis:

	<u>LBS/ACRE</u>
Creeping Red Fescue (38%)	30
Perennial Rye Grass (25%)	20
Red Top (6%)	5
Kentucky Bluegrass (31%)	25

 80 lbs/acre

2.04 GRASS MATERIALS (NHDOT SLOPE SEED TYPE 44 MIX)

- A. Grass seed shall be fresh, clean, new-crop seed and shall meet the provisions of the New Hampshire Agricultural and Vegetable Seeds law. Seed specified in this section shall meet the following analysis:

	<u>LBS/ACRE</u>
Creeping Red Fescue (42%)	25
Perennial Rye Grass (33%)	20
Red Top (8%)	5
Alsike Clover (8%)	5
Birdfoot Trefoil (8%)	5
Other (1%)	0
	<hr/>
	60 lbs/acre

2.05 OTHER GRASS MATERIAL REQUIREMENTS

- A. All grass seed shall be fresh, clean, new crop seed and shall meet the provisions of the New Hampshire Agricultural and Vegetable Seeds Law. Other seed mixtures and application rates may be utilized as recommended by USDA - Natural Resources Conservation Service, but only upon written approval from the Contract Monitors.

PART 3.00 EXECUTION

3.01 PREPARATION

- A. All areas to be seeded shall be graded uniformly. Foreign matter, plants, roots, stones and debris shall be removed from subgrade.
- B. Topsoil shall be applied to a minimum depth of 4". Lime and fertilizer shall be worked into the soil by raking, harrowing or dragging with a chain mat.
1. Lime shall be applied at a rate not to exceed 2 tons per acre, but generally at the direction of the Contract Monitors.
 2. Fertilizer shall be applied at a minimum rate of 12 pounds per 1000 square feet.

3. Seed shall be applied at the recommended application rates shown.
- C. Seed shall be applied only after 24 hours have elapsed from the time of lime application and worked into the top three (3") inches of topsoil.
- D. Loamed areas shall be raked, rolled, and mulched as soon as possible.
- E. Hydro-seeded areas shall be done in accordance with Section 644 of the New Hampshire Standard Specifications.

3.02 LAWN MAINTENANCE

- A. Maintain and establish lawns by watering, fertilizing, weeding, replanting and other operations as necessary. Roll, regrade and replant bare or eroded areas and mulch to provide uniformly smooth lawn. Maintain temporary protection fences as necessary to establish lawns.
- B. Watering: Water lawns as needed. The CONTRACTOR shall contact the OWNER to review water source(s) availability and coordinate access to those source(s).
- C. The initial mowing and trimming shall be performed by the CONTRACTOR as soon as there is enough top growth to cut with a mower set a 3" high.
- D. Post fertilizer: Apply fertilizer to lawn after first mowing and when grass is dry, as necessary.

3.03 INSPECTION AND ACCEPTANCE

- A. Restoration of growth may be accepted in parts agreeable to the Contract Monitors, provided the Work offered is complete, including maintenance. To be acceptable, a stand of grass shall show a reasonably thick, uniform stand free from sizeable areas of thin or bare spots.

3.04 WARRANTY

- A. The CONTRACTOR shall provide a one (1) year warranty for all restoration of growth after the date of Substantial Completion. The warranty shall provide a guarantee for the restoration area against defects including death and unsatisfactory growth, except for

defects resulting from lack of adequate maintenance, neglect, or abuse by the OWNER or abutting individual landowners, abnormal weather conditions unusual for warranty period, or incidents that are beyond the Contractor's control.

END OF SECTION